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The impact of the practice of evaluating public health policies on the performance of the Jordanian government health sector: An analysis of big data as a moderator variable (A field study on the hospitals of the Jordanian Ministry of Health)

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Abstract

This study aimed to identify the impact of the practice of evaluating public health policies, represented by its dimensions (advanced evaluation of policies, strategic evaluation of policies, performance evaluation of policies, and evaluation of results of policies) on the performance of the health sector, represented by its dimensions (effectiveness, efficiency, responsiveness, justice), as a moderator role for big data analysis in Jordanian Ministry of Health hospitals. To achieve these goals, the researcher relied on the quantitative and descriptive approach because it is considered the appropriate approach to the nature of the current study. This approach is also considered a diagnostic approach, as it is based on knowing the characteristics of the phenomenon, and knowing the factors and variables that cause its existence. It is also considered descriptive, as it collects objective information that determines the current situation and describes the image that these phenomena should have in light of a number of specific standards (SPSS). The study population consisted of (33) government hospitals affiliated with the Jordanian Ministry of Health, including (3) hospitals for psychological rehabilitation and rehabilitation of addicts distributed across the northern, central and southern regions of the Kingdom, according to information provided by the Jordanian Ministry of Health on 6/23/2023. Due to the large size of the study population, (3) hospitals were chosen (Princess Basma Hospital, Al-Bashir Hospital, Karak Governmental Hospital). The basis of selection was based on the number of beds. The study reached several results, the most important of which are: The perceptions of managers at the upper and middle administrative levels in the Jordanian Ministry of Health hospitals about the values of the arithmetic means for the big data analysis variable came in at a high level of (3.80). This means that the administrative levels in the Jordanian Ministry of Health hospitals are interested in various forecasting models to support the activities of generating information sources and developing it according to the needs of its beneficiaries. After processing and analyzing huge data, it is also able to predict future events, as the Ministry provides backup storage spaces to preserve its huge data from loss. The Ministry is interested in organizing huge data through systems that help in using it when it is needed. The study recommended that it is necessary for the senior and middle administrations in the hospitals of the Jordanian Ministry of Health to continue to keep pace with everything new in evaluating public health policies, and to study their benefits in depth with the aim of employing them in the hospitals of the Jordanian Ministry of Health.

Keywords: *public policies, public policy evaluation, health sector, big data analysis, Ministry of Health hospitals*

Introduction

Improving the performance of the government health sector is one of the important issues that affect the health level of citizens in society, as governments seek to constantly improve their performance to reach the maximum possible efficiency. The Jordanian government health sector, through its affiliated government hospitals, was not immune from this, as the Jordanian Ministry of Health seeks to improve the performance of the government health sector and provide its services through its affiliated government hospitals, which are geographically distributed in the regions of the Kingdom.

This has been done through continuous evaluation of public health policies, given the volume of data through which the Jordanian government health sector carries out its work. This data has been associated with the term big data, which produces a huge amount of information on an ongoing basis, which requires re-evaluating the processes that work to receive it, store it appropriately, and use it when it is needed. Hence, its importance in the performance of the health sector has emerged due to receiving a huge amount of data related to visitors (patients) for this sector.

Problem and questions of the study

The performance of the Jordanian government health sector is one of the most vital sectors in the country because it is linked to human health care. This sector is governed by a framework of public health policies that determine the practices it carries out.

The problem of the study started from the researcher's exposure to some reports and executive plans, which indicated that the level of health care was not at the required level, as the percentage of achievement in improving the level of health care in general reached 21%.

This was indicated by the country's situation report for the year 2020, as well as the executive plan to reform the health sector in Jordan (2018-2020), published on the Jordanian Ministry of Health website, which indicated the lack of reports to evaluate and follow up on public health policies.

The problem of the study is represented by the following main question:

What is the impact of the practice of evaluating public health policies on the performance of the Jordanian government health sector, analyzing big data as a moderator variable, in the hospitals of the Jordanian Ministry of Health?

The following sub-questions branch out from the main question:

1. What is the level of practice of evaluating public health policies with their dimensions (advanced evaluation, strategic evaluation, performance evaluation, and results evaluation) in the hospitals of the Jordanian Ministry of Health, from the perspective of the respondents?

2. What is the level of performance of the government health sector in its dimensions (effectiveness, efficiency, responsiveness, justice) in the hospitals of the Jordanian Ministry of

Health, from the perspective of the respondents?

3. What is the level of practice of big data analysis in Jordanian Ministry of Health hospitals, from the perspective of the respondents?

Objectives of the study

The study seeks to achieve the following objectives:

1. Knowing the level of practice of evaluating public health policies and their dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) in the hospitals of the Jordanian Ministry of Health, from the point of view of the respondents.

2. Knowing the level of health sector performance in its dimensions (effectiveness, efficiency, responsiveness, justice) in the hospitals of the Jordanian Ministry of Health, from the perspective of the respondents.

3. Knowing the level of practice of big data analysis in Jordanian Ministry of Health hospitals, from the perspective of the respondents.

Importance of the study

The importance of the study is as follows:

First: Theoretical importance

Theoretical importance stems from the importance of the topics addressed in the study, which are considered vital and modern topics, which are the evaluation of public health policies, the performance of the Jordanian government health sector, and the analysis of big data.

The importance of the study also emerges from linking the three topics together, the evaluation of public health policies, the performance of the health government sector, the analysis of big data, and the study of the impact of the dimensions of each variable.

Second: Practical importance

The practical importance stems from the vital and pivotal role of the study's research area, represented by the performance of the government health sector in Jordan through its affiliated government hospitals, which represented the study's research area, and the utmost importance it constitutes in the Jordanian national security system in general, and health security in particular, and its direct impact on citizens' lives.

1-5 Study hypotheses

Based on the relevant literature, the study hypotheses were formulated as follows:

First main hypothesis

(H01): *The first main hypothesis: There is no statistically significant effect at the significance level (a≤0.05) of the*

practice of evaluating public health policies in their dimensions (advanced evaluation, strategic evaluation, performance evaluation, and results evaluation) on the performance of the health sector as represented by its dimensions (effectiveness, efficiency, responsiveness, justice) in Jordanian Ministry of Health hospitals.

The following sub-hypotheses branch out from them:

1- H01: There is no statistically significant effect at the significance level (α≤0.05) of the practice of evaluating public health policies on the effectiveness of the health sector in the hospitals of the Jordanian Ministry of Health.

2- H02: There is no statistically significant effect at the significance level (α≤0.05) of the practice of evaluating public health policies on the efficiency of the health sector in the hospitals of the Jordanian Ministry of Health.

3- H03: There is no statistically significant effect at the significance level (α≤0.05) of the practice of evaluating public health policies on the health sector's response in the hospitals of the Jordanian Ministry of Health.

4- H04: There is no statistically significant effect at the significance level (α≤0.05) of the practice of evaluating public health policies on the equity of the health sector in the hospitals of the Jordanian Ministry of Health.

The second main hypothesis H02: Big data analysis does not modify the effect of the practice of evaluating public health policies in its dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation), on government health performance in its dimensions (effectiveness, efficiency, responsiveness, justice) at the level of significance (α≤0.05) in Jordanian Ministry of Health hospitals.

The following sub-hypotheses branch out from them:

1- H02: Big data analysis does not modify the effect of public health policy evaluation practice on the effectiveness of the health sector at the significance level (α≤0.05) in the hospitals of the Jordanian Ministry of Health.

2- H02: Big data analysis does not modify the effect of public health policy evaluation practice on the efficiency of the health sector at the significance level (α≤0.05) in the hospitals of the Jordanian Ministry of Health.

3- H02: Big data analysis does not modify the effect of public health policy evaluation practice on the health sector's response at the significance level (α≤0.05) in the hospitals of the Jordanian Ministry of Health.

4- H02: Big data analysis does not modify the effect of public health policy evaluation practice on health sector equity at the significance level (α≤0.05) in Jordanian Ministry of Health hospitals.

1- 6 Study model

The study model was developed by reviewing previous studies and the theoretical framework related to evaluating public health policies and the performance of the Jordanian government health sector and analysing big data as follows:

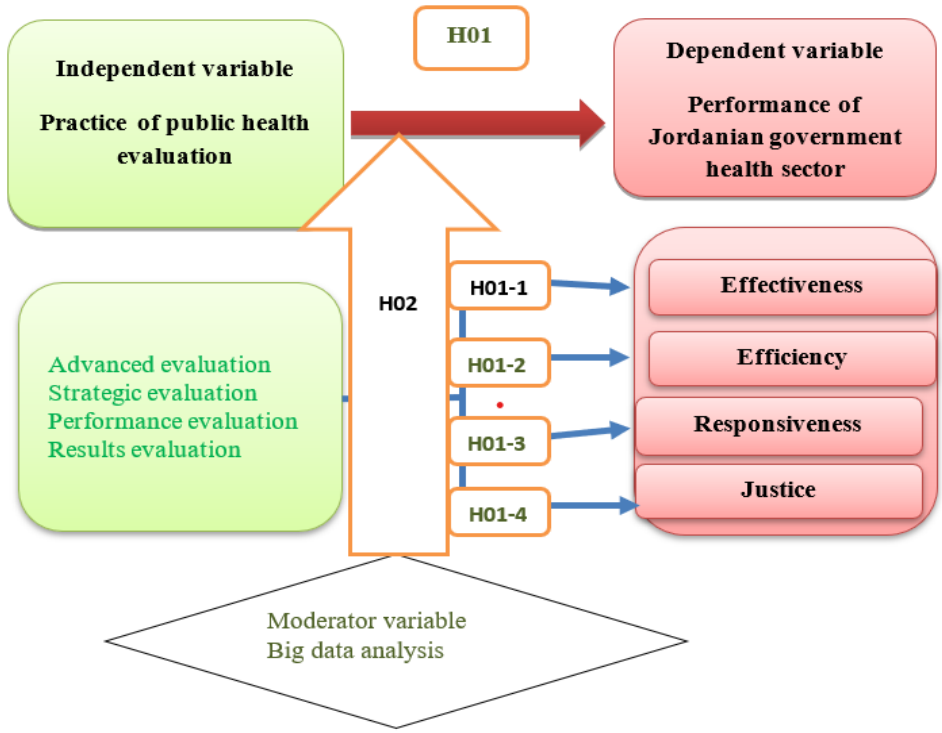

Figure 1 Study model

Source: Prepared by the researcher based on the following studies: (Salhi, 2019, Bouatrous, 2019, Ansilla, 2022, Quadek (2021), Toumi, 2022, Mohamed (2022), Abdallah (2018), and Weng, 2020)

1-7 Limitations of the study

Limitations of the study were:

Spatial limitations: This study was applied to hospitals affiliated with the Jordanian Ministry of Health (Princess Basma Hospital, Al-Bashir Hospital, Karak Governmental Hospital).

Human limitations: This study was limited to managers at the upper and middle administrative levels in hospitals affiliated with the Jordanian Ministry of Health.

Time limitations: The study was limited to the time period (2022/2023).

Objective limits: This study included the evaluation of public health policies in their dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation), and the performance of the government health sector in its dimensions (effectiveness, efficiency,

responsiveness, justice), and big data analysis.

Chapter Two: Theoretical framework and previous studies

2-1 Introduction

This chapter presented a theoretical framework that includes three main topics: public policy evaluation, government health sector performance, and big data analysis. It also includes some previous Arabic and foreign studies relevant to the subject of the study.

2-2 Public policies

Public policies represent the core of the strategy of governments and institutions to manage and direct public affairs in society, as they are a set of decisions, actions and objectives that are designed and implemented to achieve certain goals and improve the lives and well-being of citizens and include a variety of fields including economic, educational, health, environmental, security, social justice, and other social services (Al-Munawar and Alban, 2022).

Public policies aim to define national priorities and achieve a balance between the various needs and interests of society. They require an accurate appreciation of the challenges and opportunities facing society and ensure that resources and efforts are directed effectively to achieve specific goals, as democratic processes and community participation play an important role in developing and implementing public policies to ensure the broadest possible representation of the opinions and needs of citizens (Ibn Ismail, 2022).

2-2-2 Concept of public policy

Fahdawi (2014) showed evidence from political texts about the nature of politics, in terms of behavior, which is the root and origin of politics. Therefore, there are priorities of the independent variables we are dealing with and considered a springboard a priori principles and the origins of their intellectual principles. That is wisdom comes before government, obedience before authority, voting before decision, demand before value, elief before ideology, persuasion before influence and power, and duty before necessity...

Public policy can also be defined as "a set of interconnected decisions taken by a political party or parties regarding the selection of goals and means of achieving them in a specific situation, as these decisions must, in principle, be within the authority of these parties in order to achieve them." (Civil Society Partnerships Programme, 2016)

Dr. Sharawi Juma (2002) believes that the origins of (public policy analysis) as a science go back to the scientist Harold Lasswell. With the emergence of the behavioral school in the early sixties, there was an increase in interest in the systems analysis approach in political science, which was concerned with analyzing the inputs and outputs of the political system.

The two researchers believe that public policy is a set of decisions, procedures, and strategies taken

by governments or government institutions to achieve certain goals and direct the affairs of society in general. These goals can include improving the quality of life for citizens, promoting social justice, stimulating economic growth, maintaining security and reliability, and addressing national and international challenges.

2-2-3 Importance of public policies

Public policies have a great importance and a decisive role in the life of societies and countries for the following reasons (Ibn Ismail, 2022):

1. Improving the quality of life: Public policies aim to improve the quality of life for citizens by providing basic services such as health, education, housing, and transportation.

2. Promoting social justice: Public policies seek to reduce economic and social disparities between different groups of society. By providing equal opportunities and better distributing wealth, justice and equality can be promoted.

3. Achieving the goals and sustainability of economic growth: Public policies play an important role in stimulating sustainable economic growth by supporting investment, strengthening infrastructure, and directing the economy towards strategic sectors.

4. Maintaining security and reliability: Public policies include security, defense, and regulatory aspects that aim to maintain political, economic, and social reliability in the country.

5. Combating grand challenges: Public policies enable an effective response to major challenges such as climate change, health crises, migration, cybersecurity, terrorist attacks, and other international matters.

6. Achieving balance and sustainability: Public policies contribute to achieving a balance between the current needs and the future needs of societies by focusing on environmental, economic and social sustainability.

7. Directing investments and resources: Public policies contribute to directing investments and resources towards vital issues, sectors, and strategic national projects.

2-2-4 Dimensions of public policy evaluation

The study identified the dimensions of the practice of public policy according to the stages and objectives, and in a manner that is consistent with the nature of the study, and the place of application in the government health sector. Accordingly, the dimensions of the practice of public policy (Mahyoub Haj and Aguila Sidi, 2019), (Bourza, 2020) are:

First: Advanced evaluation: This type is concerned with studying the feasibility before making a decision, and represents an initial starting point in order to give the green light to begin work on the new program. It is also based on analyzing the program's executive processes in terms of strategy, operations, costs, and interactions between the program's beneficiaries and its

implementers, to ensure the development or improvement of these processes. This type of evaluation is concerned with evaluating material and human inputs.

Second: Strategy evaluation: Strategic evaluation helps diagnose the performance gaps that occur between the plan and reality and identify alternative strategies, and the administration tests them and studies their feasibility. It is the lowest type in the evaluation process, which can be adopted in order to determine the effectiveness of implementation, help program managers to introduce the necessary amendments and improvements to implement the program, and conduct comprehensive evaluations of the program in light of the effects of efficiency and effectiveness.

Third: Performance evaluation: This evaluation uses what is happening within the program. In this evaluation the official focuses on monitoring the program's inputs from human and material resources, clients, and beneficiaries.

Fourth: Results evaluation: This evaluation focuses on measuring the negative or positive results or outputs of the implemented program. Here, precision in the design must be emphasized in order for the program to achieve the expected results and credibility. It is the type that is concerned with measuring the results on the group of people benefiting from that program, and revealing the direct and indirect influences and causes associated with those effects and results resulting from the program.

2-2-5 Dimensions of government sector performance to evaluate public policy

Abdel Basit (2020), Kawadik (2021), Hassan and Ismail (2018), and Al-Maani and Muhammad (2018) indicated that the dimensions of the government sector's performance for evaluating public policy are:

First: effectiveness: Concepts of effectiveness vary not only based on the different viewpoints and opinions of writers and researchers specialized in management, but it is also affected by the multiplicity of parties interested in this concept. There are those who focus on goals as an indicator for measuring effectiveness based on available resources and the availability of the external environment. On the other hand, the contemporary concept of organizational effectiveness is more related to the organization's ability to achieve specific goals, within the framework of unstable environment components, which makes the organization in constant need to search for a dynamic balance to ensure its growth and continuity.

Secondly: efficiency: Efficiency is defined as the organization's willingness and ability to exploit the resources available to it in the best possible way, and it can be expressed through the productivity rate. Efficiency is also linked to evaluating the organization's ability to control operations from technical and economic aspects.

Third: Response: The dimension of surveillance, forecasting, and responsiveness seeks to achieve effective prevention and control of diseases by establishing rules, standards, guidelines, and tools for public health. The general goal is to contribute to reducing the occurrence and spread of

communicable diseases in the region. Public health in good comparability of communicable disease data for member states is essential to achieving this goal.

Fourth: Justice: Health justice is achieved when everyone has the opportunity to reach their full health potential and no one is deprived of achieving this potential due to social status or other socially determined circumstances. Addressing health equity is an essential component of public health and essential public health services need to effectively promote policies, systems and overall societal conditions that enable optimal health for all.

2-2-7 Public health policies

In light of the great diversity in the systems and orientations of governments around the world, governments have realized that they need the support of their people in making decisions and implementing the public policies that they adopt. They strive to solve problems and respond to their diverse aspirations through implementing plans and programs known as public policies, which aim to achieving a set of public benefits (Al-Anazi 2021). What distinguishes these policies is the comprehensiveness of their results, as broad segments of society benefit, if not all of society. This imposes the necessity of formulating and designing them in a way that enhances their chances of success and achieves the maximum expected benefit, while at the same time reducing the chances of their failure to a minimum (Mahmoud 2021). Public policies that are prepared based on accurate and honest information and data contribute to avoiding problems that result from the implementation of policies that are not sound or based on inaccurate foundations (Mohsen, 2021).

2-3 The concept of institutional performance

Performance ranks second in importance to the basic functions of management, as it comes after the organization function. Any government facility or public institution can plan and organize, but it may not necessarily be able to achieve any results unless it implements the plans and policies it has drawn up (Al-Otaibi et al., 2022). The concept of performance is connected to the behavior of the individual and the organization, as it occupies an important place within this institution. It is considered the final outcome for the benefit of all activities that take place within the organization, at the level of the individual and the entire organization (Taha and Al-Omari, 2022). Researchers' definitions of performance have varied, as Awad and Daas (2021) defined it as the interaction that appears in the employee's behavior, and this behavior is affected by the interaction of his efforts and abilities.The two researchers believe that the concept of performance refers to how a person, institution, or system carries out its tasks and duties successfully and effectively, and the extent to which the specified goals and standards are achieved in an efficient and timely manner.

2-3-1 The concept of evaluating institutional performance

Performance evaluation is a vital contributor to identifying and evaluating the basic factors for success, which are necessary to meet the needs and objectives of the organization and confirm its future success. Evaluation also contributes to developing a clear road map for performance, which

enables the organization to determine its position in relation to the degree of achieving the required goals in the short or long term, and thus adopting the necessary and appropriate measures to achieve the planned goals (Awad and Daas, 2021).

The concept of performance evaluation is to find a measure through which it is possible to know the extent to which the organization has achieved the planned objectives, compare them to the achieved objectives, detect deviations from the previously determined path, determine the causes of these deviations, and also develop methods for addressing them. The concept of performance evaluation must be accurate and comprehensive to reflect each of the objectives the organization seeks to achieve and the means necessary to achieve those goals, over a specific period of time (Hassan and Ismail, 2018).

2-3-2 Importance of evaluating institutional performance

Performance evaluation process is necessary because it enables the organization to identify the reality of its current activity and compare it with its performance in the past period, and it also enables it to compare its performance with the performance of other distinguished organizations working in the same field (Nath et al,. 2020). In addition, evaluation process enables the organization's performance by comparing actual performance with the planned goals that were set within the organization's strategy. This contributes to developing and improving its strategic plans to achieve sustainable growth and success in the future. Therefore, the importance of performance evaluation is to provide the organization with vital information to make strategic decisions and improve its performance in accordance with its vision and its objectives. The following is the importance of performance measurement for the organization (Obaidat and Nawafleh, 2022 and Toumi et al., 2023)

1. Understanding the strengths and weaknesses to measure progress and delays in achieving the desired goals. This contributes to improving the organization's performance and identifying areas that need improvement and development.

2. It measures the organization's ability to make optimal use of its available resources. This enables improved planning and directing resources towards the most important priorities.

3. Rationalize the worker's performance in the best possible way, based on the analyses and results obtained from the evaluation process, and this enhances efficiency and productivity.

4. Verify that performance is consistent with the required quality standards, in order to ensure the highest levels of quality and customer satisfaction.

5. Ensure that the work of the various departments and branches is carried out as planned, which enables efforts and resources to be directed to achieve coordination and integration between the various parts of the organization.

We conclude that paying attention to institutional performance is extremely important, as it

determines the institution's status, efficiency, and the extent of its success or failure. It also indicates the extent of its ability to survive and continue within high levels of competitiveness, outperform its competing institutions, and its success and continuous improvement in its strategies and methods of work in proportion to the rapid developments to maintain... improve its position and achieve its goals.

2-4 Big data

Data and information are currently expanding very rapidly, and their sources are greatly varied, in addition to being available in different forms and patterns. Organized and accurate data play a vital role in making sound decisions and developing strategic policies for decision makers, despite the abundance of data and the speed of access to it, which is one of the advantages of this era. However, it poses great challenges to decision makers, as it is one of the biggest challenges facing companies and large institutions due to the difficulty of processing and benefiting from it (Garofalo et al., 2021). Researchers have varied definitions of big data, as data is raw, unorganized data that is not linked to each other and cannot be understood or benefited from unless it is processed. They are raw facts from which information is extracted through analysis and organization, and is transformed into valuable and relevant information (Fahmy, 2020).

The two researchers believe that big data is huge amounts of data characterized by the high speed of its production and the diversity of its formats, which requires allocating enormous effort and cost to process it effectively. It can be processed using advanced technologies and custom databases instead of relying on traditional databases and usual programming techniques.

1-4-2 Importance of big data

The importance of big data is evident in a wide range of sectors and industries. Big data is used in the banking sector to better understand customers, improve banking services and provide an improved banking experience tailored to customer needs. Big data in the educational sector helps identify at-risk students and develop incentive programs that support them to chieve academic progress and improve their academic results. Big data is used in the government sector to manage government facilities and improve their efficiency, as well as to deal with traffic congestion and improve surveillance and security systems to prevent crimes. In the health sector, big data is used to manage patient records, improve treatment and prevent diseases, and provide appropriate prescriptions to meet patients' needs. In the manufacturing sector, big data is used to improve production processes, increase quality, and identify factors that affect the efficiency of industrial processes (Al-Waeli, 2022).

2-5 Jordanian health sector

2-5-1 An overview of the Jordanian health sector

The Ministry of Health was established in 1921, and the first law regulating health affairs was issued in 1926, and the Ministry joined the Ministry of Interior until 1939, when an independent Ministry

of Health was established in 1950 under the name of the Ministry of Health. In 1966, Public Health Law No. 43 was issued, which several amendments were made to it under Public Health Law No. 21 of 1971. Then Public Health Law No. 47 of 2008 was issued, which regulates health matters in the Kingdom. Under this law, the Ministry of Health regulates the health sector in the Kingdom (Mishaal and Maqaba, 2020).

2-6 Health public policies, health sector performance, and big data

By analyzing theoretical frameworks and previous literature related to health public policies, health sector performance, and big data, many studies related to health public policies have been discussed. For instance, the study of Bourza (2020) and Musa and Hassan (2016) have discussed the impact of health public policies, as they constitute an important framework for improving and developing the health system and the basic foundation for achieving sustainable improvements through setting priorities, allocating resources, encouraging research and innovation in the field of health, and developing strategic plans that suit society's health needs and requirements. Public policies enhance the strategic direction of the health sector, improve its efficiency, and positively affect the quality of offered health services as well as providing fair and equal health care to all. Accordingly, the success of health public policies directly enhances the performance of the health sector which in turn improves the health and general well-being of the entire community.

Many studies have linked big data and performance (Al-Qawafneh and Bani Salamah, 2019; Al-Sulami, 2022), which confirmed that big data is one of the most important elements that significantly affect the performance of institutions in all sectors, especially in the health sector. This massive data represents a valuable source of information that enables institutions to analyze and benefit from predictions and advances that were not possible to achieve through traditional methods. Big data enables health institutions to make smarter and more strategic decisions, identify best practices and improve the quality of health care and services provided, as institutions can improve the management of resources and identify strengths and weaknesses in its operations, enabling it to improve its efficiency and increase productivity.

2-7 Previous studies

First: Previous studies related to the evaluation of public health policies

Gomaa and Saber (2020) conducted a study that aimed to explain the emergence and development of the concept of "policy networks" as a unit of analysis in the field of public policies and its role in formulating a comprehensive health insurance policy. Developments that have occurred over the past few decades have influenced a shift in the role of the state in shaping public policies from a single main actor to an actor among other actors, governmental and non-governmental, working inter-connectedly through a range of networks. In light of the results of the study, one can see the existence of a policy network for a comprehensive health insurance system in Egypt. The study reveals that he network went through several stages: the pre-establishment stage during the first

stages of policy making; the formal establishment stage during the formative stage; and finally the network operation stage during the implementation stage. The study also concluded that the policy network influenced the different stages of policy making through many tools and strategies. Furthermore, the roles of different actors within the network varied; international organizations were the main influence in the early stages of policy making; unions dominated the formative stage; the public sector played the leading role in the implementation phase.

Hoxha (2020) conducted a study that aimed to investigate the factors that increase cooperation among different stakeholders for the purpose of health policy making in Turkey. Field research reveals that policy networks have been formed in the sub-fields of public health, healthcare construction, and health tourism in the years between 2011 and 2015. Content analysis of 24 semi-structured interviews with policy experts and professionals was conducted to assess the collaborative capacity of the network, built on three dimensions, namely structural, relational and institutional. The results reveal that networks differ in their capacity to collaborate as well as their influence on policy making resulting in three distinctive models to network policy making. In the cases under investigation, network influence takes the form of (a) policy innovation through experience sharing and evidence-based policy making associated with particularly high levels of relational capacity; (b) policy effectiveness through contract enforcement within a clear legal framework. It is associated with particularly high levels of institutional capacity; (c) policy coherence through organizational knowledge sharing and coordination of actors. Based on these findings, further studies should focus on the institutionalization of policy networks, especially in those middle-income countries such as Turkey often aims to address various policy challenges through short-term practices of multi-stakeholder work. Finally, this study underscores the importance of incorporating new institutional approaches to network analysis.

Muhammad (2022) also conducted a study aimed at identifying social welfare policy legislation related to primary health care through a set of legislation (the Egyptian Constitution - presidential decision - law - Ministry of Health decision - Ministerial Council decision - Board of Directors decision). This is to determine the level of primary health care, identifying governmental and private institutions for primary health care, and identifying the obstacles facing primary health care. To achieve this, the researcher applied a social survey with a sample of officials in government institutions and private institutions working in the field of primary health care in health care institutions in the Health Directorate and the General Authority for Health Insurance in Assiut Governorate, who numbered (20) paragraphs and a social survey with a sample of experts in the field of social care policy analysis in Assiut Governorate, who numbered (10) paragraphs. The results of the study revealed the validity of the hypothesis, which makes us accept the first hypothesis of the study, which states that there are statistically significant differences between the areas of interest of social care policies for primary health care during the stages of their analysis. The validity of the second hypothesis makes us reject the second hypothesis of the study, which means that there are statistically significant differences between the objectives of primary health

care policies during the stages of its different analyses.

Allam's study (2022) came to explore the general features of public health policies in Egypt by highlighting the legal and institutional frameworks for those policies, in addition to identifying the state of public health in Egypt, and the most prominent health problems facing the Egyptian state. The study also identified the various interventions that the Egyptian state has implemented it since 2014, in order to deal with these threats and health problems. Finally, the extent to which public health policies in Egypt responded to the health emergency imposed by the spread of the Covid-19 epidemic was explored.

Likewise, Khader's study (2022) tried to better understand the policies implemented by the Egyptian state - through the National Response Plan - to confront the pandemic, and to try to evaluate their effectiveness on some government sectors and community institutions, in light of the negative repercussions of the new virus, with the aim of limiting its spread and resisting the spread of the virus. This is done to limit its spreading, fight its repercussions, and seek to expand the scope of social protection programs in times of crises. To achieve this goal, the study relied on a qualitative approach, and the "Diagnostic Interview Guide" was used as a basic tool for collecting data, in addition to analysing some health reports and official documents of some relevant ministries. The study relied on a sample of (27 paragraphs) who were selected using the "purposive sample" method from some officials in (the Ministry of Health and Population and the Regional Office for the Eastern Mediterranean of the World Health Organization in Cairo). The study posed the following main question: What is the effectiveness of the policies followed by the Egyptian state - through the National Response Plan - to confront the emerging Corona virus on the health security of Egyptian society? The results of the study revealed that all sectors of Egyptian society have been affected by the negative repercussions of the COVID-19 epidemic. The most prominent of which are the education and health sectors, in addition to the economic, tourism and social sectors, in light of a "medium" response plan presented by the Egyptian state in the face of the epidemic.

Second: Previous studies related to the performance of the government health sector

Mounir's (2019) aimed to identify the impact of knowledge management on developing institutional performance at the University of Ghardaia. To achieve the desired goals of this study, a questionnaire was designed that included variables related to knowledge management and its processes, as well as improving and developing performance, and then distributed to a sample of University of Ghardaia employees, which numbered 09 employees. The study reached important results, namely that employees at the University of Ghardaia have a positive tendency towards developing institutional performance in the institution through knowledge management and its operations. The value of the arithmetic average of performance development processes exceeded 9.0%, which means that knowledge management has a prominent impact on the process of developing institutional performance. It reached several results, the most important of which is

that applying the knowledge management approach in modern organizations provides them with new capabilities and distinctive competitive capabilities. The study recommended the need to work on diagnosing knowledge at the University of Ghardaia as it is the key to other operations by identifying current knowledge assets and identifying knowledge sources.

Muhammad et al. (2020) conducted a study that aimed to determine the extent of application and adoption of talent management on performance in both sectors under study. The descriptive analytical method was used to form the theoretical framework for the research, and data was collected through a questionnaire form as the main tool for the research through a sample of 400 working individuals divided between the hospitals affiliated with the two sectors under study. The research hypotheses included the existence of a fundamental effect and relationship between the dimensions of talent management and the performance of human resources in the hospitals under study. There is also a fundamental effect between the dimensions of human talent management and the increase in profitability indicators in the hospitals of the sectors under study. Likewise, there is a positive impact of the dimensions of human talent management and retention in raising performance indicators in hospitals in the sectors under study.

Nath et al's (2020) study aimed to provide insight into how the New Zealand Office of the Auditor General (NZOAG) legitimized the selection of subjects for performance audits in the New Zealand public health sector over a 10-year period, 2003-2013, by fulfilling the key. Actors 'take for granted' beliefs of NZOAG's dual roles: its independence and accountability. The study finds that because of New Zealand groups' consultative approach, actors, including performance auditors, still believe the office operates independently of party influence of the third party to choose their own audit topics, which raises the moral legitimacy of New Zealand groups in relation to their role in public accountability.

The study of Quadic (2021) aimed to evaluate the performance of the health sector in the state of Medea during the period (2012-2018) based on the health coverage index, where all public health institutions in the state of Medea were studied, in addition to the private clinics located in the state. This study concluded that the health sector of the state of Medea is witnessing a significant shortage in the number of health human resources during the period (2012-2018) compared to the development of the population during the same period, and thus a decrease in the rate of health coverage, which would negatively affect the performance of the sector. This study recommended the need for public health institutions in the state of Medea to pay attention, in addition to tangibility, by establishing a distinctive internal environment that reflects positively on the beneficiary's psychological state and health. This can be done by providing appropriate reception and waiting places and providing distinctive accommodation so that the beneficiary feels that he is in safe hands that guarantee his recovery.

Chang's (2023) aimed to know the impact of institutional quality on company performance: a global analysis, and to achieve this goal, few studies discuss how different aspects of institutional quality

affect company performance. We use 133,945 observed values of 16,523 firms in 41 countries to examine whether better organizations can help increase firm value by improving firms' total factor productivity. Empirical results indicate that improved institutional quality can increase firm value and firm value, and political institutional quality has the highest positive impact on firm value and technological progress. Moreover, good corporate quality can enhance firm value through corporate improvement. To increase the productivity and value of companies, governments must build better institutions to help create a better investment environment, enhance the efficiency of resource allocation, and reduce corruption.

Barakat's (2023) study aimed to test the impact of information technology on the institutional performance of public bodies, through a field study conducted on a sample of 162 respondents who work in a number of public service bodies. The study reached a number of results, including: that information technology has contributed to improving the institutional performance of public bodies, through the following: Improving the efficiency of using resources, improving the effectiveness of public bodies, through the contribution of information technology in building and developing institutional capabilities and increasing the bodies' ability to achieve their goals, sustaining activities and projects, and concluding community cooperation and partnership agreements. Based on the results of the study, the researcher proposed a number of recommendations that could contribute to enhancing the use of information technology in improving the institutional performance of Egyptian public bodies.

Third: Previous studies related to big data

Mohamed and Al-Azab (2021) conducted a study that aimed to find out how airlines successfully adopt big data technology. The study also explores the opportunities and challenges of big data in the aviation industry, using a qualitative approach. Semi-structured interviews (27) were conducted with experts and airline workers in Egypt. The results reveal that big data is of great importance in providing broad opportunities for airspace management, enhancing flexibility in dealing with each passenger, supporting decision-making and problem solving, providing safe flights, enhancing predictive maintenance, and improving performance. The results demonstrate a set of challenges that Airlines may face it when dealing with big data such as the lack of qualified human resources, the absence of a data-driven culture, dealing with and processing the huge amount of data, as well as data privacy and security issues. Finally, implications for practice as well as future research are discussed

Muhammad (2022) conducted a study aimed at identifying the nature of big data and its analyses, its importance and elements, monitoring big data in libraries, identifying the challenges facing the application of big data analyses, and identifying the types of big data analyses. One of the most important findings of the study is that big data analysis helps to monitor and discover strengths and weaknesses, and provides officials with solutions to problems according to the results of the analysis, commensurate with the nature of the entity or body. It was also found that big data analysis

increases the chances of competition by achieving new advantages and results, and increases opportunities for development, and that big data analysis helps in making correct decisions, and increasing the chances of predicting the future. The tools for analyzing big data are three main tools, which are mining tools, analysis tools, and tools for displaying results. Library data is considered big data because of its collections of clear diversity, high speed, and enormous size. Moreover, it is possible to benefit from big data analytics. In the library, managing the library's collections, beneficiary databases, developing human resources, in addition to the information services available in the library, and rationalizing spending policy.

Al-Waeli (2022) conducted a study to determine how to deal with a set of data whose size exceeds the ability of known database programs to capture, store, manage and analyze it, which requires innovative and effective forms of processing that differ from normal data processing so that it enables its users to improve vision and decision-making. This research method is used in most types of office databases, and through several criteria, including time, accuracy, and the size of the sources that are called at one time. The researcher concluded that the current situation is unsatisfactory and may continue to be so in the future due to the continuous increase in the numbers and sizes of messages and theses. University research and the corresponding strong competition from scientific research, as researchers are turning to it at the present time, with the complexities of accessing complete information about the content of theses and dissertations and not making it available in full text in most databases. The researcher recommended that it is necessary to use techniques that respond to research strategies, especially in big data and advanced research, by using the Hadoop program to cover intellectual outputs in the future, and the possibility of investing Hadoop in the field of big data , and choosing the central library at Al-Mustansiriya University as a model for dealing with big data and how it can contribute to organizing it.

Ahmed (2023) conducted a study aimed at drawing the features of big data and its analyses, knowing the terms or concepts related to it, and researching Arab and international intellectual production on this subject in order to know the previous scientific efforts on this subject at Arab and international levels in order to try to draw a clear picture about the subject of the study. The researcher depended on the survey method to collect intellectual production. One of the most important findings of the study was that previous studies neglected to address the challenges facing the application of big data analytics in libraries and the areas of application of big data analytics in libraries, the challenges they face and ways to overcome them. They also neglected the tools, the software used in analyzing big data, the areas of benefit from applying big data analytics, and the challenges facing the application of big data analysis and ways to overcome them.

2-8 What distinguishes this study from other previous studies

Through reviewing and reviewing previous literature in both Arabic and English, it became clear that this study focuses on one of the most important and widespread sectors in Jordan, which is

the health sector.

It also highlights the impact of the practice of evaluating public health policies on the performance of the Jordanian government health sector: big data as a moderator variable. It is characterized by its comprehensiveness of the dimensions of the independent variable combined together: (advanced evaluation, strategic evaluation, performance evaluation, and results evaluation)

Previous studies have dealt with fragmented relationships between one or two variables of the current study, and in terms of intellectual contribution, the role of this study is highlighted in exploring the correlational and influential relationships between the independent variable and the dependent variable. The main aim is to arriving at new results of scientific value related to creating a comprehensive framework for the practice of evaluating public health policies and their impact on health performance, and following up on new aspects that were not addressed in previous literature and applying them to the hospitals of the Jordanian Ministry of Health in the capital, Amman, where the paragraphs related to general health practice systems were expanded.

This study developed its own model based on some previous relevant studies. It is also considered one of the few Arabic studies of its kind in Jordan in terms of its subject matter and its study population, to the best of the researcher's knowledge. This serves as a comprehensive model presented by this study.

In terms of the study environment, most of the studies reviewed by the researcher were conducted in many different environments, including Arab and foreign environments. As far as the researcher's knowledge can reach, the current study may be one of the most recent studies that will be conducted in the Hashemite Kingdom of Jordan, especially in the hospitals of the Jordanian Ministry of Health in the capital, Amman.

Chapter Three: Methodology, design, and procedures

The researchers relied on the quantitative and descriptive approach because it is considered the appropriate approach to the nature of the current study. This is because this approach is considered a diagnostic approach, as it is based on knowing the characteristics of the phenomenon, and knowing the factors and variables that cause its existence. It is also considered descriptive, as it collects objective information that determines the current situation and describes the image that these phenomena should have in light of a number of specific criteria (Al-Samak, 2019).

3-1 Study population and sample

The study population consisted of government hospitals affiliated with the Jordanian Ministry of Health, which numbered (33) hospitals distributed over geographical regions in the Kingdom, according to the information provided by the Ministry of Health on (6/19/2023). Due to the large size of the study population, (3) hospitals were chosen and the basis of selection was based on the largest number of beds in each of the North Region, Central Region, and South Region, as shown in Table (1), (2), (3). The number of all managers at the upper and middle administrative levels in

the category (administrative director, assistant director, department head) in the three hospitals (Princess Basma Hospital, Al-Bashir Hospital, Karak Governmental Hospital) reached (171) administrators.

Table 1 The Northern Region (Irbid, Mafraq, Ajloun, Jerash), total (14) hospitals

Governorate	Hospital name	No. of beds
Irbid (8 hospitals)	Princess Basma Hospital	(350)
	Princess Rahma Hospital	(112)
	Princess Badia Hospital	(90)
	Yarmouk Hospital	(67)
	Moaz bin Jabal Hospital	(61)
	Abu Ubaida Hospital	(65)
	Ramtha Hospital	(85)
	Princess Raya Hospital	(101)
Mafraq (4 hospitals)	Al-Ruwaished Governmental Hospital	(30)
	Mafraq Governmental Hospital	(72)
	Women's and Children's Hospital	(122)
	North Badia Hospital	(100)
Ajloun (one hospital)	A-Iman Hospital	(250)
Jerash (one hospital)	Jerash Governmental Hospital	(159)

Table 2 Central Region (Amman, Zarqa, Madaba, Balqa), total (14) hospitals Governorate, hospital name, number of beds

Governorate	Hospital name	No. of beds
Amman (3 hospitals)	Al-Bashir (2 hospital)	(2000)
	Prince Hamzah Hospital	(151)
	Dr. Gamal Al-Tutinji Hospital	(436)
A-Zarqa (2 hospitals)	New Zarqa Governmental Hospital	(493)
	Prince Faisal Bin Al Hussein Hospital	(195)
Madaba (2 hospitals)	Al Nadeem Governmental Hospital	(121)
	Princess Salma Hospital	(38)
Balqa (4 hospitals)	New Salt Governmental Hospital South Shouna Hospital	(350)
	Princess Iman Hospital/Al-Maadi	(63)
	Prince Hussein bin Abdullah II Governmental Hospital / Al Baqa'a	(60)
		(238)

Among them are (3) hospitals for psychological rehabilitation and rehabilitation of addicts

1. Al Karama Hospital for Psychiatric Rehabilitation / Amman, Naour District

2. The National Center for Rehabilitation of Addicts/ Amman

3. National Center for Mental Health / Al-Balqa Al-Fuhais

Table 3 South Region (Karak, Ma'an, Aqaba, Tafila), total (5) hospitals

Governorate	Hospital name	No. of beds
Ma'an (2 hospitals)	Ma'an Governmental Hospital Queen Rania Al Abdullah Hospital	(146)(80)
Karak (2 hospitals)	Karak Governmental Hospital Ghor Al-Safi Hospital	(174)(150)
Aqaba (none)	only military and private	
Tafila(one hospital)	Tafila Governmental Hospital	(150)

The researchers conducted a comprehensive survey of the study population in all its categories at

the upper and middle administrative levels in (Princess Basma Hospital, Al-Bashir Hospital, and Karak Governmental Hospital). The researcher distributed the questionnaire to the study sample, and (163) questionnaires were retrieved, and after examination, (3) questionnaires were excluded. The number of questionnaires suitable for analysis reached (160), and thus the percentage of questionnaires suitable for analysis was (93.56%).

3-2 Data collection sources

The researchers relied on the following sources to collect and analyze data:

1- Secondary sources: These are data obtained from library sources and a literary review of studies related to the study in order to lay the scientific foundations and theoretical framework, such as: references and sources related to the subject of the study and documents related to the data, including Arab and foreign peer-reviewed journals and literature to cover the theoretical part and information available on the Internet.

2- Primary sources: These are the data obtained from the study tool, as the researcher developed a questionnaire specifically for the purpose of answering the study's questions and hypotheses to reach the goal of the study.

3-3 Study tool

The questionnaire was designed based on previous studies relevant to the current study (Lee, et al., 2019; Schroten et al., 2020; United Arab Emirates Ministry of Interior (2020); Ali (2021); Erdil and Erbıyık, 2019; Tarei, Thakkar & Nag, 2020).

3-4 Validity and reliability of the study tool

a. Face validity (Referees validity)

The questionnaire was presented to a number of (10) experienced referees in Jordanian universities to review the title of the thesis, its questions, and its objectives. They expressed their opinions and comments about the questionnaire paragraphs in terms of the suitability of the paragraphs to the subject of the study and its goal in revealing the information required for the study, as well as in terms of its relevance. The paragraph with each dimension or variable it falls under, its clarity in the questionnaire, the soundness of its wording, and suggesting any amendment, addition or deletion to it (Appendix B). Based on the comments received, the questionnaire was moderator so that it became valid for application, as all of them responded to the refereeing of the questionnaire, and the percentage of agreement between the referees exceeded (79%), which means that the tool has sufficient credibility.

B. Reliability of study performance

To ensure the reliability of the study tool, the value of Cronbach's Alpha Coefficient was calculated to indicate the extent of internal consistency of the study items, and demonstrates the quality of

construction of the questionnaire items and the strength of their cohesion. Table (3) shows the reliability coefficient for the study measures. Alpha values ranged between (0.673) as the lowest value, and (0.961) as the highest value. This shows that all alpha values exceeded the minimum acceptable percentage for the purposes of statistical analysis, as alpha is considered equal to or greater than (0.70) acceptable in previous studies (Malhotra, 2004, p. 268). Also, the average variance extracted for the study dimensions ranged between (0.501) and (0.812) which are values higher than (0.50) which confirm the convergent validity of the study tool.

Table 4 Cronbach alpha reliability coefficient values for the study scales

Number	Dimension	No. of items	Alpha value	Composite reliability coefficient	Extracted variance Average
1	Advanced evaluation	6	0.895	0.898	**0.752**
2	Strategic evaluation	5	0.837	0.838	**0.760**
3	Performance evaluation	4	0.903	0.909	**0.960**
4	Results evaluation	4	0.854	0.853	**0.587**
Independent variable 0f health public policy evaluation practice		19	0.960	0.961	**0.706**
1	Effectiveness	7	0.834	0.845	**0.723**
2	Efficiency	6	0.927	0.930	**0.812**
3	Response	4	0.665	0.673	**0.501**
4	Justice	6	0.834	0.837	**0.704**
Dependent variable of performance of the government health sector		23	0.950	0.950	**0.702**
Big data analysis moderator variable		17	0.951	0.950	**0.666**

3-5 Methods and statistical treatments

The researcher relied on the Statistical Package for the Social Sciences (SPSS) to enter the data obtained. Using the statistical package program, two types of measures were used as follows:

To answer the study's questions and test its hypotheses, the researcher used the Statistical Package for Social Sciences (SPSS) (25) as follows:

First: Descriptive Statistical Measures methods

For the purpose of describing the demographic and functional characteristics of the study sample, the following was used:

Frequencies: to describe personal and job characteristics.

Percentages: to measure frequency distributions.

Arithmetic mean: to measure the average of managers' answers to the questionnaire items.

Standard deviation: To measure the extent to which answers are dispersed from their arithmetic mean.

The level of relative importance when commenting on the averages is determined according to an approved formula, and according to a five-point Likert scale for the answer alternatives for each item, which was determined according to the following equation:

Class length = upper limit of the alternative - lower limit of the alternative / number of levels

$$\text{Class length} \quad \frac{\text{upper limit – lower limit}}{\text{Number of levels}} = \frac{1 - 5}{3} = 1.33$$

Thus, the level of relative importance is as follows:

Low materiality if the arithmetic mean value from 1 to less than 2.33

Medium materiality if the arithmetic mean value is between 2.33 and less than 3.66

High materiality if the arithmetic mean value reaches 5 - 3.66

Second: Analytical statistics

Analytical statistics includes the following:

Cronbach Alpha reliability coefficient: To determine the consistency of the study measures.

Stepwise Multiple Regression Coefficient: To test the effect of administrative creativity on competitive advantage in the Arab Potash Company.

3. Multiple regression analysis: to test the effect of independent variables on the dependent variable. This is to answer the study hypotheses.

4. Kulmgrove Smirnov test: for normal distribution of data to ensure that the data follows a normal distribution.

5. Variance Inflation Factor test: It is used to identify multiple linear interference and determine the independent variable of this interference for each dimension of the independent variable, taking into account that the value of (VIF) does not exceed the value (10).

6. Multiple Regression-Stepwise test: To determine the importance of each dimension of the independent variable in contributing to the mathematical model, by arranging the entry of these dimensions into the regression equation.

7. Hierarchical Interaction Regression Analysis: To identify the role of the modifying variable in the effect of the independent variable on the dependent variable.

Fourth: Presentation of results and discussion of recommendations

4-1 Results of the characteristics of the study population

In this part, the personal information of the study sample members is described according to their personal variables (gender, age, educational qualification, years of experience, job title), and the following table shows this.

It is noted from Table (3-4) that the percentage of males constituted the highest percentage of the

study sample, reaching (67.5%), while the percentage of females was (32.5%) of the study sample. This can be explained by the fact that the majority of those occupying senior and middle administrative positions in Governmental hospitals affiliated with the Jordanian Ministry of Health are staffed by males, due to the long working hours, the exhausting nature of the work, and the multiple and complex tasks that may not be suitable for females. It is also noted that the majority of the study sample has experience (from 20 years to less than 25 years), constituting (43.8%) of the sample, and the age ranges from 40 to less than 50 years (60%). This is explained by the fact that managers with long experience have the competence and ability to perform administrative tasks to work at the upper and middle administrative levels in the hospitals of the Jordanian Ministry of Health. It is also noted that the majority of the study sample were department heads, constituting (80.6%) due to their familiarity with all job tasks and that they worked at the upper-middle levels to reach the position of department head. Moreover, a percentage of those with an academic qualification (Bachelor's) constituted the largest percentage of the study sample, reaching (58.1%), while the percentage of their academic qualifications (PhD) was the least (3.8%),

Table 4 Distribution of the study sample according to personal and functional variables

Variable	Category	Frequency	Percentage%
Gender	Male	108	67.5
	Female	52	32.5
Total		**160**	100.0
Age	Less than 30 years	3	1.9
	From 30 to less than 40	31	19.4
	From 40 to less than 50	96	60.0
	Over 50	30	18.8
Total		**160**	100.0
Academic Qualification	Technical education and less	20	12.5
	Bachelor	93	58.1
	Master	41	25.6
	PhD	6	3.8
Total		**160**	100.0
Job title	Director	8	5.0
	Assistant Director	23	14.4
	Head of Department	129	80.6
Total		**160**	100.0
Years of experience	Less than 10 years	6	3.8
	From 10 to less than 15	27	16.9
	From 15 to less than 20	43	26.9
	From 20 to less than 25	70	43.8
	From 25 and above	14	8.8
Total		160	100.0

4-2 Data analysis to answer the descriptive study questions

The most important results of descriptive statistics for the study's variables, dimensions, and paragraphs will be presented here:

First: Answering the first question: What is the level of practice of evaluating public health

policies with their dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) in the hospitals of the Jordanian Ministry of Health, from the perspective of the respondents?

4-2-1: The degree of availability of the dimensions of the practice of evaluating public health policies from the point of view of the study sample members

Table 5 Arithmetic means, standard deviations and level of materiality for the dimensions of public health policy evaluation practice in Jordanian Ministry of Health hospitals

No	Dimension	Arithmetic mean	Standard deviation	Rank	Materiality
1	Advanced evaluation	3.43	0.678	4	Average
2	Strategic evaluation	3.51	0.731	3	Average
3	Strategic evaluation	3.62	0.639	1	Average
4	Results evaluation	3.57	0.580	2	Average
Total		3.55	0.641		Average

Second

To answer the second question: What is the level of performance of the government health sector in its dimensions (effectiveness, efficiency, responsiveness, justice) in the hospitals of the Jordanian Ministry of Health, from the perspective of the respondents?

4-2-2 Degree of availability of health sector performance from the point of view of the study sample members

Table 6 Arithmetic means, standard deviations, and level of importance for dimensions of health sector performance in Jordanian Ministry of Health hospitals

No.	Dimension	Arithmetic mean	Standard deviation	Rank	Level in relation to the arithmetic mean
1	Effectiveness	3.50	0.602	4	Average
2	Efficiency	3.51	0.772	3	Average
3	Responsiveness	3.84	0.499	1	High
4	Justice	3.54	0.620	2	Average
	Government health sector Performance	3.57	0.580		Average

Third: To answer the third question: What is the level of availability of big data analysis in the hospitals of the Jordanian Ministry of Health, from the perspective of the respondents?

4-2-3 Degree of availability of big data analysis from the point of view of the study sample members

Table 7 Arithmetic means and standard deviations for the mediating variable: Analysis of big data in Jordanian Ministry of Health hospitals

Rank	Paragraph	Arithmetic Mean	Standard deviation	Materiality
1	Big data analysis	3.80	0.611	High

4.4 Testing the study hypotheses

4-3-1 Results related to the first main hypothesis (H01): There is no statistically significant effect at the significance level (α≤0.05) of the practice of evaluating public health policies in their dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the health sector performance in its dimensions (effectiveness, efficiency, responsiveness, justice) in the hospitals of the Jordanian Ministry of Health.

Multiple Regression analysis was used to verify the impact of evaluating public health policies with their combined dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the performance of the Jordanian government health sector with their combined dimensions (effectiveness, efficiency, responsiveness, justice) in Jordanian Ministry of Health hospitals, as shown in Table (8).

Table 8 Multiple regression and variance test to analyse the impact of the practice of evaluating public health policies in their dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the performance of the health sector in its dimensions (effectiveness, efficiency, responsiveness, justice) in hospitals Jordanian Ministry of Health

Model summary		**ANOVA**			**coefficients**				
(R)	**(R^2)**	**F**	**DF**	**Sig**	**Independent variable**	**B**	**SE**	**T**	**Sig**
0.934	0.873	265.588	4	0.000	Advanced assessment	0.040	0.045	0.887	0.377
					Strategic evaluation	0.159	0.068	2.717	0.007
					Performance evaluation	0.157	0.049	3.194	0.002
					Results Evaluation	0.503	0.055	9.205	0.000

* The effect is statistically significant at the significance level (α≤0.05)

The statistical results presented in Table (8) showed that there was a statistically significant effect of the variable of the practice of evaluating public health policies and each of its dimensions on the health sector performance variable in the Jordanian Ministry of Health hospitals (Al-Bashir Hospital, Karak Governmental Hospital, Princess Basma Hospital), as evidenced by The high value of the correlation coefficient, which reached (R = 0.934). It also indicates the existence of a positive and direct relationship between the independent variable and the dependent variable. This result was also reinforced by the high value of the calculated (F), which amounts to (265.855) at the level of significance (α≤0.05), which is greater than Tabular value.

Based on the value of the coefficient of determination (0.873), the coefficient of determination explains (87.3%) of the variance in the dependent variable, which is a relatively high explanatory power that reflects an acceptable degree of strength and reliability of the model.

When conducting a Multiple Regression analysis of the dimensions of the independent variable in the dependent variable, the statistical data presented in Table (8) (T-test) indicate that the dimensions of the independent variable (strategic evaluation, performance evaluation, and results evaluation), respectively, have a statistically significant effect on The dependent variable is indicative of the increase in the calculated (T) values appearing in the table at the level of significance (α≤0.05). Moreover, the above results indicated that there is no statistically significant effect of the dimension of the independent variable (advanced evaluation) in terms of the decrease in the tabular (T) value compared to the one calculated at the level Significance (α≤0.05).

Table 9 Stepwise Multiple Regression test to predict the impact of the practice of evaluating public health policies in their dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the performance of the health sector in the hospitals of the Jordanian Ministry of Health

Dimensions of the independent variable	(R^2)	(T)	(Sig)
Results evaluation	0.831	9.930	0.000
Performance evaluation	0865	3.606	0.000
Strategic evaluation	0.872	2.932	0.004

When conducting a stepwise multiple regression analysis to determine the importance of each dimension of the independent variable separately in contributing to the mathematical model that represents the dimensions of evaluating public health policies in the hospitals of the Jordanian Ministry of Health.

The previous table shows the order in which the dimensions of the independent variable enter the regression equation, as the data contained in the table indicate, the (results evaluation) dimension explained an amount of (83.1%), and the (results evaluation dimension with the performance evaluation dimension) explained an amount of (86.5%) of the variance in the performance of the health sector in the hospitals of the Jordanian Ministry of Health.

Moreover, the (results evaluation dimension with the performance evaluation and after the strategic evaluation explained an amount of (87.2%) of the variance in the performance of the health sector in the hospitals of the Jordanian Ministry of Health.

The advanced evaluation dimension was regressed from the stepwise regression equation.

4-3-2 Testing sub-hypotheses

Results related to the first sub-hypothesis (HO1.1): *There is no statistically significant effect at the significance level (a≤0.05) for evaluating the practice of public health policies on the effectiveness of the health sector in the hospitals of the Jordanian Ministry of Health.*

Multiple linear regression analysis was used to verify the impact of the practice of evaluating public health policies on the effectiveness of the health sector in the hospitals of the Jordanian Ministry of Health, as shown in Table (10)

Table 10 Multiple regression and variance test to analyze the impact of the practice of evaluating public health policies with their dimensions on the effectiveness of the health sector in the hospitals of the Jordanian Ministry of Health

Model summary		**ANOVA**			**Coefficients**				
(R)	**(R^2)**	**F**	**DF**	**Sig**	**Independent variable**	**B**	**SE**	**T**	**Sig**
0.791	0.626	64.952	4	0.000	Advanced evaluation	0.074	0.079	0.927	0.356
					Strategic evaluation	0.147	0.104	1.412	0.160
					Performance evaluation	0.208	0.087	2.384	0.018
					Results Evaluation	0.462	0.097	4.753	0.000

*The effect is statistically significant at the significance level (α≤0.05)

The statistical results presented in Table (10).

It showed the presence of a significant, statistically significant effect of the health public policy evaluation variable and each of its dimensions on the effectiveness variable in the hospitals of the Jordanian Ministry of Health, as evidenced by the high value of the correlation coefficient, which reached (R = 0.791).

It also indicated by that there is a positive and direct relationship between the independent variable and the dependent variable.

This result was also reinforced by the high calculated F value of (64.952) at the significance level (α≤0.05), which is greater than its tabulated value.

Based on the value of the coefficient of determination (0.626), the coefficient of determination explains (62.6%) of the variance in the dependent variable, which is a relatively high explanatory power that reflects an acceptable degree of strength and reliability of the model.

When conducting a multiple regression analysis of the dimensions of the independent variable in the dependent variable, the statistical data presented in Table (1) (T-test) indicate that the dimensions of the independent variable (performance evaluation and results evaluation), respectively.

It have a statistically significant effect on the dependent variable in terms of the calculated (T) values shown in the table are high at the level of significance (α≤0.05).

Moreover, the results above indicate that there is no statistically significant effect of the dimension of the independent variable (advanced evaluation and strategic evaluation) in terms of the lower value of the tabulated (T) than the calculated one at the level of significance (α≤0.05).

Table 11 Stepwise Multiple Regression test to predict the impact of the practice of evaluating public health policies on the effectiveness of the health sector in the hospitals of the Jordanian Ministry of Health

Dimensions of the independent variable	(R^2)	(T)	Sig
Results evaluation	0.590	6.290	0.000
Performance evaluation	0.620	3.620	0.001

*The effect is statistically significant at the significance level (α≤0.05)

When conducting a stepwise multiple regression analysis to determine the importance of each dimension of the independent variable separately in contributing to the mathematical model that represents the dimensions of the practice of evaluating public health policies in the hospitals of the Jordanian Ministry of Health, the previous table shows the order in which the dimensions of the independent variable enter the regression equation. The data indicated that the (results evaluation) dimension explained an amount of (59.0%) and that the (results evaluation dimension with the performance evaluation dimension explained an amount of (62.0%) of the variance in effectiveness in the hospitals of the Jordanian Ministry of Health. The dimension (Advanced evaluation and strategic evaluation) was regressed from the stepwise regression equation.

Results related to the second sub-hypothesis (HO1.2): There is no statistically significant effect at the significance level (0.05 ≥α) of the practice of evaluating public health policies on efficiency in the Jordanian Ministry of Health hospitals.

Multiple linear regression analysis was used to verify the impact of the practice of evaluating public health policies in their dimensions on the efficiency of the health sector in the hospitals of the Jordanian Ministry of Health, as shown in Table (12).

Table 12 Multiple regression and variance test to analyze the impact of the practice of evaluating public health policies on the efficiency of Jordanian Ministry of Health hospitals

Model summary		ANOVA			Coefficients				
(R)	(R^2)	F	DF	Sig	Independent variable	B	SE	T	Sig
0.905	0.819	175.897	4	0.000	Advanced evaluation	0.116	0.071	1.646	0.102
					Strategic evaluation	0.311	0.093	3.360	0.001
					Performance evaluation	0.011	0.078	0.147	0.883
					Results Evaluation	0.676	0.087	7.804	0.000

*The effect is statistically significant at the significance level (α≤0.05)

The statistical results presented in Table (12) showed the presence of a significant, statistically significant effect of the health public policy evaluation variable and each of its dimensions on the efficiency variable in the hospitals of the Jordanian Ministry of Health. This is evidenced by the

high value of the correlation coefficient, which reached (R = 0.905). It also indicated that there is a positive and direct relationship between the independent variable and the dependent variable. This result was also reinforced by the high calculated F value of (175.897) at the significance level (α≤0.05), which is greater than its tabulated value.

Based on the value of the coefficient of determination (0.819), the coefficient of determination explains (81.9%) of the variance in the dependent variable, which is a relatively high explanatory power that reflects an acceptable degree of strength and reliability of the model.

When conducting a multiple regression analysis of the dimensions of the independent variable in the dependent variable, the statistical data presented in Table (12) (T-test) indicate that the dimension of the independent variable (strategic evaluation and results evaluation) has a statistically significant effect on the dependent variable in terms of high values. This is indicated by the calculated (T) shown in the table at a significance level (α≤0.05). Moreover, the results above indicated that there is no significant, statistically significant effect for the dimensions of the independent variable (advanced assessment and performance evaluation) in terms of the lower value of the tabulated (T) than that calculated at the significance level (α≤0.05).

Table 13 Stepwise Multiple Regression test to predict the impact of the practice of evaluating public health policies on the efficiency of the health sector in the hospitals of the Jordanian Ministry of Health

Dimensions of the independent variable	(R^2)	(T)	Sig
Results evaluation	0.787	9.168	0.000
Performance evaluation	0.816	4.959	0.000

*The effect is statistically significant at the significance level (α≤0.05)

When conducting a stepwise multiple regression analysis to determine the importance of each dimension of the independent variable separately in contributing to the mathematical model that represents the dimensions of evaluating public health policies in the hospitals of the Jordanian Ministry of Health, the previous table shows the order in which the dimensions of the independent variable enter the regression equation. The data contained in the table indicate that the (results evaluation) dimension explained (78.7%) of the variance in efficiency in the Jordanian Ministry of Health hospitals, and the results evaluation dimension with the strategic evaluation dimension explained (81.6%) of the variance in efficiency in the Jordanian Ministry of Health hospitals. The dimensions of performance evaluation and advanced evaluation were regressed from the stepwise regression equation.

Results related to the third sub-hypothesis (HO1.3): There is no statistically significant effect at the significance level (α≤0.05) of the practice of evaluating public health policies on the health sector's response in the hospitals of the Jordanian Ministry of Health.

Multiple linear regression analysis was used to verify the impact of the practice of evaluating public health policies on the health sector response in the hospitals of the Jordanian Ministry of Health,

as shown in Table (14).

Table 14 Multiple regression and variance test to analyze the impact of the practice of evaluating public health policies on the health sector response in the hospitals of the Jordanian Ministry of Health

Model summary		ANOVA			Coefficients				
(R)	**(R^2)**	**F**	**DF**	**Sig**	**Independent variable**	**B**	**SE**	**T**	**Sig**
0.741	0.549	47.098	4	0.000	Advanced evaluation	0.112	0.072	1.553	0.123
					Strategic evaluation	-.039	0.095	-.417	0.677
					Performance evaluation	0.023	0.080	.291	0.772
					Results Evaluation	0.489	0.088	5.529	0.000

*The effect is statistically significant at the significance level (α≤0.05)

The statistical results presented in Table (14) showed the presence of a statistically significant effect of the public health policy evaluation variable and each of its dimensions on the response variable in the hospitals of the Jordanian Ministry of Health, as evidenced by the high value of the correlation coefficient, which reached (R = 0.741).

It also indicated there is a positive and direct relationship between the independent variable and the dependent variable. This result was also reinforced by the high calculated F value of (47.098) at the significance level (α≤0.05), which is greater than its tabulated value.

Based on the value of the coefficient of determination (0.549), the coefficient of determination explains (54.9%) of the variance in the dependent variable, which is a relatively high explanatory power that reflects an acceptable degree of strength and reliability of the model.

When conducting a multiple regression analysis of the dimensions of the independent variable on the dependent variable, the statistical data presented in Table (4-20) (T-test) indicate that the dimensions of the independent variable (evaluation of results), respectively, have a statistically significant effect on the dependent variable in terms of the increase in the calculated (T) values shown in the table are at a significance level (α≤0.05).

The above results indicate that there is no statistically significant effect of the dimension of the independent variable (advanced evaluation, strategic evaluation, and performance evaluation) in terms of the lower value of the tabulated (T) than the calculated one at a significance level (α≤0.05).

Table 15 Stepwise Multiple Regression test to predict the impact of the practice of evaluating public health policies with their dimensions on the health sector's response in the hospitals of the Jordanian Ministry of Health

Dimensions of the independent variable	(R2)	(T)	(Sig)
Results evaluation	0.537	13.604	0.000

*The effect is statistically significant at the significance level (α≤0.05)

When conducting a stepwise multiple regression analysis to determine the importance of each dimension of the independent variable separately in contributing to the mathematical model that represents the dimensions of the practice of evaluating public health policies in the hospitals of the Jordanian Ministry of Health, the previous table shows the order in which the dimensions of the independent variable enter the regression equation. The data shown in the table indicate that the (outcome evaluation) dimension explained (53.7%) of the variance in response in the Jordanian Ministry of Health hospitals. The dimension (advanced evaluation, strategic evaluation, and performance evaluation) regressed from the stepwise regression equation.

Results related to the fourth sub-hypothesis (HO1.4): There is no statistically significant effect at the significance level (α≤0.05) of the practice of evaluating public health policies on health sector equity in the Jordanian Ministry of Health hospitals.

Multiple linear regression analysis was used to verify the impact of the practice of evaluating public health policies on health sector equity in Jordanian Ministry of Health hospitals. Table (16) is illustrative.

Table 4-22 Multiple Regression and variance test to analyze the impact of evaluating public health policies on health sector equity in Jordanian Ministry of Health hospitals

Model summary		ANOVA			Coefficients				
(R)	**(R^2)**	**F**	**DF**	**Sig**	**Independent variable**	**B**	**SE**	**T**	**Sig**
0.950	0.903	361.470	4	0.000	Advanced evaluation	0.046	0.042	1.112	0.268
					Strategic evaluation	0.153	0.095	2.798	0.006
					Performance evaluation	0.332	0.080	7.240	0.000
					Results Evaluation	0.387	0.088	7.600	0.000

*The effect is statistically significant at the significance level (α≤0.05)

The statistical results presented in Table (16) showed the presence of a statistically significant effect of the variable of the practice of evaluating public health policies and each of its dimensions on the variable of justice in the hospitals of the Jordanian Ministry of Health. This is evidenced by the high value of the correlation coefficient, which reached (R = 0.950). It also indicates that there is a positive and direct relationship between the independent variable and the dependent variable. This result was also reinforced by the high value of the calculated (F) of (361.470) at the level of significance (α≤0.05), which is greater than its tabulated value.

Based on the value of the coefficient of determination (0.903), the coefficient of determination explains (90.3%) of the variance in the dependent variable, which is a relatively high explanatory

power that reflects an acceptable degree of strength and reliability of the model.

When conducting a multiple regression analysis of the dimensions of the independent variable in the dependent variable, the statistical data presented in Table (4-24) (T-test) indicate that the dimensions of the independent variable (strategic evaluation, performance evaluation, and results evaluation) respectively have a significant statistical effect in the dependent variable in terms of the increase in the calculated (T) values shown in the table at a significance level ($\alpha \leq 0.05$). The results above indicated that there is no statistically significant effect of the dimension of the independent variable (advanced evaluation) in terms of the lower value of the tabulated (T) than the calculated at a significance level ($\alpha \leq 0.05$).

Table 17 Stepwise Multiple Regression test to predict the impact of the practice of evaluating public health policies on health sector equity in Jordanian Ministry of Health hospitals

Dimensions of the independent variable	(R^2)	(T)	Sig
Performance evaluation	0.811	7.891	0.000
Results evaluation	0.897	8.306	0.000
Strategic evaluation	0.902	3.052	0.003

*The effect is statistically significant at the significance level ($\alpha \leq 0.05$)

When conducting a stepwise multiple regression analysis to determine the importance of each dimension of the independent variable separately in contributing to justice, which represents the dimensions of evaluating public health policies in the hospitals of the Jordanian Ministry of Health, the previous table shows the order in which the dimensions of the independent variable enter the regression equation. The data in the table indicate that the (performance evaluation) dimension explained an amount of (81.1%), the (performance evaluation dimension with the results evaluation dimension explained an amount of (89.7%), and the (performance evaluation dimension with the results evaluation and strategic evaluation dimension explained an amount of (90.2%) of the variance in justice in the hospitals of the Jordanian Ministry of Health. The performance evaluation dimension regressed from the stepwise regression equation.

Results related to the second main hypothesis (H02): Big data does not modify the impact of the practice of public health policy evaluation in its dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on government health performance in its dimensions (effectiveness, efficiency, responsiveness, justice) at the level of Significance ($\alpha \leq 0.05$) in Jordanian Ministry of Health hospitals.

To test the second main hypothesis, Hierarchical Multiple Regression Analysis was used to measure the impact of the practice of evaluating health policies in their dimensions on the performance of the health sector with the presence of big data analysis as a moderator variable in the hospitals of the Jordanian Ministry of Health.

To answer this hypothesis, it was divided into 4 sub-hypotheses as follows:

The first sub-hypothesis: H02.1 Big data analysis does not modify the effect of public health policy evaluation practice on the effectiveness of the health sector at the significance level (α≤0.05) in the hospitals of the Jordanian Ministry of Health.

To test the first sub-hypothesis, Hierarchical Analysis Regression Multiple was used to measure the effect of the practice of evaluating health policies on effectiveness in the presence of big data analysis as a moderator variable in the hospitals of the Jordanian Ministry of Health.

Table 18 Hierarchical regression analysis to demonstrate the role of the modifying variable Big data analysis in modifying the effect of public health policy evaluation practice on effectiveness

Dependent variable	Independent variables	First model			Second model		
		B	T	Sig.T	B	T	Sig.T
Effectiveness	Health policies evaluation	0.715	14.781	0.000	0.288	5.926	0.000
	Health policy evaluation * Big data analysis				0.635	12.432	0.000
	R	0.762			0.888		
	R2	0.580			0.789		
	ΔR2	0.580			0.280		
	ΔF	218.477			154.554		
	ΔSig.	0.000			0.000		

*The effect is statistically significant at the significance level (α≤0.05)

From the table above it is clear that the results of the hierarchical multiple regression analysis of the first model based on the value of the correlation coefficient R (0.762). This indicates that there is a significant correlation between the practice of evaluating public health policies and effectiveness, and the value of the coefficient of determination R^2 (0.580), meaning that its value is 0.58%. of the change in effectiveness is due to the practice of evaluating public health policies. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states: The first alternative sub-hypothesis H2.1 Big data analysis modifies the effect of the practice of evaluating public health policies on the effectiveness of the health sector at a level of moral significance (α ≤ 0.05) in Jordanian Ministry of Health hospitals.

Second sub-hypothesis: H02.2 Big data analysis does not modify the effect of public health policy evaluation practice on health sector efficiency at the significance level (α ≤ 0.05) in Jordanian Ministry of Health hospitals.

Table 19 Hierarchical regression analysis to demonstrate the role of the modifying variable Big data analysis in modifying the effect of health policy evaluation practice on health sector efficiency

Dependent variable	Independent variables	First model			Second model		
		B	T	Sig.T	B	T	Sig.T
Efficiency	Health policies evaluation	1.061	23.409	0.000	0.874	14.423	0.000
	Health policy evaluation * Big data analysis				0.277	4.356	0.000
	R	0.881			0.895		
	R^2	0.776			0.800		
	ΔR^2	0.776			0.024		
	ΔF	547.962			18.972		
	ΔSig.	0.000			0.000		

*The effect is statistically significant at the significance level (α ≤ 0.05)

From the table above it is clear that the results of the hierarchical multiple regression analysis of the first model based on the value of the correlation coefficient R (0.881).

This indicates that there is a significant correlation between the practice of evaluating health policies and the efficiency of the health sector, and the value of the coefficient of determination R^2 (0.776), meaning that its value is 77.6 % of the change in efficiency is due to the evaluation of health policies. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states: The second alternative sub-hypothesis:

Big data analysis modifies the effect of the practice of evaluating health policies on the efficiency of the health sector at a level of moral significance ($\alpha \leq 0.05$) in hospitals.

Third sub-hypothesis: H02.3 Big data analysis does not modify the effect of health policy evaluation practice on the health sector's response at the significance level ($\alpha \leq 0.05$) in Jordanian Ministry of Health hospitals.

Table 20 Hierarchical regression analysis to demonstrate the role of the modifying variable, big data analysis in modifying the effect of public health policy evaluation practice on the health sector response

Dependent variable	Independent variables	First model			Second model		
		B	**T**	**Sig.T**	**B**	**T**	**Sig.T**
Responsiveness	Health policies evaluation	0.547	12.445	0.000	0.163	3.654	0.000
	Health policy evaluation * Big data analysis				0.571	12.192	0.000
	R	0.704			0.861		
	R^2	0.495			0.741		
	ΔR^2	0.495			0.246		
	ΔF	154.878			148.641		
	$\Delta Sig.$	0.000			0.000		

*The effect is statistically significant at the significance level ($\alpha \leq 0.05$)

From the table above it is clear that the results of the hierarchical multiple regression analysis of the first model based on the value of the correlation coefficient R (0.704).

This indicates that there is a significant correlation between the evaluation of health policies and the health sector response, and the value of the coefficient of determination R^2 (0.495), meaning that its value is 49.5 % of the change in response is due to the evaluation of health policies. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states: The third alternative sub-hypothesis:

Big data analysis modifies the effect of the practice of evaluating public health policies on the health sector's response at a level of moral significance ($\alpha \leq 0.05$) in Jordanian Ministry of Health hospitals.

Fourth sub-hypothesis: H02.4 Big data analysis does not modify the effect of the practice of evaluating health policies on the justice of the health sector at a level of significant significance ($\alpha \leq 0.05$) in the Jordanian Ministry of Health hospitals.

Table 21 Hierarchical regression analysis to demonstrate the role of the modifying variable big data analysis in modifying the effect of health policy evaluation practice on health sector equity

Dependent variable	Independent variables	First model			Second model		
		B	**T**	**Sig.T**	**B**	**T**	**Sig.T**
Justice	Health policies evaluation	0.906	33.469	0.000	0.806	22.004	0.000
	Health policy evaluation * Big data analysis				0.148	3.852	0.000
	R	0.936			0.942		
	R^2	0.876			0.887		
	ΔR^2	1120.169			0.011		
	ΔF	154.878			14.839		
	ΔSig.	0.000			0.000		

*The effect is statistically significant at the significance level ($\alpha \leq 0.05$)

From the table above it is clear that the results of the hierarchical multiple regression analysis of the first model based on the value of the correlation coefficient R (0.936). This indicates that there is a significant link between the practice of evaluating public health policies and health sector equity, and the value of the coefficient of determination R^2 (0.876), meaning that its value is 87.6 % of the change in health sector equity is due to the practice of health policy evaluation. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states: The fourth alternative sub-hypothesis: Big data analysis modifies the effect of the practice of health policy evaluation on health sector equity at a level of moral significance ($\alpha \leq 0.05$) in Jordanian Ministry of Health hospitals.

4-5 Discussing the results

The study reached the following results:

1- The perceptions of managers at the upper and middle administrative levels in the hospitals of the Jordanian Ministry of Health regarding the values of the arithmetic means for the variable evaluating public health policies came in at an average rate of (3.55). This indicates that the Ministry is keen to set specific standards for evaluating public health policies before formulating them. It also has a specialized department to evaluate the feasibility of public health policies before formulating them, as the Ministry is interested in identifying the expected results of the public health policy by its beneficiaries.

The Ministry proposes the necessary amendments to public health policies, is concerned with identifying the gaps between what is implemented and what is planned, and also seeks to evaluate its practices followed in implementing public health policies. It conducts many periodic evaluations of public health policies during their implementation, as the Ministry is keen to identify the strengths and weaknesses in implementing, addressing and developing public health policies. It also compares the results of public health policies (providing health care, providing human resources

and equipment, establishing health care centers) with the objectives set for them.

This result is explained by the fact that the upper and middle administrative levels pay attention to the Ministry conducting an advanced, comprehensive study of the two environments (internal and external) before formulating public health policies.

The Ministry also clarifies the practices that would deal with emergency events that hinder the implementation of public health policies, as the Ministry evaluates the extent to which commitment of public health policies with specific financial allocations.

These results agreed with Khader's message (2022) which aimed to try to understand the best ways to evaluate public health policies, while this result differs with the results of the study (Saber and Gomaa, 2020), which showed that the policy network influenced the different stages of policy making through Many tools and strategies.

2- The results indicated that the perceptions of managers at the upper and middle administrative levels in the hospitals of the Jordanian Ministry of Health regarding the values of the arithmetic means for the government health sector performance variable came at a moderate degree of (3.57). This indicates that the upper and middle administrative levels in the hospitals of the Jordanian Ministry of Health have clear strategic plans to evaluate the extent to which its hospitals achieve their specific goals.

There is also a clear written message, as it translates its strategic goals into specific sub-goals. It is also keen to provide its services to beneficiaries in the shortest possible time, as the Ministry relies on modern technological means to provide its services. The Ministry also follows up on the extent to which the efficiency of employees' adherence to regulations and instructions during the provision of its services. The Ministry's administrative practices are also characterized by flexibility, which enables it to respond to crises.

This result is explained by the fact that the upper and middle administrative levels pay great attention to granting the ministry its employees sufficient powers to achieve the goals set for them, as employees are trained to carry out the tasks required of them with a high degree of quality, and multiple comparisons are made to judge the efficiency of performance, including a comparison of their current performance. Previously, the Ministry used feedback from beneficiaries to improve the level of its services as the Ministry sought to provide medicines and vaccines to all members of society.

This result is consistent with the findings of the study (Al-Mutairi et al., 2022), which showed that it had an impact on the health sector's performance. This result is also consistent with the results of the QUADIC study (2021), which showed that the level of health sector performance was moderate.

3- The results showed that the perceptions of managers at the upper and middle administrative levels in the hospitals of the Jordanian Ministry of Health regarding the values of the arithmetic

means for the variable of big data analysis came at a high level of (3.80). This means that the administrative levels in the hospitals of the Jordanian Ministry of Health, where the Ministry is interested in various forecasting models to support activities of generating and developing information sources according to the needs of its beneficiaries. After processing and analyzing huge data, it is also able to predict future events, as the Ministry provides backup storage spaces to preserve its huge data from loss, and the Ministry is interested in organizing huge data through systems that help use it in times of need.

This means that the upper and middle administrative levels are interested in the Ministry relying on the analysis of the huge data available to it in making its decisions, and advanced computing technologies to meet the need to store more processed huge data.

The results of the study are consistent with the findings of Ahmed (2023) and Muhammad (2022), which aimed to study big data and its analyses. It differs with the study of (Al-Waeli, 2022), which aimed to determine how to deal with big data.

4- The results indicated that there was a statistically significant impact at the significance level ($\alpha \geq 0.05$) for evaluating public health policies in their dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the performance of the health sector in its dimensions (effectiveness, efficiency, responsiveness/justice) in Jordanian Ministry of Health hospitals.

This result is explained by the fact that applying the evaluation of public policies in their dimensions in the hospitals of the Jordanian Ministry of Health helps in the Ministry's interest in identifying the expected results of the public health policy by its beneficiaries, and the Ministry proposing the necessary amendments to the public health policies, and carrying out many periodic evaluations of the public health policies during Implementing it, and participating in the process of evaluating the results of public health policies with government oversight bodies.

5- There is a statistically significant effect at the level of significance ($\alpha \geq 0.05$) for evaluating public policies with their combined dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the effectiveness of the health sector in the Jordanian Ministry of Health hospitals.

This is due to the evaluation of scientific practices in the hospitals of the Jordanian Ministry of Health contributing to the Ministry translating its strategic objectives into specific sub-objectives, and to continuously evaluating the level of achievement of the specified objectives.

This result is consistent with the findings of the study (Chang, 2023), which measures the effectiveness of the health sector's performance

6-There is a statistically significant effect at the level of significance ($\alpha \geq 0.05$) for evaluating public policies with their combined dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the efficiency of the health sector in the hospitals of the Jordanian

Ministry of Health.

This indicates that using public policy evaluation, the Ministry is keen to provide its services to beneficiaries in the shortest possible time, and also relies on modern technological means to provide its services.

This result is consistent with the results of the study (Mounir and Abdel Latif, 2020), which showed that efficiency has a role in achieving public policy.

7-There is a statistically significant effect at the level of significance ($\alpha \geq 0.05$) of evaluating public policies with their combined dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the health sector's response in the hospitals of the Jordanian Ministry of Health.

This means that using a public policy assessment, the ministry has pre-defined policies, procedures and strategic plans to deal with expected risks.

This result is consistent with Barakat's (2023) study, which showed that response has a role in achieving public policy

This indicates that the senior and middle administrative levels in customer happiness centers were keen to use emerging technology with the aim of improving overall performance, measuring and comparing.

8. There is a statistically significant effect at the level of significance ($\alpha \geq 0.05$) for evaluating public policies with their combined dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the equity of the health sector in the hospitals of the Jordanian Ministry of Health.

This means that using public policy assessment, the Ministry seeks to provide health services at all times and to all members of society.

This result is consistent with Barakat's (2023) study, which showed that justice has a role in achieving public policy

9- There is a statistically significant impact at the significance level ($0.05 \geq \alpha$) of analyzing big data to evaluate public policies with their combined dimensions (advanced evaluation, strategic evaluation, performance evaluation, results evaluation) on the health sector in the Jordanian Ministry of Health hospitals.

This is due to the Ministry's interest in various forecasting models to support the activities of generating and developing information sources according to the needs of its beneficiaries, as it is able, after processing and analyzing huge data, to predict future events.

This result is consistent with the findings of the study (Ahmed, 2023), which showed the importance of big data and its types.

4-6 Recommendations

Based on the results of the field study, it recommends a number of recommendations, which are:

1- That the senior and middle administrations in the Jordanian Ministry of Health hospitals continue to keep pace with everything new in evaluating public health policies, and study their benefits in depth with the aim of employing them in the Jordanian Ministry of Health hospitals.

2- Increase the employment of senior and middle management in the hospitals of the Jordanian Ministry of Health to evaluate public health policies and use advanced and strategic evaluation, performance and results in providing services in the hospitals of the Jordanian Ministry of Health.

3- Continuously increasing the interest of senior and middle administrations in Jordanian Ministry of Health hospitals in applying the dimensions of government sector performance smoothly to obtain distinguished public health policies.

4- Senior and middle administrations in Jordanian Ministry of Health hospitals must hold periodic training courses to inform the medical staff of Jordanian Ministry of Health hospitals on everything new in the field of evaluating public health policies, the dimensions of the health sector, and how to employ them in raising the level of services provided to patients.

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