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Chapter One

Introduction

Introduction

COVID-19 has been the single most notable and impactful pandemic since the Spanish flu with it claiming millions of victims across the globe and causing severe supply chain and operations challenges for organizations and states. In response to this pandemic and the immense impact of it on its healthcare system, the Kingdom of Saudi Arabia has been prompt to respond to it with it implementing various measures to overcome said challenges. With a population of thirty-five million individuals spread across two million square kilometres of land, the state was severely threatened by the pandemic. Its response to it was primarily focused around experience with prior outbreaks and epidemics. This involved a key focus on research and development, strict entry prevention measures, monitoring all civilian inflows and outflows, suspending international flights, and various precautionary measures. It was during this time that contract tracing played a key role in addressing the possible spread of the virus as well as in delivering healthcare to citizens and spreading health awareness messaging. To this end, the current work had focused on evaluating the manner in which the Health Ministry of the KSA, from a risk management perspective, had responded to the pandemic, its success, and its failings therein. As it stands, the rapid growth in the state's population has led to a notable increase in demand for healthcare services with cardiovascular diseases and diabetes being the most notable diseases impacting the healthcare system on a regular basis (Parveen, 2020). Additionally, the state's rural regions have relatively less so healthcare facilities as compared to its more so urban areas.

Background

During the outbreak of the pandemic, the WHO had been active in providing guidance and advice to states across the globe so as to contain its spread. These measures involved recommending that mass gatherings be postponed, plans for healthcare facilities to meet

increased demand, public awareness efforts to increase awareness about the disease, infection control and prevention efforts, and active surveillance measures (Alshehri, et al., 2020; Jaziri & Miralam, 2021). In this regard, governments were uniquely positioned as national risk management leaders in terms of ensuring consistent and continual communication and coordination. Conversely, a strategic response to the pandemic, on a global scale, was highly varied, especially in terms of operational readiness, response, and prevention as healthcare systems, on this scale, were pressured in different ways and to different extents (Balay-Odao, et al., 2021). As it stands, the KSA is one of the largest states within the Arabian Peninsula with its healthcare system being one that offers free care to all civilians through nearly five hundred hospitals and more than a hundred and thirteen thousand physicians (AlHadi & Alhuwaydi, 2023). Additionally, during the course of the pandemic, trends within the region had varied considerably in terms of hospitalizations, deaths, transmission of the virus, and the number of overall reported cases. These dissimilarities between states in the region may have been due to the differences in the preparedness of the healthcare sector, risk factor to population proportion, extent of mass gathering restrictions, and implementation of early precautions. To conduct a nation-wide response and strategic plan to mitigate the pandemic, the WHO had provided the state with operational planning guidelines between 2019 and 2020 with these guidelines being based on nine key aspects. These had included and focused on:

- Maintaining key health systems and services
- Logistics and operational support
- Case management
- Infection control and prevention
- National laboratories
- International transportation
- Case investigation and surveillance

- Community engagement and risk communication
- And nationwide monitoring, planning, and coordination.

In this context, the state had created a national committee to respond to the pandemic with the goal of organizing all of its sectors to take active action. It was the Health Minister who was in charge of this committee with the NCCC (National Command and Control Centre) being used to monitor regional as well as national and international activities and take active action (Aruta, et al., 2023). It was during this time that the state had also taken active measures as a means of limiting the virus's spread whilst also aiding the healthcare industry with requirements and resources, improving port procedures, repatriating foreign-staying citizens, and managing confirmed cases (Alflayyeh, Haseebullah & Belhaj, 2020; Islam & Alharthi, 2022). Additionally, during the early stages of the pandemic, the state had abided by the CDC's guidance and made use of their risk assessment instruments in order to issue appropriate responses.

Risk Management

Given the increase in risks to which organizations were susceptible, as well as their variety, the concept of risk management emerged in the mid-1950s in the United States, in response to the growing risks involving companies (Hassounah, Raheel & Alhefzi, 2020). Risk management began in industries and military organizations, given the need to anticipate possible adversities to which they could be exposed, from its origin to the emergence of a more organized and structured format used today, which consists of: the process of identifying and assessing risks as well as considering the effect of uncertainty related to them, the mechanism of strategies outlined to face the problem that include aspects of prevention and control and the possibility of minimizing the impact. The execution of activities related to risk management has characteristics based on anticipating action, avoiding or resolving future situations and

problems, where strategies are sought to face risks. Thus, risk is considered to be the effect of uncertainties in relation to the defined objectives. It consists of the probability that something unexpected will occur, which could be detrimental to the achievement of goals, associated with the impact of the event on the expected objectives.

It can be inferred that managing risks means establishing the treatment and correction of potential factors related to risks, after the identification process, considering whether or not they may have occurred. Reviewing the standards, types of procedures, conduct taken, and the most diverse situations existing in the work process in which some type of damage may be caused, is of utmost importance in the risk management process. In healthcare, risk management was established approximately 30 years ago, also in the USA, due to the growing development regarding the evolution of the level of complexity of hospitals and other healthcare institutions, with the objective of protecting healthcare organizations against possible damage. Risk management consists of identifying, evaluating, analyzing and treating risks and incidents, at all levels of complexity inherent to organizations, as well as combining the results found at corporate levels, in order to facilitate the definition of properties and improvement in decision-making, aiming to achieve risk reduction, costs and benefits.

Risk management provides a reflection on the work format developed by organizations that are constantly subject to levels of stress, uncertainty about their objectives and that need agility in decision-making, in order to ultimately enable the offering of collective proposals that allow for prevention and correction. It is a prescriptive reference, so that not only do things go according to plan, but it also allows for a change in the way risks are viewed and serves as a structure to mitigate future situations and losses. Considering an attitude of anticipation and prevention to improve the quality of management. To address risks and increase the chance of achieving objectives, organizations use informal approaches to highly organized and structured

risk management approaches, according to each specificity, such as the use of frameworks, with tools and general rules that organizations must follow to manage risks. In this context, The Orange Book - Management of Risk - Principles and Concepts 1, produced and published by the British HM Treasury, was the main reference for the UK government's risk management program, which began in 2001. The main advantages of this model are its simplicity and comprehensiveness and its compatibility with international risk management standards. Among the most well-known and recommended frameworks worldwide, we also have the Internal Control - Integrated Framework (COSO I) guide, which was published in 1992 by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). It established the risk management plan, organized and based on the corporation, also presenting a set of principles related to good risk practices regarding internal control. Currently, there are also other more recent frameworks such as: PM Book, Risk It, among others, developed according to the specificities of organizations.

Identifying, analysing and evaluating risks, as well as selecting and implementing responses to the assessed risks and subsequently monitoring risks and controls and communicating about risks with internal and external stakeholders make up the parts of the risk management process. Always aiming to improve the quality of services provided by organizations. The risk identification process seeks to recognize and describe risks, based on establishing the context and relating to communication, one of the most important aspects regarding risk management, a step that is carried out with both internal and external stakeholders in the project. The purpose of risk analysis and assessment is to assist in decision-making based on the results of the identification, thus also serving as a basis for establishing priority in risk treatment. It provides a comparison between the level and the established risk criteria, after carrying out a criticality analysis of the risks, considering their probability and impact. It is a process that precedes the communication and consultation stages as well as the

monitoring stage of risk management. Risk management involves establishing options to change the level of risk by outlining strategies for executing pre-established plans. Once implemented, these plans will undergo a monitoring process and may be controlled or modified at this stage. When it comes to managing risks, managers may have different attitudes towards the same risk, from their ability to avoid, mitigate or enhance its occurrence to reducing or tolerating its impact or even transferring the risks. ISO standards were not created specifically for the healthcare sector and have needed to be adapted over time, especially given the constant organizational evolution of the healthcare sector. However, in this context, they can be of immeasurable value in the process of managing healthcare services, from processes involving patient safety and improving the quality of care to processes involving monitoring and evaluation in healthcare and audits related to the financial side of the institution, among other factors that may be discovered when implementing the risk management process.

We must highlight the concept of governance interposed in risk management, which aims at transparency in the way services are managed. In the healthcare sector, it should be no different. The institution has been gradually evolving in this regard, both in the process linked to healthcare regulation and in the billing of services. Governance is a fundamental step for good management. It is not a separate activity from the others, but rather part of the entire process. Justified by the importance of managing risks in healthcare services, other measures have been taken by renowned institutions across the globe in order to make use of risk management as a means of addressing the challenges that they face. In the publication “Safe Practices for Better Health Care” (Kizer & Blum, 2005), Risk Identification and Reduction is among the thirty-four good practices for patient safety and is related to the culture of safety and prevention of injuries in the healthcare sector, as well as its use in other contexts. Risk management in healthcare aims to prevent and correct any situation that deviates from pre-established parameters, in order to ensure the improvement of the quality of the services

provided, influencing the financial aspect and sustainability, thus ensuring a good service provided. In view of the above, it is worth highlighting that there is an increasing need to increase the improvement in the processes of services developed in healthcare services and the need to monitor the evolution of organizations, bringing management as a way of seeking to improve services, with a focus on the person assisted in the healthcare system.

Hospital Care

Historically, hospitals have undergone several conceptual changes, the most recent form as we know it is relatively new. In ancient times, hospitals aimed to serve and support financially deprived people, often sick and homeless. The term hospital referred to inns, hostels or even guesthouses, they were not necessarily medical institutions, they were religious institutions. In the period between the end of the 19th century and the beginning of the 20th century, there was a great technological evolution and the advent of scientific medicine. During this period, there was a great change in the function of hospitals, which ceased to be a place where poor and sick people were left to die, becoming an institution with the objective of caring for and providing treatment for a wide range of illnesses, with an adequate structure to provide the necessary support in relation to medical care for society, seeking to be as decisive as possible in relation to the health problems of the community. For Shalhoub & Hammad (2021), nowadays, the objectives as well as the functions of hospital organizations are based on the focus on the user, that is, on the care of the person assisted in the health system, considering as their main function the provision of adequate and better quality services at all levels of care, providing services to sick people, enabling professional training, supporting research and carrying out preventive and curative medicine.

Park (2022) refer to hospital modernization, highlighting some characteristics and functions performed today, namely: prevention, which is characterized as a set of actions

carried out with the aim of preventing diseases from affecting the population with strategies based on minimizing exposure to risks; restoration as a form of requisition and repair of any damage suffered; rehabilitation as a suggestion for therapeutic purposes and teaching and research that portrays the expansion of knowledge in health, as well as the preparation and excellence of future professionals in order to improve the quality of the services offered. Alasmari, et al., (2021) present a definition that demonstrates that hospitals must have adequate infrastructure and professionals trained to perform health-related services, with the aim of diagnosing and treating people who need care at their level of attention. Thus, improved management can enable advancement in the quality of services offered through risk reduction. It is extremely important that hospitals establish an innovative relationship with an organizational format based on network communication, whether they are public hospitals or private organizations, so that they can achieve their goals and objectives, maintaining a relationship of mutuality with such an atmosphere (Shishah & Alhelaly, 2021). The implementation of the current hospital care model is justified by the need to respond to the demands of the care and management process, with the aim of improving the quality of services provided in the hospital environment, which can also be considered today as a company providing services and health care.

Nurunnabi (2020) explain the need for hospitals to frequently adapt to a new model, with the aim of not only providing better quality care, which is seen in the evolution of hotels in the hospital environment. In this way, the closed view regarding their structure is abandoned. With regard to institutions with high complexity in terms of management, hospital institutions are among the first. The difficulty of managing a hospital organization is due to the number of services involved. Thus, it is natural that such services should gradually be accompanied by standards, laws, regulations and ordinances, originating from various agencies and monitored more and more closely. In the current scenario, it is said that institutions are gradually

apprehensive regarding the management and organization format. Therefore, health institutions stand out in this aspect, due to the constant need to improve the quality of services provided and the demand of the population assisted in relation to the care and humanized care of services in the health system. Therefore, managing a health institution has not been an easy task for managers, who constantly need to think of strategies to deal with the most diverse problems.

Concepts of Crisis

The term “crisis” comes from the Greek, *krisis*. It meant conflict, dispute, separation, decision, judgment, sentence. We can say that, “from a social point of view and especially from an internal or international political point of view, the most abstract concept is the one that identifies the crisis as the crucial point of a process that marks the eventual transition from peace to war or from war to peace, from dialogue to combat, from life to death” (Addawood, et al., 2020). Crisis means “something in danger, under attack, in transformation (...), it indicates situations in which political agents or structures undergo radical changes” (Algahtani, et al., 2021). For Alessa, et al., (2021), an incident is a localized and smaller disorder. The concept of crisis – systemic or specific – should be reserved for larger events, that is, those that require special attention from political leaders, managers, military and police commanders and that have the potential to cause serious impacts on society, organizational activity and its stakeholders. According to Alflayyeh, Haseebullah & Belhaj (2020), a crisis can either be embodied in a single event or it can derive from a “series of interactive and cascading events”, that is, it can originate in a specific, unexpected and non-routine event or in a series of events. Both situations create high levels of uncertainty and represent a significant threat to states or organizations.

In times of crisis, delicate situations arise where it is necessary, on the one hand, to safeguard order and social peace, and on the other, not to fall into excesses resulting from those

who hold power, being essential to maintain the balance necessary for the stability of the State and its society (Islam & Alharthi, 2022). In general, a crisis corresponds to a change or alteration in a scenario that was previously in balance and which becomes a problematic, unstable situation, caused by one or more factors, “it designates a dangerous phase or situation, from which something beneficial or harmful may result for the individual or for the community that goes through that situation” (Boshnak, Alsharif & Alharthi, 2023). The concept of crisis is polyhedral, and can be integrated into more than one theoretical or conceptual framework, depending on the purpose and the domain in which it develops. Depending on the object of analysis, one can speak of a humanitarian, health, diplomatic, economic-financial, social, political, security, environmental, military, energy, justice system or values crisis. In many cases, crises are multidimensional and transversal, and cannot be characterized as having a merely political, social or economic aspect.

From another perspective, they are difficult to categorize as internal or external crises or as crises in the military, security or safety areas. In the “liquid reality” (Parveen, 2020), in a globalized and networked world, crises can more easily spread their effects to different latitudes and almost immediately. Boshnak, Alsharif & Alharthi (2023) consider it pertinent to divide crises into unpredictable and predictable situations, stating that unpredictable situations are those, such as natural disasters, accidents or sabotage, which cause more damage due to their imponderability, while predictable ones result from actions that are already known from the outset, and in a certain way there may be prior preparation to face the crisis that will arise, as is the case of some economic crises that affect countries or institutions. NATO officially considers that there may be “political, military or humanitarian crises, which may be caused by armed or political conflicts, technological incidents or natural disasters”. However, in order to deal with a crisis, an “assessment of the nature, scale and severity of the crisis” is necessary.

Crisis management should not be just a response to the crisis(es). It is an integrated process that encompasses the ongoing activity of assessing threats and managing concrete and potential risks, developing institutional capacities and skills of leaders, the various sectors of society and professional groups to face these threats, manage risks, reduce vulnerabilities, and thus seek to reduce the opportunities for threats to materialize. It should include risk and vulnerability analysis, impact studies of potential crises, signal detection systems, barometers/sensors of signs of disorder or crisis and contingency plans. Crisis diagnosis advocates the identification and categorization of phenomena triggered by an event or a succession of critical events, the identification and characterization of partners, stakeholders, adversaries and audiences, the selection and preparation of the crisis response strategy and the different operational and tactical variables and the activation of the response system. Crisis management should also include responding to phenomena that disrupt the balance of societies and organizations, post-crisis audits, recovery and learning, with a view to consolidating learning and institutional memory within the community, thus feeding back into the system. For Nurunnabi (2021), crisis management is a process that can be divided into pre-crisis, crisis and post-crisis phases. The pre-crisis phase consists of prevention and preparation; the crisis response phase is when there is a reaction, a response to the manifestations of the crisis; and, finally, in the post-crisis phase, the aim is to draw lessons for future situations (lessons learned) and establish monitoring/monitoring mechanisms so that the State, institutions and civil society can reestablish themselves, in order to prevent future occurrences.

Study Problem

As it stands, the primary challenges that the Health Ministry of the KSA had faced with regard to the pandemic took the form of a lack thereof standardized practices, attitudes, and knowledge, resource management and distribution, public awareness and compliance, large

gatherings, and efforts toward conducting vaccination campaigns. In particular, as a new virus, COVID-19 presented an unprecedented challenge for the state's healthcare system with initial efforts focused on limiting the amount of people in the state by way of travel regulations. This was then followed by managing and distributing essential resources so as to overcome the increased burden that the healthcare system had faced during this time. Primarily, the focus was to ensure that healthcare workers had a sufficient amount of resources available to them as well as that the infrastructure in place could support the increased inflow of sick individuals needing urgent and effective care. As a state known for its position in the Muslim world, especially with regard to Umrah and Hajj, the KSA had faced unique challenges in terms of implementing and planning for safety and health measures for not only locals but also for individuals coming from other states for religious purposes. However, the overall challenges that the Ministry had then faced as well as the role of risk management in terms of effectively overcoming these challenges remains somewhat unclear and under-investigated. To this end, the current work had focused on evaluating the subject matter in a holistic manner so as to present not only the perspectives of real world healthcare workers regarding the pandemic and the risk management efforts that they had undertaken, but also with regard to the secondary literature on the matter by way of statistical insight, analytical insight, and through presenting an overall comprehensive academic overview of the domains risk management, governance, and crisis management.

The Importance of the Study

During the pandemic, strong risk management was regarded as being crucial toward ensuring that the impact of and challenges presented by the pandemic could be overcome. Government agencies and institutions were able to, through effective risk anticipation, identification, and mitigation efforts, mitigate a more so devastating impact from the pandemic

on society, the economy, and everyday life. To this end, the current work then explores an area of research that is often neglected by the larger academic world, but rather remains a prominent aspect on the world state, nonetheless. Additionally, the findings of the current work are not only useful in understanding how risk management efforts had taken place and the role of such, but also offer insight for similar circumstances in the future. Accordingly, then, the current work offers insight as to how the Health Ministry of the KSA went about addressing the challenges presented by the pandemic as well as its role in terms of formulating risk management strategies and public awareness campaigns alongside its focus on effectively communicating with its stakeholders. Through such, the current work then offers a holistic assessment regarding the matter with insight from various participants from the Ministry as well as its stakeholders combined with insight from the secondary literature on the matter. The work is, however, limited to the KSA and thus further assessments regarding the matter would need to make use of the findings herein by extending them to a context larger than the one of the current.

Objectives of the Study

The primary objective of the current work was to conduct an assessment of the risk management efforts undertaken by the Health Ministry of the KSA. To this end, the work had focused on the following research objectives:

- Identify the risk management challenges that the Health Ministry faced during the pandemic.
- Evaluate the manner in which risks were managed and mitigated by the Ministry.
- Assess the outcomes of the risk management efforts of the Ministry of Health.

Study Questions

The current work was conducted in order to answer the following research questions:

- What were the main risks identified by the Ministry of Health during the pandemic?
- How have these risks been managed and mitigated?
- What are the results of these risk management strategies?
- How have these strategies impacted public health and safety?

Study Assignments

Accordingly, the current work was guided by the following hypotheses and had attempted to either prove or disprove these:

H1: The use of ICT had effectively improved risk management outcomes for the Ministry of Health during the pandemic.

H1a: The use of ICT had hindered risk management outcomes for the Ministry of Health during the pandemic.

H1n: The use of ICT did not have a notable impact on the risk management outcomes for the Ministry of Health during the pandemic.

H2: A strong organization-wide risk management culture actively adds to the risk management competence of institutions.

H2a: A strong organization-wide risk management culture ends up harming the risk management competence of institutions.

H2n: Organization-wide risk management culture does not impact risk management competence.

H3: Providing workers with effective risk management training aids in ensuring improved decision-making outcomes.

H3a: Providing workers with effective risk management training does not lead to improvements in real-world decision-making outcomes.

H3n: Providing workers with risk management training does not have any impact on their real-world decision-making.

H4: The Ministry of Health was able to effectively communicate with its stakeholder so as to improve risk management during the pandemic.

H4a: The Ministry of Health was not able to effectively communicate with its stakeholder regarding risk management efforts during the pandemic.

H4n: Communication did not play a significant role for the Ministry of Health in engaging stakeholders during the pandemic.

The Scientific Theory Used to Prepare the Research

Since the 1990s, there have been important movements within the scientific community and international organizations to reduce disasters and health emergencies. These movements have resulted in an increasing convergence between the themes related to disasters originating from threats/hazards of natural and/or technological origin and those related to public health emergencies (PHEs) originating from threats/hazards of biological origin. It was in this context that the WHO published, at the end of 2019, the document “Framework for disaster risk

management and health emergencies” (WHO, 2019). This document has as an important reference the Sendai Framework for Disaster Risk Reduction (UNDRR, 2015), which together with the Sustainable Development Goals and the Paris Agreement constitute the post-2015 reference frameworks and focus on policies, measures and actions to reduce crisis situations, whether of climate, humanitarian, disaster or ESP origin. Particularly the Sendai Framework, in 2015, and the WHO document, in 2019, reflect a change in perspective, seeking to prioritize a more active, preventive and prospective risk management and less reactive and focused on reducing impacts and damages with strategies that prioritize the response.

The convergence of the agendas related to disasters and ESPs combines the multiplicity of processes, from the prevention of disaster risks and ESPs to those involving preparation, early warning, responses and the processes of rehabilitation, recovery and reconstruction of living and health conditions. It is in the convergence of these agendas that we seek to address the COVID-19 pandemic within the conceptual framework of disasters, by understanding some fundamental characteristics. First, this pandemic combines four important elements: 1) a new virus, Sars-Cov-2, as a threat; 2) the exposure of the population in different life and work situations to a new virus; 3) the conditions of vulnerability of certain social groups due to age (elderly), comorbidities (diabetics, hypertensives, heart failure, kidney failure or chronic respiratory disease) or precarious living conditions and social protection (work, income, health and education, housing and sanitation, among others) mainly affecting the poorest; 4) capacities for responses and reduction of risks and damage to the health of the population, which involves, among other aspects, the health infrastructure. Second, it combines social, economic, health and political impacts that alter the routine of a society or even crises, as well as overwhelm the response capacities, including those of the health systems, municipalities, states or countries affected. Disaster risk management encompasses a set of interconnected steps and processes, such as prevention and mitigation, preparedness and response,

rehabilitation, recovery and reconstruction, with combined measures for each of the elements that make up the disaster. This means that, in addition to focusing on reactive management, which characterizes the response management phase, risk management must be combined with corrective management of cyclical and structural problems and prospective risk management, which involves a set of measures and actions that anticipate and prevent the development of new risk factors to address future PHEs.

Chapter Two

Previous studies

Introduction

In consideration of the mass spread of the pandemic, it was impossible to eliminate a threat such as the Sars-Cov-2 virus and until herd immunity was achieved through a vaccine and combined measures had to be taken:

- 1) To reduce exposure (physical and social distancing measures) for everyone, especially vulnerable population groups due to age or chronic diseases;
- 2) To reduce the social vulnerability of populations with more precarious living and working conditions and without access to social protection;
- 3) To strengthen response and risk reduction capabilities within the health sector – from Primary Health Care (PHC) to hospital care – as well as health detection and surveillance capabilities, and outside the health sector (Abolfotouh, et al., (2020).

These combinations involve measures related to corrective management (reduction of existing risks), prospective risk management (reduction of future risks) and health promotion, protection and recovery. Thus, one of the major challenges of risk management for institutions such as the Health Ministry was to ensure that a set of emergency response actions were implemented in a coordinated and articulated manner, intersectorally and considering the fundamental stages and processes, breaking the sectorized logic of action and promoting horizontal articulation between the different sectors and social actors involved. This means that the measures adopted in the response to a pandemic or disaster must involve not only actions to stop exposure to the virus and, therefore, reduce immediate risks, but also the ability to reduce the risks of future pandemics and disasters, which are related to the processes of rehabilitation, recovery and reconstruction of living and health conditions in the post-pandemic period. From this perspective, understanding the initial measures adopted is essential to understanding the scope and limits of the form of response adopted.

Definition of Risk

Usually, risk is associated with something that has a negative outcome rather than a positive one, which Aruta, et al., (2023) express by defining risk as a possibility of negative development or negative result. Risk is defined based on two aspects; probability and consequence, where actors refer to risk by talking about the probability of an event occurring or the consequences of an event occurring (Balay-Odao, et al., 2021). Consequently, these consequences can be positive, negative or both for an organization (Bazaid, et al., 2020). The definition of risk can be illustrated by the function; $\text{Probability} \times \text{Consequence} = \text{Risk}$. For example, a risk can have a small probability of occurring with large negative/positive consequences at the same time as a risk can have a high probability of occurring with small positive/negative consequences (Boshnak, Alsharif & Alharthi, 2023). The definition of risk is therefore the probability of a risk occurring in relation to the extent of the consequences for an organization which can simultaneously assume a positive versus negative character or both.

Elhessewi, et al., (2021) describe how events with negative consequences represent risks that can prevent value creation and degrade existing value, of which events with positive consequences can eliminate a negative risk or represent an advantageous opportunity. Abolfotouh, et al., (2021) describe how organizations face a range of different risks that may affect the outcome of the business in different ways. Occurring events can create new opportunities at the same time that they can inhibit the organization from achieving its goals. Abolfotouh, et al., (2020) describe dangerous risks as those risks that inhibit an organization from achieving its goals because these have only a negative outcome. Furthermore, there are control risks that are associated with a lot of uncertainty in such a way that they are difficult to quantify. Organizations can deliberately take risks with the aim of obtaining a positive return, these risks are called speculative or opportunity risks. There are additional aspects of

speculative risk to consider as there is a risk in taking an opportunity and a risk in not taking one. Finally, there are compliance risks, which include risks regarding laws and regulations that organizations should comply with.

Defining Risk Management

Hashim, et al., (2021) explain that the concept of governance includes the various types of conscious actions that aim to reach specific and set goals for a business. The definition of governance can vary depending on the goals these measures aim at (Hassounah, Raheel & Alhefzi, 2020). If the goals are characterized by accounting, the management is usually called financial management and refers to the measures that are the basis for, for example, planning, internal controls, performance measurement, follow-up (Addawood, et al., 2020; Adly, et al., 2020). Financial management refers to a collection of methods while financial management systems refer to the systematic use of these methods (Al Ammari, et al., 2021). Al Sulais, Mosli & AlAmeel (2020) explain that if the goals refer to the entire operation by, for example, using resources as efficiently as possible, the control is usually called operational control. Business management thus refers to the measures that are carried out at all levels in a company to achieve a certain business result (Alanazi, et al., 2021). Alasmari, et al., (2021) explain how corporate governance refers to the actions that set the direction of where the company is going through goals that affect both internal and external actors. Corporate governance thus concerns the control, direction and management that takes place by owners, boards, legislation and other mechanisms (Alessa, et al., 2021). Thus, different definitions of governance are highlighted depending on the type of conscious actions aimed at reaching set goals.

Furthermore, AlFattani, et al., (2021) define risk management as the conscious measures that aim to encourage a risk-aware culture as well as support and monitor the risk management system in an organization. Alflayyeh, Haseebullah & Belhaj (2020) describe how

risk is a fairly invisible concept in management and which in recent years is only discussed as a single issue among specific positions. Algahtani, et al., (2021) describe how a connection between governance and strategy promotes the implementation of strategies and the realization of strategic goals. This by reducing uncertainties and risks that result in an improved company performance (Algaissi, et al., 2020). Alghamdi, et al., (2021) argue for a dynamic and integrated risk management that is closely linked to the strategy and thus mediated through governance. What determines whether an organization succeeds in its risk management is thus how control is conveyed to everyone in the organization.

AlHadi & Alhuwaydi (2023) describe how all companies face uncertainties that they can only influence to some extent. How companies choose to relate to uncertainty differs, after which the core of risk management is about preparedness. Businesses must act proactively to act when dangers and threats arise but also to take advantage of opportunities as they arise. Once companies have established a strategy to achieve their goals, there are events that can affect the company from achieving its goals. This requires preparedness that makes it possible to adjust and protect the organization's value. To be prepared in these situations, risk awareness is required (Al-Hanawi, et al., 2020). It is in this context that governance becomes relevant in the matter; "How do you get employees and managers in an organization to take the right amount of risk?" (Alhassan & AlDossary, 2021). This requires that there is clarity around risk-taking and a management that shows the direction.

Risk Management

Supply chain strategies require deeper knowledge to manage external events (Al-Khalifa, et al., 2020). Companies tend to be more aware of the internal risks within the supply chain, but usually overlook the critical factors outside the supply chain (Almater, et al., 2020). Gaining a deeper understanding of the potential external disturbances is challenging, as the

current strategies do not capture the multidimensional and interdependent behaviour of the risks. Raw materials pass through various processes, geographical and political regions, operations and modes of transport before reaching the final customers (Alshehri, et al., 2020). The control span also varies depending on the external disturbance.

The implementation team of risk management should be cross-functional because the consequences of catastrophic events cut across the entire supply chain argue (Islam & Alharthi, 2022), further research shows that if a facility is lost as a result of a catastrophic event, the supply chain, financial flows and possibly information flows are affected.

The consequences of a catastrophic event can also affect relationships with customers and suppliers. Increasing the company's risk management capability requires a broad range of functional expertise to anticipate potential catastrophic risks and evaluate their likely consequences (Jaziri & Miralam, 2021). Khan, Alahdal, et al., (2021) believe that risk management is based on the belief that management makes the decisions that are best for the business, unfortunately decisions are made under very complicated circumstances.

According to Mortada, et al., (2021), the circumstances mean that the existing risk management is a simplified model of reality and does not take into account the complexity of the outside world such as rapidly changing market conditions, uncertain goals, lack of information, tight deadlines, constraints, different interests and political considerations (Nurunnabi, 2020). The simplified model means that managers can never guarantee that the right decision is made, but they do the best under the prevailing conditions.

Risk management is a term used loosely, where the concept of risk is applied in a vague way to all situations where there is doubt about the outcome. Risk management is a broader concept to take into account major future events, where the main work is to identify the risks

and analyse their consequences which are to be the basis for an assessment of the risk. Risk management is not necessarily about eliminating or reducing risk, but also about seeking the opportunities with the uncertainties and risks. Management rarely sees potential benefits in risk, but sees it more as a threat to the business (Nurunnabi, 2021). Many events can occur in the supply chain, however, it is the external events that have the greatest negative impact on the supply chain, taking into account that businesses are not always prepared for the events. It is therefore important to review past events, rather than identifying weaknesses with the current supply chain. Addressing the vulnerabilities is the best way to mitigate unpredictable events and their effects on the supply chain.

Better knowledge can improve preparedness for the external effects (Obied, et al., 2020). Pandemics are inevitable where an underestimation of its consequences, lack of preparedness and inadequate prevention strategies are prevalent in companies.

A Brief Look at Forecasts at the Beginning of the COVID-19 Pandemic

If we look at the classifications and forecasts on the course of the COVID-19 pandemic from the perspective of March 2020 after a good year, we can say that many forecasts have largely been confirmed. Even from the perspective of 2021, it should first be noted that the COVID-19 pandemic was certainly not a "black swan" (Khan, Alahmari, et al., 2021). The danger of a pandemic was known in risk research. A risk analysis for the federal government had already shown the possible effects of a corona pandemic in 2021 - up to million deaths in Germany alone (Khan, Alsofayan, et al., 2021). And the course of the pandemic in 2020 and 2021 did not offer any surprises that could be described as a "black swan". Despite the mutations of the SARS-CoV-2 virus that occurred, the fatality rate of the disease remained, as expected, at less than 1% (taking into account the number of unreported cases). Unfortunately, it has also been confirmed that most states were not adequately prepared for a "pandemic

crisis". In the course of the crisis, it became clear that many sensible preparations - from the distribution of FFP2 or M3 masks to effective tracking of those infected - had not been prepared. It also became clear that the uncertainties associated with these were not adequately taken into account in the political decisions.

Unfortunately, the COVID-19 pandemic had not led to decision-makers around the world systematically working on improving their "robustness". In addition to the pandemic, as a special case of a so-called supply crisis, there are a number of other serious economic risks that can lead to serious crises and for which a state should prepare itself adequately (Park, 2022). The basic course of the "medical crisis", i.e., the COVID-19 pandemic, is largely in line with expectations: The pandemic was developing in several waves, a second wave in autumn 2020 and a third wave in 2021. The expected different developments in individual countries were also clearly visible. It also became clear that some countries - such as China in particular, but also Japan, Taiwan and Australia - got the crisis under control much more quickly and effectively than others.

A positive surprise is that several effective vaccines were already available from the vaccine manufacturers at the end of 2020 - similar to the lethality, one could certainly speak of a "blessing in disguise" here. While in some countries such as the USA or Great Britain the population was able to be vaccinated relatively quickly, this was not possible in other countries, especially the EU. It was then still unclear whether the willingness to vaccinate in individual countries was sufficient to achieve "herd immunity". It was also unclear when herd immunity would be achieved in many of the poorer countries, such as the badly affected countries of India and Brazil. Finally, it seemed possible that further mutations and the waning vaccine protection over time would make regular vaccination of the population necessary, which offers significant future sales potential for vaccine manufacturers.

After the sharp collapse of the global economy in the first half of 2020 and the subsequent stabilization, the economic crisis triggered in particular by "lockdowns" was coming to an end with the final phase of the "acute" health crisis emerging as a result of increasing vaccination. This too was in line with expectations. It was clear that with high infection and death rates, restrictive government measures to contain the spread of infection would have negative economic effects (Parveen, 2020). A positive surprise for many was certainly how quickly China in particular was able to recover from the effects of the COVID-19 pandemic (which overall contributed significantly to stabilizing the global economy). The decline in national income (GDP) around the world, at around minus 5%, was slightly below the average value expected in simulation models, but well away from a conceivable "worst-case scenario" because the second wave of the pandemic in autumn 2020 ultimately remained "moderate" (Perveen, et al., 2020; Raj & Bozonelos, 2020). The feared sharp increase in bankruptcies has not (so far) occurred (Salam, Al-Khraif & Elsegaey, 2022). In addition to the very extensive government support measures, such as the partial suspension of the obligation to file for insolvency, the comparatively short duration of the economic crisis has certainly contributed to this.

An increase in the number of insolvencies at the end of the crisis, i.e. in the course of 2021, was nevertheless likely. The increase in the number of insolvencies across the globe was be significantly mitigated by various government efforts, regulations, and policies – the discussion of which remains outside of the scope of the current work. In addition to an obligation to expand the crisis and risk management system, institutions in the healthcare industry across the globe had seen new opportunities to restructure themselves without insolvency with restructuring plan and other instruments (Shalhoub & Hammad, 2021). The fact that various different policies had come to be implemented as an outcome of the pandemic in order to limit the spread of the pandemic with many of such changes such as work-from-

home solutions being implemented across the globe and remaining in place following the pandemic.

The COVID-19 economic crisis in particular has made it clear to many companies that their risk management skills are poorly developed - these are the risks whose occurrence leads to financial problems or even insolvency. Empirical studies in 2020 have also shown how serious the deficits in risk management are in many companies.

Raising awareness of the importance of risks due to the COVID19 pandemic in conjunction with the paradigm created after the pandemic now offers companies the opportunity to reduce their skills in dealing with the uncertainty (opportunities and risks) that is inevitable in any economic activity. Unfortunately, there is no comparable legal pressure to improve these skills at the political level, although similar skills deficits can be seen here. In addition to the innovation boost in vaccines and the strong acceleration of the digitalization of the economy, the impetus to improve business skills in dealing with risks could be a third significant area of opportunities from the pandemic (Abolfotouh, et al., 2020; Abolfotouh, et al., 2021). In addition to improving risk management capabilities in particular, the experiences of the COVID-19 pandemic are likely to lead many companies to think more consistently about ways to improve the future viability and survival of the company and to initiate measures on the way to becoming a “robust company” (Shishah & Alhelaly, 2021).

COVID-19

At the end of 2019, a new Coronavirus was discovered in Wuhan, China called SARS-Cov-2 (COVID-19). The disease spread quickly over large parts of the world and in March 2020 the epidemic was classified as a pandemic by the WHO. The global scope of the pandemic has created urgent needs to stop the spread of the virus through, among other things,

restrictions, social distancing, travel bans and the closure of borders and large gatherings, which in turn has dramatically affected societies and economies worldwide (Alsolais, et al., 2021). At the outbreak of the COVID-19 pandemic, companies were faced with challenges and a large number had to make radical changes in order to remain in the market. Strained liquidity problems, declining sales and strong impact on earnings are examples of financial problems that companies have had to endure and deal with during the COVID-19 pandemic (Addawood, et al., 2020).

One of the many companies affected by the COVID-19 pandemic was that of the Health Ministry of the KSA, which was in charge of ensuring and maintaining the health of the public whilst also combating the pandemic on a national scale. This was impacted by various different aspects such as increased uncertainty, slower global economic development, disruptions in the supply chain, changing IT security threats and health impacts. As it stands, the Ministry can be seen as constantly promoting new innovations, making the institution one of the world's leading healthcare institutes in terms of addressing healthcare concerns, and a key player in implementing efforts to mitigate the long-term impact of the pandemic. During the COVID-19 pandemic, the institute had paid great attention to reducing the risk of the spread of infection in order to protect its employees any this way (Alzahrani, Aljamaan & Al-Fakih, 2020).

The organization's highest priority was to create a safe workplace by constantly improving the workplace and preventing accidents. Its continuous risk work in the healthcare industry as well as with its partners was viewed as being crucial in mitigating the pandemic as well as the death toll caused by it (Ameen, et al., 2020; Balay-Odao, et al., 2021; Aruta, et al., 2023). As it stands, the Ministry works for a culture where employees are risk-aware, which is characterized by an openness that encourages employees throughout the organization to discuss and manage risks. The risk management process includes a transparent, practical and

systematic method for risk management where the aim is to create risk awareness in all parts of the company, but also to create a common view of the company's most important risks (Adly, et al., 2020; Al Ammari, et al., 2021). Negative consequences are described as being able to be minimized or avoided if they are constantly identified and handled correctly (Al Sulais, Mosli & AlAmeel, 2020).

Measures Taken by the KSA

A number of measures were taken by the Ministry to limit the spread of the virus such as limiting the overall amount of individuals in the state, limiting mass gatherings, providing the healthcare sector with necessary requirements and resources, improving the procedures used on its ports and points of entry, and repatriating its population. By making use of the CDC's risk assessment tool, the institute was able to identify and address the virus during its early stages by issuing travelling restrictions and halting potentially higher rates of transmission for the virus (Alanazi, et al., 2021; Alasmari, et al., 2021).

Mass Gathering Risk Evaluation

As it stands, the state has a highly unique experience with regard to making use of scientific methods for conducting as well as planning mass gatherings. Specifically, it was in the year 2010 that the Ministry had established the GCMGM (Global Centre for Mass Gatherings Medicine), whilst also creating a number of tools to evaluate the risks that mass gatherings had posed. This involved the Salem Tool for medium to small gatherings whereas the Jeddah Tool was used for religious mass gatherings. The former was changed to be the Saleem COVID Tool during the pandemic in order to assess the risks posed by the pandemic to mass gatherings. During this same time, the Jeddah Tool become used for strategic assessments related to Hajj and Umrah (Alessa, et al., 2021). All decisions concerning the

KSA's mass gathering restrictions were then based on these with it conducting the Safe Hajj 2020 as an outcome of such (Algahtani, et al., 2021).

Case Investigation, Rapid Response, and Surveillance

Following the pandemic, the Ministry had launched a number of teams to respond to the event such as a prevention and control team for infectious diseases comprised of various health professionals, nurses, physicians, and so on with it focused on evaluating and monitoring cases, preparing reports on a daily basis, adjusting contemporary guidelines and preparing information as well as training for the public (Alshehri, et al., 2020; AlHadi & Alhuwaydi, 2023).

Electronic Health Surveillance

The state had also established an electronic network for health surveillance, which offered it online solutions to respond to the pandemic. This system was an integrated ICT that was created so as to ensure that an accessible and extensive database was available on a single platform in order to overcome the challenges posed by the pandemic to the healthcare industry. It helped in responses, prevention, community health monitoring and control, and disease detection (Balay-Odao, et al., 2021; Aruta, et al., 2023).

Mass Screening

The KSA had initiated mass screening for immediate control and early detection of the virus. The first state of this involved screening people in populated areas with the state implementing such in more than eight hundred locations. This was then followed by the Mawid self-assessment app, which had classified users into high or low risk with low risk being screened in primary care centres whereas additional screenings were conducted through drive-

through testing centres (Hassounah, Raheel & Alhefzi, 2020; Boshnak, Alsharif & Alharthi, 2023). Furthermore, the state had implemented specialized clinics known as Tetamman clinics, which were focused on screening those individuals who were suspected of having the virus but did not have an appointment. This was a free service that offered individuals with therapeutic options and diagnostic assessments for symptoms such as a cough, shortness of breath, or a fever – symptoms that were characteristic of an infection with the virus.

Quarantine Process

Quarantine was a critical aspect in terms of preventing the spread of the virus as it had helped in differentiating between suspected and confirmed cases whilst also ensuring that the spread could be contained. Additionally, every traveller, when returning from abroad, was provided with information regarding quarantine and the pandemic with the state also providing them with hand sanitizers, masks, and educational materials once they arrived to the state. Furthermore, complete screening procedures were conducted for arriving individuals with medical teams conducting polymerase chain reaction tests following the end of the quarantine period. Home quarantine was also offered should the housing conditions be appropriate with the state providing apps and bracelets to help monitor as well as provide information to civilians.

Health Care Services

All healthcare services in the state are free of charge for civilians with residents required to have their employers provide them with health insurance. Additionally, the state had gone out of its way in order to provide free COVID-19 treatment to residents and civilians (Islam & Alharthi, 2022).

Chapter Three

Study Methodology

Introduction

A case study was chosen as the research design to study a management perspective on internal and external risks and risk culture in comparison with employee experiences in an appropriate way. A case study was also chosen with the intention of studying previous research whilst also evaluating the perspective of real world workers of the Ministry of Health. Alessa, et al., (2021) explain that the case study method is suitable for contributing to the collective knowledge of group, organizational and social phenomena such as risk culture. In a first step, it was necessary to understand how the internal risk structure works at the Ministry and then understand the company's risk culture (Perveen, et al., 2020). Taking into account the social contexts and abstract nature that a risk culture is made up of in combination with structures, a choice of method was required that created in-depth understanding. This was justified as the case study method is described as being able to be actualized with an ambition to understand complicated social phenomena within a certain industry (AlFattani, et al., 2021). In order to answer the purpose and question, a case study was therefore carried out with the intention of creating essential and in-depth knowledge through a specific case. This methodological approach involved combining qualitative and quantitative data regarding the subject matter whilst offering detailed insight regarding the subject of study. To this end, the current methodology section is divided into seven unique parts. The first herein was an introduction to the methodology and the chapter itself followed by then its research philosophy. The third subsection then provides insight regarding the research methodology and design and the data collection and analysis that was involved in conducting the study. The last two sections provide insight into the generalizability and ethical considerations of the work itself.

Research Philosophy

The current work had made use of the positivism approach as its research philosophy. This was made use of as it facilitates quantitative assessments, which were the main goal of the study whilst complementing qualitative insight, which was used to complement and add to the quantitative findings of the work. Whilst the qualitative approach itself is based on philosophies such as interpretivism and constructivism, the author had focused on utilizing the positivism approach as a means of combining the strengths of both the qualitative as well as quantitative approaches (Alflayyeh, Haseebullah & Belhaj, 2020). As such, the current work's use of positivism was focused on attaining knowledge through neutral and measurable observations of the subject matter whilst providing critical insight regarding it. The goal of this research philosophy was to not only inform the approach and practices made use of in order to conduct the study, but also the aid the author in generating generalizable results regarding the subject matter.

Initially, the author focused on an inductive approach with regard to its qualitative research method rather than quantitative (Raj & Bozonelos, 2020). However, the weight in this paper was placed on the approach of starting from existing theory, which refers to a deductive approach (Algahtani, et al., 2021). The definition of deduction is described according to Algaissi, et al., (2020) as the approach that forms hypotheses based on a theoretical frame of reference or model which is then tested against reality through, for example, observations. In order to study the relationship between risk management, ICT use, communication, and so on, knowledge was created in the form of existing theory and research on risk management. With knowledge of already existing theory, this was then tested within the scope of a conceptual framework (Alghamdi, et al., 2021). As a whole, the study's research approach is therefore characterized as deductive. Importantly, however, the theory was tested within the framework

of the conceptual framework rather than testing hypotheses. With regard to the study's qualitative research method, there were also elements of the symbolism of abduction; to put already existing theory in relation to undiscovered knowledge in order to create a new understanding of processes (AlHadi & Alhuwaydi, 2023). This can be likened to a constant movement between existing theory and new empiricism where a particular focus is on expressions in the empirical, i.e., deviations from the prevailing knowledge that exists (Ameen, et al., 2020).

This is based on discovering extremes, aligning it with existing knowledge and then creating new understanding which is then tested in an ongoing process (Al-Hanawi, et al., 2020). The starting point was thus to study existing theory in order to create survey questions that intended to capture undiscovered knowledge about the relationship between the variables under study. This by possessing theoretical knowledge of well-known frameworks and models for risk management as well as knowledge of the impact of organizational and human factors. In summary, an insight into existing knowledge was created, the opportunity to draw connections to new discoveries in such a way that conclusions and results were derived through the course of the work. Through empirical research, the work thus intended to create knowledge through indirect observation and experience of the Ministry's risk management.

Research Methodology and Design

Through making use of the mixed methods approach, the current work utilizes both an online survey questionnaire as well as secondary data to evaluate the subject matter. To this end, the study makes use of Google Forms as the means of disseminating its quantitative data collection method across the KSA to various individual workers under the Ministry of Health. This methodology had helped the current author in gathering primary information regarding this subject matter and thus informed the answers for their research questions. In this regard,

the study had utilized the convenience sampling approach with it making use of a sample primarily comprised of those who worked for the Ministry during the course of the pandemic. As it stands, the majority of research within the academic world makes use of three methodological approaches in particular. These take the form of the quantitative, the qualitative, and the mixed methods methodologies. Recent years have seen the qualitative attain a great deal of attention as a means of overcoming the limitations of the quantitative. However, it is within this atmosphere and change that the mixed methods approach has come to be considered as a means of addressing the weaknesses of both of these methodologies.

In particular, the quantitative method is an approach that, by being focused on connections and relationships, is unable to effectively assess and understand human reasoning. As the current work was not involved in evaluating and understanding human reasoning, the author had made use of this methodological approach in conjunction with the qualitative methodology as a means of holistically evaluating the subject matter. Conversely, the qualitative methodology, then, is unable to evaluate the subject matter with regard to the relationship and correlation between set variables and thus is unable to offer a holistic view on its own. In most cases, the qualitative methodology involves the use of intensive data collection, focus groups, and interviews in order to assess a subject matter. Relative to the quantitative, the qualitative is unable to assess a subject matter with regard to greater generalizability as an outcome of the relatively small amount of data that is gathered. Relative to the qualitative, the quantitative is considerably focused on large data quantities with the goal of generalizing the subject matter to a population larger than the population gathered for a given study's sample population (Alhassan & AlDossary, 2021). As such, these two approaches accompany a number of advantages and disadvantages relative to them with there then being inherent differences between the two as an outcome of their philosophical assumptions and the core basis of the subject matter that they seek to evaluate and understand (Al-Khalifa, et al.,

2020; Almater, et al., 2020). It was due to this that, the current work, resting on the positivistic research philosophy and making use of an inductive approach, had been focused on utilizing the mixed methods approach in order to corroborate the quantitative data gathered through qualitative data. As such, the qualitative methodology, then, does not function as a unique methodological approach for the current study but rather acts as a means of complementing the quantitative methodology utilized.

Data Collection

The data collection efforts of the current work were divided into two parts. The first and primary data collection effort involved that of gathering data regarding the subject matter by way of an online survey questionnaire. This had aided the author in better understanding the subject matter as well as evaluating in a closed-ended manner by way of closed-ended question items. This abided by the resource limitations of the work and helped in making sure that the work could evaluate the subject in a detailed manner whilst ensuring that the study could yield correlation and assessment between the variables under study.

Accordingly, then presented in the Appendix of the current work, this primary data collection effort was focused on gathering information in relation to five variables – inclusive of risk management challenges, risk management outcomes, ICT Use, Risk Management Culture, and Communication in relation to the Health Ministry and its challenges and risks as well as strategies during the course of the pandemic. As such, this primary data collection instrument was divided into two main parts. These had included that of the demographic portion and the survey itself. the demographic question segment asked participants as to their age, sex, education, and work experience. These questions were asked in order to assess the composition of the sample with regard to generic demographic information of them.

Accordingly, then, this was followed by the survey itself, which was comprised of twenty-five questions divided across the five variables based on a five-point Likert scale.

Additionally, the secondary data gathered for the study for the purposes of meeting its qualitative goals and objectives was by way of Google Scholar, JSTOR, and various other academic databases such as PubMed. These databases were searched for various keywords and keyword combinations concerning the subject matter at hand with the search not limited to a given geographical location but rather focused on gathering information regarding the overall pandemic's impact and the Health Ministry of the KSA. As demonstrated throughout the second chapter of the current work, the data gathered for the qualitative portion of the study was evaluated and analysed through the use of a thematic analysis. This qualitative information was then evaluated against and corroborated with the primary data gathered for the current work thereby aiding the author in providing a more so holistic assessment regarding the subject matter.

Data Analysis

For the purposes of the current work, the author had made use of Microsoft Excel for the purposes of data analysis. This involved the author conducting descriptive statistics and correlation regarding the subject matter in order to provide insight regarding the relationship between the variables. Additionally, this software was then used in order to create tabularizations and graphical illustrations regarding the data that was gathered through the study's quantitative assessment efforts. Descriptive analysis was used to analyse the collected material from the questionnaires which were answered by 200 employees of the Ministry. This method of analysis was used to describe and summarize the collected data from the surveys, which is a methodology that assigns numbers to quantitative attributes (Alshehri, et al., 2020). Descriptive statistics were therefore used to describe the characteristics of the survey responses

in order to draw conclusions about them. Thus, a numerical statistical process and graphical illustrations were used to organize the survey responses from employees as a population and to describe the responses ascertained from the survey (Alsolais, et al., 2021). Alzahrani, Aljamaan & Al-Fakih (2020) express statistical problems by explaining how only the variables included in a survey are examined. This is essential in such a way that only the variables analysed are associated with the numbers that make up the result. This creates a situation where variations in responses can be explained by underlying causes that are not demonstrated in the survey results. Ameen, et al., (2020) refer to ecological fallacy as another analytical difficulty that results from researchers assuming that it is possible to draw conclusions about an individual based on results based on aggregated data.

This expresses a problem where variations do not necessarily mean that a respondent is distancing themselves from the specific statement by answering differently from the majority. Such a variation can be due to many factors such as participant differences, willingness to report on the subject matter, employment conditions or the like (Aruta, et al., 2023). Furthermore, the survey answers do not necessarily mean that all employees at the Ministry agree with the selection of 200 respondents that made up the survey. The questionnaire's statements could thus not represent all employees at the Ministry, but the data provided an indication of employees' experiences in risk management during the course of the pandemic. Additional survey responses could have created greater statistical confidence. With this in mind, the analysis took into account factors that could affect the variation in survey responses when processing the empirical data from the surveys.

An assessment was made on the basis that the majority of survey responses in each statement created an indication of the employees' perspective, i.e. that the majority is the most likely answer to the statement (Balay-Odao, et al., 2021). However, it was of interest to study

outstanding answers to create a picture of which areas had more distribution, that is, the answers did not have an overwhelming majority. The claims were partly based on empirical evidence from the survey but also on theory about risk culture and risk management. The statistical measures used for analysis of the questionnaires consisted of mean, median and typical value as well as descriptive statistics and correlation. The mean is a location measure for an average value of a sample or population (Bazaid, et al., 2020). The mean value for each statement reflected the variation that existed in the respondents' responses. For example, a mean value closer to four indicated that a large percentage agreed with the statement, of which some respondents deviated from agreeing, that is, answered something else. The median is a central measure that is the value that is in the middle when the data is arranged in ascending order (Boshnak, Alsharif & Alharthi, 2023). The median is not affected to the same extent by answers that deviate from what the majority answered, as the mean is. Mean and median were used together to promote a more reliable analysis.

Generalizability

Generalizability shows whether what emerges in the study can be generalized, where the study should be able to be carried out by others and produce the same results (Hassounah, Raheel & Alhefzi, 2020; Elhessewi, et al., 2021; Hashim, et al., 2021; Jaziri & Miralam, 2021; Islam & Alharthi, 2022). Khan, Alahdal, et al., (2021) and Khan, Alahmari, et al., (2021) criticize case studies as a research method that is not always generalizable. Khan, Alsofayan, et al., (2021) further state that the authors of the case study must ensure that the case study is generalizable. The study's questions and purpose are based on a complex situation, where a case study as a research method has enabled an increased understanding of how the KSA was affected by COVID-19 and the role of the Health Ministry in terms of addressing the risks and challenges posed by the pandemic. In this regard, the study did not seek to provide

generalizable insight regarding the matter at hand, rather it had focused on providing a detailed case study concerning the organization and its workers as well as its efforts during the course of the pandemic.

Ethical Considerations

For the purposes of the current work, the author had needed to make use of a number of considerations had been involved. These were necessary in order to ensure that the current work could safeguard the participants involved in the study. In particular, as humans were involved in the current work, it was necessary to ensure that the work made use of appropriate considerations as a means of addressing the unique challenges and risks posed by a study involving humans. To this end, the author had made use of quantifiable data as a means of mitigating the overall extent to which information was gathered from the participants. The goal then was to make use of closed-ended question items as a means of limiting the data gathered to being data in relation to the subject matter of the study itself instead of data concerning more so personal aspects of the participants. Ethics in research concerns questions about the content of the research and about the researcher's relationship to the task.

The study follows the four main requirements laid down by Mortada, et al., (2021) for good research practice: the information requirement, the consent requirement, the confidentiality requirement and the use requirement. The information requirement is met by informing the respondents in the survey about their task in the study and what conditions apply to their participation. They are informed of the voluntary participation and that they have the right to cancel their participation at any time. The information provided covers all those elements of the current study. This preliminary information is sent out in a missive letter to the respondents and sent back signed by each to confirm that they have been provided with the correct information. This also fulfils the consent requirement. When confidential information

is analysed in the study, the author of the study used extensive efforts to ensure that they could prevent the dissemination of sensitive strategic information from the business. The respondents' answers in the survey are attained through Google Forms, stored and reported in such a way that unauthorized persons cannot access the data. In this way, the study can fulfil the confidentiality requirement. The information obtained during the survey and the case study is not used or lent for commercial use or other non-scientific purposes. The personal data gathered has been confidential so that it cannot be used for decisions or measures that directly affect the individual, except after special consent of the person concerned. With this measure, the utilization requirement is also fulfilled.

Chapter Four

Findings and Recommendations

Introduction

The current chapter of the study then provides insight with regard to the results of the work. As such, the current chapter is divided into various subsections and parts in order to adequately highlight the findings herein as well as the overall results attained through the current study. To this end, the current section then begins by way of demonstrating and highlighting the results of the study with regard to the demographic characteristics of the sample population. It should be noted that this chapter provides adequate insight regarding the results by way of graphical as well as tabular depictions of the results that were found. The below are then a collection of graphical depictions in the form of pie charts that illustrate the results of the demographic questions asked of the participants and thus highlights the composition of the sample.

This is then followed by a tabularization of it by way of descriptive statistics conducted on the responses of the participants in numeric form so as to present the mode, mean, median, standard error, and various other statistical insight regarding the demographic question items. This is then followed by the second section of the current chapter, which provides graphical depictions regarding the five main sections of the Likert-scale based survey questionnaire. As such, each section is given a graphical depiction that depicts the responses of the participants to said section. This is then followed by statistical assessment of the findings of the study by way of a correlation between these individual variables under study and thus aids in proving/disproving the hypotheses of the survey itself. The three remaining sections that then follow this involve conclusions, recommendations, and suggestions for further research with conclusions being drawn regarding the research objectives of the study, its research questions, and its findings. This is then followed by the recommendations section, which provides appropriate recommendations for real-world use of the findings presented in the current study.

Lastly, the chapter and thus study then concludes with suggestions bring provided for further research to be conducted on the subject matter.

As such, figure 1 then depicts the age distribution of the participants. This figure highlights that the participants were given a total of five response options. In this regard, the figure demonstrates that no participant was under the age of twenty-four years. Primarily, the vast majority of the sample of the study was comprised of adult individuals between the ages of forty-five and fifty-four years. This also demonstrates that the second majority of the participants was comprised of two sets of individuals – those between twenty-five and thirty-four years of age and those above fifty-five years of age. Accordingly, the second smallest portion of the age distribution was comprised of those individuals between the ages of thirty-five and forty-four years.

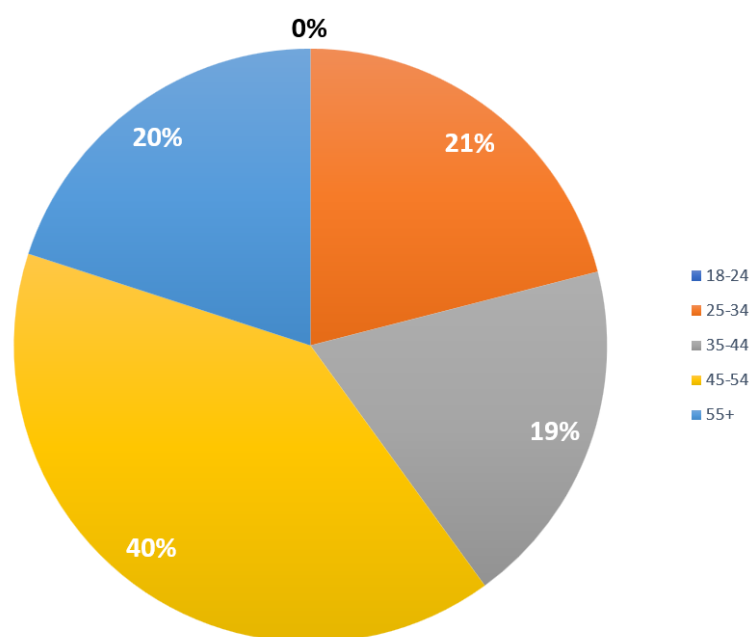


Figure 1: Age

Additionally, figure 2 then shows the sex distribution of the participants. As such, it demonstrates which portion of the sample was comprised of male and female individuals as

well as the overall statistical distribution of the participants between the two segments. The figure thus depicts that the sample of the study was comprised of sixty-two per cent males whereas thirty-eight per cent of the sample was female individuals. As such, the vast majority of the sample of the study was found to be comprised of males who were between the ages of forty-five and fifty-four years of age.

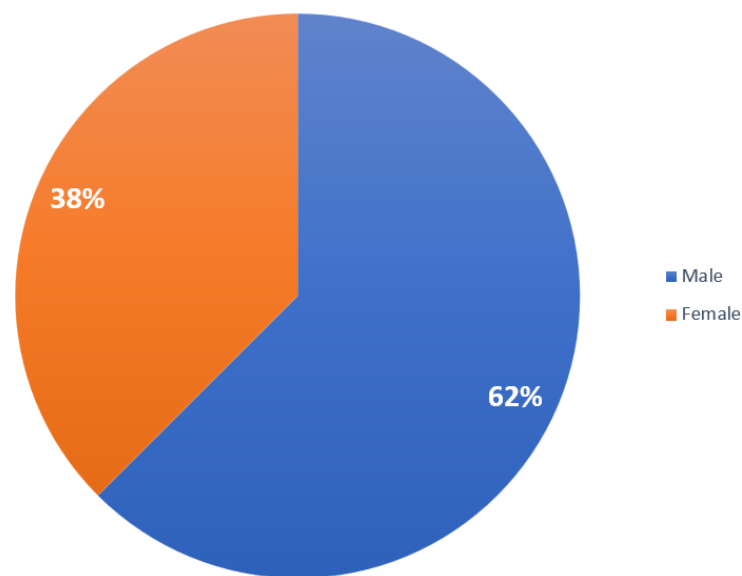


Figure 2: Sex

Figure 3 then demonstrates the participants' distribution in terms of their education. In this regard, the figure shows that the participants were given a total of five response options ranging from less than a Bachelor's education to a Doctorate and an 'other' category to list options that were not included. The figure then shows that the vast majority, more than forty-two per cent of the sample, had a Master's education. Accordingly, the second majority had highlighted that they had an 'other' education. This was not exclusively highlighted upon and thus it remains somewhat unclear as to the education of less than a quarter of the sample. Nonetheless, the remaining two segments of the sample had selected the Bachelor's and Doctorate options equally at eighteen per cent each.

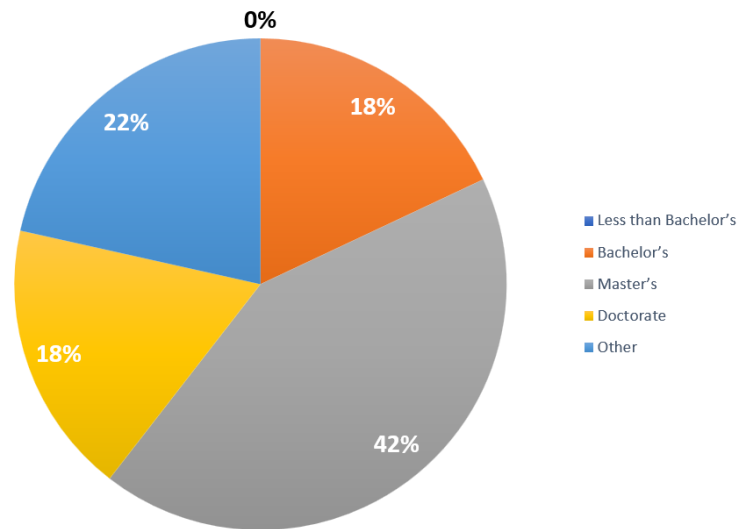


Figure 3: Education

The last figure with regard to the demographic questions asked of the participants demonstrates their work experience length. This question was also inclusive of five unique response options. These ranged from a year to two years to more than twelve years. The vast majority of the sample was comprised of individuals who had between five to eight years of work experience. This was followed closely by those who had between three to five years of work experience comprising twenty-eight per cent of the sample of the study. Additionally, the remaining sample was comprised of those who had between eight and twelve years of work experience and those who had more than twelve years of work experience at twenty-three per cent and sixteen per cent, respectively. It should be noted that no participant had less than three years of work experience, which is to be assumed in consideration of their prior responses. Through these, the author was able to state that the vast majority of the sample of the study was comprised of individuals who were males between the ages of forty-five and fifty-five, had a Master's education, and had between five to eight years of work experience with the Health Ministry of the KSA.

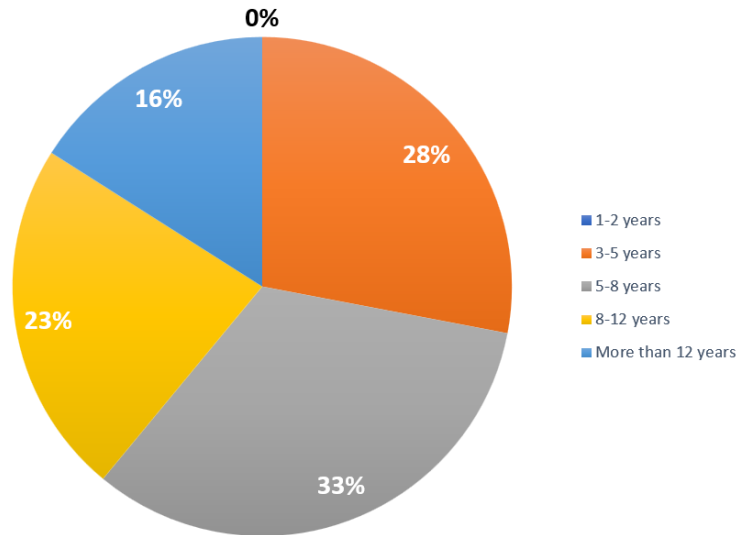


Figure 4: Work Experience

The below table then demonstrates the descriptive statistics that were conducted on the findings of the study. This aligns with the previously demonstrated findings in the figures and highlights that, on average, participants had sided with the fourth response option in terms of their age, the first with regard to the sex, and the third with regard to both their education and work experience.

Table 1: Descriptive Statistics

	Age	Sex	Education	Work Experience
Mean	3.59	1.375	3.43	3.27
Standard Error	0.073049	0.034319	0.072121	0.07357
Median	4	1	3	3
Mode	4	1	3	3
Standard Deviation	1.033071	0.485338	1.019952	1.040439
Sample Variance	1.067236	0.235553	1.040302	1.082513
Kurtosis	-1.07511	-1.74685	-1.04305	-1.07583
Skewness	-0.27157	0.520308	0.292016	0.304535
Range	3	1	3	3
Minimum	2	1	2	2
Maximum	5	2	5	5
Sum	718	275	686	654
Count	200	200	200	200

Data Analysis & Results

Risk Management Challenges

The below figure then demonstrates the findings of the study with regard to the first section of the survey. As such, it highlights those aspects that the participants had considered to be risk management challenges for the organization during the course of the pandemic and overall. To this end, consisting five question items similar to the remaining sections, the findings highlighted in figure 5 offer insight regarding the main risk management challenges that the organization faced. As such, the participants can be seen to hold a varied perspective when asked as to whether or not the pandemic had presented an unprecedented number of unique risks for them. Whilst this was met with collective agreement from the majority, a notable portion of the sample was neutral toward this question item thereby highlighting the need for such a perspective to be further evaluated. Overall, whilst less than sixty of the two hundred individuals who had taken part in the study had regarded themselves as being neutral toward the question item, more than eighty of those who had taken part in the study had collectively agreed with the question item presented to them.

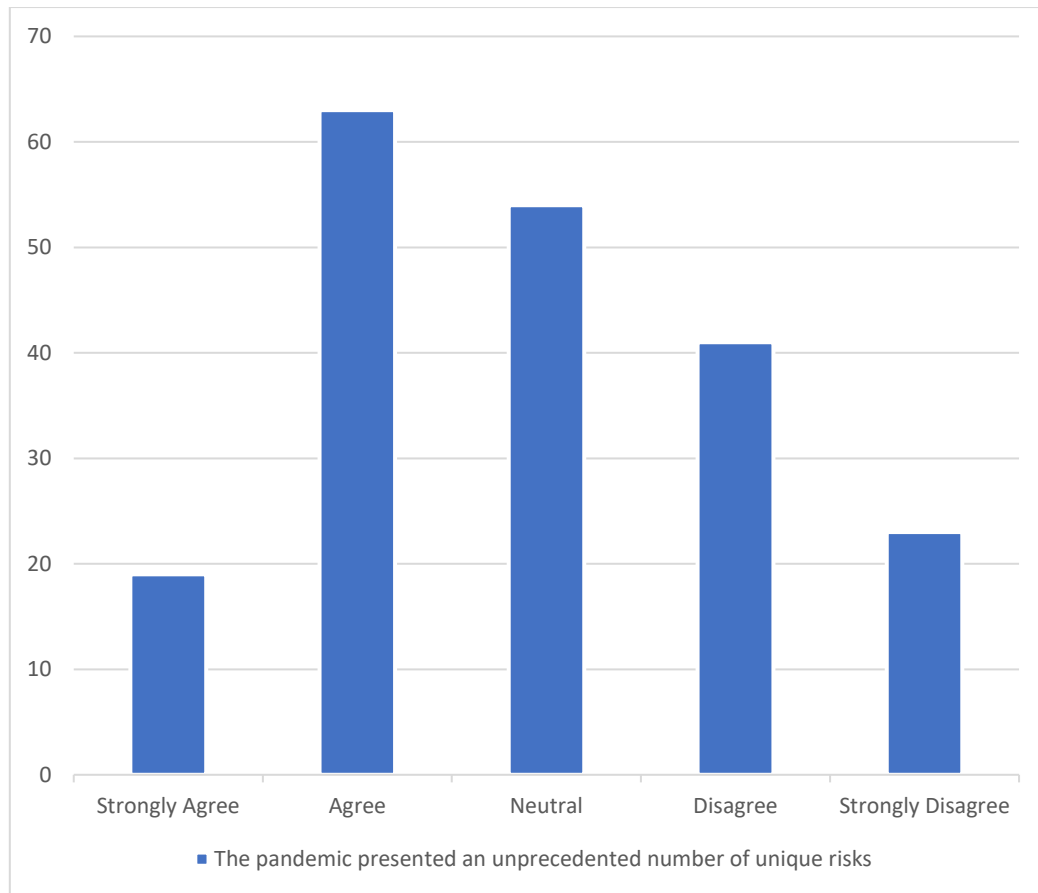


Figure 5: The pandemic presented an unprecedented number of unique risks

Following this, participants were asked as to whether or not their organization had lacked preparation in order to combat the pandemic. This was met with a considerable amount of agreement from the sample with less than twenty per cent of the sample being in disagreement with the question item presented to them. This overwhelming majority of collective agreement with the question item highlighted the challenges posed by the pandemic for the Ministry as well as how there was an insufficient amount of preparedness for such an event. This coincides with findings from other studies as well in that the pandemic had functioned as an unexpected event for the majority of healthcare institutions across the globe (Nurunnabi, 2020; Obied, et al., 2020; Nurunnabi, 2021; Park, 2022). Furthermore, in conjunction with the responses of the prior question item, the author was able to find that the pandemic not only presented these individuals with a unique risk and challenge, but

accompanied various unique risks that were not previously thought of. This was also reported by various academic works on the matter and remains a consistent theme when evaluating the impact of the pandemic on healthcare institutions.

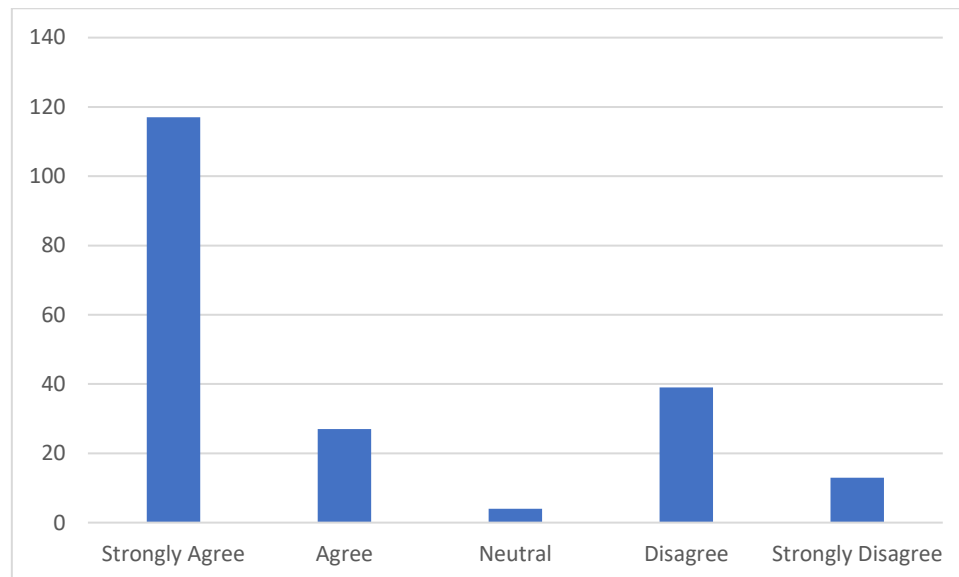


Figure 6: Your organization lacked prepared to combat the pandemic

This was then followed by the third question item included in the survey, which had evaluated the perspective of the participants with regard to the pandemic and prior to it. This had asked the participants as to whether or not there was a framework in place prior to the pandemic with regard to how such a complex event should be dealt with. The responses to this question item were akin to those of the first with a slight different in terms of overall agreement and disagreement. In total, twenty per cent of the sample had been in collective disagreement with the question item presented to them whereas a quarter were neutral. This was then followed by the remaining participants agreeing with the question item presented to them.

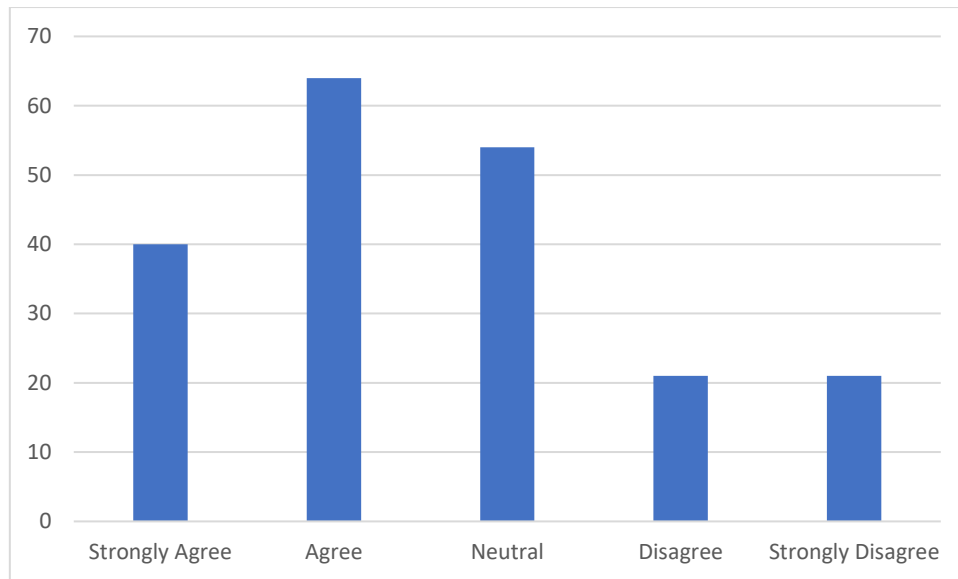


Figure 7: Prior to the pandemic, there was no set framework on how to deal with such a complex event

The second last question then included within this section of the survey was with regard to whether or not establishing and using strategies such as travel restrictions and suspension of social events across the state was a challenge for the Ministry. Responses to this highlighted that both of these efforts were regarded as a challenge for the Ministry during the course of the pandemic. This is illustrated in the fact that nearly seventy per cent of the sample had offered such a perspective regarding the question item. Accordingly, a notable decline was noticeable with regard to disagreement as it had fallen below twenty per cent. Through this, the inference could then be made that the pandemic, for Saudi Arabia's Health Ministry, as it had for much of the rest of the world, presented an unprecedented amount of unique challenges and risks that they had not anticipated as taking place before the event. Moreover, no framework was in place to guide such efforts outside of the previously highlighted CDC and WHO's guidelines that the Health Ministry had focused on making use of. As such, the author was also able to infer that during a time when direction for addressing and focusing actions was unclear, these guidelines

and practices behaved as key factors toward the KSA's success in mitigating the adverse impact of the pandemic.

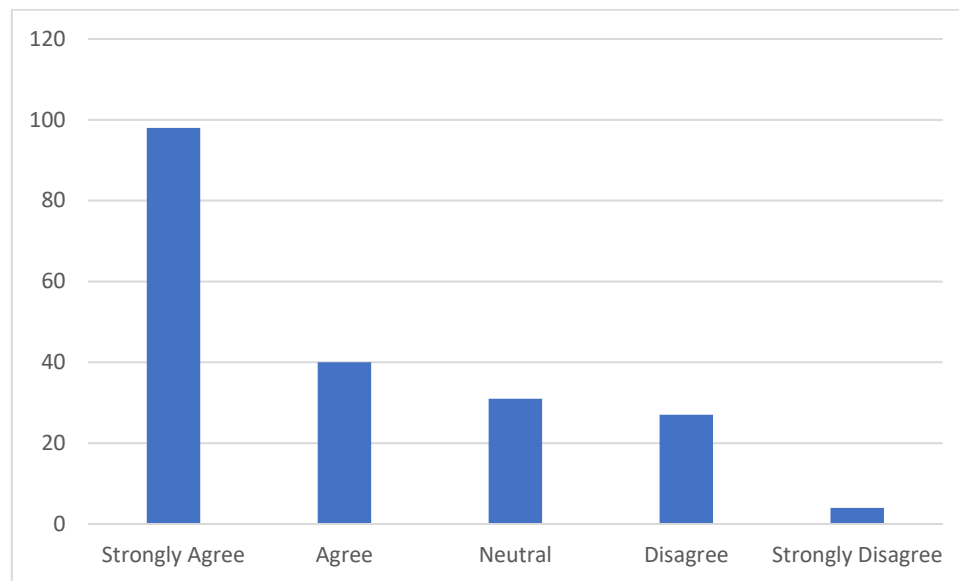


Figure 8: Establishing and using strategies such as travel restriction and social event suspension throughout the country was a challenge

Lastly, the responses to this section demonstrated that the vast majority of those who had taken part in the survey had considered communication as well as the increased use of digital technologies for the purposes of communication as being a challenge. This coincides as well with prior literature as more and more organizations in the healthcare industry, across the globe, had found themselves tackling never before seen technology and management challenges (Shalhoub & Hammad, 2021; Shishah & Alhelaly, 2021; Salam, Al-Khraif & Elsegaey, 2022). Thus, the case had remained the same for the Health Ministry as it had for much of the world's healthcare sector during the course of the pandemic.

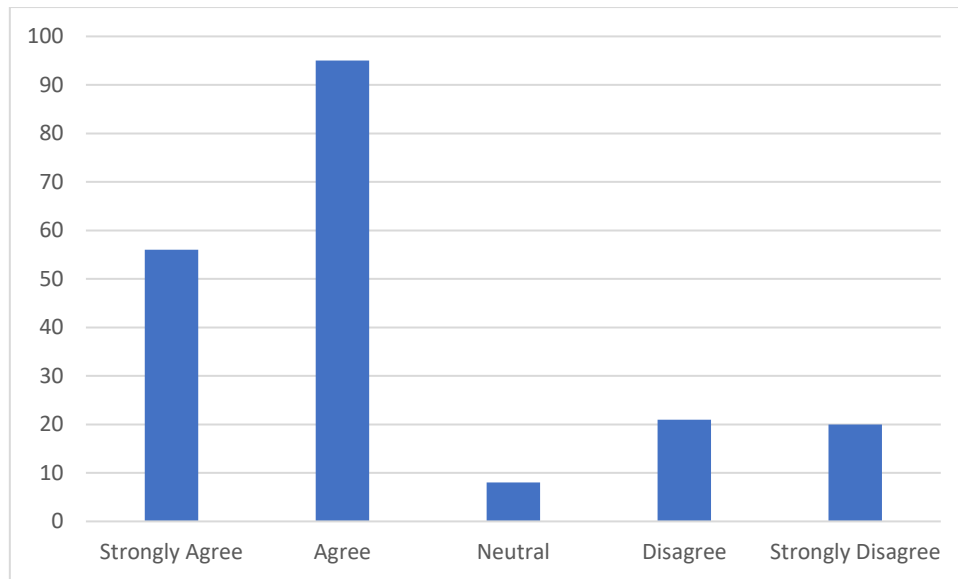


Figure 9: Communication and increased use of digital technology for communication was a challenge for most institutions

ICT Use

The below figure then provides insight regarding the ICT Use section of the survey. In this regard, it shows the five individual question items that were included within this section of the survey and the responses to them. As such, the first question item included was with regard to whether or not the participants had felt that their organization, the Ministry of Health, was able to actively utilize ICT in order to manage and mitigate the new and existing risks that the pandemic had accompanied. The responses then demonstrate that whilst thirty per cent of the sample was neutral toward the question item, nearly half of the sample had considered that their organization was able to actively use ICT in order to manage as well as mitigate both existing as well as new risks during the course of the pandemic.

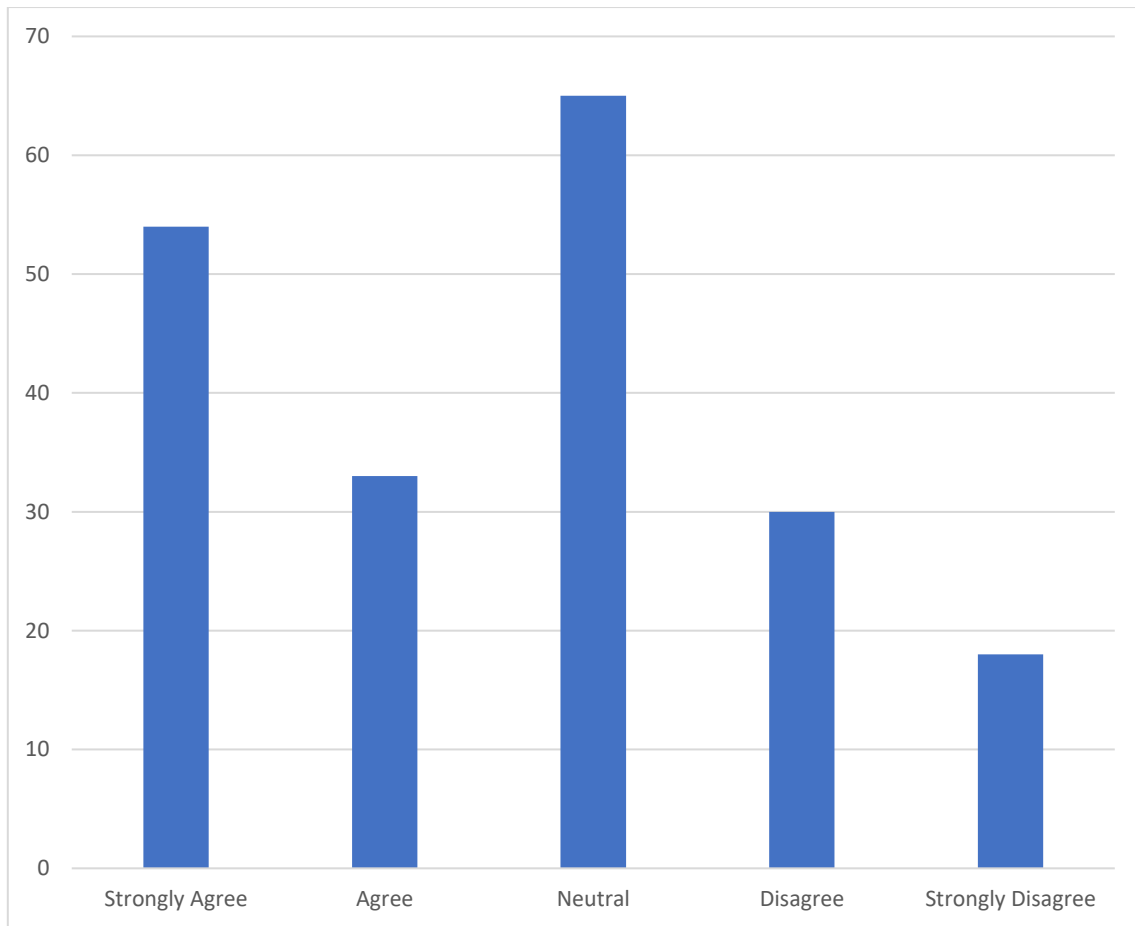


Figure 10: Your organization actively utilized ICT in order to manage and mitigate existing and new risks

Following this, participants were asked as to whether the use of ICT was regarded as being crucial in overcoming the challenges that the pandemic had presented. This led to the participants being in extreme polarization in terms of their responses to the question item. This is evident in the below figure wherein more than half had considered the use of ICT as being crucial in overcoming the challenges that the pandemic had presented to them. Through this, it could be inferred that the participants had viewed the use of ICT as being key in terms of mitigating and managing new as well as existing risks and was crucial in overcoming the unique challenges that the pandemic had presented to them.

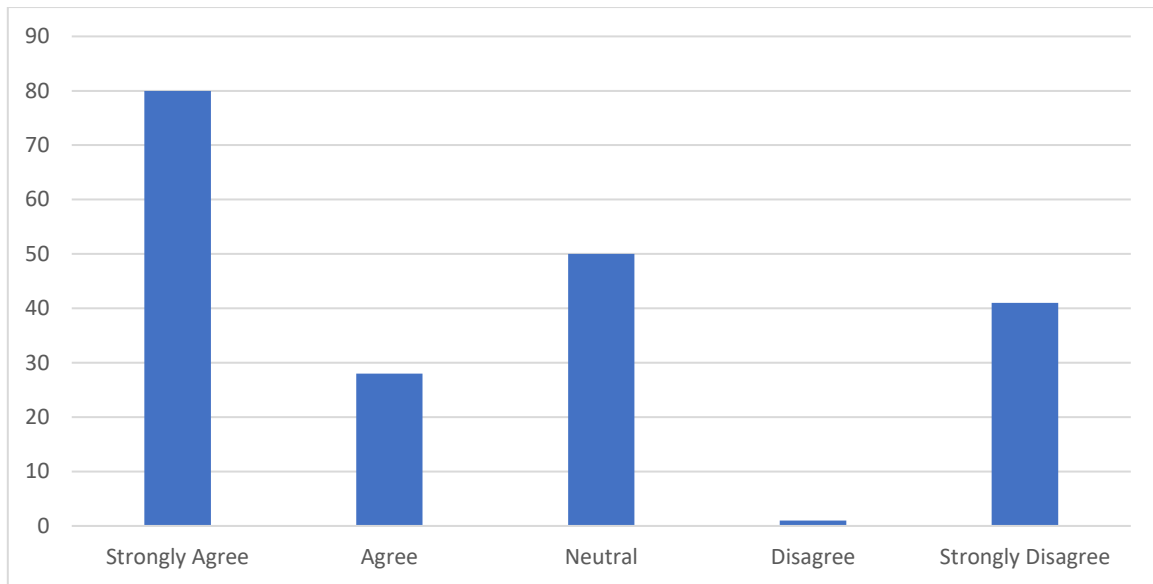


Figure 11: ICT use was crucial in overcoming the challenges presented by the pandemic

The third question included within this section asked participants as to whether or not ICT had helped the organization in terms of identifying and defining the target population for vaccinations. Responses to this had demonstrated that more than sixty-five per cent of the sample had collectively agreed with the notion that the use of ICT was crucial in identifying and defining the population suitable for vaccinations. Very few of the participants, as highlighted in the below figure, had considered this to not be the case. Through this, the author was able to infer that the use of ICT was not only regarded as being key in terms of overcoming the challenges that the pandemic had presented, but it was also crucial with regard to finding and identifying populations that required vaccination. Whilst there are a variety of ways in which this was accomplished, as has been extensively highlighted by various prior works, the fact of the matter remains that ICT was viewed as being helpful in addressing the pandemic and providing necessary aid to affected or likely to be affected populations.

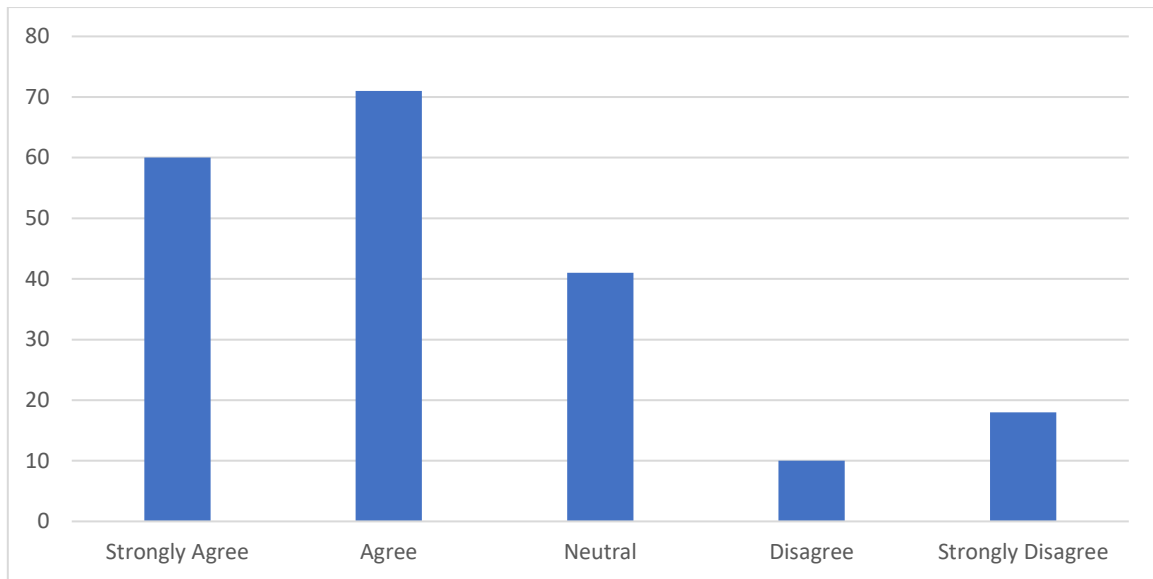


Figure 12: ICT helped identify and define the target population for vaccination

Additionally, the second last question item included in this section asked participants as to whether or not ICT was utilized in order to help them in contact tracing efforts – an effort that was regarded as being crucial during the pandemic in terms of addressing the challenges that the pandemic had presented. This was met with a resounding neutrality from the participants with nearly a hundred out of the two hundred being neutral toward this. Conversely, a bit less than half of the overall sample had collectively agreed to the question item. Through this, the author was able to infer that whilst ICT was used for contact tracing for a notable number of cases, it was unclear as to the success and use of ICT for contact tracing in other contexts. This then allowed the author to infer that whilst ICT use was key for finding and defining populations that should be vaccinated, its use for contact tracing efforts was unclear thereby requiring further research to be conducted on the matter.

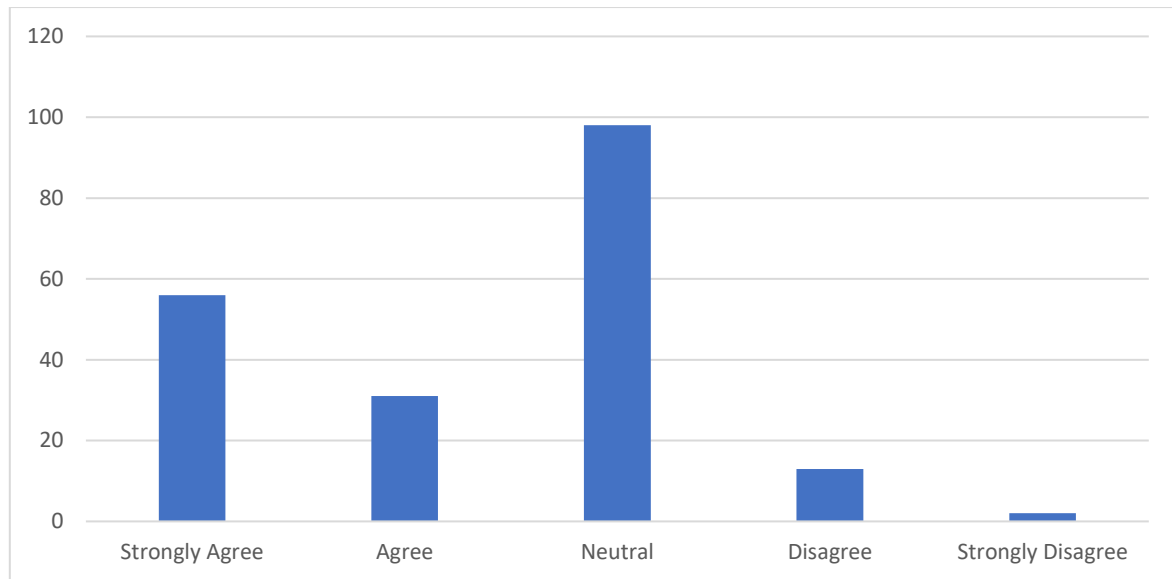


Figure 13: ICT helped in contact tracing efforts

Lastly, the below figure demonstrates the perspectives of the participants with regard to the use of modern ICT in terms of its effects on reducing the challenges that the pandemic had posed. This was, relative to the other questions items within and prior to the current section, met with the highest overall amount of agreement from the participants with nearly ninety per cent of the participants considering the use of modern ICT as being helpful in terms of decreasing the challenges that the pandemic had posed. Through this, the author was able to find that the use of ICT was crucial in terms of overcoming the challenges that the pandemic had presented for the KSA whilst also being key in terms of not only identifying and defining the target population for vaccinations but also for efforts toward mitigating and managing new and existing risks.

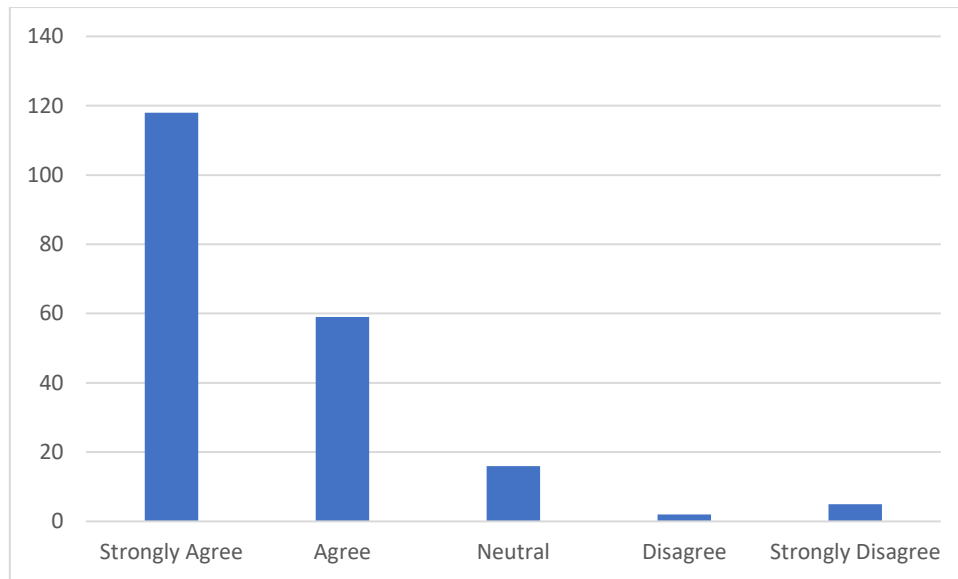


Figure 14: Use of modern ICT helped in reducing the challenges posed by the pandemic

Risk Management Outcomes

The below figure then depicts the responses of the participants to the third section of the survey. This was comprised of five individual question items and demonstrates the varying perspectives of the participants concerning risk management outcomes. The first question included in this section was with regard to whether or not the participants had considered the Health Ministry's efforts as being successful and optimal in addressing the pandemic. This was met with a similar collective agreement from the vast majority of the participants with them highlighting that they viewed the efforts of the Ministry to be ones that were not only successful but also optimal.

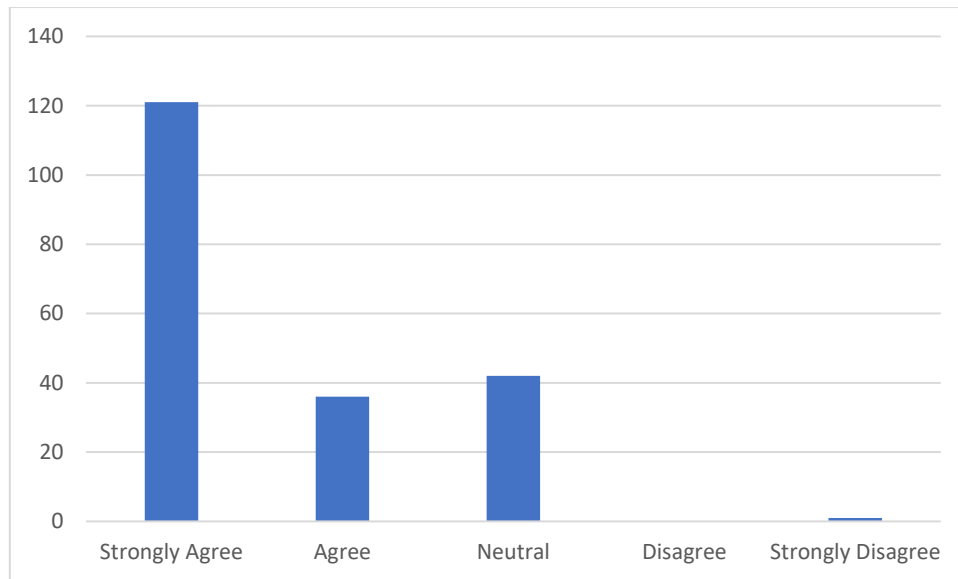


Figure 15: You consider the Health Ministry's efforts to have been optimal and successful

This was then followed by the participants being asked as to whether or not a number of aspects could be improved upon with regard to the efforts and plans of the Ministry during the course of the pandemic. This was met with collective agreement from nearly seventy per cent of the sample thereby demonstrating that they had viewed the efforts and plans of the Ministry as lacking in various different ways during the course of the pandemic. This was the perspective of more than half of the sample. Conversely, whilst the majority had viewed the efforts of the Ministry as being successful and optimal overall, they had regarded these efforts and plans to be ones that could be improved in various different ways.

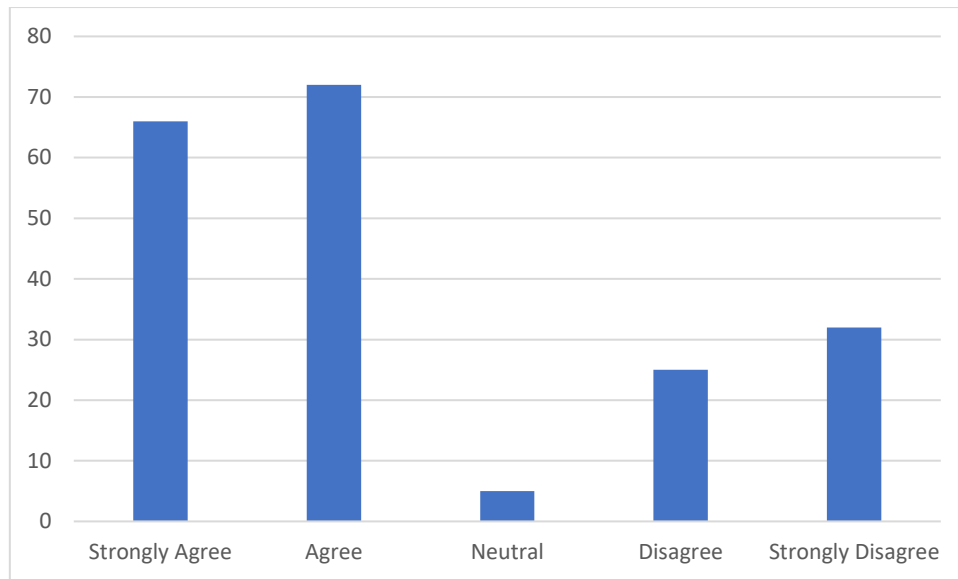


Figure 16: A number of aspects could have been improved during the pandemic with regard to the Ministry's efforts and plans

This was then followed by the third question item included in the survey, which had asked participants as to their perspectives on the efforts of the Ministry in terms of combating the pandemic and whether or not such had allowed the Ministry to foster a more so risk focused culture through facing the pandemic. This was, similar to the prior, met with a great amount of collective agreement with a notable uptick in disagreement with the question item. Through such, the inference was made that, whilst the organization was making active improvements and was able to focus more so on gearing its culture toward anticipating risks and challenges such as the pandemic, a notable amount of those who had worked for the Ministry considered this to not be the case. In conjunction with the prior, the author was able to infer that the majority of the sample had regarded the efforts of the Ministry as being successful yet needing to learn from prior lessons to ensure that future plans can be made more so streamlined and focused as well as improved in various other ways. Additionally, the author was also able to find that the findings demonstrated the participants' views regarding the positive impact of

facing the pandemic in terms of increasing the focus of the organization, as a whole, on risk management and mitigation.

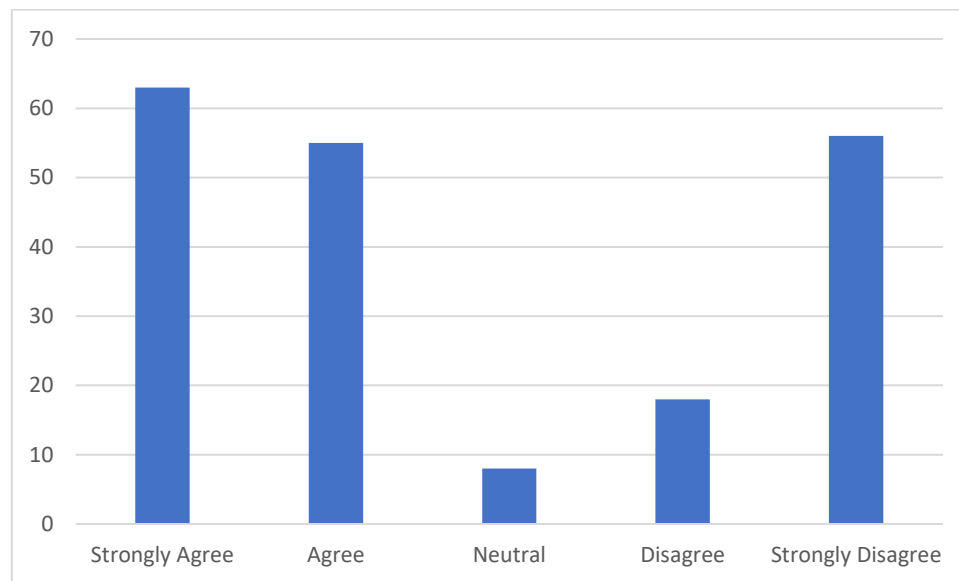


Figure 17: Combating the pandemic has allowed for a more so risk focused culture to take place in the organization

The second last question included within this section of the survey had asked the participants as to whether or not engaging with external actors had been helpful and instrumental toward addressing the challenges as well as risks that the pandemic had presented. The findings then demonstrate that this was the view held by the majority of the participants with the consensus, overall, being that engaging external actors had be crucial for the Health Ministry in terms of addressing those challenges as well as risks that the pandemic had presented. To this end, the findings demonstrate that the participants considered the efforts of the Ministry as being successful, but could have been improved in various ways. It was only through combating against the pandemic that the organization was able to focus more on a risk culture with the goal of addressing risks and understanding them to an extensive extent. As

such, the organization was able to make use of external actor engagement as a means of improving its focus on such risks and challenges and thus addressing them as necessary.

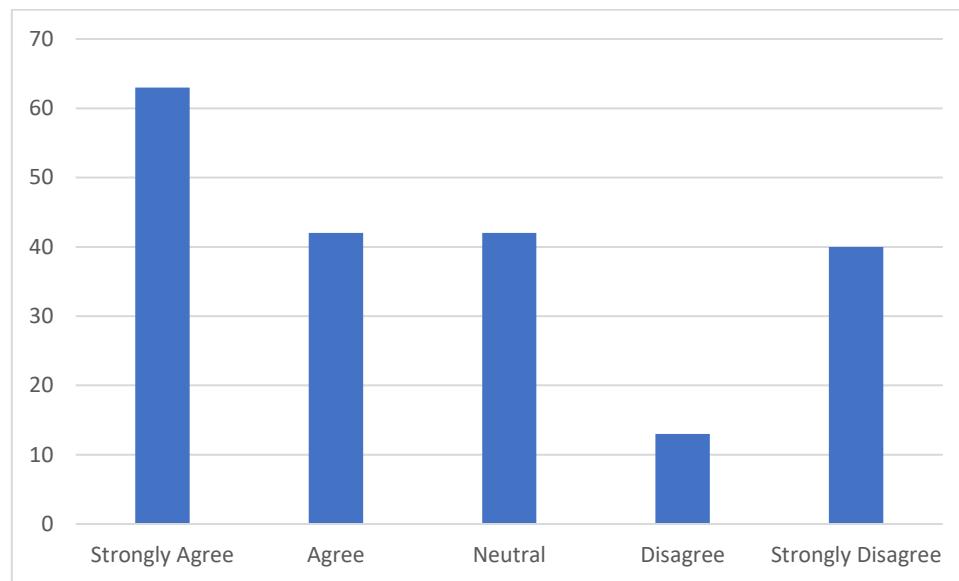


Figure 18: Engaging external actors has been key toward addressing the challenges and risks presented by the pandemic

Lastly, the figure demonstrates the responses of the participants with regard to whether or not their organization was able to foster a concise focus on and had been able to address those risks that the pandemic had posed and was able to address so through said focus. This was met with a shift from the prior high amount of neutrality and agreement to near ten per cent of the sample being neutral toward the question item whereas the notable majority of the sample had collectively agreed with the notion. In this regard, the below figure demonstrates that, with regard to risk management outcomes, the participants had regarded their organization's concise focus on the pandemic as being key in terms of addressing the unique risks that it had posed. As such, the below figure then allowed for the inference to be made that those working for the Ministry, during the course of the pandemic, had considered its efforts at this time to be optimal and successful, yet regarded a variety of aspects concerning its efforts

to be improved. Additionally, it was only through facing and combating the pandemic that the participants had considered that the Ministry was able to improve on its focus on risk with such a focus being regarded as crucial in overcoming those unique challenges that the pandemic accompanied. Lastly, this section also provided insight that it was through engaging with non-Ministry actors such as healthcare institutions, civilians, the private sector, etc. that the Ministry was able to address the risks as well as challenges brought on by the pandemic.

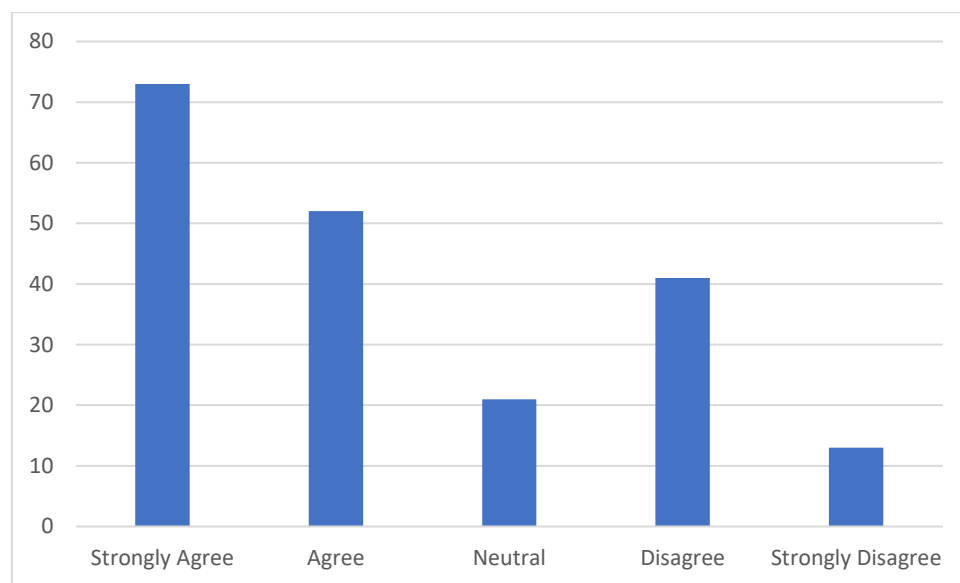


Figure 19: Your organization has been able to foster a concise focus and has been able to address the risks posed by the pandemic through such

Risk Management Culture

The below figure then demonstrates the findings of the second last section of the survey. In this regard, it demonstrates the insight presented by the participants with regard to the risk management culture at the organization and the effects of this on the approach of the organization to the pandemic. This section, similar to the rest of the survey, was comprised of five individual questions being asked of participants and unique insight regarding the manner in which risk management culture was at play in the organization being attained. To this end,

the first had asked the participants as to whether or not they had viewed their organization as being able to prioritize the use of active risk understanding and awareness efforts. This demonstrated a change in the overall disagreement to agreement ratio with it being more so evenly distributed than it had been previously. To this end, more than sixty per cent of the sample had provided insight that the organization was actively prioritizing risk management awareness and understanding within its operations.

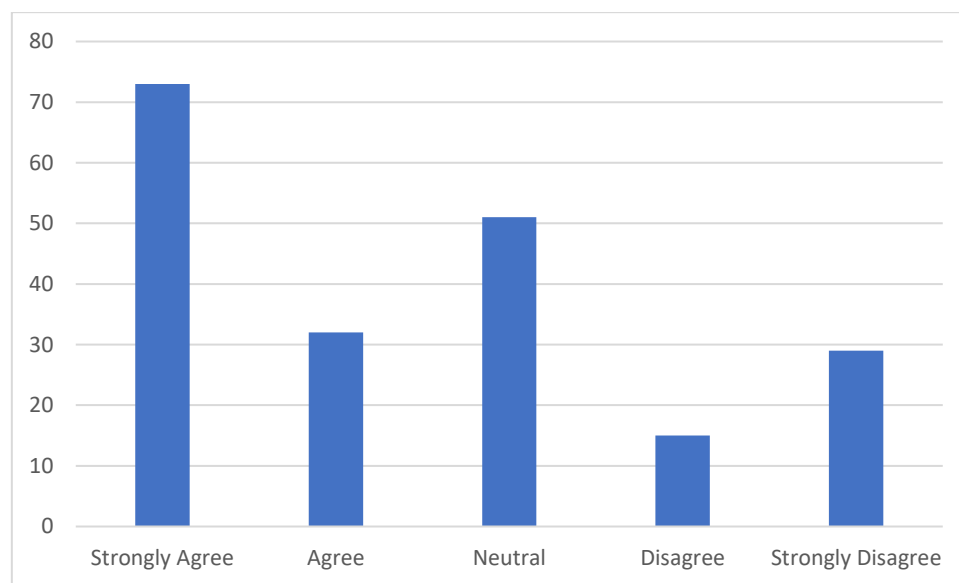


Figure 20: Your organization actively prioritizes risk management awareness and understanding

This was followed then by the second question item, which evaluated the views of the participants with regard to whether or not they had considered workers to be given regular risk management-related training or training that was inclusive of risk management practices. The goal of this question item was to assess the views of the participants regarding training that they were given by the Ministry as well as the focus of the Ministry on risk management practices. To this end, nearly half of the sample had stated that this was the case for the majority of those who had worked at the organization whereas a notable portion of the sample did not

consider such to be the case. In conjunction with the prior, then, the author was able to infer that the organization, whilst focused on risk management understanding and awareness as well as the inclusion of a focus on risks and challenges, was unable to fully implement risk management practices across its training efforts. This then necessitates a further focus on risk management-related training and the inclusion of risk management practices in the training given to workers.

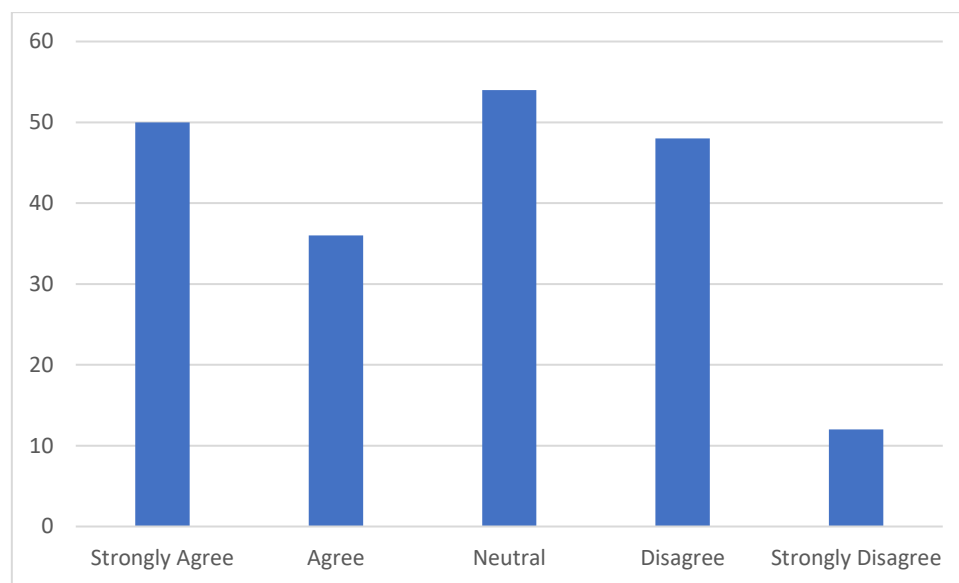


Figure 21: Workers are given regular risk management-related training or training inclusive of risk management practices

The third question then evaluated the perspectives of the participants with regard to the organization's focus on a risk management culture and whether or not such had aided the organization in terms of improving its risk management competency. This was, relative to the question items prior included within this section of the survey, highlighted that the majority of the participants had considered the organization as being able to do so. Specifically, it demonstrates that the participants had viewed the organization's focus on a risk management culture as being helpful in terms of improving its risk management competency and thereby

aiding its efforts toward managing the risks faced by the organization. In conjunction with the prior, the author was able to find, through this question item, that the participants had considered their organization as being focused on risk management in its culture, an aspect that had aided the organization in improving its overall capability and competence in terms of risk management. This was the perspective held by nearly seventy per cent of the sample with less than ten per cent disagreeing with the notion presented.

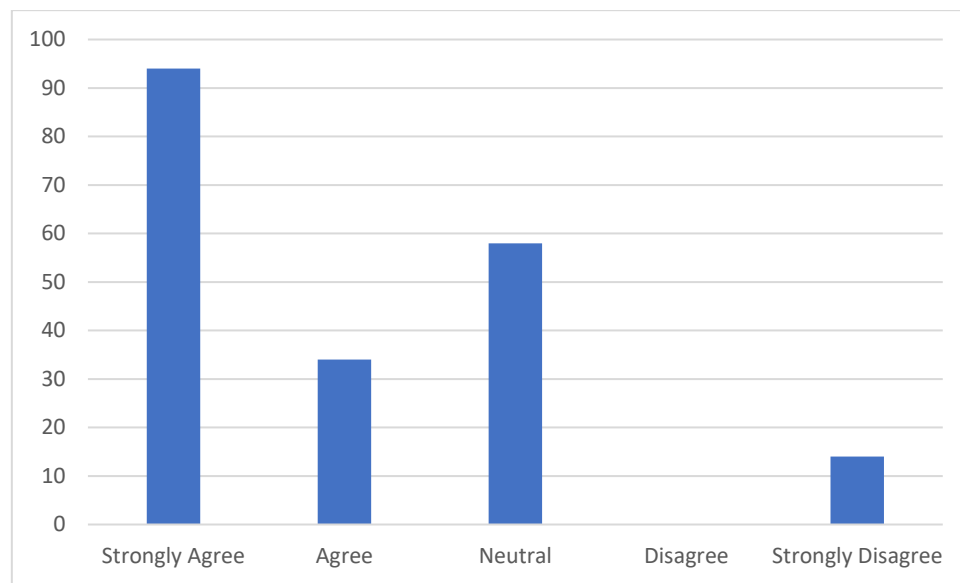


Figure 22: Focus on a risk management culture has helped the Health Ministry improve its risk management competency

This was then followed by the second last question item included in this section of the survey, which had asked the participants as to whether or not they were able to, as individuals who had become workers of the Health Ministry, able to make more so improved and informed decisions as an outcome of the organization's focus on risk management following them joining said organization. The goal here was to assess the perspectives of the individuals regarding the organization and its focus on risk management relative to them joining the organization. The responses here demonstrate that more than a hundred and forty of those who had taken part in

the study had held this view thereby demonstrating that the participants had considered their own capability to make informed decisions improving following them joining the organization.

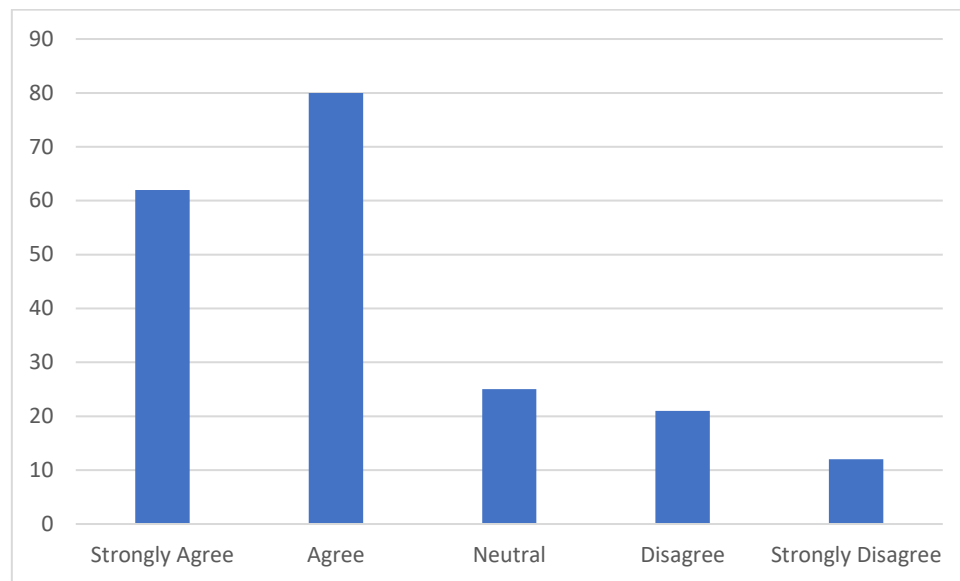


Figure 23: Since joining, you have been able to make more informed decisions as an outcome of your organization's focus on risk management

The last question item included within this section of the survey was with regard to the participants' views concerning the organization and whether or not identifying, evaluating, and addressing risks and challenges that the pandemic had posed was at the heart of the operations of the Ministry. To this end, nearly forty per cent of the sample had collectively disagreed with the question item presented whereas sixty per cent had considered this to be the case for the Ministry. This demonstrated that the majority of the sample of the study had viewed the operations of the Ministry as being focused on identifying, evaluating, and addressing those risks and challenges that the pandemic had posed to the state.

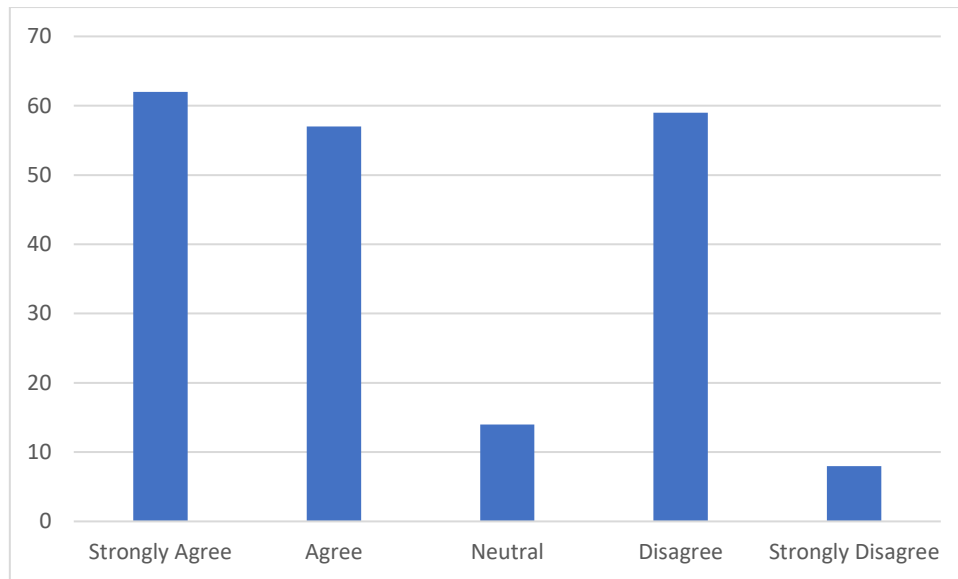


Figure 24: Identifying, evaluating, and addressing risks and challenges posed to the KSA's healthcare industry is at the heart of the Ministry's operations

Communication

This was then the last section of the survey, which had focused on communication. The first question included within this section of the survey had asked the participants as to whether or not communicating with partners of the Ministry was a challenge in terms of combating the pandemic. Responses to this demonstrated that the vast majority of those working for the Ministry had considered communication with external partners and stakeholders of the Ministry of Health as being a notable challenge. This was the perspective shared by the vast majority of those who had taken part in the study – in total by nearly seventy per cent of the sample of the study.

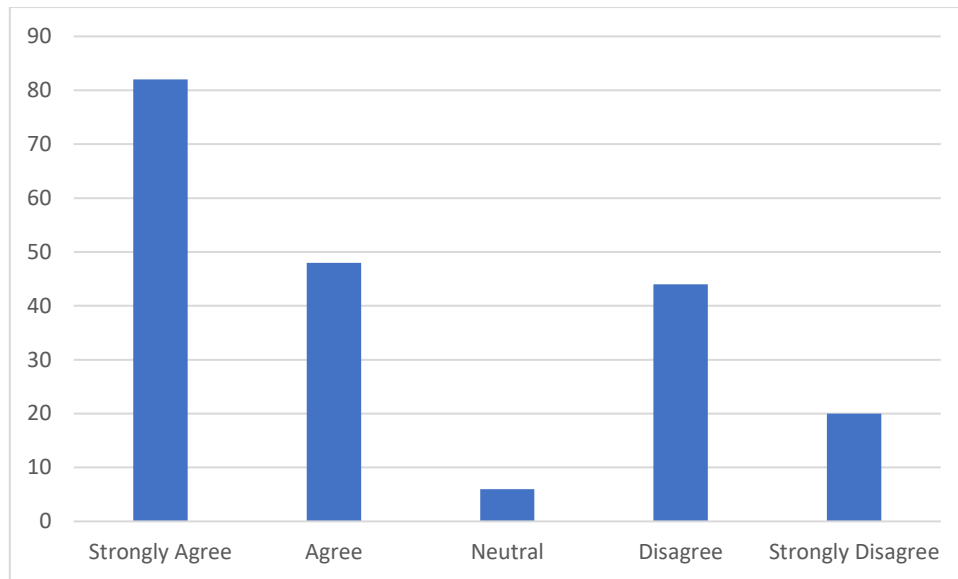


Figure 25: Communicating with partners across the state was a notable challenge

The second question then included within this section of the survey was with regard to the views of the participants regarding the Ministry and whether or not it was able to make active efforts toward disseminating communication and information on a mass scale during the course of the pandemic. This was the perspective shared by more than half of the sample with regard to the question item. Conversely, nearly thirty per cent of the sample had been neutral toward the question item thereby highlighting that they had not fully viewed this to be the case for them. In conjunction with the prior, the author was then able to infer that, with regard to communication, the participants had regarded the organization's communication with partners being a challenge and that the disseminating of such communication and information on a mass scale was a notable challenge for the Ministry during the course of the pandemic. In corroborating this with the secondary literature on the matter, the author was able to state that the participants, in working for the Ministry during the course of the pandemic, had faced challenges similar to other healthcare institutions around the world in terms of combating the pandemic and disseminating important information related to it during such an important time.

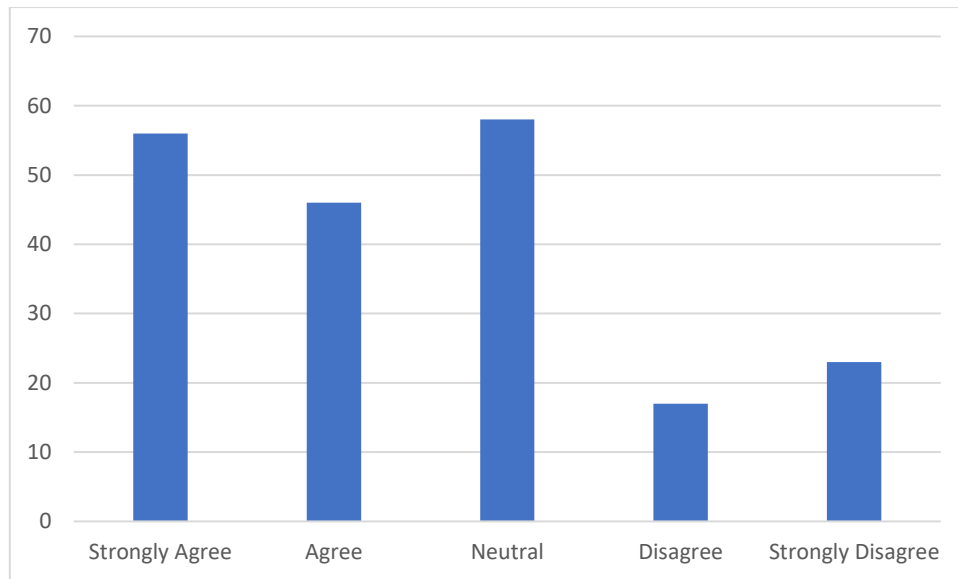


Figure 26: The Ministry had made active efforts in disseminating communication and information on a mass scale during the pandemic

The third last question included within this section of the survey and the survey as a whole was with regard to whether or not active priority was given to ensure that the public was aware of the pandemic and the impact of it as well as how said pandemic should be combated. This was met with agreement from more than half of the sample thereby demonstrating that the Ministry, during the course of the pandemic, had actively prioritized the need to inform the public on the impact of the pandemic as well as how said impact can be reduced. In conjunction with the prior, the inference could have been made that communication, during the time of the pandemic, was a crucial challenge for the Ministry. This was also the case for most healthcare institutions around the world (Parveen, 2020; Perveen, et al., 2020; Raj & Bozonelos, 2020).

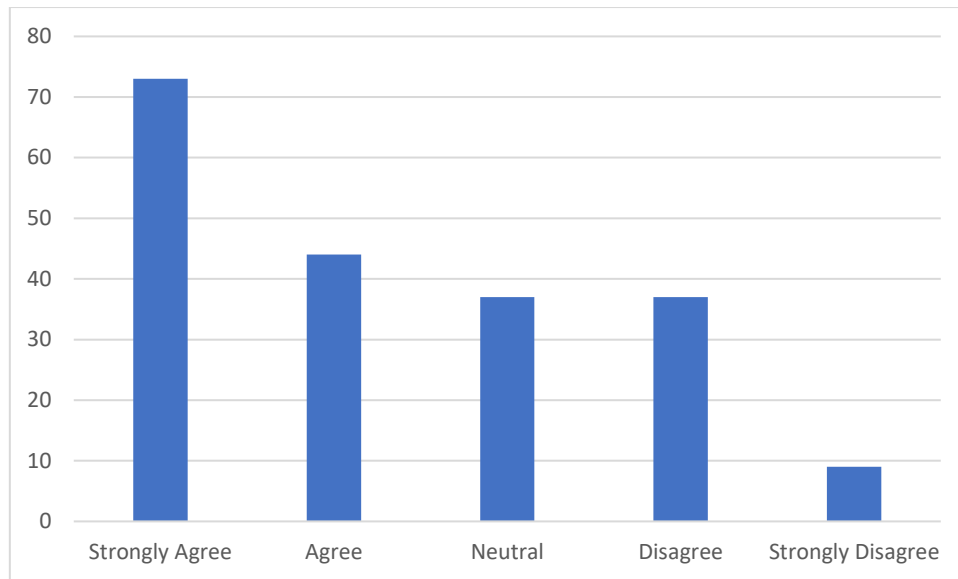


Figure 27: Active priority was given to make sure the public was aware of the pandemic and its impact as well as how to combat it

The second last question included within the survey was with regard to the impact of communication with stakeholders and whether such had helped in decreasing the adverse impact of the pandemic or not. To this, a similar trend with regard to the prior question items was observed in terms of agreement with the statement presented to the participants. Herein, more than a hundred and thirty out of the two hundred participants had regarded communication with their stakeholders as helping in terms of decreasing the adverse impact that the pandemic was likely to have. Through this, the inference was made that communication with stakeholders had been regarded as being crucial for the organization in terms of decreasing the adverse impact of the pandemic.

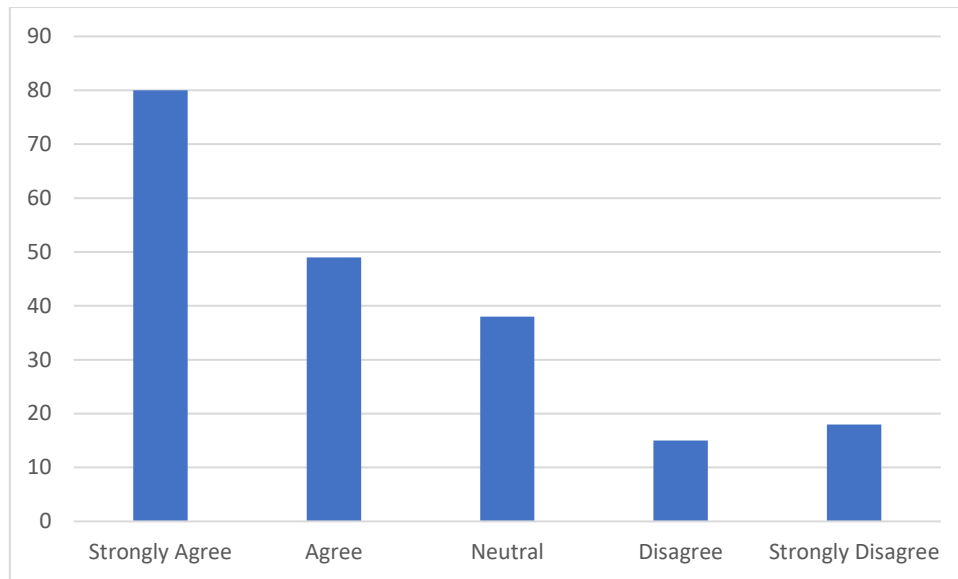


Figure 28: Communication with stakeholders helped in reducing the adverse impact of the pandemic

The last question then included within the survey was with regard to the role of communication in terms of combating the pandemic and making additional resources available for healthcare institutions. The responses to this had demonstrated that those working for the organization viewed communication as being crucial in terms of combating not only the pandemic itself, but also for making sure that those healthcare institutions that required them, had the necessary resources available to them.

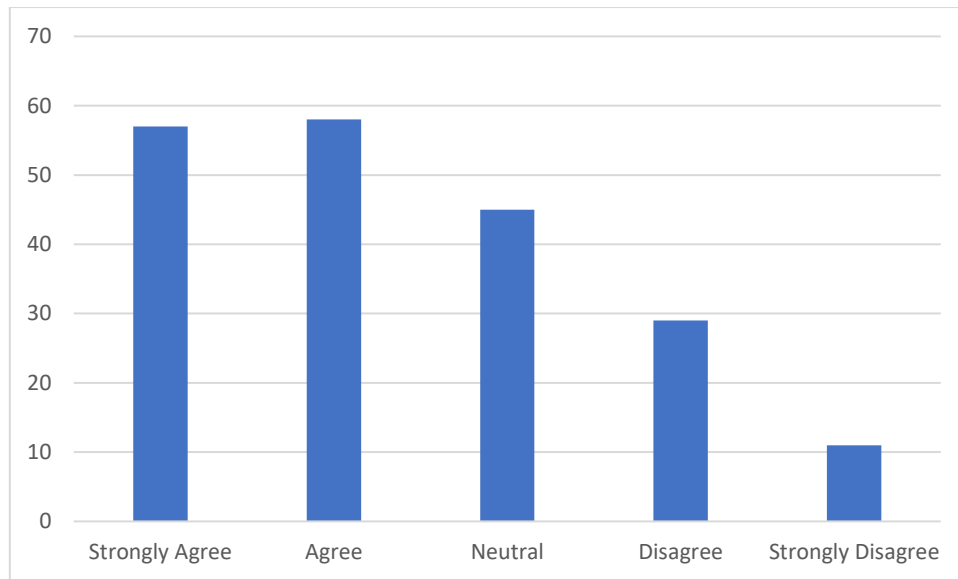


Figure 29: Communication was viewed as key toward combating the pandemic and making resources available for healthcare institutions

The below table then shows the correlation conducted on the study variables. To this end, as highlighted previously, this correlation was focused on evaluating the relationship between these variables and the statistical significance of said relationship. As the below table demonstrates, the strongest relationship then can be seen between the variables of risk management challenges and risk management outcomes at 0.86. This was a strong and positive relationship thereby demonstrating that risk management challenges were likely to coincide with risk management outcomes wherein an increase in challenges was also likely to coincide with an increase in outcomes. Accordingly, the table also demonstrates that risk management outcomes were linked with risk management culture wherein a more so risk management oriented culture was likely to coincide with greater outcomes as demonstrated throughout the responses of the participants. Additionally, the findings demonstrate that the vast majority of the variables shared a strong and positive relationship between them. Moreover, the below demonstrates that communication had shared the relatively weakest relationship between it and the other variables. With regard to communication, the author was also able to find that risk

management outcomes and communication had shared the strongest relationship for this variable and the others within the survey. The second most notable relationship between communication and another variable was between it and the variable of risk management culture.

Table 2: Correlation

	<i>Risk Manageme nt Challenges</i>	<i>ICT Use</i>	<i>Risk Manageme nt Outcomes</i>	<i>Risk Manageme nt Culture</i>	<i>Communicati on</i>
Risk Management Challenges	1				
ICT Use	0.717720	1			
Risk Management Outcomes	0.866813	0.74698	1		
Risk Management Culture	0.783432	0.71137	0.855042	1	
Communication	0.606991	0.59493	0.656517	0.632894	1

Conclusion

Through the current work, then, a number of conclusions were found with regard to the previously mentioned research questions and objectives as well as hypotheses. Most in particular, with regard to the first research objective, that of identifying the risk management challenges that the Health Ministry had faced during the course of the pandemic, the author was able to find that the Ministry had faced an innumerable amount of challenges. These not only included communicating with partners and engaging them during the course of the pandemic, but also a lack thereof understanding and framework for managing such a cataclysmic event. Furthermore, the participants of the study demonstrated that establishing and using strategies such as travel restrictions, suspending social events, and making use of ICT was crucial for the Ministry to combat the unique challenges that the pandemic had presented.

Prior research on this matter also demonstrated that the KSA had made use of not only the guidelines and advice offered by the WHO but also the frameworks and strategies of the CDC as a means of addressing the unique challenges that the pandemic had presented. In this regard, in facing such complex challenges, the Ministry of Health of the KSA was able to create unique risk management strategies that made use of not only contemporary technology but also focused on communication with appropriate external and internal actors as a means of addressing resource shortages and providing care to citizens. Research on the matter also demonstrate that the KSA had played an instrumental role in terms of creating and developing the vaccination for the virus with its efforts through trials, research, as well as vaccination by car being crucial in providing the necessary healthcare to mitigate the long-term impact of the pandemic.

Accordingly, then, the second research objective of the current work was to evaluate the manner in which risks were managed and mitigated by the Ministry with the second and third research question aligning with this. These research questions were to identify the manner in which such risks had been managed and mitigated as well as the results of such risk management strategies. To this end, both the qualitative and quantitative data gathered for the current work demonstrate that the Ministry was able to manage and mitigate the risks that it had faced by way of increasingly relying on and collaborating with external actors as well as through the use of ICT.

The secondary data on this matter demonstrated that the organization had faced a complex and multifaceted challenge as many other healthcare institutions had around the world. The outcome of this was that by combating the pandemic, the Ministry was able to increase its overall focus on risk management efforts and foster a much more so concise focus on risk management in order to address the unique challenges and risks that the pandemic had

posed. Furthermore, the result of these risk management strategies had been considered to manifest in the organization increasingly focusing on a risk management culture as well as on identifying, evaluating, and addressing risk and challenges as they had come about. Adding to this, the results of these strategies had taken the form of the institution actively focusing on communicating with its partners across the state as well as disseminating critical information during a highly challenging a complex time.

Then, with regard to the last research objective of assessing the outcomes of the risk management efforts of the Ministry and the research question of evaluating the manner in which such strategies have impacted public health and safety, the author was able to offer a number of conclusions. Most in particular, the author was able to conclude that these risk management strategies have led to an increased focus the use and role of communication in terms of addressing the risk posed by the pandemic as well as combating said risks. To this end, whilst communication and engagement of external actors was a challenge for the Ministry, it was able to make use of modern technologies, specialized frameworks, guidance from international agencies, and through research and development to successfully combat the pandemic.

Then, with regard to the previously mentioned hypotheses, the current work had allowed for a number of conclusions to be provided. With regard to the first, the author was able to conclude that the use of ICT had been effective in improving the risk management outcomes for the Ministry of Health during the course of the pandemic. As such, H1 was accepted whereas H1a and H1n were both rejected as the former considered the use of ICT as hindering the organization's risk management outcomes and the latter had regarded ICT use as not having a notable impact on risk management outcomes.

Moving forward, with regard to H2, the author was able to conclude that the current work had found H2 to be accepted in that the findings showed that a strong organization-wide risk management culture had actively added to the institution's risk management competency. This was demonstrated in the findings highlighting that it was the use of a risk management culture, across the organization, that was viewed by those who had worked for the organization as improving their risk management competencies. Through this, the author was then able to reject both H2a and H2n, wherein the former stated that such an organization wide culture may end up harming the risk management competence of such institutions and the latter considered such a culture as not having an impact on risk management competence. Both of these, the alternative and null variant of H2 were then disproved and rejected through the findings.

Additionally, with regard to the third research hypotheses, the author was able to find that providing workers with effective risk management training had been crucial in terms of improving their decision-making outcomes. This was demonstrated in the participants highlighting how their organization had provided risk management training or training inclusive of such risk management practices. The participants also demonstrated that they had viewed their risk management competencies and decision-making capabilities improving following them having joined the organization. As such, the author was able to reject both H3a and H3n by way of the findings provided herein. Lastly, then, with regard to the fourth hypothesis of the study, the author was able to conclude that H4 was correct and thus proven through the results of the work with the study demonstrating that the Health Ministry was able effectively communicate with its stakeholders during the course of the pandemic in order to reduce the overall adverse impact of the pandemic. Accordingly, then, H4a and H4n were both rejected.

Recommendations

Through the current work, a number of recommendations could be offered for the subject matter. Most in particular, the findings of the work allowed the author to recommend that the Ministry, whilst highly focused on addressing and resolving the various unique and complex challenges that the KSA faces with regard to healthcare, should also focus more so on including risk management practices in its worker training efforts. The goal herein should be that of ensuring that workers not only have a thorough and well-suited understanding of risk management practices, but that they are also able to make use of such training in real-world practice. The goal of this training would then be to ensure that workers are given the necessary training whilst also evaluating the extent to which workers are able to make use of said training efforts. Accordingly, the author was also able to offer a number of other recommendations as well. As the participants demonstrated that the use of ICT was key in addressing the unique challenges whilst also communicating with stakeholders, the fact of the matter was that the organization was unable to provide workers with the training and capabilities necessary to fully make use of such technologies. As such, the author was also able to recommend that the institution should be focused on providing workers with necessary ICT training as well as assess those aspects that workers then find challenging in this regard. Moreover, communication with external and internal stakeholders was found to be crucial in addressing the challenges posed by the pandemic. Providing workers with a clear framework for such would then help in mitigating such challenges.

Suggestions for Future Work

Through the current work, a number of suggestions can be offered for further research. In particular, whilst the current work had offered a number of notable and important insights regarding the role and impact of risk management practices and strategies on the risk outcomes

and challenges that the Ministry had faced during the course of the pandemic, the fact of the matter remains that the subject can be further evaluated and studied. A notable aspect that the author was not able to evaluate, through the outcome of the methodological approach utilized for the work, was in the form of the type of strategies that the Ministry had made use of during the course of the pandemic and thus the impact of said strategies on the workers therein. Accordingly, then, further research on the matter can make use of a qualitative approach in order to assess the views of real world workers with regard to the impact of the pandemic on them and the role that the various strategies and training of the Ministry had played in terms of mitigating the challenges faced by workers.

Additionally, the goal of such further works should be to attain insight specific to the workers as well as the stakeholders of the institution in order to assess how such an approach to risk management manifested in terms of its impact on the workers. Another avenue for further research on the matter would then take the form of evaluating the communication strategies used by the institution and the effectiveness of such in terms of engaging stakeholders. As the current work showed that stakeholder engagement was crucial for the Ministry to address the risks and challenges posed by the pandemic, it would be important to evaluate the form that such communication takes and the relative effectiveness of said communication when viewed in contrast to other states' healthcare institutions. Lastly, further research can attempt to assess the preparedness of the Ministry now following the pandemic with regard to future events of a similar nature as well as the type of frameworks and protocols that it has implemented since with regard to improving its focus and approach toward risk management. Although the findings demonstrated that the institution has come to focus more so on risk management in recent years, the goal of such further research should be to assess the extent to which such risk management focus manifests and the type of frameworks in place to combat such future events.

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Survey

- **Age**
 - 18-24
 - 25-34
 - 35-44
 - 45-54
 - 55+
- **Sex**
 - Male
 - Female
- **Education**
 - Less than Bachelor's
 - Bachelor's
 - Master's
 - Doctorate
 - Other
- **Work Experience**
 - 1-2 years
 - 3-5 years
 - 5-8 years
 - 8-12 years
 - More than 12 years

S. No.	Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
<i>Risk Management Challenges</i>						
1.	The pandemic presented an unprecedented number of unique risks					
2.	Your organization lacked prepared to combat the pandemic					
3.	Prior to the pandemic, there was no set framework on how to deal with such a complex event					
4.	Establishing and using strategies such as travel restriction and social event suspension throughout the country was a challenge					
5.	Communication and increased use of digital technology for communication was a challenge for most institutions					
<i>ICT Use</i>						
6.	Your organization actively utilized ICT in order to manage					

	and mitigate existing and new risks					
7.	ICT use was crucial in overcoming the challenges presented by the pandemic					
8.	ICT helped identify and define the target population for vaccination					
9.	ICT helped in contact tracing efforts					
10.	Use of modern ICT helped in reducing the challenges posed by the pandemic					
<i>Risk Management Outcomes</i>						
11.	You consider the Health Ministry's efforts to have been optimal and successful					
12.	A number of aspects could have been improved during the pandemic with regard to the Ministry's efforts and plans					
13.	Combating the pandemic has allowed for a more so risk focused culture to take place in the organization					
14.	Engaging external actors has been key toward addressing the challenges and risks presented by the pandemic					
15.	Your organization has been able to foster a concise focus and has been able to address the risks posed by the pandemic through such					
<i>Risk Management Culture</i>						
16.	Your organization actively prioritizes risk management awareness and understanding					
17.	Workers are given regular risk management-related training or training inclusive of risk management practices					
18.	Focus on a risk management culture has helped the Health Ministry improve its risk management competency					
19.	Since joining, you have been able to make more informed decisions as an outcome of your					

	organization's focus on risk management					
20.	Identifying, evaluating, and addressing risks and challenges posed to the KSA's healthcare industry is at the heart of the Ministry's operations					
<i>Communication</i>						
21.	Communicating with partners across the state was a notable challenge					
22.	The Ministry had made active efforts in disseminating communication and information on a mass scale during the pandemic					
23.	Active priority was given to make sure the public was aware of the pandemic and its impact as well as how to combat it					
24.	Communication with stakeholders helped in reducing the adverse impact of the pandemic					
25.	Communication was viewed as key toward combating the pandemic and making resources available for healthcare institutions					