

Effect of Biostatistics Attitude, IT Capabilities, and Digital Technology Adoption on Health-Care Worker Decision Quality: Mediated by Data Driven Decision Making

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ABSTRACT

Purpose: In current healthcare landscape, hospitals need to adopt data driven approach to strengthen their overall performance. Therefore, the aim of this research was to examine the effect of biostatistics attitude, IT Capability, digital technology adoption, and data driven decision making on healthcare worker decision quality. This research also explored the mediating role of data driven decision making. **Design/ method/ approach:** Cross sectional research design and quantitative research methodology were used in this study. Questionnaire was developed from past studies for data collection. Data were collected from healthcare workers using convenience sampling. Response rate was 64.2%. Smart PLS and SPSS were used for analysis purpose. **Findings:** Findings of the study revealed that biostatistics attitude, IT Capability, and digital technology adoption have positive effect on data driven decision making. Moreover, data driven decision making also has significant positive effect on healthcare worker decision quality. Mediating effect of data driven decision making is also supported in the present study. **Originality:** This study is among few studies that has discussed importance of biostatistics to improve decision quality of the healthcare worker.

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1. Introduction

It is very important to make right decisions at the right time in healthcare system as it can be a matter of life and death. Healthcare institutions mostly rely on data driven approaches to improve patient outcomes and support clinical judgements (Adeniran et al., 2024). Whereas the ability of healthcare workers to use data effectively depends on availability of technology. Another important factor that impacts the healthcare workers' ability to use data is their attitude regarding biostatistics (Sakarna et al., 2025). Presently, healthcare environment has become complex, therefore integrating digital capabilities and biostatistical understanding has become vital for high quality decision making (Stoumpos et al., 2023). Therefore, it is critical to develop data-oriented culture within hospitals to enhance overall healthcare performance.

Biostatistics attitude is important for healthcare workers as hospitals depend more on data driven insights with the purpose to enhance patient care outcomes and guide clinical decision making (Anand Nayak et al., 2021). A positive biostatistics attitude supports evidence-based clinical practices, reduces uncertainty, and helps in interpreting complex data of patients across diverse hospital functions (Sakarna et al., 2025). Statistics is considered an important factor in a number of disciplines, including medical and related sciences. Biostatistics is one of the applied fields for health sciences, medicine, and biology. Healthcare providers must be aware of the advancement of investigation in statistics. They should also be able to plan the integration of statistical knowledge in health and medical related decisions. Attitude towards biostatistics among healthcare workers is based on a number of factors such as confidence in applying and learning statistical methods, self-efficacy, feelings linked to statistics in clinical practices, perceived value, utility and importance of statistics improving patients care, and integration of concepts of statistics with different domains of healthcare, medicine and biological science (Ali et al., 2025). Healthcare workers who possess a strong biostatistics attitude are likely to make informed clinical decisions, improve problem solving skills, and utilize analytical tools to gain patients trust (Chaoubah, 2021). Ultimately, biostatistics attitude strengthens the overall ability to respond to complex healthcare challenges, operational hospital efficiency, and enhance medical research quality using scientific evidence (Nayak et al., 2021).

Involving healthcare workers in the decision-making process of hospitals is an important factor in modern healthcare management. Healthcare worker decision quality is key for patient care, maintaining clinical effectiveness and developing a high performance culture within hospitals (Sivakumar et al., 2021). Healthcare worker decision quality is considered as one of the key strategic clinical decision-making process that is used by healthcare professionals to assess decision quality at the time the decision is being made. When healthcare workers are empowered to take decisions, their engagement, job satisfaction, and morale are boosted, leading to a higher rate of retention within hospitals. Furthermore, it improves the process by making immediate corrective healthcare decisions to enhance patient care outcomes (Hurd, 2025). Healthcare workers often show resistance to changes or new clinical practices in the process of decision making. Involving healthcare in the transition, having clear communication regarding healthcare benefits, and gradual implementation can play an important role in managing resistance in hospitals. Involving healthcare workers in decision making is an important practice that impacts hospital alignment of healthcare objectives. By building a strong culture within the healthcare institutions, improving decision quality of healthcare workers, leveraging diverse clinical perspectives, and fostering engagement, creates a motivated and patient centered workforce (Gagnon et al., 2024). Healthcare worker decision quality is important to ensure that clinical actions are aligned, timely and accurate with healthcare objectives. Ultimately, healthcare workers decision quality affects the performance of hospitals (Ramar et al., 2025). High healthcare worker decision quality supports sustainable healthcare growth, improves operational efficiency, and reduces clinical errors in hospital environment.

In the present digital age, analysis and access to a large volume of data have changed the way hospitals make operational and clinical decisions. Data driven decision making is considered as a key strategy for healthcare institutions that aim to remain competitive and optimize their patient care quality (Karakolias, 2024). Data driven decision making approaches in healthcare use quantitative clinical data for the guidance of healthcare decisions instead of relying on past experiences and on intuitions. The basic goal of data driven decision making is to minimize uncertainty with the purpose of providing an objective and solid foundation on which healthcare decisions are based. It is achieved by using advanced analytical techniques that enable hospitals to make strategic decisions, predict trends of different disease, and identify patient care patterns on the basis of reliable evidence (Lyu, 2025). There are different factors upon which the incorporation of data into the process of healthcare decision making is dependent. These factors include healthcare goals, quality of data available regarding patients, and types of healthcare information a doctor have access to. The analysis and collection of data have played a key role in modern institutions of healthcare. Presently, healthcare data is used by the most successful and largest hospitals for their support when making important clinical decisions (Ibeh et al., 2024).

In the present contemporary era, digitalization is defining technological development in all sectors including healthcare sector. Digital technology is playing an important role in handling difficult healthcare challenges and improving delivery of services within hospitals. Digital transformation in the hospitals plays a very important role to enhance operational efficiency (Ciasullo et al., 2026). Digital technology adoption is important in healthcare to enhance service quality, improving innovation, and enhancing efficiency in hospitals. Digital technology adoption enables faster automation of clinical tasks, improved communication among doctors and nurses, and faster data processing of patients, reducing clinical errors and operational costs. Digital technology adoption can help hospitals to make better data driven decisions, that later allows hospitals to remain sustainable, resilient and agile while responding to healthcare demands. Additionally, digital technology adoption provide support to scalability of healthcare services, collaboration among healthcare sections, and enable remote healthcare through digital health platforms (Olaniyan et al., 2024).

Information technology capability plays important role to enhance performance of the hospitals by strengthening patient care, supporting accurate decision making and improving clinical efficiency (Viegas, 2024). Information technology capability in hospitals enables efficient management of patient data, enhances decision-making through advanced analytics, and supports real time communication among healthcare professionals. Strong information technology capability fosters innovation through the integration of digital health technologies into healthcare processes, reduces costs, and improves hospital efficiency. Information technology capabilities are multi-factor bundles of IT resources that allow healthcare institutions to deploy and utilize IT based resources (Chaturvedi et al., 2024). Therefore, it improves a number of indicators of hospitals in terms of patients and healthcare professionals. It also provides strength to organizational agility by allowing hospitals to adapt according to patients' needs and changing healthcare demands. Furthermore, Information technology provides support for collaboration and knowledge sharing among healthcare workers, improving performance and productivity of hospitals. Overall, Information technology capability serves as an important driver of long term success of healthcare institutions, enabling strategic advantages, and sustainable growth in the digital healthcare economy (Lu et al., 2025). In present era of technology, healthcare institutions play a vital role for economic and social development by improving public health and generating employment opportunities in field of medicine. So, the main purpose of this study is to examine the effect of biostatistics attitude, IT capabilities, digital technology adoption and data driven decision making on healthcare worker decision quality.

2. Literature Review

2.1 Data Driven Decision making (DDDM) and Employee Decision Quality (EDQ)

Literature has referred decision quality as the criteria and process that is used to ensure decisions are well aligned, effective and well informed in terms of achieving goals of organization (Schirmer et al., 2026). Scholars have empirically discussed factors of data quality such as usefulness, consciousness, understandability, fineness, precision, consistency, importance, reliability and accuracy. Most of the organizations acknowledge achievement of data quality at the utmost level because it is one of the greatest challenges for the organization, but it is very important for the decision making of the organization. Effective decisions are part of organizational and project success. The organizations that are successful often outperform their competitors by implementing effective decisions, making faster decisions and making high quality decisions (Treviño et al., 2026). The effective and efficient use of data sets that are available often impacts quality of decisions that are taken in all operations of organizations. Studies have mentioned that informed decision making process that has integration with inputs and large data sets, can be controlled to address the challenges of daily life (Ahmed et al., 2022)

DDDM is based on usage of predictive algorithms, analytic models, methods of data collection, and quantitative information in order to make operational and strategic decisions (Bousdekis et al., 2021). Opposite to methods that are based on intuitions, DDDM gather data from performance, behaviors, preferences, and clients of other companies. By combining data from client reviews, transactions, and social media, organizations are in position to get actionable data regarding pricing, customization, targeting and segmentation. A number of past studies have confirmed that personalization because of DDDM has positive effect on the efficiency and revenue of the organization (Cruz & Rosário, 2025). The implementation and adoption of DDDM is mainly shaped by evidence and accountability informed practices (Sandoval-Ríos et al., 2025).

In context of healthcare sector, data driven decision making has gained significant importance because it helps hospitals to improve patient outcomes and clinical effectiveness by using empirical evidence (Iyer, 2025). Past studies mentioned that usage of healthcare data including clinical analytics and electronic healthcare records helps in making timely and accurate decisions. Moreover, data driven approaches enable healthcare professionals to enhance diagnostic and treatment processes. Scholars also mentioned that using data analytics operational efficiency of healthcare institutions.

Employee decision quality is also vital from the perspective of healthcare sector, were timely and accurate decisions influence safety of patients. Literature suggests that decision quality among healthcare workers lead to reduced medical errors and improve clinical effectiveness (Adeniran et al., 2024). Scholars also highlighted that when evidence-based decisions are made by healthcare workers, the reliability and consistency of patient care is enhanced. Furthermore, decision quality is improved when healthcare workers are supported by analytical tools and appropriate information, enabling better clinical judgement (Berkhout et al., 2025).

Efficient usage of data driven approaches to evaluate managerial efficiency is rarely discussed in past. Data based strategy formulation face significant challenges because of multiple reasons that are linked to deficiencies in analytical capabilities, issues in ensuring data quality, lack of proper awareness and technology adoption levels (Sturm et al., 2023). The success of DDDM mainly relies on the quality of data organizations, process of drawing meaningful information, and analysis of data (Rejikumar et al., 2020). DDDM improves the quality of the decision quality of employees by providing evidence-based insights, timely insights and accurate insights. It minimizes the reliance on biases, and intuition, which enables employees to evaluate different alternatives objectively (Okon et al., 2024). Having access to data that is relevant improves problem solving, ensures alignment with goals of organization and increases confidence in decisions, ultimately leads to high quality, efficient and consistent outcomes in workplace processes of decisions. The study by Fu et al. (2024) mentioned that DDDM impacts significantly on EDQ. Thus, this study hypothesizes that

H1: DDDM has positive significant effect on EDQ.

2.2 Biostatistics Attitude and Data Driven Decision Making (DDDM)

Attitude towards biostatistics is referred to as behaviors, beliefs and feelings that are developed in students in relation to learning biostatistics (Oloo et al., 2019). Attitude towards biostatistics is described in past as concept having multiple dimensions that consist of behavior, cognitive, and affective factors (Chu, 2025). The behavior factors include the performance and ability to learn, cognitive factors include knowledge and belief, whereas affective factors are based on motivation and emotions. There are some non-cognitive factors such as attitude towards concepts of biostatistics and methods (Li et al., 2024). The behavioral and cognitive drivers of biostatistics attitude strengthen the effective usage of data. As a result, quality is enhanced (Amare et al., 2025).

Biostatistics attitude plays vital role among healthcare workers to strengthen evidence based practices in healthcare sectors. Literature show that positive biostatistics attitude enhances healthcare workers' ability to apply statistical reasoning

and clinical data in medical decision making (Sakarna et al., 2025). Scholars also reported that healthcare workers with strong biostatistical understanding are more successful in their profession. Moreover, positive biostatistics attitude improves usage of data in treatment of patients. Healthcare workers should focus on developing positive attitude towards biostatistics (Singh & Dixit, 2021).

Presently, role of biostatistics is very important because it allows us to critically evaluate and analyze large amounts of data along with its informed decision making. Biostatistics provide important and scientific foundation for decision making in the field of medicine (Sakarna et al., 2025). A positive attitude regarding biostatistics significantly improves DDDM (Javali & Sunkad, 2016). A positive attitude towards biostatistics develops confidence regarding usage of data, improves critical thinking, and provides support to reliable, objective and transparent decision making that is essential to improve performance of the organization. It also helps to achieve strategic goals in different sectors like environmental management, manufacturing and healthcare (Rabago & Muegna, 2026). Biostatistics attitude improves consistency, objectivity, and accuracy of different decisions (Araoz-Melgarejo et al., 2021). Therefore, a strong mindset of biostatistics develops a culture of informed decision making, leading to more strategically sound, efficient and reliable decisions across different domains. Study by (Rejikumar et al., 2020; Schelling & Rubenstein, 2021) showed positive effect of biostatistics attitude on DDDM. Hence, it is hypothesized that

H2: Biostatistics Attitude has positive effect on DDDM.

2.3 Digital Technology Adoption and Data Driven Decision Making (DDDM)

The efficiency of technology is dependent on the way it is managed and used. If organizations do not implement digital technology well, the activities of the employees will be inefficient (David et al., 2023). The technologies provide organizations with ability to leverage, analyze, store and collect data in different ways that can optimize supply chain operations, improve customer experiences and enhance decision making processes (Nouhaila & Hamid, 2025). Technology adoption is the act of an agent, business or a person's first usage of new technology. Technology can lead to revolutionary management, services, and products in this environment. Differences in adoption of technology have resulted in divergence in economic growth and productivity. The digital revolution impacts culture of organization by reshaping cultural aspects and social interactions while using technologies as a source to manage these changing beliefs, behaviors and norms (Anton et al., 2023). Digital technologies include different systems and tools that enable the transmission, storage and processing of information in digital format. Digital technologies have altered the way organizations interact and operate with stakeholders. These technologies include internet platforms, software and hardware that helps in collaboration and communication (Sutarman et al., 2025).

In order to improve clinical efficiency and healthcare delivery, digital technology adoption has become vital factor. Literature indicates that usage of different digital tools such as clinical decision support system and electronic records improves the timeliness and accuracy of healthcare decisions (Shakibaei Bonakdeh et al., 2024). Studies showed that adoption of digital technologies enables better data accessibility, coordination, and communication among healthcare workers. Moreover, digital technology adoption reduces operational efficiencies in healthcare sector providing support to evidence-based practices (Jeilani & Hussein, 2025).

Digital technology provides quick access to needed data for the process of decision making. Studies has discussed the way organizations can utilize digital technology for effective and faster decision making (Zaiter & Azouz, 2025). Different technologies such as artificial intelligence and big data plays important role in processing of large information for the generation of deep insights (Sutarman et al., 2025). Abundance of data which is growing as well plays significant role in DDDM in different business strategies. The concept of data driven culture has gained popularity, especially to enhance adoption of digital technology. Study by Avancha and Aggarwal (2024) mentioned that adoption of digital technology enhances DDDM by enabling the analysis, processing and collection of large data in real time. Technologies like analytical platforms, IoT and cloud computing provide organizations with accessible, timely and accurate information. This improves ability of manager to make evidence based decisions, predict outcomes and identify patterns than relying on intuition (Mahmud et al., 2025). Furthermore, digital tools integrate data within department, enhancing coordination and transparency. Therefore, organizations that adopt digital technologies develop stronger ability to analyse the data leading to improved strategic competitiveness, operational efficiency, and decision making in dynamic business environments (Saremi, 2025). Likewise, the study by Li (2025) mentioned positive significant effect of digital technology adoption on DDDM. So, it is hypothesized that

H3: Digital Technology adoption has positive effect on DDDM.

2.4 Information Technology Capability (ITC) and Data Driven Decision making

IT capability is the level to which an organization is knowledgeable about IT and effectively using IT for the management

of information within the organization. Most of the firms possess different IT objects such as IT personnel, hardware and software. IT provides employees with effective and quick access to the right amount of information (Yi & Kim, 2025). By improving the speed at which information is disseminated and acquired within the firm, IT plays important role in ensuring that each organizational member is up to date in terms of market information. Due to enhanced connectivity of IT, organizational members can easily share information, making development in more efficient way. Organizations that have higher level of competency of IT are perceived to be in competitive position while managing assets of the organization (Michael et al., 2024). The rapid change in market and technology dynamics have provided evidence mentioning that culture that is data driven is important for organization's success (Lee et al., 2024). Different IT capabilities support innovative capabilities, helping organizations to achieve desired sustainability and performance. Furthermore, scholars emphasized that organizations where data driven culture is important, managers need data to make decisions (Aziz et al., 2024).

IT capability is one of important enablers of effective healthcare delivery. It provides support to healthcare institutions in managing administrative and clinical processes (Yusuf et al., 2025). Past studies showed that IT capability enhances ability of hospitals to analyze, integrate and collect data of patients for improved decision making. Studies have also reported that advanced IT systems help to improve healthcare services. Moreover, IT capabilities provide strength to information and analytical systems leading to timely and accurate clinical decisions (Ghimire & Adhikari, 2025).

In presence of strong IT, availability of real time and high-quality data is ensured with advanced analytical tools that are important to make informed decision making. It improves visualization, processing, storage, and data collection, allowing decision makers to evaluate alternative in effective manner, predict trends and identify patterns (Ambasht, 2023). Furthermore, IT provides support to different departments, providing support to unlimited information flow and minimize the delay in making decisions (Gulia & Rastogi, 2024). Organizations having advanced IT capabilities can use AI and big data analytics to improve accuracy of their decision making. In other words, IT capability has positive influence on DDDM (Balaha et al., 2025). So, it is proposed that

H4: IT capability has positive effect on DDDM.

2.5 Mediating Effect of Data Driven Decision Making

DDDM plays a key mediating role to translate attitude of employees towards statistics into enhanced decision quality. Past studies suggest that positive attitude regarding biostatistics improves willingness of individuals to apply analytical reasoning, interpret statistical data and to engage with data in context of organization. Employees who give value to the tools of biostatistics mostly rely on real time evidence (Hanandeh et al., 2025). Therefore, they prefer DDDM practices. Moreover, DDDM is recognized as important factor of decision effectiveness, consistency, and accuracy. Scholars mentioned that when statistical insights are integrated by the employees in their decision making, they improve reliability of outcomes and reduce cognitive biases. Thus, positive attitude regarding biostatistics enhances EDQ indirectly through utilization and adoption of DDDM. The study by Ingle¹ and Dsouza (2025) discussed the mediating role of DDDM in their study. So, it is hypothesized that

H5: DDDM significantly mediates the relationship of Biostatistics attitude and EDQ.

The Association between adoption of digital technology and EDQ can be better understood through bridging role of DDDM. Adoption of different digital technologies like intelligent tools, enterprise system and analytics platform enhances access to structured and real-time data. Whereas quality of decision is not improved only through presence of technology unless data is effectively utilized by the employees for the process of decision making. DDDM develop a mechanism by which different digital tools are converted into actionable insights. It enables employees to evaluate different alternatives that are objective. Studies mentioned that organizations that want to get benefit of digital technology by using data oriented practices effectively that later provide strength to evidence based judgement and analytical thinking (Szukits & Móricz, 2024). As a result, adoption of digital technology contributes to quality of decision indirectly by developing DDDM behavior among employees. So,

H6: DDDM significantly mediates the relationship of adoption of digital technology and EDQ.

The effect of IT capability has significant effect on decision quality of employees. This impact is direct and indirect as well by having effective use of data in process of decision making. IT capability enable organization with advanced processing power, integrated systems and robust infrastructure that helps in accessibility and availability of data (Otioma, 2023). Whereas improved decision results emerge when similar resources are translated into meaningful insights. DDDM play the role of important link by enabling employees to analyze information, look the patterns and provide support to evidence based judgement (Huynh, 2025). Past studies highlight that IT capability creates an environment where utilization of data is integrated into daily routines. It reduces reliance on subjective judgement and encourages analysis of data. As dependence of employees on data is increased, the decision-making quality also improves. So, IT capability improves decision making quality of employees through application and development of DDDM. Study of Elshahawy et al. (2026) also supported the mediating effect of in their research. Thus, it is proposed

H7: DDDM significantly mediates the relationship of ITC and EDQ.

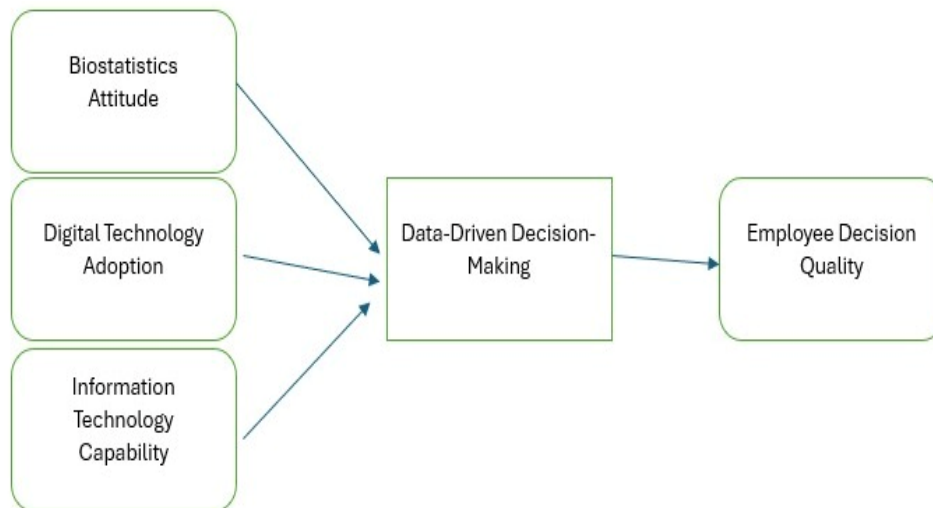


Figure 1: Framework

Figure 1 shows the research framework developed on the basis of literature review. This figure shows antecedents of EDQ and DDDM, biostatistics attitude, digital technology adoption and Information technology adoption.

3. Methodology

Present study adopted quantitative method and cross-sectional research design with purpose to explore the relationship between variables. Present study is based on three independent variables, one mediating variable, and one dependent variable. Respondents of this study are healthcare workers who are working in different hospitals. Structured questionnaire was developed to collect responses from the employees. The questionnaire was divided in two parts. One part of the questionnaire was related to demographic information of the respondents. Whereas second part was related to questions of the variables of the study. The questions of the variables were adapted from literature review.

The questionnaire of were adapted from (Meissner & Wulf, 2014), items of DDDM was adapted from (Rej Kumar et al., 2020), measurement scale of biostatistical attitude is adopted from (Li et al., 2024), questionnaire of ITC is adopted from (Zahra et al., 2019), and items of digital technology adoption were adapted from (Nikou et al., 2022). These questionnaires were distributed among 300 healthcare workers using convenience sampling. Usable response rate of the questionnaire received back was 64.27%. The collected data was analysed using SPSS for demographic information of respondents and Smart PLS for the assessment of relationship among variables.

As per the demographic characteristics, 85.8% respondents were male and 14.2% respondents were female. Most of the respondents aged between 20 to 35 years representing 44.6%, healthcare workers having age between 35 to 44 years representing 27.2%, and remaining healthcare workers had the age more than 45 years representing 28.8%.

4. Results

Present study used Smart PLS 4 as software and SEM as technique to gather answer of hypothesis and find out relationship between variables. The proposed framework mentioned in Figure 1 is reflective, so the analysis of reflective model is done in two models namely measurement and structural model. According to scholars Measurement model is used identify the relationship between items of the variable and structural model is used for the assessment of significance of relationship between predicting and outcome variable (Hair et al., 2017). Convergent validity explain the high share common variance of a variable (Hair Jr et al., 2017). There are three criteria of measurement model namely discriminant validity, convergent validity and reliability. Reliability of the data is examined through composite reliability for which acceptable range begin with 0.70. Table 1 of the study shows that all values of composite reliability are more than 0.70.

Table 1: Reliability

	CR	AVE
BSTATT	0.895	5.040
DDDM	0.901	0.704
DTA	0.886	0.567
EDQ	0.938	0.835
ITC	0.928	0.811

Next stage is the convergent validity for which AVE and loading are examined. The factor loading value of an item should be more than 0.40 (Renault et al., 2018). Table 2 shows that all values of loading are higher than 0.40. Moreover, AVE values are given in table 1, which are also above 0.50 (Hair Jr et al., 2017), exceeding the criteria.

Table 2: Loading

	BSTATT	DDDM	DTA	EDQ	ITC
BSTATT1	0.648				
BSTATT2	0.753				
BSTATT3	0.738				
BSTATT4	0.771				
BSTATT5	0.685				
BSTATT6	0.749				
BSTATT7	0.692				
BSTATT8	0.526				
BSTATT9	0.704				
DDDM1		0.914			
DDDM2		0.921			
DDDM3		0.916			
DDDM4		0.539			
DTA1			0.827		
DTA2			0.795		
DTA3			0.770		
DTA4			0.818		
DTA5			0.658		
DTA6			0.623		
EDQ1				0.933	
EDQ2				0.895	
EDQ3				0.913	
ITC1					0.926
ITC2					0.909
ITC3					0.865

This research used Fornell and Larcker (1981) criteria to assess the discriminant validity. As per this criterion, the values at the diagonal of the matrix which are the square root of AVE should be higher than the remaining (off diagonal) values. This criteria is fulfilled in Table 3, as all figures at diagonal of Table 3 are higher than off diagonal values. At this stage, measurement model is confirmed.

Table 3: Disc. Validity

	BSTATT	DDDM	DTA	EDQ	ITC
BSTATT	0.700				
DDDM	0.568	0.839			
DTA	0.709	0.595	0.753		
EDQ	0.709	0.601	0.578	0.914	
ITC	0.387	0.403	0.339	0.620	0.900

Structural model assessment is carried out at the later stage to confirm the relationship between proposed variables. Significance of relationship between variables is also determined through structural model. Bootstrapping procedure is adopted with 5000 subsamples for this purpose. Significance was determined through t values. Relationship is considered significant if T value is more than 1.645. Table 4 shows the result of direct hypothesis proposed earlier.

Table 4: Direct Results

	B	SD	T	P Values
BSTATT -> DDDM	0.238	0.094	2.517	0.006
DDDM -> EDQ	0.601	0.060	10.063	0.000
DTA -> DDDM	0.363	0.075	4.856	0.000
ITC -> DDDM	0.188	0.067	2.795	0.003

Results in Table 4 and Figure 2 shows that BSATT has positive significant effect on DDDM with $t=2.517$ (See table 4), DDDM has positive effect on EDQ with $t=10.063$ (see table 4), DTA has positive significant effect on DDDM having $t=4.856$ (see table 4), and ITC has significant positive effect on DDDM with $t=2.795$ (see table 4). So, all of the proposed direct hypothesis are supported.

Table 5: Indirect Results

	B	SD	T	P Values
BSTATT -> DDDM -> EDQ	0.143	0.064	2.224	0.013
DTA -> DDDM -> EDQ	0.218	0.043	5.066	0.000
ITC -> DDDM -> EDQ	0.113	0.045	2.512	0.006

Table 5 shows the mediating results, proposed at the literature review stage. Results demonstrate that DDDM mediates between BSTATT and EDQ, $t=2.224$ (see table 5), DDDM mediates between DTA and EDQ, $t=5.066$ (see table 5), and DDDM mediates between ITC and EDQ, $t=2.512$ (see table 5).

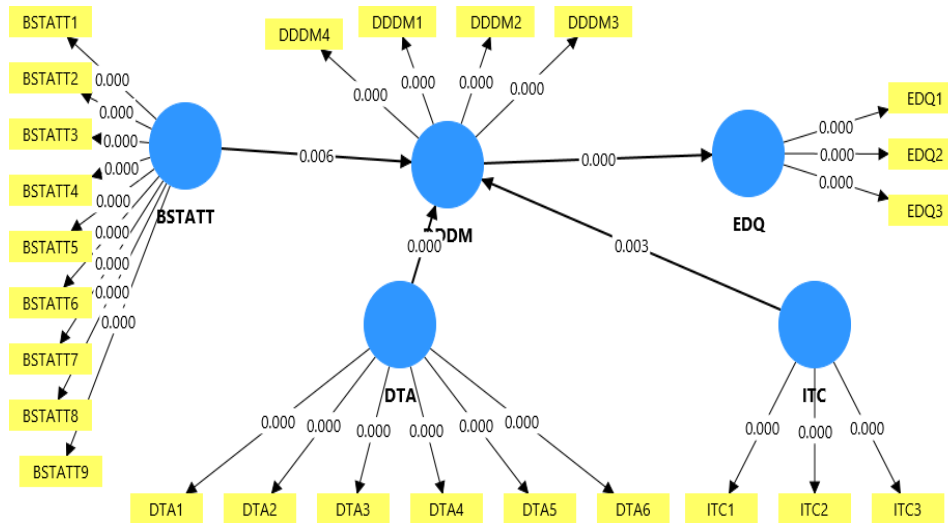


Figure 2: Structural Model

In the end, R square value is determined to assess the effect of independent variables on mediator and dependent variables. Table 6 shows that DDDM is affected 42.7% and EDQ is effect 36.1% by the independent variables of the study

Table 6: R Square

	R-Square
DDDM	0.427
EDQ	0.361

5. Discussion

The purpose of study was to explore the effect of biostatistics attitude, IT capabilities, Digital technology adoption and data driven decision making on healthcare worker decision quality through mediation of data driven decision making. The results of the study shows that biostatistics attitude has positive significant effect on data driven decision making among healthcare workers. The results reveal that biostatistics attitude has important role to play in shaping healthcare worker engagement in data driven decision making within hospitals. The possible reason for this result can be that the positive biostatistics attitude enhances confidence among healthcare workers to interpret clinical and statistical information, that ultimately support evidence based and accurate clinical decisions. Healthcare workers who show a strong biostatistics attitude are likely to depend on statistical reasoning in clinical judgement and patient care. Therefore, consistency and quality of data driven decisions making process in hospitals are significantly improved.

Furthermore, the findings suggests that biostatistics attitude develops a mindset among healthcare workers to give importance to logical clinical reasoning, critical evaluation and interpretation of data related to patients. As a result, this orientation encourages healthcare workers to participate actively in data driven decision making that leads to better outcomes at individual clinical and hospital level. On the other hand, a weak biostatistics attitude may limit abilities of healthcare worker to utilize healthcare data in effective manner. The results are also aligned with past studies that emphasize the importance of statistics in modern healthcare environments (Rejikumar et al., 2020). Healthcare workers having strong biostatistical attitude can improve data driven decision making in clinical settings and become effective for hospitals.

Results showed that digital technology adoption has positive effect on data driven decision making as mentioned in literature by (Li (2025)). The plausible reason for these findings can be that the increase in usage of different digital tools

by healthcare workers such as real time dashboards, electronic healthcare record systems and healthcare analytical platforms, enable healthcare workers to interpret, process and access large volumes of patient data in efficient way. With expansion of digital technology, healthcare workers are in better position to generate clinical insights that provide support to accurate and timely clinical decision making.

Opposite to traditional approaches, adoption of digital technology in healthcare settings facilitates the integration and automation of clinical data across a number of hospital functions. Therefore, digital technology adoption will improve decision speed in clinical processes and reduce human and medical error. Healthcare workers are able to move beyond routine task and focus on strategic and patient oriented factors of data driven decision making. Also, digital technology adoption promotes data availability and transparency in hospitals, that encourages collaborative clinical decision making among healthcare workers. Another key factor is that digital technology adoption strengthen the ability of healthcare workers to respond to changing patient needs and evolving conditions of healthcare. With improved digital skills and capabilities, healthcare workers are able to analyze clinical trends quickly and adjust the treatment strategies by effective data driven decision making. So, digital technology adoption improves hospital operational efficiency and plays the role of important enabler of data driven decision making in healthcare settings.

Findings also demonstrate that Information technology capability has positive significant effect on data driven decision making. In literature, (Balaha et al., 2025) also mentioned same findings in their study. Information technology capability helps the hospitals to analyze, process and manage large volume of patient related data. Therefore, it support timely and accurate administrative and clinical decisions. When healthcare institutions show strong information technology capability, their healthcare workers are equipped with skills to utilize clinical analytical tools and access integrated healthcare information systems, that enhances the overall quality of data driven decision making. Moreover, information technology capability provide strength to infrastructure that is required for data flow in all departments of hospitals. Because of this interconnected environment, healthcare workers are able to rely on real time, consistent and accurate patients data, that reinforce the effectiveness of data driven decision making. Furthermore, information technology capability facilitates healthcare workers in real time clinical data analysis which later enables healthcare workers to respond to emerging healthcare challenges quickly through improved data driven decision practices.

Another possible reason for these results can be that the information technology capability develops a culture of innovation and technological advancement within hospitals. Healthcare workers operating in healthcare environments that is technology based are more likely to leverage digital health resources and adopt analytical approaches for clinical decision making. Thus, information technology capability is one of the main driven to improve data driven decision making and enhance hospital performance.

Findings revealed that data driven decision making has positive significant effect on healthcare worker decision quality. In other words, data driven decision making improves healthcare worker decision quality by focusing on the reliability and accuracy of clinical judgments. When healthcare workers rely on patient data, their decision quality becomes evidence based and consistent. This shift minimizes any ambiguity and allow healthcare workers to justify their clinical decisions by providing evidence based and data support.

Furthermore, healthcare workers are able to evaluate multiple clinical alternatives through data driven decision making, which directly contributes to healthcare worker decision quality. It also reduces the effect of cognitive biases in clinical judgements, as decision are based on objective clinical data rather than personal opinion. Therefore, healthcare workers become confident in their clinical actions, that further improves healthcare worker decision quality in all departments of hospitals. Furthermore, hospitals that focus on data driven decision making develop a culture where clinical improvement and evidence-based learning are encouraged. Healthcare workers are able to refine their healthcare approaches with the passage of time in this environment, leading to improvement in decision quality. So, data driven decision making plays the key role to improve healthcare worker decision quality. Same results were mentioned in study of Fu et al. (2024).

Mediating results are also supported in this study. Findings show that data driven decision making significantly mediates the relationship of biostatistics attitude and healthcare worker decision quality. The results suggests that a positive biostatistics attitude need support to enhance healthcare worker decision quality. In other words, it may not improve healthcare worker decision quality directly unless it is integrated into clinical data driven decision making. Healthcare workers who have strong biostatistics attitude are likely to utilize, analyze and interpret clinical data effectively, that in turn provide strength their clinical decision-making capability. Moreover, data driven decision making provides approach that minimizes biases and uncertainty in clinical decision withing settings of hospitals.

Findings also support the hypothesis that data driven decision making significantly mediates the relationship of digital technology adoption and healthcare worker decision quality. The findings highlight that data driven decision making play the role of an important mechanism by which digital technology adoption in hospitals improves healthcare worker decision quality. Better clinical decision quality cannot be ensured only through adoption of digital technology. Whereas, value emerges when digital technology is used to interpret and generate meaningful clinical data for the purpose of decision making. Therefore, healthcare workers become more precise and confident in their clinical decisions. Furthermore, data

driven decision making promotes analytical thinking, and minimize reliance on intuition in healthcare setting. As a result, hospitals that integrate digital technology adoption with data driven decision making are likely to achieve higher healthcare worker decision quality.

Additionally, findings highlight that data driven decision making significantly mediates the relationship of IT capability and healthcare worker decision quality. The IT capability of hospitals equips healthcare institutions with technical resources and integrated healthcare information systems. The real contribution of IT capability takes place when healthcare workers utilize these resources to support data driven clinical decision-making process. Healthcare workers benefit from improved data processing, integration and accessibility of patient information, that later improve their ability to make timely and informed clinical decisions. Data driven decision making play the role of bridge to transform technical potential into real time clinical decision outcomes. It also encourages evidence-based and consistent clinical reasoning in daily tasks. These mediating results are aligned with the results of Elshahawy et al. (2026) in past.

6. Limitation and Future Suggestions

Limitations of this research are highlighted in this section with directions to improve these limitations in future. R square value mentioned in result section is 42.7% and 36% approximately for mediator and dependent variable respectively. It shows that there is need of some other variables as Independent variables to improve the R square value. It is suggested that future studies may add more variables as IVs in future. Moreover, this study used one mediator between proposed independent variables and dependent variables. In order to make to make this proposed framework more complex, it is proposed to add moderating variable at the first stage of model. Additionally, cross sectional research design is used in this study at the methodology stage. It is proposed that future studies may use longitudinal research design in future studies. In the end, proposed framework is examined in context of healthcare sector. It is proposed to examine same framework in context of other sectors such as textile and telecommunication sector.

7. Managerial and Theoretical Contribution

From the perspective of theoretical contribution, present study highlights the importance of biostatistics education to improve decision making and decision quality of the healthcare workers. Most of the past studies have discussed IT and digital technology related variables independently in their studies. Whereas this study bridges this gap by discussing IT capability and digital technology adoption in a single framework as independent variables. Furthermore, data driven decision making is used in past as exogenous variable. There are very few studies that have discussed the antecedents of this variable. This study adds to the body of knowledge by assessing the effect of IT capability, biostatistics attitude and digital technology adoption as IV's on data driven decision making.

From the perspective of managerial contributions, this study shows the guidance to hospital managers to focus on IT capability and digital technology factors to improve clinical decision making and healthcare worker decision quality. Moreover, biostatistics attitude among healthcare workers should also be given importance by the healthcare institutions so the decision-making quality of the healthcare workers can be enhanced. Overall, healthcare worker decision quality can improve the hospital performance. Therefore, technology related factors and biostatistics attitude should be focus of healthcare managers for their long-term effectiveness and sustainable healthcare services.

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9. References

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