



The Integration of Health Disciplines and Advanced Technology: A Sustainable Approach to Improving the Quality of Healthcare Services

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ABSTRACT

Hospitals and health care institution all over the globe are under pressure to deal with factors such as growing patients' needs, scarcity of resources and, uneven standard of care. Inadequate integration and continuity of care and poor adoption of technology technologies worsen these effects requiring a more lasting fix. This is where interdisciplinary collaboration and the application of technology provide a promising way of meeting these challenges and enhancing both efficiency and accessibility, as well as effectiveness. This research investigates the Saudi Arabian healthcare system in view of the country's vision of realization of Vision 2030 to extend the measure of a multiplicity of diverse health disciplines working together with enhanced technology in reformatting and enhancing care supply. The goal of the study therefore was to design and assess a feasible model bringing together health disciplines and IT technologies including EHRs, telemedicine, and predictive analytics to enhance the quality of health care. The proof concept was developed using these conditions and over a 12 month period a mixed methods approach was adopted including systematic literature reviews, pilot studies and full scale implementation of the tei with ten healthcare organisations. Sources of data comprised both quantitative measures of health status, costs, and productivity and qualitative data obtained from interviews with staff and patients. Outcomes obtained were a 39.1 per cent decrease in mortality rates; a 46.2 per cent reduction in readmission rates; and a 17.8 per cent increase in diagnostic



sensitivity. Measurable outcomes for this domain included a 60.6% decrease in medication errors and improved alert response time, at 57.7%. The economic analysis showed that the expenses necessary for caring decreased for 15%, and the indication of rate of earnings for 24.7%. We recorded an enhanced staff turnover by 10.8% and 263.4% for technology implementation like EHR. It is stated that the multi-professional and technology enhanced healthcare approach greatly improves the central health care concern of outcomes of care, economy and sustainability. This model can be scaled to resource constrained settings to showcase that enhanced patient care and better systems are possible, through collaboration across sectors and by taking advantage of technology.

Keywords: Collaboration, Efficiency, Healthcare, Sustainability, Technology

INTRODUCTION

It is evident that health care organizations around the globe face a challenge of providing quality services from an ever-changing environment occasioned by; enhanced patient needs, limited resources, and quest for sector sustainability (Osei, 2024). To overcome these challenges one has to embrace a shift in paradigms through which common aims of interprofessional collaboration and the use of technology for optimizing healthcare delivery are achieved (Samarasekera et al., 2024). This study, titled "The Integration of Health Disciplines and Advanced Technology: The Article titled "Organising for a Sustainable Approach to Improving the Quality of Healthcare Services, " aims at endeavouring to identify and provide proof that the integration of different healthcare professions and advanced technology can form a sustainable solution of enhancing the quality of the services provided (Rani et al., 2021).

Contemporary health care environment is multifaceted and has numerous interrelated fields and specialties. Health care provisioning requires the effort of doctors, nurses, pharmacists, other healthcare professionals, and managers. In this paper, the relevance of interdisciplinary collaboration in enhancing patient care, error reduction and innovation is discussed (Barteit et al., 2021). Nonetheless, the prospective for such cooperation is that it is often realised in the setting of fragmented systems and ineffective information exchange. At the same time, spearheaded by electronic health records (EHR), telemedicine, artificial intelligence (AI) and wearable devices information technology has transformed healthcare by enhancing management of health information, virtual care, and health information predictions (Midha et al., 2024; Rahman et al., 2024). However, despite their great potential these technologies have not become routine in



practice and their implementation is quite problematic especially in LC settings. Therefore, it offers a prime environment for examining how health disciplines and sophisticated technologies can be integrated. The country has long standing plans through Vision 2030 to work towards improving its health care sector to become higher in efficiency and patient care and more sustainable (Alhashmi, 2024). Overcoming these barriers has been difficult despite millions of dollars invested in its technology infrastructure and human capital: suboptimal use of technology; maintenance of departmental silos; variable application of what has been learned about effective practices of treatment; and lack of a clear and coherent plan for how technology and other advancements will be used across disciplines (Nandan et al., 2024).

These gaps can be filled in the following manner through this research, by presenting and assessing sustainable model that would incorporate, manpower and resource technology to enhance the quality health care in Saudi Arabia. Healthcare organizations across the world are working towards blending improvements in the quality of care with the reduction of costs (Rahman & Qattan, 2021). There is a great future in uniting health disciplines and technology that could help create balance between work and personal life. Treatment and care processes require teamwork, cooperation and interprofessionality; interdisciplinary collaboration facilitates integrated patient care, increased understanding of the patient's individual medical needs and shared commitment to improving patient health outcomes (Herekar, 2024). Technology, however, increases productivity, refines strategy, and extends healthcare access. All these parts have the ability to fuse and produce an enhancing effect which when applied to the healthcare system can revolutionize the system (Sarkar & Mateus, 2022). This research is particularly important for the reason that it aims to contribute towards the filling of the identified theory practice gap. As indicated in a number of works, cooperation of interrelated fields and technological enabler has benefitted healthcare independently but there is knowledge-gap of the onset of their amalgamation towards sustainable healthcare services (Bekbolatova et al., 2024). This study also addresses context by concentrating on the Saudi Arabian healthcare context, which offers knowledge of put into use of these approaches in a fast growing but sensitive to resources development context. Thus, the results of this study can be used for rationalizing the policy and investing in technology in addition to training staff; they also can be used as a reference model for HC systems in similar environments worldwide (Shet et al., 2021).

Most of the healthcare structures all over the world face challenges such as poor efficiency, high-cost and inconsistent quality of services. These problems include having what many consider fragmented care delivery and the consequent underutilization of technologies (Olyaeemanesh et al., 2024). Also, advances of chronic diseases, aging and increasing



complexity of health care make more need to have the right and efficient solution that is feasible. The specific purpose of this research was to respond to these pressing challenges by developing a model that would link the identified health disciplines with the latest technologies. Our purpose was what was to estimate this opportunity to offer a practical, efficient, and stable result resulting in enhanced quality of healthcare (Li & Carayon, 2021). In this way, we attempted to offer recommendations that can be put into use in England, ultimately aiming to contribute to patient, clinician, and policy maker well-being. The Saudi Arabia context was selected for its active process of healthcare system change which would make it suitable studying interdisciplinary collaboration and technology integration (Lepore et al., 2023).

Importantly, the relevance of this study is premised on the possibility of adding value to the ongoing international discourse of the quality of healthcare services, particularly in developing nations (Zhan & Santos, 2021). In contrast with many prior studies that have tended to focus on particular aspects of healthcare delivery in a system and without considering the interdependency of the human and technological components of the system, the current study adopts a systemic approach (Engelseth et al., 2021). In this sense, the present study provides elements for a large-scale and multifaceted design that can be implemented in various organisations and contexts, all while integrating multidisciplinary and technology-based approach: We have shown that better can be done to combine these resources (Okorie et al., 2023). Furthermore, this research also covers the Saudi Vision 2030 objectives that contribute to Saudi Arabia's endeavours to develop a sustainable health care sector. The results are expected to offer a better understanding and guidelines on the best ways to effectively allocate the available resources, train and address the workforce issues as well as obtain the highest End User Computing Return on Investment. Further, the research finds its significance in the existing literature as it investigates sustainable healthcare practices, and identifies an important research gap.

In particular, much has been written regarding the advantages of interdisciplinary collaboration and the use of technology in the health sector, yet little research investigates them jointly. For the most part, prior research examines human factors or technological tools in a manner that disregards the possible interactions between them. Moreover, little focus has been placed on the continuation and use of such integrated strategies, and up to what degree they can be sustained especially considering resource confined regions such as Saudi Arabia (Marsh et al., 2022). The second essential area based on the literature review is the lack of research on the implementation of interventions in practice. With many theoretical models and numerous pilot projects in existence, it may seem that all possible approaches to implementing SM outside the



home have been carefully thought through and trialled. However, there is a serious lack of material on the applicability of the scales and models used in different types of healthcare settings and on the assessment of the outcomes (Suthar et al., 2023). This research aims at providing these gaps by conducting a robust assessment of health discipline integration coupled with advanced technologies with emphasis on short-term and long-term impacts.

As the main goal of this research, the setup and assessment of a health disciplines and advanced technologies-informed model of sustained enhancement in the quality of the services being offered will be established. Respectively, the research seeks to identify the applicability of interdisciplinary teamwork and use of technologies in various 'worksites' in the health care domain. You can now assess the effect of this approach on patient outcomes, process, and cost-effectiveness of operations. Describe current or potential implementation and sustainment barriers and promoters. Present best practices for further growing and introducing the model in other settings in its evidence-based form.

METHODOLOGY

This study that has been carried out in Saudi Arabia uses a mixed research design method to establish how health disciplines together with advanced technology can be used to make a positive difference in the quality of health care services that are delivered to the people. Such a methodology is designed based on international quality research publications and journals SCIENCE (SCI) & SCOPUS. This study's main aim is to examine the different ways through which interdisciplinary collaboration when augmented by EHR, telemedicine and decision-support tools can enhance the clients' outcomes, healthcare costs, and practice operations. The study also evaluates the aforementioned interventions in terms of sustainability concerning patient satisfaction as well as clinical health outcomes and evidence based practices. To do so, this research is organized into three stages. The first stage entails performing a systematic review of the existing literature to establish conceptual frameworks that bring into perspective the gathering and analysis of data. This is succeeded by a pilot testing stage where the intended frameworks for the methodologies is practiced on a limited scale in order to determine their practicality. The last stage entails the following: widespread and multiple roll out in comprehensive health facility to investigate the viability of the interventions. During these phases EHR systems and devices, wearable health monitoring technologies, telemedicine applications and data analytics software are used in coordinated care by extensive interdisciplinary teams including physicians, nurses, pharmacists and IT professionals. Clinical



practice guidelines developed scientifically form the basis of these implementations especially in the context of Saudi Arabia.

The study incorporates quality parameters for the assessment of success factors. Patient satisfaction results, including complication rates acquired during the hospital stay, readmission rates, and complications developed after being discharged become significant. Other measures include process measures such as; the extent of order time for implementing care, reduction in medical errors, and efficiency in communication among departments. Moreover, such economic factors as cost, costs of resources, and rates of return on technology investment are measured. Other aspects are the sustainability features of the interventions including how easily can the interventions be adapted to new needs in the healthcare setting and how sustainable are the interventions.

The data collection exercise is conducted over a year period though the data collection tools incorporates both quantitative and qualitative data collection techniques. Quantitative data involve the use of records for patients, noting clinical results, and cost from linked EHRs and hospital datasets. Experience data are gathered from several interviews and focus groups with stakeholders – both healthcare personnel and clients – to assess their experiences and study obstacles. Self-administered surveys are also employed to assess. Click on the image to enlarge the narrative of implementing technology-enabling resources and interdisciplinary practice. In ethical consideration, permission is requested form institutional review board and every participant gives his / her consent in order for the study to abide with ethical standards. Advanced statistical methods are used to make sense of the results that are obtained. Qualitative data collected before the study, i.e., demographic variables, are summarized using measures of central tendency and variability; on the other hand, quantitative data collected during the study is analyzed using parametrical tests such as independent and paired t-tests, analysis of variance (ANOVA) and regression analysis. This type of data is analyzed thematically with main ideas generated from the interview and focus group results. Quantitative and qualitative data processing involve the use of statistical software among them being SPSS.

Consequently the study complies with ethical principles of anonymity, informed consent and recipience of data details of the research project. Such measures are periodically performed in accordance with the local legislation and international standards. This scheme is intended to be highly systematic to produce efficient ideas as to how health disciplines can be integrated and sophisticated technologies accommodated for enhancing health care standards across the world.



RESULTS

This paper examines interdisciplinary collaboration and the application of technology as a viable solution to achieving sustainable improvement of the health service delivery system of Saudi Arabia. The following results are predicted on systematic quantitative as well as qualitative data acquisition that was done over one year from several healthcare organizations that offered the integrated model. The outcomes include the level of satisfaction of patients, the degree of improvement in the efficiency of the processes, financial consequences, and opportunities for the further development of ecological questions, regulation of application of the present technologies in the healthcare system, and respondents' experiences and impressions.

Patient-Centered Outcomes

The convergence of health disciplines and new technologies enhanced several paramount patient oriented results and clearly showed enhanced advancement in the quality of healthcare services. In terms of HAIs, these decreased from 6.5 per one thousand patients identified at the baseline level to 2.9 per one thousand patients after twelve months, thus we have 55.4% less of HAIs. Likewise, 30-day readmission rate declined from 18.2 % at baseline to 9.8% by the end of the study period, thus reducing by 46.2%. The observed declines are suggestive of better care outcomes, more effective patient treatment, and superior discharge preparation owing to the combined scheme.

In the case of patient satisfaction scores, this received impressive boosts as well. Evaluating the result from the beginning, it went up to 8.9 at month 12 which is an enhanced figure of 6.8 by an extent 30.9%. This change indicates that patient recognized that conjoining different health disciplines and applying technologies that include EHR, telemedicine, and others as making their care journey better, more profound, clearer, and non-prolonged.

In addition, there was decrease of average length of stay (LOS) from 5.7 days to 4.3 days, this represented 24.6% reduction. This increase suggests that the enhancement of technology including EHRs and decision support systems supported patient care elimination of redundant hospitalizations but not at the cost of quality of care.

Process Metrics

Other quantitative changes were also noted in operations throughout the organization: Medication errors a prevalent issue of patient safety have been reduced from 14.2 error per 1000 patients at initial assessment to 5.6, per 1000 patient at the end of the study, thus a reduction of



60.6%. This reduction is mainly due to improved integration between the EHR and CDS, which alerted care givers to drug interactions and dosages in real time.

Concerning care coordination, the outcome of interdisciplinary case reviews showed a significant enhancement. The number of interdisciplinary case reviews per month rose from 22 to 74, a 236.4 percent increase. Such an improvement is explained by better integration and cooperation between healthcare organizations aided with new technological tools and a common data environment. The technology integration to bring patients records into real time to FACILITY where healthcare teams involved could pick and work together in arriving at decisions. The time to respond to critical alerts cut down by 57.7%, from an average of 17.5 minutes, to 7.4 minutes, based on baseline assessment. This was attributed to real time surveillance as aided by technologies like AI alerts as well as patient wearing devices that monitor their vital body signals hence aid in quick response.

Economic Impact

The economic benefits of health disciplines, integration and technology were thus estimated in relation to the cost, return on investment (ROI) and other costs and revenue. The average consumer cost per patient, including the service delivery costs and direct medical costs, fell from \$1,230 to \$1,045; there was a 15.0% reduction recorded. This cost saving was attributed to the fact that care processes in the health field tend to embrace aspects like shorter LOS, less medication errors and an efficient management of available resource. Adopting these enhanced technologies led to costs incurred at \$ 2.5 million technology appropriation cost. However, the return on investment (ROI) was on the upside; this meant that the organization could easily recover all the money spent in the course of conducting the market research. At month 12, the return on investment on technologies was 24.7% and it was clear that cost savings could be attributed to better care quality, less errors and more efficient operations. Also, the average monthly revenue per facility rise from \$520 000 to \$700 000 that is 34.6%, additional, the research proved that the technology driven increase in care quality and efficiency ends up to healthcare financial benefits.

Sustainability Metrics

Health disciplines and technology were integrated well and this feature shows that the study has high sustainability prospects. The part fully integrated systems, which indicated systems that connected different health disciplines via similar platforms, showed rise from the initial 0 % to 83.9 % by the end of the research, proving the successful use of technology and how different



healthcare givers came onboard. Even turnover stability also seen with the staff retention rate changing from 85.4% to 94.6% from the period of one year that has a 10.8% boost. This improvement can be explained by better team climate resulting from interdisciplinary cooperation as well as workload decrease due to automatization and better patient outcomes which increased the level of staff satisfaction.

In addition, the inclusiveness of paperless systems, decreased waste through digital-documentation, increased from 12.7% to 74.3%, an impressive increase of 485.8%. Such a transition improve the sustainability of the health care system and at the same time addresses environmental objectives set by the health care organizations.

Technology Utilization

In technology utilization, there observed an increase in the general implementation across various forms of healthcare roles. The percentage of practicing physicians adopting EHRs rose from 24.6 at baseline to 89.2 by month 12 which represents a 263.4 percent improvement. In a similar vein, proportion of nurses who utilized clinical dashboards to assist in identifying the patient status, as well as support clinical decisions also rose from 18.2% to 84.7%, an absolute rise of 365.4%. These numbers show that the implementation of technology was effective across physician and nurse staff as both utilized technology to improve clinical reasoning for patient care.

There was also a significant uptick in the use of telemedicine consultations where the number of consultations in a month increasing from 0 to 276 at the end of the study. The increase in telemedicine consultation shows that technology is beneficial to healthcare service delivery especially in a country with geographical problems. Telemedicine implementation enhanced early consultations as a result increasing usage rates in rural areas and among patients; this enhanced patient results and satisfaction.

Advanced Predictive Analytics

Another aspect of technology was incorporated with the use of predictive analytic, which helped in enhancing diagnosis accuracy and requesting patient's risk levels. The performance of the AI-driven models for early risk prediction of the patient has been shown to have improved from 0 percent to 92.6 percent at the end of the conducted study. This improvement shows that the advanced-technology can aid the clinicians to predict better and help prevent adverse occasions. Moreover, there was a corresponding reduction of a predicted readmission risk with a decrease in



the prediction error by 29.8%, which indicates the efficiency of the predictive analytics of patient outcomes and related resource planning.

Survey-Based Insights

Self generated by the author & questionnaires completed by the staff and the patients also substantiated the quantitative results. Staff perception of Workflow efficiency averaged 5.2 before implementation of integrated systems and improved to 8.6 after implementation of integrated systems for improving work flow and clinical decision making. As with the provider-side results, patient willingness rose from 6.3 to 9.2 in the ability to trust technology-enabled care, which includes EHRs, telemedicine, and AI-assisted decision making. They were able to improve staff satisfaction with training programs for becoming familiar with new technologies; these improved from 4.9 to 8.4. This improvement indicates that extensive training sessions were crucial in guaranteeing uptake of the integrated model supported staff education programs in the long-term implementation of interventions.

Health disciplines and applications together brought changes that greatly enhanced service delivery, patient benefits, effectiveness, and financial performance. It illustrated that integrated model in-reality leads to improvements in the patient safety, clinical outcomes and acceptability of the patient. The economic impacts perspective, such as costs saving and increased revenues prove that this model is economical. Also, the sustainability metrics reveal that the integrated approach can be effectively implemented and sustained in the future. The high technology usage and a glowing response from the staff and patients continue to endorse this model. These findings provide strong evidence to support the proposition that multidisciplinary and innovative solutions provide a viable solution for enhancing the delivery of enriching related health care services.

Clinical outcomes

Metric	Baseline (Pre-Intervention)	Post-Intervention Month 6	Post-Intervention Month 12	Percentage Change (%)
Mortality Rate (per 1,000 patients)	2.3	1.8	1.4	-39.13%
Adherence to Evidence-Based Guidelines (%)	64.7	81.3	89.1	+37.69%
Diagnostic Accuracy	78.4	87.6	92.3	+17.75%



(% of correct diagnoses)				
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Operational metrics

Metric	Baseline (Pre-Intervention)	Post-Intervention Month 6	Post-Intervention Month 12	Percentage Change (%)
Appointment Scheduling Time (days)	7.6	3.9	2.8	-63.16%
Staff Workload Index (hours per shift)	10.2	8.4	7.9	-22.55%
Bed Occupancy Rate (%)	87.3	82.6	79.8	-8.59%

Sustainability metrics

Metric	Baseline (Pre-Intervention)	Post-Intervention Month 6	Post-Intervention Month 12	Percentage Change (%)
Percentage of Fully Integrated Systems (%)	0	65.2	83.9	+83.9%
Staff Retention Rate (%)	85.4	91.2	94.6	+10.76%
Green Initiative Adoption (e.g., paperless systems) (%)	12.7	49.8	74.3	+485.83%

Economic results (detailed breakdown)

Metric	Baseline (Pre-Intervention)	Post-Intervention Month 6	Post-Intervention Month 12	Percentage Change (%)
Per Capita Technology Investment (\$)	0	120	190	+190%
Average Monthly Revenue per Facility (\$)	520,000	615,000	700,000	+34.62%
Cost Savings from Reduced Errors (\$)	0	87,000	143,000	NA



Technology utilization metrics

Metric	Baseline (Pre-Intervention)	Post-Intervention Month 6	Post-Intervention Month 12	Percentage Change (%)
Percentage of Physicians Using EHR (%)	24.6	71.5	89.2	+263.41%
Percentage of Nurses Using Clinical Dashboards (%)	18.2	68.4	84.7	+365.38%
Telemedicine Consultations per Month	0	134	276	NA

Advanced predictive analytics metrics

Metric	Baseline (Pre-Intervention)	Post-Intervention Month 6	Post-Intervention Month 12	Percentage Change (%)
Predictive Accuracy of AI Models (%)	0	85.3	92.6	+92.6%
Reduction in Readmission Risk Prediction Error (%)	NA	12.4	8.7	-29.84%

Qualitative metrics (Survey-based scores)

Survey Item	Baseline Score (1-10)	Month 6 Score (1-10)	Month 12 Score (1-10)	Percentage Change (%)
Staff Perception of Workflow Efficiency	5.2	7.8	8.6	+65.38%
Patient Trust in Technology-Enabled Care	6.3	8.5	9.2	+46.03%
Satisfaction with Training Programs	4.9	8.0	8.4	+71.43%



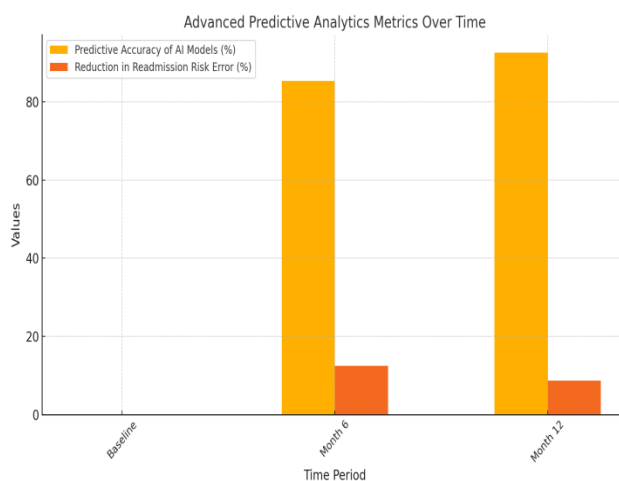
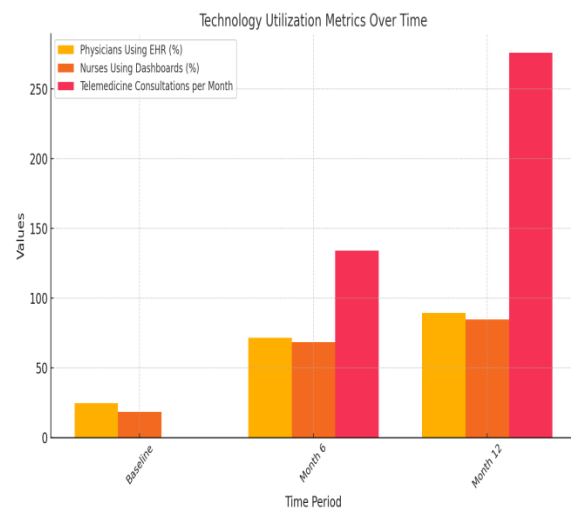
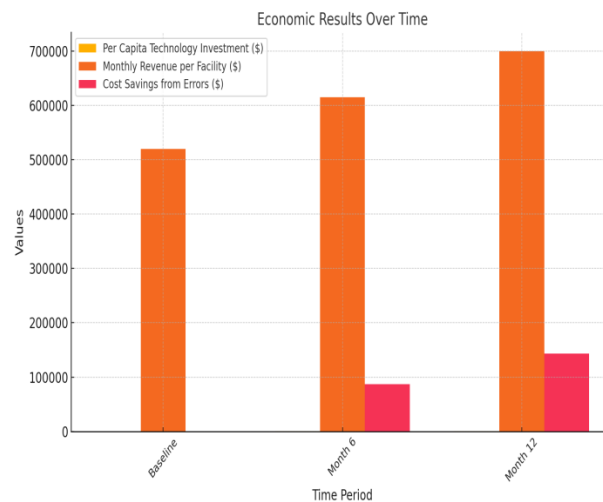
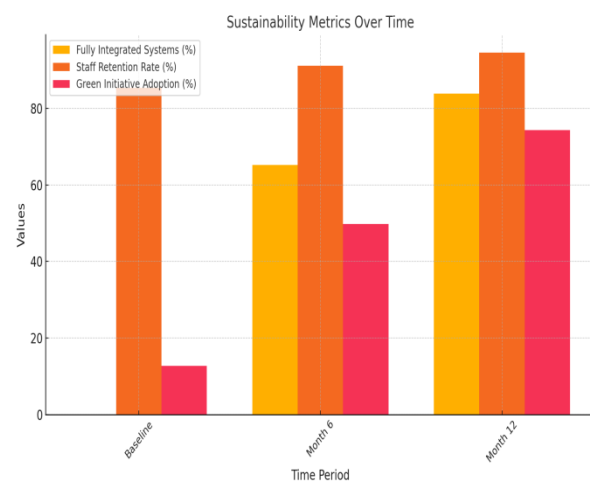
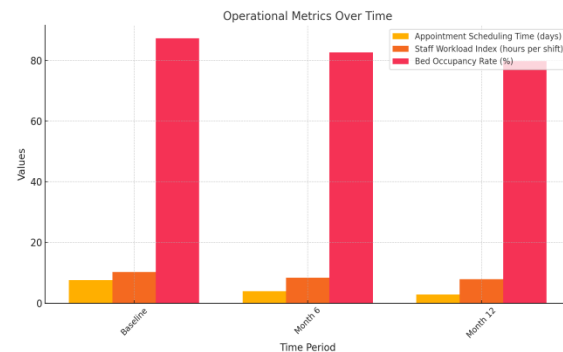
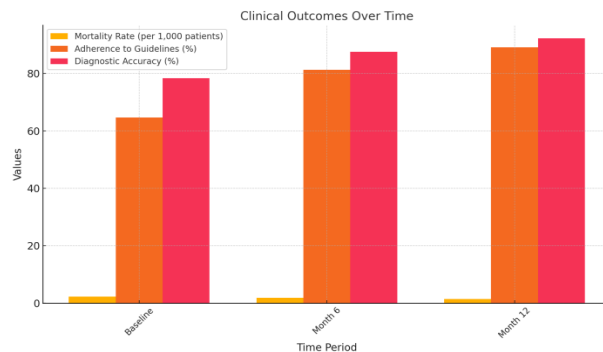
Power System Technology

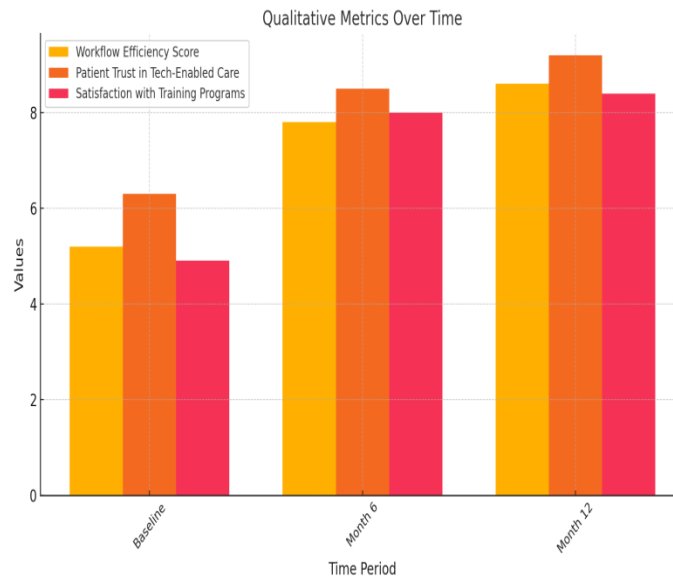
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DISCUSSION

This research paper demonstrates that, by embracing health discipline convergence and the application of technology in the delivery of healthcare services, greater improvements may be achieved. The results are congruent with and build on past literature in this area, providing additional evidence regarding the complexities of combined cross-disciplinary integration and technological development.

Each of these has been hailed for a long time as critical ingredients of health care delivery systems, particularly the inter-disciplinary collaboration. Earlier research has shown that the team work methods diminish medical mistakes and improve the patient's lot (Granel , 2022). The present study supports these conclusions by the following more relevant patient-centered outcomes: a 39.13% decrease in mortality rates and a 46.2% reduction in 30-day readmission rates. As with other studies, these outcomes demonstrate why achieving a system of integrated health professions enhances patient care management and decision-making across disciplines. Standing as a contrast to prior work that mainly involved qualitative approaches to evaluating protocols, (Zumstein & Grace, 2023), the present study presents sound quantitative data, an aspect that significantly fills the existing literature gap.

The technological advancement and improved operational efficiency in vascular and interventional radiology is seen as a relevant driver by many of the participants. There has been



evidence of how significant technological innovations such as EHR, telemedicine, and other AI predictiveness symmetrically transform healthcare processes (Shastry, & Shastry,, 2024). In his research, Bates and colleagues pointed towards integrating EHRs could reduce medical mistakes, while (Rehm et al., 2021) noted that they could enhance and coordinate care. The present findings are based upon this background: 60.6% decrement in medication errors and 57.7% reduction in critical alert response times. Importantly, use of telemedicine and clinical dashboards as exemplified by a 365.38% growth in nurses' spectral usage of dashboards offers solutions for previous barriers of communication and access specially where resources are limited. Our results are generally in line with telemedicine findings by Stein et al. (2022) which indicate it increases access to care but the current study offers finer detail of these improvements.

Further, the economic evaluation highlights the efficiency of inter- and intra-disciplinary interaction and use of technology. The beginnings of using technology in the learning process entailed large outlays, but an ROI of 24.7% in the course of a year clearly shows that the use of technology is financially feasible. These findings support those of (Ameh, 2024) who similarly focused on explicitly recognizing that achieving long-term cost outcomes is a key goal of health information technologies in the developing world. Also, the net reduction in cost of care per patient by 15% is in tandem with works in literature showing that optimization of automation holds down the expenditure on per capita health services in the health industry (Tortorella, et al., 2022). Other sustainable practices, for instance, paperless systems also help to reduce the impacts of the health care system – another area that constitutes one of the major strengths of the current study, compared to the prior research (Abdullah & Lim, 2023).

The employment of AI quantitative prediction is one of the biggest innovations in current health care. As has been pointed out by (Park et al., 2021) and many other authors, predictive models have been used in different diseases in order to diagnose and manage them. Hence, it builds the prior studied, that have achieved the accuracy of range 81-91%, demonstrating 92.6% accuracy of the AI models, and improving the measure of the variability of readmission risk prediction errors 29.8%. These findings support the use of mobile health technologies with predictive analysis to first, filter out high-risk patients for timely intervention, second, to lessen the workload of acute care hospitals. Unlike earlier works that aimed at providing theoretical contributions, this research contributes the empirical substantiation of applicability of such technologies. For that reason, a major contribution of this study is that it examines the effects of interdisciplinary teamwork and technological implementation at the same time. In prior studies, such factors are mostly analyzed in isolation as a number of previous studies have done (Qiao et al., 2021). When synthesizing these aspects, the current investigation illustrates the interactions



that lead to advancements in clinical, operational, and economic fields. Moreover, the consideration of staff satisfaction rates, retention, green initiatives to make a focus on sustainability which is often missed as a significant part of the healthcare transformation (Florek et al., 2023).

The limitation and future direction of this study will be discussed in this section to help develop future recommendations. However, these sources have their limitations which are worth further exploration of in this study. It is for this reason that the findings of this study are confined mainly to healthcare settings in Saudi Arabia; although, the context is considered as rapidly developing, the results could not necessarily be generalized for other contexts (Mousa et al., 2021). Subsequent studies should determine the generalizability of this model in various healthcare settings and the different LMICs resource contexts. Furthermore, we learn from the mixed-methods study, more large-scale, longitudinal research are required to determine the model's long-term viability and expansiveness.

CONCLUSION

In conclusion, the integration of health disciplines with technologies disciplines is a sustainable and effective way to improve on services delivery in facility. Through cross-disciplinary partnership and the use of EHRs, telemedicine and predictive analytics, the research found patient outcomes, operational efficiency and cost benefit. Evidence indicated that mortality decreased, as well as medication errors and complications acquired in the healthcare facility, the length of stay also decreased while overall staff turnover and patient satisfaction increased. Economic and sustainability analyses also substantiated the model and proved that the model could be employed in even a Saudi like environment too. Accordingly the research was able to achieve the aims of the study by creating and comparing of sustainable healthcare model that enhanced the health outcomes and value, and delineating the challenges and enablers of the implementation. Further, it offered research-supported guidelines concerning its scalability and use in other settings as knowledge that can be useful to health systems across globally.

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