

Evaluating the Efficiency of the Performance of Health Institutions from the Perspective of Health Personnel in the Saudi Health Sector

Sultan Majed Difullah Alotaibi¹, Awad Mishal Badr Al-Otaibi², Shujaa Ogaden Hawas Alotaibi³, Khalid Bandar Khalid Almutairi⁴, Faisal Homood Sanat Alotaibi⁵, Mohammed Mamdouh M Alanazi⁶, Abdulrahman Nouh Abdulrahman Almutairi⁷, Adel Hassan Mohsen Almotairi⁸, Bader Khalid Ghayib Alghubaywi⁹, Manal Abdulrahman Alshammari¹⁰, Munirah Saud Alotaibi¹¹, Awadh Faihan Zuhian Almughyiri¹², Mohammed Muneef Alkatheri¹³, Fatamh Saeed Ateeg AlQahtani¹⁴, Musaeid Saud Saif Alotaibi¹⁵, Nura Hamad Fhaed Alsbacil¹⁶, Turkey Saad Mohammad Alassiry¹⁷, Suaad Mohammad Salman Alfify¹⁸

Abstract

Efficiency is the application of resources in a way that maximizes intended results. Policymakers around the world are prioritizing health system efficiency as nations strive for universal health coverage and deal with the added issue of an aging population. Few research has examined system level (national or sub-national) efficiency in the health sector; instead, efficiency analysis has primarily concentrated on the effectiveness of healthcare facilities (hospitals, primary healthcare facilities). Having a thorough understanding of the inputs, outputs, outcomes, and causes of efficiency within the health system can help with policy formulation and managerial decision-making. Policymakers around the world are prioritizing health system efficiency as nations strive for universal health coverage and deal with the added issue of an aging population. The efficiency of healthcare facilities—hospitals and primary

¹ Clinical pharmacist, Afif general hospital, Ministry of Health, Kingdom of Saudi Arabia.

² Social worker, Afif General Hospital, Ministry of Health, Kingdom of Saudi Arabia.

³ Social worker, Afif General Hospital, Ministry of Health, Kingdom of Saudi Arabia.

⁴ Technician-Emergency Medical Services, Assistant Administration for compliance in health affairs in the Riyadh region, Ministry of Health, Kingdom of Saudi Arabia.

⁵ Epidemiological monitoring Technician, Assistant administration for compliance in health affairs in the Riyadh region, Ministry of Health, Kingdom of Saudi Arabia.

⁶ Assistant administration for compliance in Health Affairs in the Riyadh region, Technician-Nursing, Ministry of Health, Kingdom of Saudi Arabia.

⁷ Specialist Nursing, Assistant administration for compliance in health affairs in the Riyadh region, Ministry of Health, Kingdom of Saudi Arabia.

⁸ Specialist-Sociology, Primary health care in Afif, Ministry of Health, Kingdom of Saudi Arabia.

⁹ Radiographer Technician, Afif General Hospital, Ministry of Health, Kingdom of Saudi Arabia.

¹⁰ Nursing, The second Sector, Ministry of Health, Kingdom of Saudi Arabia.

¹¹ Nursing, Ministry of Health, Kingdom of Saudi Arabia.

¹² Nursing Technician, Afif General Hospital, Ministry of Health, Kingdom of Saudi Arabia.

¹³ Manger, Afif General Hospital, Ministry of Health, Kingdom of Saudi Arabia.

¹⁴ Nursing, king khaled and prince sultan al Kharj General Hospital, Ministry of Health, kingdom of Saudi Arabia.

¹⁵ Nursing Technician, Marat General Hospital, Ministry of Health, kingdom of Saudi Arabia.

¹⁶ Nursing Specialist, Dawadmi General hospital, Ministry of Health, kingdom of Saudi Arabia.

¹⁷ Specialist Health Administration, King khaled hospital and prince sultan centr, Ministry of health, kingdom of saudi Arabia.

¹⁸ Nursing, king khaled hospital and prince sultan centr ministry of health, kingdom of saudi Arabia.

healthcare facilities, in particular—has traditionally been the focus of efficiency study in the health sector.

Keywords: *Efficiency, performance, health institutions, health personnel.*

Introduction

Given the rising costs of the health system, policy makers around the world are prioritizing concerns related to health system efficiency. Reaching efficiency proves to be excellent stewardship since it makes efficient use of the resources at hand and gets rid of waste. Additionally, it increases public and governmental readiness to provide funding for Universal Health Coverage (UHC). It is acknowledged that increased efficiency is a desirable goal of the health system and that it is an intermediate goal of health finance policies that help to achieve the goals of the health system. It is a crucial factor that decision-makers consider when determining priorities (Mbau et al., 2022).

Efficiency is the measure of how well system goals are achieved in relation to the resources allocated to the system. There are two different kinds of efficiency: allocative and technological. When resources are distributed so that outputs are maximized for a given level of inputs or inputs are minimized for a given level of outputs, technical efficiency, or TE, is reached. When resources are distributed so that outputs are maximized for a given level of input cost or input costs are minimized for a given level of outputs, allocative efficiency, or AE, is reached. The sum of a system's allocation and technical efficiency is its "overall" efficiency (Mbau et al., 2022).

The health care industry is difficult and complex to evaluate. Long wait times (WTs), inefficiencies, unsatisfied patients, and burnout among health care workers (HCWs) can all lead to subpar performance. Due to the COVID-19 pandemic's increased psychological stress on healthcare workers and the hospital beds' limited capacity, the coronavirus illness 2019 (COVID-19) placed additional strain on the global health care system. In the COVID-19 era, information that would aid policymakers and health care management in raising the standard of treatment and learning for the future is still lacking. The absence of strategies and preparedness by health care organizations (HCO) to enhance their surge capacity and HCW resilience will lead to increased pandemic burdens, including stress and burnout among HCWs (Amer et al., 2022).

Two studies discovered that efforts that take years to yield positive effects, particularly in relation to annual financial cycles, make it difficult to evaluate efficiency progress. Financial rule-setting has been linked to a little decrease in public health spending, albeit this might not happen for a year or two after the rules are put into place. Therefore, realistic timetables for efficiency improvement of up to three years need to be taken into account. The effective integration of efficiency improvement and disinvestment methods was associated with the establishment of prompts, targets, guidelines, triggers, and required requirements for resource allocation consideration. Finding the places in the system where efficiencies are redistributed can also help with this (Mbau et al., 2022).

Particularly in nations with limited resources like Pakistan, electronic healthcare services are quickly becoming a vital kind of information and communication technology (ICT) that makes it possible to provide medical care quickly and efficiently. Even if there is still a lack of study on this topic, a greater understanding of the factors influencing the adoption of electronic health care is necessary. This article aims to bridge the gap by examining the role that trust, privacy,

task-technology fit, and personal innovativeness have on patients' intents to use electronic health technology. It is based on the united theory of acceptance and use of technology (Gu et al., 2021).

Literature review

Public health systems, or healthcare systems that get funding from the government, are under tremendous pressure to provide the growing demand for healthcare in contexts of significant and growing financial resource constraints. Tighter budgets, rising demand, rising disease rates, rising infrastructure costs, technology breakthroughs, shifting service models, rising customer expectations, and shifting service accessibility are some of the pressures that affect health systems around the world. The public health systems of many affluent nations are consequently characterized by a persistent state of inefficiency inside an atmosphere of what seems like perpetual change. Adding to this is a prevalent pattern of health care spending growth rates exceeding budget growth rates, which puts further strain on public health systems that are already understaffed and understaffed (Walters et al., 2022).

Efficiency can be analyzed in terms of allocative and technical aspects in relation to the outputs of health services, operating requirements, regulatory settings, and available resources. Optimizing outputs while utilizing all available resources is the essence of productive efficiency. Everyone agreed that these ideas applied to the delivery of comprehensive, coordinated, accessible, high-quality, and continuous healthcare services. Efficiency and value were often related to comparing the costs of achieving a goal with the final result. In the current value-based health services paradigm, outcomes obtained for invested capital and financial efficiency are regarded as essential components of value (Walters et al., 2022).

It was proposed that by establishing system-wide priority setting, training, regulatory frameworks, and commercial models, efficiency can be centrally promoted throughout dispersed systems. There was a lack of agreement on the use of efficiency improvement measures within these wider procedures, despite the fact that agreements and performance metrics or indicators were frequently cited as established system management tools across devolved governance models. Successful efficiency improvement initiatives have been associated with target setting and performance reporting transparency, as well as alignment between efficiency and quality performance metrics (Nutti et al., 2016).

60% of all healthcare services are administered by the Ministry of Health (MOH), which is the main supplier in the Kingdom of Saudi Arabia. In the public sector, it is the leading supplier of healthcare services. The remainder of healthcare is shared by the public and commercial sectors, as well as by the Ministry of Defense, the National Guard, and universities. With 282 hospitals and 2361 basic healthcare facilities, the MOH manages 43 080 beds nationwide and provides primary, secondary, and tertiary healthcare. The development of health policies, oversight of all programs for the provision of health services, monitoring and administration of all other health-related activities, and strategic planning are additional MOH responsibilities.

In general, general hospitals in KSA with varying capacities (number of beds) and specialty hospitals can be divided into two categories: public (MOH-affiliated) hospitals. While specialized hospitals offer care for a particular medical condition or to a certain beneficiary group, general hospitals offer a wider variety of healthcare services. The performance of general hospitals in the Kingdom of Saudi Arabia may be impacted by their diverse geographic locations and provision of healthcare services to populations with varying needs and demographic features, as noted by prior research (Alatawi et al., 2020).

Small hospitals were mostly found in Saudi Arabia's outlying cities and towns, where there were no other options for receiving public or private treatment. At relation to the health resources utilized, the quality of care provided at those hospitals may be comparatively high. Big hospitals (those with 500 beds or more) were typically found in major cities in urban regions, where a large portion of the population was served by multiple healthcare providers. This could result in a comparatively lower level of health services production relative to the inputs used (Alatawi et al., 2020).

It is arguable by researchers that hospitals in the west of Saudi Arabia may be handling more serious cases than hospitals in other parts of the country, which may have caused regional differences in hospital efficiency scores. Another explanation would be that the hospitals in this area used more resources in advance of the yearly pilgrimage season, when the Saudi Arabian government provides these institutions with additional funding (Alatawi et al., 2020).

It was discovered that a number of population/demographic factors influenced the technological efficiency of the health system. Density of population was one of these. According to certain research, higher technical efficiency was linked to a country's or a sub-national unit's (region, district, etc.) high population density. Greater population densities improved the technical efficiency of regional health systems by lowering healthcare costs per capita and facilitating the organization and use of service infrastructure by health systems. They also reduced the distances to populations (Mbau et al., 2022).

The population's distribution between rural and urban areas was another aspect that was investigated. There is a common consensus that technically less efficient regions are those with lower rates of urbanization. This was due to the fact that reduced urbanization was linked to lower income levels and unemployment rates, both of which had an impact on healthcare utilization. Age distribution of the population was also investigated; large percentages of extremely elderly or very young people decreased the technical effectiveness of health systems because these vulnerable groups incurred higher healthcare costs (Mbau et al., 2022).

Workload and Job satisfaction

Health care professionals' job happiness may be correlated with their degree of human relations and work organization. It significantly impacted their output, the standard of care they delivered, and occasionally the expense of medical care. The majority of healthcare professionals experienced health issues that could have affected their job satisfaction. As a result, many of them made the decision to quit the company, which put additional strain on the remaining employees and reduced the quality of treatment they could deliver. Work happiness has multiple dimensions and is influenced by various circumstances (Halawani et al., 2021).

For healthcare professionals, job happiness is a critical factor that influences both their output and caliber of work. The following variables are linked to health care practitioners' work satisfaction: sociodemographic factors (job type, age, sex, and duration of employment). In addition, the freedom to express oneself and receive recognition, the quantity of working hours, promotions, and pay. Health care workers deal with difficult shift work and burnout, which lowers their level of satisfaction. The doctor-patient interaction and the work-family conflict also had an effect on the doctor's job satisfaction (Halawani et al., 2021).

The two main aspects thought to be in charge of boosting the organization's success and improving the effectiveness of the health service are the job satisfaction of healthcare professionals and the caliber of care they deliver. Saudi Arabia, a nation that is rapidly developing, has a scarcity of medical personnel in its hospitals, which may be caused by a lack of job satisfaction among medical personnel (Halawani et al., 2021).

Areas for Improvement: The assessment also identified areas in which health staff members may raise their level of performance in order to increase service effectiveness. These included teamwork and communication, following rules and procedures, managing time effectively, and ongoing professional development. By addressing these areas for improvement, workflows can be expedited, errors can be decreased, patient outcomes can be improved, and resource allocation can be optimized (Al-Ghamdi, 2022).

Team Performance Assessment: The assessment demonstrated the value of cooperation and how it affects customer satisfaction. When health professionals collaborated well in interdisciplinary teams, they produced better results and increased service efficiency. Delays were decreased, communication was improved, and patient experiences were improved as a result of these teams' efficient care coordination, information sharing, and mutual support (Al-Ghamdi, 2022).

Training and Development Needs: The assessment determined that health staff workers had particular requirements in terms of training and development. These requirements covered topics like using new technologies, clinical updates, leadership development, and communication skills. Offering staff members specialized training programs and chances for career advancement can provide them the tools they need to improve performance and increase service efficiency (Al-Ghamdi, 2022).

Time Management

Time management, which is crucial in healthcare organizations, is the process of organizing, regulating, and using time. Providing high-quality healthcare requires effective time management since it reduces patient wait times, reduces stress associated to the job for coworkers and other healthcare professionals, and allows tasks to be finished promptly without interfering with other people's work. Effective time management is synonymous with life management. It is essential to reaching the desired balance in one's lifestyle. It increases output, lessens burnout, fosters growth, and raises both job and personal satisfaction. Productivity and performance are impacted by effective time management. It could support staff members in prioritizing all work responsibilities, meeting deadlines, working more productively, seizing new opportunities, and successfully starting and growing a business (Addis et al., 2023).

Effective time management has advantages for the organization as well as the individual. It enhances one's capacity to finish work, make more intelligent choices, and gain total control over crucial priorities. Conversely, ineffective time management has been connected to low productivity, high levels of stress, bad career paths, and low-quality work (Addis et al., 2023).

Tasks must be completed on time since time is a valuable resource that is finite and cannot be recovered. Continuous progress happens, and the more time saved, the better. It has been suggested that efficient time management is a cure for organizational effectiveness, and that time management is one of the most crucial competitive instruments for enhancing organizational performance. However, time management techniques are situational and may be impacted by the culture and leadership style of the company (Addis et al., 2023).

Technology Adoption

The process of obtaining and implementing new technology by a person or an organization is known as technology adoption. Health information technology, or HIT, is not expanding and being used as quickly in the business sector as it is in the healthcare industry. The adoption of EMR technology has been delayed by a number of factors related to the process, including vendors, organizations, government agencies, end users' opinions, and stakeholders. By giving doctors access to current, accurate, and crucial patient data, electronic medical records (EMRs) are a tool that may enhance the results of patient care. The adoption of EMR in emerging

nations has been slow, despite its potential. With an emphasis on the viewpoint of doctors, this systematic review attempts to compile the relevant literature on the deployment of EMRs in developing economies (Derecho et al., 2024).

Communication and Collaboration

Collaborative healthcare teams improve patient and system outcomes and provide better person-centered care. Existing interprofessional frameworks that outline the skills needed for each health professional to fulfill practice standards and further interprofessional objectives have been embraced by numerous organizations. However, healthcare organizations may find it advantageous to implement team-based competences for interprofessional collaboration in order to support the collaborative efforts of team members to provide optimal treatment within complex hospital settings. The importance of interprofessional collaboration in healthcare and education has become well acknowledged. There is growing evidence that the collaborative practice of interprofessional healthcare teams can improve patient and health system outcomes by enhancing the delivery of person-centered care. Many competency frameworks have been established in an attempt to train Healthcare Professionals (HCPs) and foster interprofessional collaboration (McLaney et al., 2022).

Good communication is essential to providing high-quality medical treatment. By fostering therapeutic relationships, communication between healthcare providers and patients promotes patient-centered results. Better self-management and other medical decision-making can be aided by the information shared between the patient and the practitioner. Effective communication is essential for all medical practitioners. It influences patient satisfaction and health, raises the standard of healthcare output, and helps patients as well as providers. Since it builds trust and fosters a therapeutic relationship between patients and clinicians, communication is a crucial clinical competency (Sharkiya, 2023).

Evaluating the efficiency of the performance of health institutions from the perspective of health personnel in the Saudi health sector

Aim

Evaluating the efficiency of performance in health institutions from the perspective of health personnel in the Saudi health sector

Aim of the study:

Evaluating the efficiency of performance in health institutions from the perspective of health personnel in the Saudi health sector

Objectives: Evaluating the efficiency of the performance of health institutions.

Research Questions:

The current study will answer the following question: What is evaluating the efficiency of the performance of health institutions?

Methods

Research design:

Descriptive analytic cross sectional study design to evaluate the efficiency of the performance of health institutions in the Saudi health sector. This design is a systematic and structured technique to collecting data from a sample of persons or entities within a broader population, with the primary purpose of producing a thorough and accurate description of the features, behaviors, views, or attitudes that exist within the target group.

The limits of the study

- Spatial limits: The study will be applied in the Kingdom of Saudi Arabia.
- Time limits: The study will be implemented in 2022.
- Human limitations: The study will be applied to a sample of health personnel in the government health sector in the Kingdom of Saudi Arabia.
- Objective limits: limited to studying the “Evaluating the efficiency of the performance of health institutions from the perspective of health personnel in the Saudi health sector”.

Research Setting:

The study will be conducted in Al Iman General Hospital in Saudi Arabia.

Subject:

Purposive sample of 400 of health cadres, The sample will be selected according to certain inclusion criteria health cadres who working in Al Iman General Hospital in Saudi Arabia, male and female.

Sample size:

Study sample was selected via the systematic random sampling method.

The sample size is an important feature of any empirical study in which the goal is to make inferences about a population from a sample. In practice, the sample size used in a study is determined based on the expense of data collection and the need to have sufficient statistical power.

Inclusion Criteria:

The inclusion criteria were set as follows:

- (1) health cadres who working in Al Iman General Hospital in Saudi Arabia.
- (2) female and male.
- (3) from Saudi Arabia.

Sampling Technique:

Participants submitted data through a survey. Data will be collected by questionnaire.

Tools for data collection:

It will concern with Participants demographic data as age, gender, marital status and educational level. And four questions about the use of information technology in health sector in Saudi Arabia. Also questions about the evaluation the efficiency of the performance of health institutions in the Saudi health sector.

Validity:

The revision of the tools were ascertained by a panel of experts to measure the content validity of the tools and the necessary modification was done accordingly.

Administrative design:

An official permission was obtained from the directors of the hospital. The official permission included the aim of the study, the tools of data collection and the characteristics of the study.

Ethical considerations

Data was provided by participants via surveys. Participants were advised that participation in the study would be optional and that their privacy would be maintained. Data will be gathered by a self-reported questionnaire. The ethics committee will provide approval for this project. Before the questionnaire was administered, each participant provided written informed permission.

Results

Validity and Reliability Tests:

Internal Consistency Reliability Calculation:

After determining the legitimacy of the internal consistency between the statements of each objective and the overall score for the corresponding axis, Pearson's Coefficient Correlation was computed in order to validate the validity of the statement. Following the construction of the research instrument and the establishment of its apparent validity by the presentation of the instrument to a panel of arbitrators who were both knowledgeable and experienced in the area, this step was taken.

For the purpose of determining whether or not the questionnaire has an internal reliability, it was administered to a pilot sample that consisted of thirty members of the healthcare staff. After that, the researchers determined the correlation coefficients in order to assess the internal validity of the research instrument, as the tables that follow demonstrate:

Table (1): Correlation coefficients of items in the first axis with the total score.

Statement number	r	Statement number	r
1	0.408**	7	0.757**
2	0.705**	8	0.506**
3	0.632**	9	0.721**
4	0.746**	10	0.470**
5	0.621**		
6	0.654**		

** : p value <0.001

It is clear from the previous table that all of the statements are significant at the 0.01 level, as the values of the dimensional correlation coefficients ranged between (0.408 - 0.757), which are excellent correlation coefficients, and this offers a hint of strong internal consistency coefficients as well. It provides strong validity indications that may be relied in utilizing the present research technique.

Reliability of the study tool:

As for testing the reliability of the questionnaire, we utilized Cronbach's alpha coefficient, and the accompanying table illustrates the reliability axis of the research instrument as follows:

Table (2): Cronbach's alpha coefficient reliability coefficient for the total score of the questionnaire

	No. of statements	Cronbach's alpha
comprehensive quality standards questionnaire	10	0.742

The table showed that the Cronbach's alpha reliability coefficient for the total score of the questionnaire was (0.742), which is a good reliability coefficient suitable for the study.

Application Method of the Study Tool:

After collecting the study data, the researchers reviewed it in preparation for inputting it into the computer for statistical analysis. Subsequently, they transcribed it onto appropriate tables, provided commentary, and linked it to previous studies. Responses were given five levels: strongly agree (5 points), agree (4 points), neutral (3 points), disagree (2 points), and strongly disagree (1 point). To determine the length of the pentavalent scale cells used in the study Phrases, the range (5-1=4) was calculated and divided by the number of questionnaire cells to obtain the correct cell length (4/5=0.80). This value was then added to the lowest value on the scale (or the beginning of the scale, which is one) to determine the upper limit of the cell. The following table illustrates the method for correcting the Likert pentavalent scale.

Table (3): Method for correcting the scale.

Scale	The weight	The average arithmetic mean value ranges
Strongly Disagree	1	From 1 to less than 1.80
Disagree	2	From 1.81 to less than 2.60
Neutral	3	From 2.61 to less than 3.40
Agree	4	From 3.41 to 4.20
Strongly agree	5	From 4.21 to 5.

Table (4): Socio demographic characteristics of the studied participants

Sociodemographic variables	Cases (n=400)	
	No.	%
Age category (years)		
Less than 25 years	85	21.25%
From 26 to 35 years	130	32.5%
From 36 to 47 years	129	32.25%
More than 47 years	56	14%
Gander		
Male	240	60%
Female	160	40%

Marital status		
single	130	32.5%
married	148	37%
absolute	122	30.5%
Job		
doctor	60	15%
pharmaceutical	80	20%
specialist	55	13.75%
Technical	72	18%
nurse	96	24%
Administrative	37	9.25%
Educational status		
Diploma or less	72	18%
Bachelor's	180	45%
Postgraduate studies (PhD - Master)	148	37%
Years of experience		
1 – 5 years	65	16.25%
6 – 10 years	102	25.5%
11 - 15 years	128	32%
16 – 25 years	105	26.25%

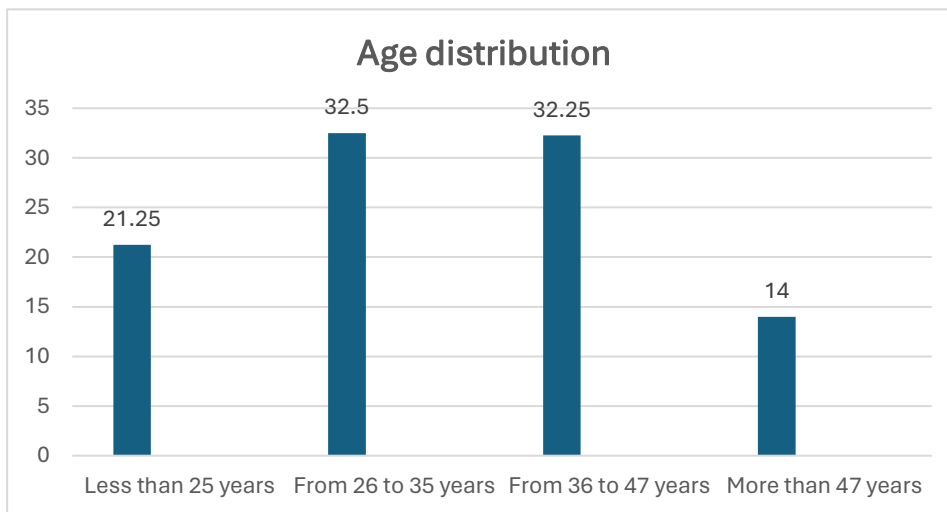


Fig (1): Age distribution among the studied participants

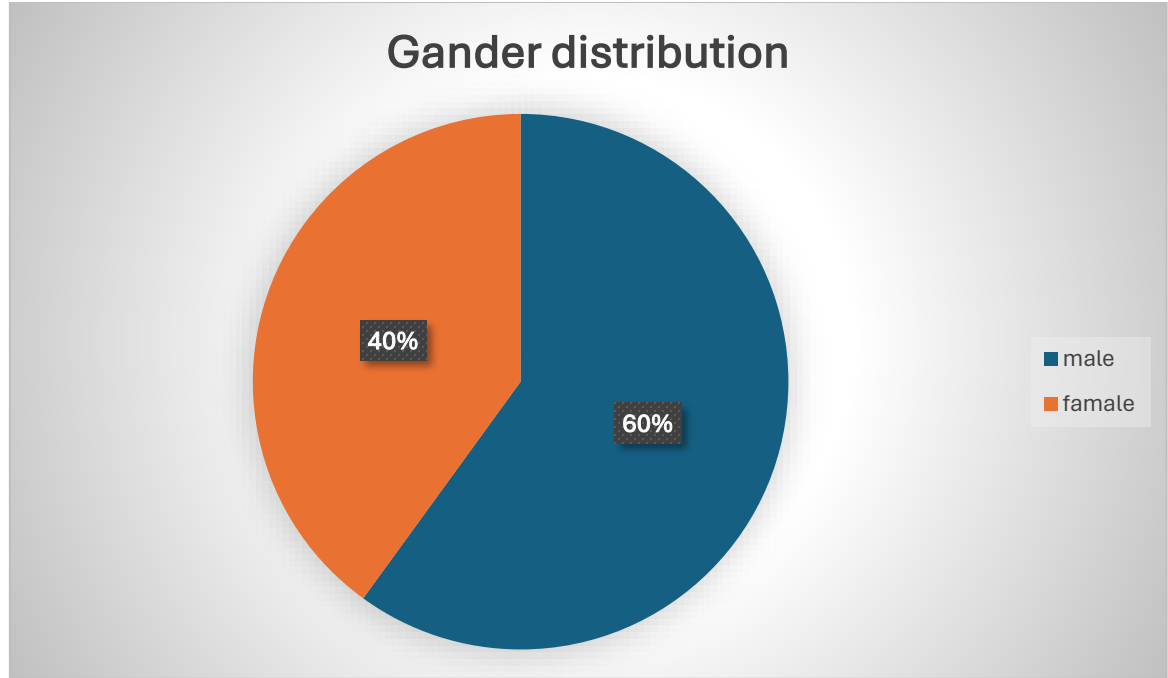


Fig (2): gander distribution among the studied participants

Table (1) & Figure (1-3) showed that 32.25% and 32.5 % of the studied participants were aged 36 -47 years and 26-35 years respectively. Regarding to the gander, more than half (60%) were males and 40% were females. 45% of the studied participants were bachelor’s while only %18 was diploma or less. As regard to years of experience, 25.5% of the studied participants worked from 6 – 10 years.

Secondly: Results Related to the Axes of the Questionnaire:

Table (5): response of the studied participants regarding to Questionnaire

No.		Cases (n=400)			
		Mean	SD	Category	Rank
1-	How would you rate the overall efficiency of your health institution in providing healthcare services?	4.212	0.712	Strongly agree	3
2-	Do you feel adequately staffed to meet patient needs?	3.511	0.724	Agree	10
3-	How would you rate the work environment in terms of promoting productivity and well-being?	3.758	0.728	Agree	9
4-	Do you feel that medical equipment are allocated effectively to support patient care?	4.13	0.681	Agree	5
5-	Do you feel that medical supplies are allocated effectively to support patient care?	4.011	0.79	Agree	7
6-	Do you believe the institution provides timely and quality care to patients?	4.021	0.74	Agree	6
7-	Are there any challenges in delivering optimal care to patients?	3.95	0.76	Agree	8

8-	How would you rate the effectiveness of electronic health records in supporting your work?	4.72	0.9231	Strongly Agree	2
9-	Does the institution provide sufficient training and opportunities for professional development?	4.193	0.965	Agree	4
10-	How would you rate the impact of training and professional development programs on your efficiency and effectiveness?	4.81	0.962	Strongly agree	1
Total score		4.11	0.84	Agree	

From the results shown in Table (5), it is evident that there is variation in the agreement among the study participants regarding the comprehensive quality standards and the productivity of health personnel in the government health sector in the Kingdom of Saudi Arabia. The participants' agreement averages ranged from (3.511 to 4.81), falling into the fourth and fifth category of the Likert scale, indicating agreement to strongly agreement with the study tool. This demonstrates consistency in agreement among the study participants regarding the impact of professional seniority on the performance of health cadres in the Saudi health sector.

Phrase (10): How would you rate the impact of training and professional development programs on your efficiency and effectiveness? ranked first with an average agreement of (4.81)

Phrase (8) How would you rate the effectiveness of electronic health records in supporting your work? ranked second with an average agreement of (4.72)

Phrase (1): How would you rate the overall efficiency of your health institution in providing healthcare services? Ranked third with an average agreement of (4.212)

Phrase (9): Does the institution provide sufficient training and opportunities for professional development? ranked fourth with an average agreement of (4.193)

Phrase (4): Do you feel that medical equipment are allocated effectively to support patient care? ranked fifth with an average agreement of (4.13)

And last rank came to phrase (2): Do you feel adequately staffed to meet patient needs? with an average agreement of (3.511)

Discussion

When the effectiveness of health institutions in the Saudi health sector is evaluated from the point of view of health staff, a number of important variables are brought to light. To begin, the appropriateness of human resources and the atmosphere of the workplace have a considerable influence on productivity. Because of the increasing demand for healthcare services, it is of the utmost importance to preserve both productivity and the well-being of staff members by ensuring that adequate staffing levels are maintained and that the working environment is conducive (Halawani et al., 2021).

In addition, the distribution of resources is an essential component of working efficiently. It is essential for medical workers to have access to sufficient medical equipment, supplies, and facilities in order to successfully provide excellent treatment to patients. The enhancement of coordination and, eventually, the improvement of patient outcomes may be traced back to the implementation of good communication and cooperation among staff members and across various departments (Derecho et al., 2024).

In the Saudi context, adopting technology breakthroughs and implementing efficient systems, such as electronic health records, may simplify operations and boost efficiency in healthcare delivery. Additionally, offering continual training and chances for professional growth allows health staff to keep informed with best practices and innovations, further adding to institutional efficiency (Halawani et al., 2021).

Conclusion

In order to provide the existing level of healthcare services, the majority of hospitals were operating at suboptimal scale sizes and were technically inefficient. This suggests that many hospitals could enhance their performance by using health resources more effectively. For the medical capacity to be used as efficiently as possible, changes in manufacturing capacity are needed. These findings could be useful for inefficient hospitals to benchmark their performance and system against the most efficient hospital in their area and capacity. According to performance analysis, the main reasons of inefficiency are a scarcity of health services and an excess of health professionals. This suggests that health regulators may need to reallocate their labor force to make better use of available medical capacity. A possible reallocation of resource must take place without compromising patients' current access to public-funded health services.

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