Factors affecting the Health Care Insurance Inclusion and Saudi Hospital Management Operation Efficiency

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Abstracts: The Saudi healthcare scene has seen significant changes, with an increased emphasis on improving the quality and availability of medical treatments. Given the critical role that hospitals play in the delivery of healthcare services, it is critical to understand the relationship between management strategies and operational efficiency. It is difficult to transform a weak existing program into a large project of national health care insurance in a country that lacks a stable and implanted national health care insurance program, such as KSA. This inclusion, while highly helpful for human health care, poses a significant challenge for health care management and may have an impact on Management Efficiency, which is heavily influenced by variables such as Management Staff Satisfaction. Plan for Facility Availability, Management Cost Reduction, and Patient Safety Improvement After healthcare insurance reforms, healthcare professionals were required to have compensatory shifts, which healthcare administrators were required to supply. Using well-established theories of organizational management and healthcare economics, this study will enhance hospital management practices in terms of operational efficiency results. Furthermore, the study looks into the extent to which the availability of health insurance functions as a moderator in this relationship. The availability of health care insurance influences patients' ability to obtain medical services and has the potential to influence the efficacy of hospital management practices. Quantitative research was employed to achieve these objectives. Quantitative data is gathered through surveys and historical hospital performance metrics derived from interviews and focus group conversations with key players in Saudi Arabia's healthcare system.

Keywords: Health care Insurance, Hospital Management, Cost Reduction, Staff Satisfaction, Inclusion, Patient safety, Improvement plane

1. INTRODUCTION

The Ministry of Health in the Middle East places utmost importance on health care and its associated services. The provision of accessible health care services to all individuals within the community is a significant objective pursued by governments in the Middle East. Enhancing the quality and effectiveness of health care, as well as promoting its improvement, are key priorities for these governments. Consequently, the management process plays a crucial role in achieving these objectives. The global significance and impact of health care insurance are well acknowledged, with particular emphasis on its relevance in Saudi Arabia. This objective has been extensively studied by researchers such as Rosenthal et al. (2023) and Alkhaibari et al. (2023). The provision of health insurance is associated with improved utilization of healthcare services and enhanced health outcomes. A transformation in the healthcare system and insurance has been implemented in the Kingdom of Saudi Arabia (KSA) with the aim of enhancing affordability and accessibility to healthcare services. The implementation of these modifications necessitates a specialized hospital management response, as the effective management of changes in the healthcare sector is fundamental to professional expertise. Change management is widely recognized as a crucial factor in the field of health care management (Hamidi, Regmi, & van Teijlingen, 2023). at this study, we want to evaluate the effects of incorporating health care insurance into hospital management. This will be achieved by administering a questionnaire to healthcare professionals working at governmental hospitals in the Kingdom of Saudi Arabia (KSA) and conducting an interview with a key manager from the same institutions. The purpose of these assessments is to analyze the impact of health care insurance on hospital operations and decision-making. In an effort to establish an appropriate approach to hospital administration in response to the inclusion of health care insurance, Safiri et al. (2023) conducted an evaluation of a significant patient safety indicator. This indicator pertains to the enhancement of financial aspects and the provision of patient necessities.

As the level of education increases, individuals are more inclined to possess healthcare insurance. The possession of healthcare insurance is associated with education and wealth. This correlation arises from the desire to ensure that individuals receive necessary medical care without encountering financial hardships related to payment. The division of stocks and the resulting public health insurance system can contribute to inequalities and

economic challenges in accessing healthcare services. Notably, Long-Term Care Insurance has demonstrated a substantial positive impact on the healthcare and overall quality of life for individuals (Al-Eitan, Sendyani, & Alnimri, 2023). The global difficulty of enhancing the sustainability of healthcare systems is exacerbated by the lopsided distribution of accessibility and quality of medical treatments. This disparity necessitates the implementation of national health care insurance programs to address the issue. In a nation lacking a comprehensive and established national health care insurance program, such as the Kingdom of Saudi Arabia (KSA), the task of transforming the existing limited program into a robust initiative for national health care insurance is a significant difficulty. The incorporation of high levels of inclusion in healthcare, while advantageous for human health, poses significant challenges for healthcare administration and has the potential to impact management efficiency. This impact is influenced by various factors, such as the satisfaction of management staff (Greenslade et al., 2023).Plan for Enhancing Facilities Availability, Reducing Management Costs, and Improving Patient Safety Healthcare providers were required to adapt to compensatory shifts necessitated by changes in healthcare insurance, which were facilitated by healthcare administrators. The primary objective of this study was to examine the impact of including health care insurance on the effectiveness of health care administration. Specifically, the study aimed to determine if this inclusion had a good or negative influence on the efficiency of health care management, as evidenced by previous research conducted by Hoveidaei et al. (20323) and Pardo & Prato (2023).

The intricate correlation between hospital management practices and operational efficiency has generated considerable attention in the ever-evolving realm of healthcare administration and service delivery in Saudi Arabia. However, an area that is sometimes disregarded but is of utmost importance in this specific organization is the integration of healthcare insurance coverage (Alhowaymel et al., 2023; Alfaifi, 2023; Aldogiher, 2023). The central concern revolves around understanding the extent to which the integration of healthcare insurance acts as a mediator, influencing the association between hospital management strategies and outcomes pertaining to operational efficiency (Alshahrani, 2023). Despite the rigorous endeavors undertaken by the government of Saudi Arabia to improve the accessibility and quality of healthcare services, there are ongoing challenges in the effective management of hospital operations. Hospital administrators bear the responsibility of executing effective management strategies with the goal of promoting operational efficiency, optimizing resource allocation, and improving the quality of patient care. Nevertheless, the significance of healthcare insurance in this particular setting remains ambiguous (Almutairi et al., 2023; Alshatti et al., 2023). The impact of insurance on patients' access to healthcare is widely acknowledged; yet its capacity to serve as an intermediary between management strategies and operational efficiency has not been comprehensively examined in a systematic fashion (Abdalla, Pavlova, & Groot, 2023).

The complexity of the healthcare system in Saudi Arabia is underscored by the presence of intricate sociological and economic factors. Cultural attitudes, regulatory frameworks, and economic imbalances exert a significant influence on the dynamics of healthcare utilization and administration (Alzahrani et al., 2023; Alzghaibi et al., 2023; Abdulkarim & Subke, 2023). Hence, it is imperative to undertake a thorough investigation of the potential moderating influence of healthcare insurance coverage on the association between hospital management practices and operational efficiency. The investigation of this matter exhibits promises in uncovering valuable insights that can inform policy development, aid hospital administrators in implementing targeted strategies, and contribute to the ongoing enhancement of Saudi Arabia's healthcare system (Al-Wathinani et al., 2023; Alotaibi et al., 2023). The objective of this study is to assess the impact of healthcare insurance inclusion on hospital management efficiency, with a particular focus on its role as a mediating element.

2. LITERATURE REVIEW

The incorporation of health care insurance inside a healthcare system may facilitate a link between management personnel and the provision of healthcare services. The type and scope of this interaction may exhibit variability contingent upon a multitude of circumstances, including the duties, responsibilities, and viewpoints held by the management personnel (Abdalla, Pavlova, & Groot, 2023). There are many ways in which the incorporation of health care insurance might be associated with management personnel (Chen et.al., 2020). Policy implementation is a critical aspect of healthcare management, whereby management employees assume a pivotal role in executing

healthcare policies, such as the integration of health insurance coverage. Their responsibility may include the efficient communication of insurance-related policies to both patients and healthcare providers (Bazyar et. al., 2021).

The influence of health care insurance availability on the range and calibre of services provided by hospitals is a subject of quality improvement. In order to guarantee compliance with insurance standards, it may be necessary for management personnel to engage in monitoring and improvement activities aimed at enhancing the quality of care. The management personnel have the ability to actively interact with insurance providers, regulatory organisations, and other relevant stakeholders in order to negotiate favourable terms, get a comprehensive understanding of policies, and ensure adherence to regulatory requirements (Djihad & Zahia, 2023, Yousef et. al., 2023, Aldogiher, 2023).

Change management involves the implementation or alteration of healthcare insurance, which may include adjustments to organisational procedures (Frank, 2018). The execution of insurance programmes may be supervised by management employees, who will also be responsible for addressing any possible difficulties that may occur (Evenson et. al., 2023 Yousef et. al., 2023, Aldogiher, 2023). The connection between management staff and health care insurance might vary depending on contextual factors, organisational dynamics, and the unique duties of individual management professionals (Gurajala, 2023, Frost, 2022). When examining the role of management personnel in the implementation of health care insurance within a healthcare system, it is crucial to consider these elements. Thus, the hypothesis 1 proposed as.

H1: There is a relationship between Management staff satisfaction and inclusion of health care insurance

The correlation between the accessibility of healthcare facilities and the incorporation of health insurance coverage within a healthcare system. The nature of this interaction is complex and has the potential to influence several dimensions of healthcare provision. The potential relationship between facility availability and health care insurance inclusion is worth exploring (Gull et.al., 2023). The interplay between the presence of healthcare facilities and the provision of health insurance may synergistically contribute to the improvement of patient access to medical services. The inclusion of insurance coverage may lead to an increase in the number of people seeking medical treatment (Huraysi et. al., 2023, Greenslade et.al., 2023). The provision of adequate facilities becomes imperative in order to meet the growing demand for patient care while maintaining high standards of quality.

The incorporation of health care insurance coverage has the potential to result in a higher volume of patients seeking medical services, hence impacting operational efficiency. Efficient management of facilities is vital in order to mitigate congestion, reduce waiting times, and facilitate seamless patient flow. Efficient use of facilities enhances operational efficiency (Alshahrani et. al. 2023). Patient happiness is significantly influenced by the accessibility and availability of healthcare services. Patients are more inclined to have pleasant experiences when there is easy accessibility to facilities for appointments, treatments, and consultations. The incorporation of health care insurance coverage may serve as a catalyst for increased patient influx, hence highlighting the need of well administered medical facilities.

The addition of health care insurance coverage may serve as an incentive for consumers to actively pursue preventative treatment and screenings. Sufficient infrastructure is necessary to handle regular health examinations, screenings, and wellness initiatives that may be covered by insurance (Hoveidaei et. al., 2023, Huraysi et. al., 2023, Almutairi et. al., 2023). The financial viability of healthcare institutions may be influenced by health insurance coverage. Insured individuals make financial contributions that may be used to generate income, so enabling the allocation of funds towards the maintenance and expansion of healthcare facilities in order to accommodate the growing number of patients (Jelili Amuda & Alabdulrahman, 2023).

In summary, the correlation between the accessibility of healthcare facilities and the provision of health insurance is intricately connected and of paramount importance in facilitating efficient healthcare provision (Alshatti, 2023, Nair, 2023, Katz et al., 2018). The establishment of a harmonious integration of facilities and insurance

programmes is necessary in order to effectively cater to the requirements of patients, maintain the provision of high-quality healthcare, and guarantee optimal operational effectiveness within the healthcare system. Thus, the hypothesis 2 is proposed as.

H2: There is a relationship between facilities availability and inclusion of health care insurance.

The allocation of resources is influenced by both the lowering of management costs and the inclusion of health care insurance. The implementation of cost reduction methods requires a meticulous evaluation and distribution of both financial and operational resources. The addition of health care insurance may have an influence on the volume of patients, hence requiring the appropriate allocation of personnel, resources, and medical apparatus (Gull et. al., 2023, Abdalla, Pavlova & Groot, 2023). The process of budgetary planning is influenced by two key factors: the reduction of management costs and the incorporation of health care insurance. The generation of money from insurance may serve as a substantial funding stream, and effective cost management practises are crucial in order to secure resources for the purpose of upholding superior healthcare services and making investments in infrastructure and equipment (Djihad & Zahia, 2023, Nair, 2023; Global Health Exhibition, 2019).

The use of staffing strategies might result in insurance to employee levels and allocation as a means to reduce management costs. The incorporation of health care insurance coverage has the potential to result in an upsurge in patient visits, hence necessitating the presence of an adequate number of personnel to effectively administer treatment (Nair, 2023; Global Health Exhibition, 2019). The act of maintaining equilibrium between these parameters guarantees the attainment of the most favourable patient-staff ratios. The preservation of quality treatment should not be compromised, even when efforts are made to reduce costs and minimise needless spending (Evenson et. al., 2023). The provision of health care services may be influenced by the presence of insurance coverage. The objective of cost reduction strategies should be to guarantee the preservation of quality care while implementing financial optimisations.

Process optimisation is required for both approaches. The use of cost reduction measures facilitates the optimisation of administrative operations, but the incorporation of insurance coverage necessitates inclusions to invoicing and claims procedures. The implementation of efficient procedures is crucial for ensuring both the financial sustainability and timely provision of patient care. The financial sustainability of healthcare organisations is enhanced by effective cost reduction management (Greenslade et. al., 2023). The incorporation of health care insurance coverage may provide a consistent source of income, while efficient cost management practises guarantee the best use of these funds. The integration of management cost reduction and health care insurance inclusion necessitates the implementation of strategic planning. In order to ensure financial stability, efficient resource allocation, and the provision of excellent patient care, hospitals must coordinate their plans accordingly. In summary, the interplay between cost reduction in management and the incorporation of health care insurance has significant importance and complexity within the realm of healthcare organisations (Bashatah et. al., 2023). It is important to adopt a well-rounded strategy that considers both financial optimisations and the quality of patient care in order to successfully address the difficulties and possibilities arising from the integration of health care insurance in hospitals. Thus, hypothesis 3 proposed.

H3: There is a relationship management cost reduction and inclusion of health care insurance.

There is a potential correlation between the implementation of patient safety improvement programmes and the integration of health care insurance within a healthcare system. The interconnection between these two facets of healthcare might manifest in many ways, leading to reciprocal influences. The enhancement of patient safety measures, training, and monitoring often necessitates the allocation of resources in patient safety improvement programmes (Al Mustanyir, 2023). The incorporation of health care insurance has the potential to impact the allocation of available resources via its influence on funding distribution. The incorporation of insurance coverage may provide financial assistance for endeavours aimed at enhancing patient safety, so guaranteeing the allocation of sufficient resources towards safeguarding the well-being of patients (Al-Tawfiq & Temsah, 2023).

The purpose of patient safety improvement programmes is to mitigate medical mistakes and minimise the potential for legal actions. The incorporation of health care insurance may facilitate the provision of financial coverage for anticipated legal costs, therefore aligning with the objective of reducing legal obligations and safeguarding patient well-being (Alzahrani et. al., 2023). Patient safety improvement strategies often coincide with healthcare rules and compliance requirements. The addition of health care insurance may necessitate hospitals to adhere to certain safety requirements in order to guarantee coverage. By coordinating these efforts, it guarantees the simultaneous fulfilment of patient safety and insurance requirements. Operational efficiency plays a crucial role in both patient safety improvement initiatives and the incorporation of health care insurance (Garg, Chowdhury & Sundararaman, 2019), The implementation of streamlined procedures plays a significant role in enhancing patient safety and optimising the efficiency of insurance claims processing. The integration of these endeavours has the potential to result in comprehensive operational excellence (Abdulkarim & Subke, 2023).

Long-term advantages may be achieved via the implementation of effective patient safety improvement strategies, which include a reduction in adverse events and readmissions. The incorporation of health care insurance facilitates the maintenance of patients' ongoing access to medical services, hence resulting in enhanced long-term health results (Greenslade et.al, 2023). In summary, there exists a correlation between patient safety improvement plans and the incorporation of health care insurance, since both endeavours have the same objective of augmenting the quality of patient care, ensuring safety, and enhancing the overall healthcare encounters. The integration of these activities has the potential to provide comprehensive care delivery that effectively encompasses the clinical and economical dimensions of healthcare. Thus hypothesis 4 proposed as follows.

H4: There is a relationship Patient safety improvement plans and the inclusion of health care insurance.

Operational streamlining refers to the process through which healthcare insurance integration necessitates hospitals to optimise their administrative procedures, including activities such as invoicing, claims processing, and paperwork. Efficient administrative procedures play a crucial role in mitigating operational bottlenecks, minimising patient wait times, and enhancing the overall efficiency of hospital operations. The addition of healthcare insurance may have an influence on the flow of patients inside a hospital setting. Effectively managing the arrival of patients with insurance coverage, ensuring appointments are scheduled promptly, and coordinating the trajectory of treatment may optimise the movement of patients, minimise excessive congestion, and improve the efficiency of healthcare management (Khanna, 2020).

The presence of insurance coverage may serve as a motivating factor for hospitals to provide treatment of superior quality in order to optimise their compensation. This is consistent with the objectives of hospital administration in terms of improving patient outcomes, hence enhancing the overall effectiveness of healthcare provision. The incorporation of healthcare insurance may have an influence on workforce requirements in terms of worker productivity. Efficient staff scheduling, allocation, and coordination are essential for effectively managing the demands of insured patients. Effective management of personnel plays a crucial role in enhancing the quality of patient care and facilitating the seamless functioning of hospital operations (Lee, Brown & Bennett 2021).

The use of technology in hospitals might potentially improve the efficiency of insurance-related procedures, including the filing and verification of claims. The use of digital technologies not only enhances the optimisation of administrative operations but also enhances the overall efficiency of management. The incorporation of healthcare insurance has the potential to enhance patient satisfaction via the alleviation of financial strain experienced by individuals. Patients who experience satisfaction with their healthcare are more inclined to adhere to their treatment programmes and have a higher likelihood of seeking further medical care, so making a positive impact on the overall management results (Moussa, et. al., 2023). Regulatory compliance is a common aspect of healthcare insurance since it entails adherence to certain regulatory criteria. Efficient management practises are crucial in ensuring adherence to regulatory requirements, so mitigating the risk of fines and minimising operational interruptions. In summary, the correlation between the incorporation of healthcare insurance and the effectiveness of hospital administration is complex and significant (Wei et al., 2020). Effectively overseeing insurance-related

procedures, allocating resources, and delivering patient care may result in improved operational efficiency, financial sustainability, and patient contentment within healthcare establishments. Thus hypothesis 5 proposed as.

H5: There is a relationship between inclusion of healthcare insurance with hospital management efficiency.

Staff members who are content are more likely to work cohesively and align their objectives with those of the organisation. They are in a stronger position to facilitate the adoption of best practises, improve operational processes, and foster a culture of excellence. Consequently, management staff satisfaction is frequently regarded as a prerequisite for enhanced hospital management effectiveness. The efficacy of hospital administration incorporates numerous dimensions, such as resource allocation, patient flow, operational simplification, and overall effectiveness (Yousef et.al., 2023). Efficient hospital management optimises patient care, reduces costs, and maximises resource utilisation. It can result in reduced wait times, enhanced patient experiences, and a more streamlined delivery of healthcare services.

Hospital management efficiency is crucial not only for the health of patients, but also for the financial viability of healthcare institutions. Effectively managed hospitals are able to reallocate resources, invest in infrastructure and technology, and adapt to changing healthcare requirements. The relationship between management staff satisfaction and hospital management effectiveness is profoundly influenced by health care insurance. It functions as a conduit that channels the positive effects of satisfied management staff towards increased productivity. The incorporation of comprehensive health care insurance benefits in an organization's offerings can create a supportive and motivating work environment, thereby enhancing the satisfaction of management staff (Sheerah, Almuzaini & Khan, 2023).

There is no doubt that the incorporation of health care insurance mediates the relationship between management staff satisfaction and hospital management efficiency. Hospital management innovation and efficiency are propelled by management staff satisfaction. When combined with comprehensive health care insurance, the effect is amplified because insurance reduces financial concerns, improves well-being, and fosters a positive work environment. The benefits of hospital management efficiency extend to patients, personnel, and the organisation as a whole (Rahman & Asif Salam, 2021). By recognising the function of health care insurance as a mediator, healthcare institutions can maximise management staff satisfaction, resulting in enhanced patient care, cost-effectiveness, and overall excellence in healthcare delivery. This interaction between satisfaction, insurance, and efficacy highlights the need for holistic approaches to healthcare administration in the complex healthcare environment of the present day.

H6: inclusion of health care insurance mediates the relationship between management staff satisfaction and hospital management efficiency.

The availability of facilities substantially contributes to the effectiveness of hospital management. When hospitals have the required infrastructure and equipment, they can decrease patient wait times, improve the quality of care, and maximise resource utilisation. This, in turn, results in more streamlined operations, greater patient satisfaction, and enhanced hospital management efficiency (Al-Farsy, 2023). When included as part of an employee benefits package, health care insurance can serve as a potent mediator between facility availability and hospital management effectiveness. Health insurance removes the financial barriers that patients may encounter when attempting to gain access to hospital services. When facilities are readily accessible, insurance coverage ensures patients have immediate access to care. This contributes to enhanced management efficiency and prompt treatment. Allocation of Resources: To operate efficiently, facilities require consistent maintenance, enhancements, and skilled personnel. Health insurance coverage provides hospitals with a reliable source of revenue that can be used to maintain facilities, acquire sophisticated medical apparatus, and retain specialised personnel (Al-Ismail et. al., 2023).

The availability of facilities may not be sufficient to ensure an efficient patient flow. Insurance for health care can encourage routine checkups and preventative care, resulting in earlier interventions and a decreased need for

emergency care. This optimised patient traffic increases the overall hospital management efficacy. Adequate facilities facilitate the delivery of high-quality patient care. Health insurance can encourage patients to seek treatment earlier in the course of their illness, leading to improved outcomes. Additionally, it enables hospitals to invest in staff training, thereby improving the quality of care provided. Health care insurance guarantees hospitals a consistent revenue stream. This enables them to plan for long-term facility enhancements, expansion, and technological advancements, all of which are essential for effective hospital administration (Evenson et.a l., 2023).

H7: Inclusion of health care insurance mediates the relationship between facilities availability and hospital management efficiency.

Efficiency in hospital administration is not just about reducing costs; it is also about maximising resource utilisation while maintaining care quality. Cost reduction is an important factor influencing hospital management efficiency. Leaders of hospitals frequently attempt to optimise operations and allocate resources more efficiently. The role of health care insurance as a mediator in enhancing the relationship between management cost reduction and hospital management efficiency offers a novel perspective (Alharbi et. al., 2023, Mirghani et. al., 2023, Khemira et. al., 2023). Cost reduction in hospital administration refers to strategies that seek to minimise superfluous expenses without compromising the quality of patient care. These strategies include budget optimisation, resource allocation, administrative process simplification, and operational efficiency enhancement. Effective management cost reduction results in financial stability, allowing hospitals to invest in infrastructure, technology, staff training, and enhanced patient care, thereby enhancing the overall management effectiveness of the hospital. When incorporated into the structure of a healthcare organisation, health care insurance significantly mediates the relationship between management cost reduction and hospital management efficiency (Huraysi et. al., 2023, Al-Wathinani et. al., 2023). Reducing costs frequently requires slashing budgets and minimising expenditures. Assuring a stable revenue stream, health care insurance serves as a counterbalance. Insurance coverage ensures consistent financial resources, which can be reinvested in essential areas such as facility upgrades, advanced medical apparatus, and staff training.

The function of health care insurance as a mediator in the relationship between management cost reduction and hospital management efficacy is indicative of the complex dynamics that exist within healthcare organisations. Cost reduction is necessary for financial sustainability and optimal resource allocation, but it must not compromise the quality of patient care. Health care insurance serves as a safety net, allowing hospitals to strike a delicate equilibrium between cost-cutting and efficient operations. This partnership between cost reduction and insurance inclusion enables hospitals to continue investing in the well-being of their employees, to maintain high patient care standards, and to maximise resource utilisation (Almutairi et. al,., 2023). Recognising health care insurance as a mediator in the relationship between cost reduction and management efficiency is crucial for attaining the dual objectives of fiscal prudence and extraordinary patient care in contemporary healthcare management.

H8: Inclusion of health care insurance mediates the relationship between management cost reduction and hospital management efficiency.

Plans for improving patient safety are comprehensive strategies intended to reduce medical errors, prevent adverse events, and improve the overall safety of healthcare delivery. These plans include initiatives such as standardising hospital procedures, improving hospital communication, and promoting a culture of safety. Within healthcare institutions, efforts to enhance patient safety are intrinsically linked to the quality of care and operational efficiency (Saeed, Saeed, & AlAhmri, 2023, Almusawi et. al, 2023). Fewer adverse events result in lower costs, fewer redos, and improved resource allocation. Providing timely, high-quality care requires the efficient utilisation of resources, the simplification of processes, and the optimisation of hospital operations. Effective management reduces patient wait times, lowers operational expenses, and improves patient experiences. A hospital that is well-managed ensures that its resources are allocated optimally, its personnel is organised efficiently, and patients receive expeditious care (Almoayad et. al., 2023, Alshehri et. al., 2023). Efficiency is crucial not only for the financial viability of healthcare institutions, but also for enhancing the quality of care as a whole (Alhakami et. al., 2023).

The moderating effect of health care insurance on the association between patient safety improvement plans and hospital management efficiency exemplifies the complexity of the dynamics within healthcare organisations. Patient safety is essential for quality care, whereas efficiency is essential for operational excellence and financial viability (Yousef et. al, 2023). The partnership between patient safety enhancement plans, health care insurance, and hospital administration efficiency enables hospitals to continue investing in staff well-being, maintain high patient care standards, and maximise resource utilisation. In this dynamic interaction, insurance functions as a bridge, enhancing the impact of hospital safety initiatives on overall hospital management effectiveness. Recognising health care insurance as a mediator in the relationship between patient safety improvement and management efficiency is crucial for attaining the combined objectives of safety and efficiency in modern healthcare management (Alhaddad et. al., 2023, Alhowaymel et.al., 2023). It reinforces the notion that superior patient care is inextricably linked to prudent resource allocation and effective hospital administration.

H9: Inclusion of health care insurance mediates the relationship patient safety improvement plan and hospital management efficiency.

3. RESEARCH METHODOLOGY

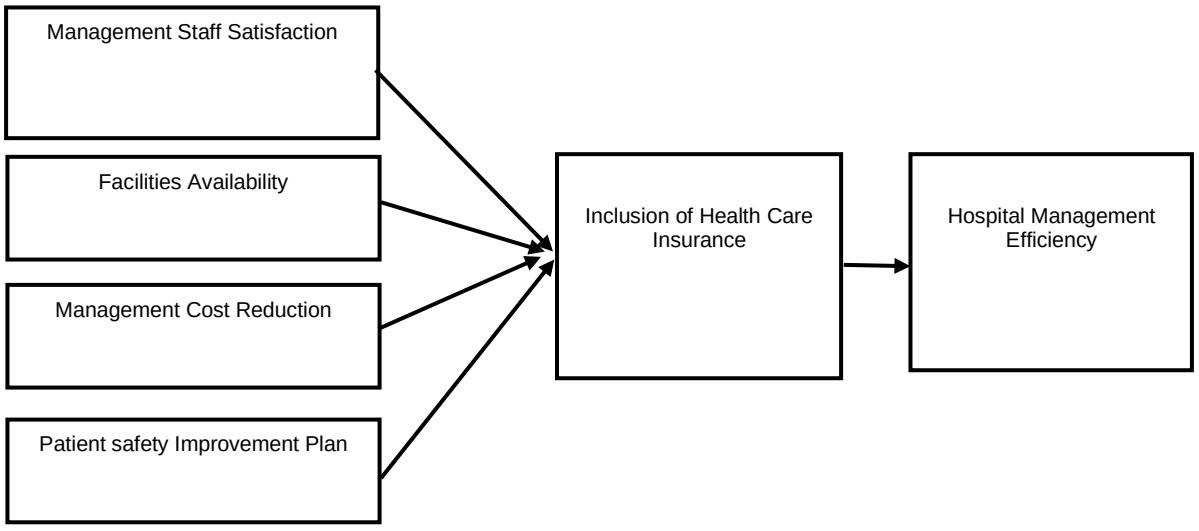

Figure 1 Conceptual Framework

This study examined four independent variables: satisfaction among management personnel, availability of facilities, cost reduction strategies implemented by management (specifically focusing on prevention through technology, compensating for quality, and rising demand for treatment), and the implementation of patient safety improvement programs. Additionally, the study used a mediating variable, namely health care insurance, along with the inclusion and dependent variables, which were Hospital Management Efficiency. The present study utilized a research methodology centered on surveys in order to address the research inquiries and accomplish the research goals. According to Fowler (2014), a survey is a method used to gather data about individuals' personal information, sociological origins, beliefs, and attitudes within a specific timeframe. Fowler (2014) and Sauders et al. (2003) elucidated that surveys can take the form of self-administered questionnaires, which can be disseminated via email and postal services, or through the delivery and collection of physical questionnaires. Additionally, surveys can be conducted via telephone, computer-mediated platforms, electronic media, and in-person interviews. An alternative method of conducting surveys involves the observation of individuals and events, wherein the data is captured through the use of video or audio recordings. The data in this study was obtained via a self-administered questionnaire. In order to respond to the self-administered questionnaire, participants will independently read the questionnaire and document their responses without any involvement or influence from the researcher. This

methodology ensures that the researcher does not introduce any potential bias or interference that could impact the resulting findings. (Leeuw & Hox, 1988).

Due to the presence of a greater number of government-run hospitals in the Kingdom of Saudi Arabia (KSA), the study sample was comprised exclusively of individuals employed inside these healthcare institutions. A study was conducted to choose a representative population of hospitals within the health care insurance industry, using a combination of random and purposive sampling techniques. There are a total of five hospitals that are considered the primary healthcare facilities in the eastern province of Saudi Arabia. These hospitals hold significance since they were the first to implement healthcare insurance inclusion, aligning with the government's priority areas outlined in the 2030 vision. Disproportionate techniques and random sample sizes were utilized in our study. The combined workforce throughout the five hospitals amounted to 3800 personnel, with individual distributions of 1100, 1050, 700, 550, and 400 people, respectively. Based on the recommended sample size outlined by Sekaran and Bougie (2016), in the context of a community with a population over 100,000, a sample size of 384 is deemed sufficient. In the present investigation, the investigator intends to administer a total of 384 questionnaires.

The present study employed Google Forms as a tool to administer an online questionnaire survey, which was subsequently distributed to participants via email. The questionnaire will be constructed in a manner that systematically addresses the research questions based on the findings and insights derived from the literature study. Utilizing an online survey methodology offers a handy and efficacious means of accessing a substantial study sample. The design of the questionnaire will be informed by the instructions provided by Taherdoost (2019). The survey will employ a Likert scale and rating scale in the format of multiple-choice questions. The respondents will provide their responses on a Likert scale ranging from "strongly agree" to "strongly disagree." Taherdoost (2019) asserts that this particular methodology is utilized in the assessment of attitudes and motivation, as well as in the examination of intricate scenarios that provide challenges in quantifying the interrelated elements. The research will employ a descriptive survey methodology, which is suitable for examining the current conditions. The primary components of the data analysis process encompass data entry, data screening, and the implementation of suitable data analytics for the acquired data (Sekaran, 2003; Churchill & Brown, 2004). By employing data screening techniques, researchers are able to identify flaws and missing data inside the dataset. In addition to obtaining descriptive outcomes, the validity of the data and the presence of response bias are also assessed. Data analysis for this study was conducted using IBM SPSS (version 23).

4. DISCUSSION

This part provides an analysis and explanation of the data that was acquired from researchers through the utilization of a questionnaire specifically designed for this purpose. The primary aim of this study is to assess the influence of health care insurance inclusion on hospital management efficiency in Saudi Arabia. The chapter comprises multiple sections that collectively present an examination of the data, enabling the verification of both the primary and secondary study hypotheses. The research was conducted utilizing hypothesis testing and data analysis to examine the assumptions of modeling structural equations (SEM) with the Smart4 PLS approach.

4.1 Reliability analysis

In this section, the measuring model will be assessed in order to ascertain the reliability and validity of the standards prior to implementing the structural model in the study. According to statistical theory, several metrics are anticipated to be employed in order to accomplish the objective. The findings of this test were presented in Table 1.

Table 1 Results of Rho A, Composite Reliability, and Average Variance Extracted.

Items	CR	AVE	Rho_A
Health care Insurance Inclusion	0.896	0.632	0.858
Hospital Management Efficiency	0.924	0.709	0.902
Management Cost Reduction	0.924	0.709	0.900
Facilities Availability	0.923	0.705	0.897
Management Staff Satisfaction	0.938	0.752	0.918
Patient safety Improvement Plan	0.943	0.768	0.925

4.2 Construct Reliability

Construct reliability is considered to be a metric that assesses the internal consistency among scale items (Netemeyer, 2005). It pertains to the extent to which the actual variation in scale scores is equivalent to the overall variability, indicating the presence of shared variability in the underlying construct (Brunner & Süß, 2005; Fornell & Larcker, 1981). Cronbach's alpha is often utilized as a metric for assessing internal consistency. In this context, Composite Reliability was employed and bears resemblance to the value of Cronbach's alpha, albeit with enhanced accuracy and comprehensiveness. According to Hair et al. (2014), the statistical rule stipulates that the test's acceptable value should be within the range of 0.7 to 0.95. Based on the findings, the Composite Reliability values fall within the established range of 0.7 to 0.95. This indicates a satisfactory level of internal consistency among the scale items, hence establishing their reliability in assessing the hypotheses of the study.

4.3 Average Variance Extracted (AVE)

The concept being referred to is the quantification of the magnitude of variability in measurement construction in the presence of measurement error (Fornell & Larcker, 1981). Hence, the concept of Average Variety Extracted in the context of constructing a structure pertains to the researcher's inquiry into the extent to which variations in the fundamental components or variables of the building are accounted for (Henseler, Ringle, & Sarstedt, 2014). The Average Variety Extracted is a measure that quantifies the average level of variety existing in the interpreted variables (Kock, 2019). According to the statistical norm, the least acceptable value for the AVC test is 0.5, while values beyond 0.7 are considered highly favorable. Any number less than 0.5 indicates that the items account for a greater proportion of errors than the variability in the construct. According to Henseler, Ringle, and Sinkovics (2009), it is necessary for the test value to exceed 0.5 in all measurement models. Based on the findings, it can be observed that all variables within the Construct exhibited Average Variance Extracted (AVE) values over 0.5. Moreover, a majority of these variables, namely five out of six, demonstrated AVE values beyond the threshold of 0.7. These results are statistically acceptable and instill confidence in the suitability of these variables for testing the hypotheses outlined in the study.

4.4 Individual Item Validity (Cross Loading)

Validity refers to the degree to which each individual item is measured independently (Sam, 2013). According to the statistical rule, it is required that the test value above a threshold of 0.7. If the value of the Individual Item Value exceeds the approved value, it indicates that all Items are deemed reliable and correct. According to the findings, the test values for all items exceed the threshold of 0.7. This indicates that all items within the latent variables Latent Variables three (SMM, BI, OPD) are statistically significant, reliable, and suitable for testing the study hypotheses.

Table 2 Individual Item Validity (Cross Loading)

Variable	Items	Cross Loading
Health care Insurance Inclusion	A1	0.806
	A2	0.834
	A3	0.813
	A4	0.743
	A5	0.776
Hospital Management Efficiency	B1	0.845
	B2	0.858
	B3	0.874
	B4	0.874
	B5	0.753
Management Cost Reduction	C1	0.819
	C2	0.906
	C3	0.840
	C4	0.864

	C5	0.775
Facilities Availability	D1	0.804
	D2	0.859
	D3	0.868
	D4	0.840
	D5	0.825
Management Staff Satisfaction	E1	0.860
	E2	0.842
	E3	0.889
	E4	0.875
	E5	0.870
Patient safety Improvement Plan	F1	0.884
	F2	0.881
	F3	0.880
	F4	0.848
	F5	0.889

4.5. Fornell Larcker Criterion (Latent Variable Correlations).

The authors Fornell and Larcker (1981) proposed a benchmark for assessing the Discrimination Value. This standard is derived from a regulation that necessitates a comparison between the link box of the Average Variety Extracted construction. The Fornell Larcker standard pertains to the characteristics of the common factor model as proposed by Fornell and Larcker in their seminal work in 1981. According to Fornell and Larcker (1981), the FL rule mandates that the underlying variable should account for the highest level of variability in comparison to the variability observed in other underlying variables. Table 3 presents the Average Variance Extracted (AVE) test values, which indicate that the value of the latent variable under consideration should exceed the overall associations with all other variables (Esposito Vinzi, Chin, Henseler, & Wang, 2010; Fornell & Larcker, 1981). According to Table 6, the FL test demonstrates that the value of the current underlying variable, with the exception of variable 1, surpasses its value in relation to the other underlying variables. This suggests that there is no discernible relationship between the current underlying variable and the other underlying variables.

Table 3. Fornell Larcker Criterion

	Health care Insurance . Inclusion	Hospital Management Efficiency	Management Cost Reduction	Facilities Availability	Manage-ment Staff Satisfaction	Patient safety Improve ment Plan
(A) Health care Insurance . Inclusion	0.795					
(B) Hospital Management Efficiency	0.801	0.842				
(C) Management Cost Reduction	0.763	0.866	0.842			
(D) Facilities Availability	0.749	0.796	0.838	0.840		
(E) Management Staff Satisfaction	0.717	0.772	0.779	0.805	0.867	
(F) Patient safety Improvement Plan	0.727	0.796	0.820	0.823	0.855	0.876

4.6. Collinearity (VIF)

In contrast to the VIF value above 10, the presence of collinearity has reached a highly precarious level. According to Frost (2020), the regression estimates in this particular scenario are entirely unreliable. Based on the findings shown in Table 7, it can be observed that all values obtained from the Variance Inflation Factor (VIF) test are below the threshold of 5. This implies that the level of collinearity across variables in the study is not significant;

in other words, no evidence of a collinearity problem was detected. Therefore, it may be asserted that the conditions outlined in the statistical calendar for this examination have been fulfilled.

Table 4. VIF

Variable	Items	VIF
Health care Insurance . Inclusion	A1	2.674
	A2	2.870
	A3	1.937
	A4	1.586
	A5	1.702
Hospital Management Efficiency	B1	2.342
	B2	2.455
	B3	2.798
	B4	2.839
	B5	1.706
Management Cost Reduction	C1	2.345
	C2	3.646
	C3	2.395
	C4	2.791
	C5	1.874
Facilities Availability	D1	2.039
	D2	2.686
	D3	2.607
	D4	2.971
	D5	2.768
Management Staff Satisfaction	E1	2.519
	E2	2.332
	E3	3.019
	E4	2.801
	E5	2.685
Patient safety Improvement Plan	F1	2.989
	F2	2.934
	F3	2.927
	F4	2.419
	F5	3.063

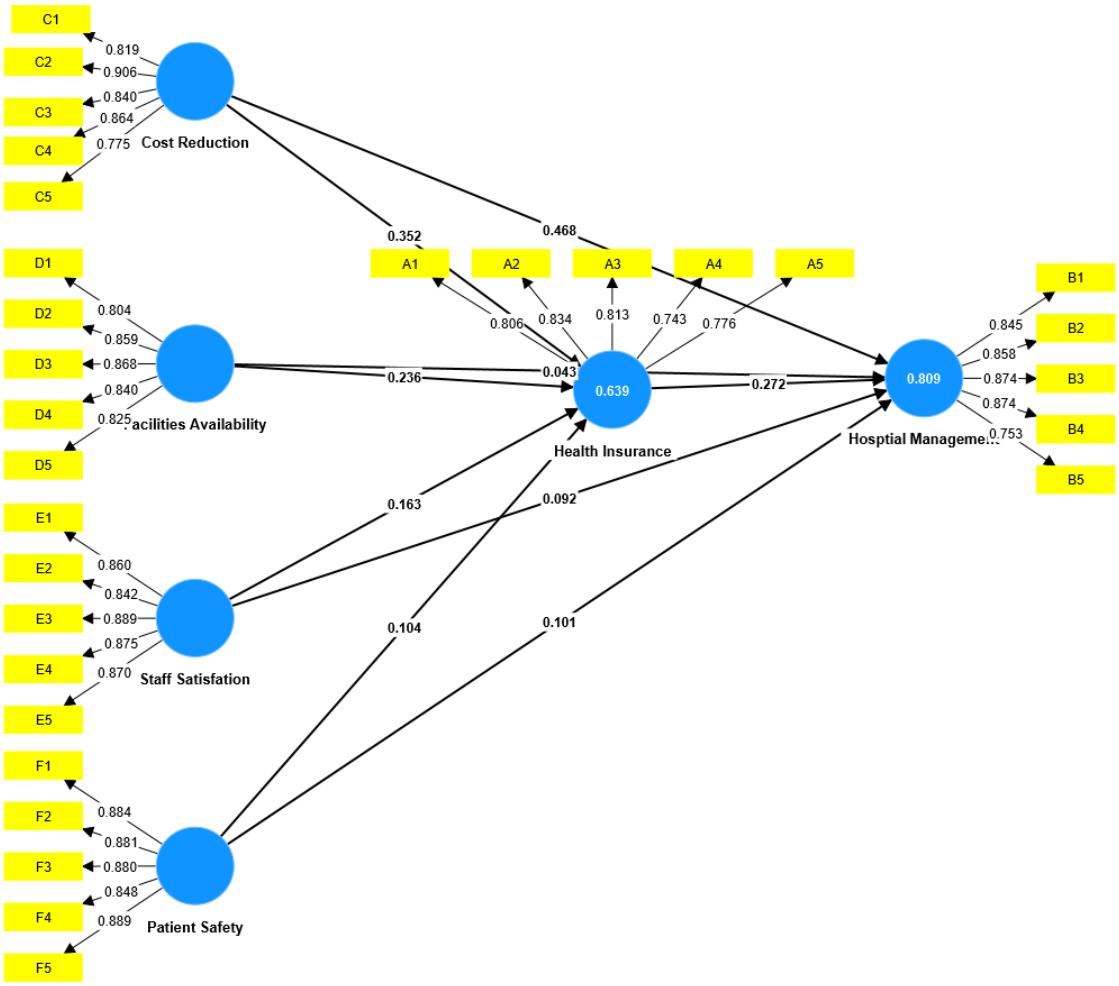

Figure 2. Structural Module

According to existing research, route analysis is a technique utilized to deconstruct the connections between the underlying variables into distinct components, with the objective of comprehending the impact inside each component (Anonymous, 2004). The examination of tracks is intricately connected to the statistical technique of multiple regression. Track analysis enables the formulation of various theoretical propositions concerning cause and effect, without the need to manipulate variables (Drikvand, Hossinpor, & Samiei, 2011). While it is true that there have been observed causal relationships between variables, it is important to note that these links alone may not be enough to fully show the validity of causal assumptions. Initially, the arrows are shown in the preceding format of unidirectional arrows, and they depict the presumed causal connections among variables. Exogenous variables are commonly referred to as autonomous variables, while endogenous variables are denoted as subordinate variables.

Based on the existing literature and prior research discussed in chapter two, the initial study proposed a total of eight path analyses with direct effects and one path analysis with an indirect effect. There exists a notable correlation between the satisfaction of management staff and the inclusion of health care insurance. Additionally, a significant relationship can be observed between the availability of facilities and the inclusion of health care insurance. Furthermore, a significant association is evident between the reduction of management costs and the inclusion of health care insurance. There exists a notable correlation between the implementation of patient safety improvement initiatives and the provision of healthcare insurance coverage. Insurance is a risk management strategy that involves the transfer of potential financial losses from an individual or The concept of inclusion refers to the practice of ensuring that individuals of all backgrounds and abilities are The use of induced improvements in the manager improvement plan of patient safety has been found to enhance hospital management. There exists a notable correlation between the satisfaction of management staff and the efficiency of hospital management. Additionally, a significant relationship has been observed between the availability of facilities and the efficiency of

hospital management. Furthermore, a significant correlation has been identified between the reduction of management costs and the efficiency of hospital management. Lastly, a significant relationship has been found between the implementation of patient safety improvement plans and the efficiency of hospital management. Lastly, it is important to consider that health care insurance inclusion serves as a mediating factor in the strong association shown between hospital management efficiency and health care insurance. The significance of path analysis was examined in the following table.

Table 5. Path Direct Effects

H Relationship	p-value	Decision	Significance
(E) Management Staff Satisfaction → (A) Health care Insurance . Inclusion	0.163	Positive Relationship	Insignificant
(D) Facilities Availability → (A) Health care Insurance . Inclusion	0.236	Positive Relationship	Insignificant
(C) Management Cost Reduction → (A) Health care Insurance . Inclusion	0.352	Positive Relationship	Insignificant
(F) Patient safety Improvement Plan → (A) Health care Insurance . Inclusion	0.104	Positive Relationship	Insignificant
(E) Management Staff Satisfaction → (B) Hospital Management Efficiency	0.092	Positive Relationship	Insignificant
(D) Facilities Availability → (B) Hospital Management Efficiency	0.043	Positive Relationship	Significant
(C) Management Cost Reduction → (B) Hospital Management Efficiency	0.468	Positive Relationship	Insignificant
(F) Patient safety Improvement Plan → (B) Hospital Management Efficiency	0.101	Positive Relationship	Insignificant
(A) Health care Insurance . Inclusion → (B) Hospital Management Efficiency	0.272	Positive Relationship	Insignificant

4.7. Assessing the level of R^2

The R2 coefficient of determination is a statistical metric used to understand the extent of variability in one variable when it is influenced by changes in another one. Alternatively, the metric referred to as R-Square quantifies the degree of linear association between two variables. Numerous scholars depend on the R2 statistic for the purpose of analyzing trends and quantifying the proportion of variability in the dependent variable (DV) that can be accounted for by one or more independent variables (IV) (Elliott & Woodward, 2007; Hair et al., 2010).

Table 6 R^2 of the Endogenous Latent Variable

H Relationship	R2	Adjusted R2	Decision
Health care Insurance Inclusion	0.639	0.635	Large Power of Explanation
(B) Hospital Management Efficiency	0.809	0.806	Large Power of Explanation

The healthcare insurance was placed by the researcher. The study model depicted in Figure 2 incorporates inclusion as moderator's factors. The p-value was estimated by doing 500 bootstrap resampling iterations. In order to ascertain the acceptance or rejection of the connotation associated with the role of Moderator, the statistical rule employed in prior hypotheses was utilized. The decision-making rule stipulates that the Moderator effect should be accepted if the p-value is below 0.05, which represents the probability of making an error. The findings presented in Table 4.14 demonstrate a substantial impact of the Moderators on Hospital Management Efficiency, as evidenced by their significant values over 0.05. This study examines the mediating influence of health care insurance. The study revealed a substantial full mediation effect, as indicated by a p-value of 0.044, between the satisfaction of management staff and the efficiency of hospital management. This mediation effect transformed the previously insignificant association into a significant one. The study observed identical outcomes and a consistent p-value (0.044) when examining the mediating impact of Health Care Insurance. The analysis of the relationship between the availability of facilities and the efficiency of hospital management revealed a p-value of 0.044, indicating a statistically significant full mediation effect. In this study, we examine the mediating role of Health Care Insurance.

The analysis revealed a p-value of 0.036, indicating a significant full mediation effect between Management Cost Reduction and Hospital Management Efficiency. This mediation effect transformed the previously insignificant connection into a meaningful one. Lastly, we endorse the notion of a significant mediating impact of Health Care Insurance on dramatic outcomes. Upon conducting a study to examine the mediating effect of inclusion between the Patient Safety Improvement Plan and Hospital Management Efficiency, it was observed that the p-value was 0.028. This indicates a substantial full mediation effect, which transformed the previously insignificant link into a significant one.

CONCLUSION

This study aimed to examine the effects of health care insurance inclusion in hospital management. This was achieved by administering a questionnaire to healthcare professionals working at governmental hospitals in the Kingdom of Saudi Arabia (KSA), as well as conducting an interview with a key manager from the same institutions. Furthermore, in an endeavor to delineate the efficacious approach of hospital management towards the incorporation of health care insurance. The study discovered that the implementation of Healthcare Insurance Inclusion in Governmental hospitals in the Kingdom of Saudi Arabia (KSA) had a significant positive impact on Hospital Management Efficiency. This is because Healthcare Insurance Inclusion plays a crucial role as a mediator, strengthening the previously insignificant relationship between other independent variables and Hospital Management Efficiency, resulting in a significant positive effect. There was an observed correlation between the satisfaction of management staff and the efficiency of hospital management, however, this correlation did not reach statistical significance. However, the installation of Healthcare Insurance and the inclusion of a mediator, it was seen that there was a substantial impact on the considerable positive association between management staff satisfaction and hospital management efficiency. There is a notable positive correlation between the availability of managerial facilities and the efficiency of hospital management. However, following the implementation of healthcare insurance, we observed the inclusion of a mediator that positively influences the relationship between the availability of managerial facilities and hospital management efficiency. This mediator has a significant impact on improving the aforementioned relationship. Although there is a direct relationship between cost reduction and hospital management efficiency, this relationship was shown to be statistically insignificant. However, with the establishment of Healthcare Insurance and the inclusion of inclusion as a mediator, a notable and substantial positive association between cost reduction and Hospital Management Efficiency was observed.

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