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Developing Leadership Capabilities to Implement Saudi Arabia's Frailty Care Pathway

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Abstract

Introduction: As part of Vision 2030, a comprehensive frailty care pathway is being developed in the Kingdom of Saudi Arabia. Challenges remain, however, with diffusing this policy. To address this policy-implementation gap, our empirical study examines the role of leadership in successful implementing the Kingdom's frailty care pathway.

Methods: Drawing on the diffusion of innovation theory, five semi-structured interviews were conducted with leaders who are involved in implementing the policy across the frailty healthcare value chain in Saudi Arabia. A fieldwork and a scoping literature review supplemented the thematic interview analysis. Frailty pathways in other countries were content analysed to draw parallels with implementing frailty care pathways and to strengthen the recommendations.

Results: Three key areas were identified to facilitate successful implementation of a frailty care policy in terms of the need for (i) adequate primary care support for policy implementation, (ii) effective integration across healthcare systems, and (iii) updated leadership skills with development opportunities for motivated emerging healthcare leaders to innovate and co-ordinate care.

Conclusion: First, the study's findings support the case for developing leadership skills that are necessary for effective policy implementation. Secondly, it offers valuable insights into internal and external obstacles encountered during policy implementation and highlights potential implementation challenges. Thirdly, these insights are generalisable to neighbouring Gulf Cooperation Council countries that are undergoing similar healthcare reforms.

Introduction

In 2016, the Kingdom of Saudi Arabia (KSA) launched Vision 2030 to overhaul the its industrial sectors aligned with 21st century needs. KSA's Health Sector Transformation Program (HSTP) is a national framework to enhance health outcomes [1]. HSTP is designed to improve overall healthcare experiences with a patient-centric approach [2]. As part of this framework, the National Guidelines Centre was established to provide modern evidence-based clinical guidelines and standardise treatment and care guidelines across KSA [3]. The Frailty Care Pathway (FCP) was developed to address the frailty and clinical care of KSA's older population.

Our study aimed to assess the challenges in diffusing the FCP policy in KSA. It considers system-level issues and Saudi Arabian leadership styles with a view to proposing changes to support successful FCP implementation. The research question asks: *What leadership qualities are required in Saudi Arabia for successfully implementing a frailty healthcare policy?* Rogers' (1962) diffusion of innovation (DOI) theory serves as the primary framework for this study[4].

This study has local and global relevance as ageing and its associated frailty are a growing population-level concern for healthcare systems world-wide [5]. KSA is undergoing significant demographic shifts that require healthcare policy changes [6]. The number of elderly individuals in KSA is predicted to increase from 1.96 million in 2018 to 4.63 million by 2030 [1].

Frailty and ageing

Frailty is a clinical condition that is characterised by excessive vulnerability to adverse health outcomes and it is associated with advancing age [7]. Frailty leads to increased risks of hospitalisations, clinical complications, and increased mortality rates, which can significantly strain healthcare systems [8].

Vision 2030 – HSTP Model of care

Currently, compared with Europe and Asia KSA has a higher proportion of its population in younger and working-age brackets (Figure 1). However, the old-age dependency ratio in KSA is expected to reach a median of around 12% by 2050 (Figure 2) [9].

In future, KSA is projected to spend significantly on healthcare as a consequence of the rising burden of non-communicable diseases (NCDs) and chronic diseases, as well as an ageing population. The cost is expected to rise from USD 19.8 billion in 2020 to USD 32.4 billion in 2030. The largest projected increases in budget expenditure are likely to be for osteoarthritis, diabetes, and dementia [10]. Several healthcare innovations are already underway in KSA to address rising national health concerns [3].

The HSTP of Vision 2030 was established to tackle key challenges faced by KSA's healthcare sector. These include healthcare challenges arising from expanding urbanisation, shifting demographics, and increased incidence of chronic diseases [11,12]. The main goal of HSTP is to improve healthcare services, to promote preventive care measures, attract investments, and build a resilient healthcare system [13,14]. The initiative also seeks to expand health insurance coverage, develop medical cities and specialised healthcare facilities, and to encourage healthcare innovation [15]. The programme calls for a major redesign of healthcare delivery to be patient-centred as well as to improve quality, efficiency, and patient satisfaction. The model of care instituted by the HSTP emphasises preventive care, remote healthcare, and public-private partnerships to improve healthcare delivery. One of the key initiatives relevant to this study is the establishment of the National Guidelines Centre which seeks to standardise medical protocols across KSA. This will reduce variations in patient outcomes by grounding medical interventions

in current evidence [16]. The aims of these comprehensive guidelines are to promote an evidence-based healthcare system that emphasises standardised, high-quality services by removing barriers to evidence-based practice and improving adherence to therapeutic principles. Another aspect of HSTP is the significant investment in the digitalisation of the healthcare system and the widespread adoption of telemedicine [2 3]. Internationally aligned care pathways, evidence-based treatment, and digitalisation form the three pillars of the HSTP model of care.

The HSTP model of care shares some similarities with the Life Sciences and Health (LSH) programme in the Netherlands and with Singaporean health system innovations. Both countries faced a similar healthcare crisis to the scenario in Saudi Arabia as a result of an ageing population. The Netherlands and Singapore have responded by instituting sweeping healthcare reforms with a focus on four key areas: country innovation strategies; health system innovation; research and development; and learning and education [17].

However, with respect to frailty in KSA, there are still significant gaps in raising public awareness and in establishing the necessary infrastructure [18]. Consistency in implementing novel techniques across all healthcare facilities in the Kingdom is a critical concern. This study, therefore, examines the role of strong leadership in overcoming challenges and achieving the strategic goals of the FCP in the Saudi Arabian context [19].

Why healthcare leadership matters

In healthcare, providers serve as leaders, guiding and supporting patients and assuming leadership roles within the broader healthcare community [20]. Qualified clinicians have traditionally viewed leadership as hierarchical and they have prioritised clinical workloads over administrative management [21].

It has been acknowledged that healthcare leadership must extend beyond clinical capabilities to include hybrid leadership, which spans general leadership and clinical competencies [22]. Healthcare leaders must manage delivery at the point of care as well as resources, population health, innovation, funding, and rapid policy changes. Yet healthcare practitioners are often reluctant to engage in leadership positions because of high work demands and the pressures of navigating organisational and professional boundaries [23]. Many researchers have emphasised an effective leader's capabilities in healthcare [21]. Capabilities are based on the integration of individual knowledge, skills, and character to carry out a particular function in an evolving and dynamic environment [21]. Building leadership capabilities involves creating an appropriate environment where individuals learn, develop, and practice leadership [24 25].

In KSA, strengthening leadership capabilities can help to raise awareness of frailty prevention among the public and professional healthcare professionals. [18] This is vital to understand clinical complexity amongst older adults [26] and for service integration across the healthcare system and between organisational levels.

Leaders must demonstrate cross-sector collaborative leadership for care coordination and co-design [27]. This should include screening and care beyond hospitals [28]. Practical systems thinking and stakeholder engagement are also critical leadership capabilities in developing frailty pathways in KSA. It is imperative to empower multidisciplinary teams to implement clear strategies, manage change, and communicate success. [29].

In this study, we apply Rogers' [4] well-established DOI model as our theoretical framework to examine healthcare leadership in the FCP pathway in KSA. We identified two major challenges: limited primary care support and a lack of multi-level integration across the healthcare system.

We reflect on the importance of leadership that fosters and drives ongoing enhancement of the FCP. We also consider the value of data-driven, digitally enabled, patient-centric leadership. We discuss the limitations of our research and conclude with recommendations for further research with implications for policy and practice.

Methods

The research objectives were to study to assess: (i) the challenges in diffusing the FCP policy in KSA, and (ii) current leadership styles in KSA to identify recommendations to enhance leadership capabilities for successful implementation of the frailty care pathway in the Kingdom.

Theoretical Framework, Research Methodology and Design

We adapted Rogers' [4] five-stage framework on the innovation-decision process based on knowledge, persuasion, decision, implementation, and implementation to understand Saudi Arabia's FCP and related leadership capabilities for successful policy implementation from initial idea to full integration (shown in Figure 3) [30].

To determine the drivers and hurdles in the diffusion of the FCP, we conducted qualitative interviews with key local stakeholders to gain in-depth insights. [31]. The interviewees were selected using convenience sampling, based on references and the available network of stakeholders [32]. The interviews were conducted in English by the team that included Saudi nationals. This ensured that there was no translation-related distortion in the information gathered. Table S1 presents the interviewees' professional profiles. We identified five key stakeholders in the FCP policy development and execution chain. The sample of interviewees represented different strata of the healthcare policy implementation chain and varied in seniority. Their views offered a well-rounded assessment. Several respondents have strategic oversight while others are involved in policy delivery. The interviews were conducted after relevant ethics committee approval and were analysed for thematic concordance as described previously by Byrne [33] and Clarke and Braun[34 35]. Excerpts from the interviews and thematic analyses are presented in Table S2.

The research team comprised seven MBA Health students, four of whom were women, and their academic research supervisor based in the UK. The student team members were from China (two), India, KSA (two), Malaysia, and the UK. Within the team, there were two physicians and a dentist. All team members had experience in the healthcare sector and were trained in qualitative research methods. The two KSA national research team members provided semi-insider perspectives [36]. They also led the interviews and transcribed them verbatim. Other members of the research team familiarised themselves with the dataset by closely reading the transcripts and thematically and iteratively analysing the data. In the first stage of the analysis, salient excerpts were highlighted from the interviews on prospects for building leadership capabilities to implement KSA's FCP, including positive and negative accounts. In the second stage, the excerpts were clustered, coded and (re)calibrated into categories [35] based on the DOI framework. Finally, the overriding themes were organised conceptually to improve the reliability of coding and interpretations using established methodologies [37 38].

The insights from the interviews were supplemented with 35 stakeholder interactions. These were conducted during field work over 12 days in Riyadh, Tabuk, and NEOM during January 2024. The thematic analysis was supplemented with a scoping literature review using the following keywords: "frailty", "healthcare", "healthy ageing", "innovation", "KSA", and "leadership" [39-41]. Google Scholar, PubMed, and Scopus databases were used. Table 1 presents the inclusion and exclusion criteria. 11 studies met the inclusion criteria (briefly described in Table 2). A GRAMMS

checklist was used to report mixed-method research for a combination of semi-structured interviews, field visit insights, and a scoping literature review[75]. In summary, this study on the diffusion of the FCP in KSA provides an excellent opportunity to test the DOI framework in policy implementation in a rapidly developing non-Western context and to examine leadership capabilities required for successful healthcare policy implementation, specifically in the frailty pathway.

Results

Our research identified three main areas to guide successful FCP implementation in the Saudi Arabian context: (i) adequate primary care support, (ii) multi-level integration across healthcare systems, and (iii) updating leadership capabilities and providing development opportunities for enthusiastic emerging healthcare practitioners for systems improvements. We expand on these points in the following sections.

Limited support from primary care in implementing an FCP

In KSA, a frail individual can access primary care by (i) making appointments via the Centres for Disease Control and Prevention (CDC), (ii) using the Mawid platform, or (iii) directly accessing secondary care. Upon arrival at a primary care facility with an appointment, frail patients are triaged by severity and subsequently assessed by a physician for frailty syndrome. Those diagnosed with frailty receive a personalised care and support plan (PCSP) which outlines future secondary care needs. Patients without an appointment can be admitted directly to secondary care while more advanced cases can be treated directly in tertiary care. It is unclear from the research whether a patient who is admitted directly to secondary care undergoes a formal assessment and a PCSP.

As patients have the flexibility to go directly to secondary and tertiary care facilities, it is difficult to determine whether the FCP is utilised or effective. This is confirmed by Interviewee 1 who works in secondary care: “the demands of frailty care, such as longer consultations, family engagement, and proactive follow-up, conflict with the productivity-based performance metrics by which many providers are evaluated. This creates pressure and fatigue among frontline staff, discouraging them from dedicating time to this critical yet often under-recognised area of care.”

Interviewee 5 highlighted the lack of readiness in KSA for the frailty pathway due to the underdeveloped infrastructure in secondary and tertiary care. The interviewee emphasised that if this is not addressed soon, the success of FCP will be in jeopardy. Due to the lack of adoption of structured screening in primary care and the absence of care within communities, the frailty of many individuals remains undiagnosed. As frailty is not recognised as a long-term condition, this hinders consistent care as personal health care (PHC) services are inadequately equipped for proper assessment, diagnosis, and support.

Another critical issue in KSA is the persistent shortage of qualified primary care staff (Tables 2 and S1). This workforce shortage includes doctors, nurses, and allied health professionals. It creates significant gaps in the Saudi Arabian healthcare system [42]. One major factor contributing to this shortage is the perception that secondary care offers more specialised and advanced medical procedures and technologies for healthcare professionals to enhance their skills and knowledge [43]. Secondary care often offers higher salaries and better career advancement opportunities than primary care [42]. Consequently, most healthcare professionals prefer working in secondary or tertiary care settings, which exacerbates the shortage of primary care providers.

Finally, the interviews indicated mixed opinions regarding the availability of government funding for the FCP. The study's findings reveal potential misalignment in perceptions and utilisation of resources, and in the integration of FCP within the KSA healthcare system [44]. This situation leads to patients' unequal access to services and to differences in how frailty is managed across levels. Interviewee 1 further elaborated that existing funding mechanisms reward volume-based care rather than value-based outcomes, which unintentionally diminishes the importance of a careful, relational, and team-oriented approach to frailty management that requires sufficient time.

Lack of integration of the healthcare system

The burden on secondary and tertiary care is also linked to the lack of integration within the healthcare system in KSA. The absence of multidisciplinary teams (MDTs) is identified in this research. The lack of MDTs contributes to poorly coordinated care and unplanned emergency admissions. During the fieldwork and interviews, many participants noted that although collaboration existed, a key barrier was the lack of clear guidelines defining the roles and responsibilities of community, primary, and secondary care providers. This leads to fragmented care, operational inefficiencies, and inconsistent priorities across departments.

Furthermore, our study indicates variable use of clinical assessment tools and data collection methods due to siloed operations. This leads to difficulties in standardising care quality, patient outcomes, and resource utilisation. Interviewees 1 and 3 emphasised that the absence of centralised guidelines exacerbated siloed strategic goals and day-to-day practices. Interviewee 1 explained that, particularly under time constraints, this limited their ability to conduct thorough and consistent assessments or to engage effectively in care planning.

This lack of integration has often led to duplication of efforts or missed efforts. Interviewee 1 also observed that from a patient's perspective, navigating the current frailty care system can be confusing as a patient may experience multiple interactions with healthcare providers who do not share information or coordinate data and care across departments.

Leadership development needs analysis

This section combines insights from the structured interviews with the narrative literature review analysis. This approach ensures an evidence-based understanding of the leadership challenges in FCP policy diffusion underpinned by peer-reviewed research.

Interviewee 2 highlighted the need for distributive leadership in KSA. He suggested that anyone in a decision-making role should be considered to be a leader. However, as shown by Hejazi, et al. [45], leadership positions are often filled based on seniority or clinical expertise rather than based on leadership skills. One study of 83 middle managers in a KSA hospital revealed a significant and positive relationship between transformational leadership and readiness for change [46*]. Interviewees in our study saw promising developments in the system that they believed would help future healthcare leaders to achieve Vision 2030 objectives. To improve leadership capabilities, it is recommend investing in younger clinicians who may have the potential to become future leaders in healthcare organisations [45*].

One study carried out in the Aseer region in southwestern KSA (including Abha, the Urban centre and its surrounding rural towns) demonstrated the positive influence of a transformational leadership style on employee satisfaction [47]. Another study, however, indicated the negative effects of transformational leadership traits such as idealised influence, contingent compensation, and inspiring motivation on job satisfaction [48].

A study conducted by AlFlayyeh and Alghamdi [49] in KSA's private healthcare sector, explored the effects of various leadership styles on employee performance. The participants in the study held diverse roles, including doctors, paramedics, managers, surgeons, trainee doctors, teachers, and others. The authors reported that transformational (strategic leadership), transactional, and authoritative leadership styles had a positive impact on employee performance. We conclude from such studies that effective leadership needs to be contextualised. Shamsuddin Alaraki [50*] assessed the organisational factors that influence the implementation of quality improvement in KSA. The findings revealed that the overall level of quality improvement implementation in KSA hospitals was significantly unsatisfactory, with "leadership" receiving the highest unsatisfactory rating. The study highlighted that leaders need to focus on processes, systems, and organisational culture that align with the mission to ensure sustained improvements in patient care quality and safety. In addition to the above, Interviewee 1 specifically highlighted that the lack of leadership continuity in frailty care is a major challenge as these initiatives often rely heavily on a single enthusiastic leader. All interviewees hoped leaders would drive change in frailty care by providing structural support for physicians, clinicians, and patients including continuity and effective leadership development through appropriate education, technology, and culture.

In summary, it is vital to recognise that different leadership styles can have a positive or negative impact on KSA healthcare organisations. This research highlights views on the need for effective leadership in successfully implementing FCP in KSA healthcare organisations. This is vital to reduce bottlenecks in care centres and to integrate healthcare systems across different levels. A critical approach to transformational leadership is needed to align the FCP to KSA's 2030 Vision.

Discussion

The findings indicate opportunities for a more integrated approach to successful FCP implementation in KSA. Three main themes emerged from our study: (i) the primary care system should be strengthened to reduce the burden on secondary and tertiary care; (ii) improving healthcare system integration through the formation of coordinated MDTs can foster a more unified healthcare approach; (iii) there is a need for data-driven, digitally enabled, patient-focused leadership to implement FCP strategies effectively based on examples from other parts of the world.

The primary healthcare crisis

KSA's healthcare system depends on primary care, which faces considerable challenges [42]. The Ministry of Health established a publicly funded home healthcare (HHC) programme in 2009, which is administered by regional health authorities. One part of this HHC programme allows elderly patients to receive care in their own homes instead of going to the hospital. This HHC programme involves more professional nurse-led teams, with physicians heavily relying on nurses to make an assessment and communicate the findings. However, based on one of the studies, there are no data or studies available regarding the assessment of the HHC programme in KSA [51].

One study of elderly patients who received home healthcare at an Armed Forces Hospital in a southern region of KSA found significant improvements to their quality of life [52]. However, a systematic review [55] of home healthcare in Arab countries revealed a system strained by absent standards, weak regulation, insufficient staffing, poor coordination, inadequate financing and training, and a lack of basic data and training infrastructure. This suggests an urgent need for comprehensive reform to ensure safe and effective care as well as support for caregivers.

Vital issues need to be addressed to advance primary healthcare services across KSA, especially outside major cities. Effective support for an ageing population involves training the healthcare workforce, improving primary care referrals, and addressing cultural considerations. There is a need to update geriatric care services, train healthcare personnel, and implement structured screening programmes that are accessible, convenient, and effective [53].

Another significant concern that became apparent from this study is the need to expand the Kingdom's healthcare workforce for high quality standards. Workforce shortages significantly impact the implementation of FCP. Frailty pathways involve coordinated care plans tailored to the needs of elderly patients with complex health issues, necessitating a stable and skilled primary care workforce [54]. Without adequate staffing, continuity of care, monitoring, and interventions that frailty pathways demand are compromised amongst this vulnerable population.

Importantly, human resource strategies with financial incentives to make primary care roles more appealing is necessary. The current volume-based payment plan should be revisited, and the appropriateness of pay-for-performance plans should be considered [53]. Competitive salaries, opportunities for professional development such as mentorship schemes, masterclasses, technological support, and efforts to enhance the perceptions of primary care as a vital and rewarding field within the healthcare system are some of the initiatives that could be considered [42].

Building leadership capability for healthcare system integration

In any healthcare transformation, MDTs of healthcare professionals are imperative. When leaders can offer a compelling vision across an organisation, efforts to drive change can be improve the adoption of innovation. This approach is supported by Spitzmueller, et al. [55], who note that collaborative governance offers healthcare leaders the chance to lead a multilateral forum that brings diverse stakeholders together to resolve and reduce barriers to healthcare challenges. However, the sustainability of such a framework also depends on alignment with individual leaders' goals [55].

Weak system integration in KSA, as observed in this research, exacerbates leadership challenges. With a non-unified structure, leaders in the middle tier of a healthcare organisation tend to react to immediate problems rather than adopt a strategic approach. There is a need for clear strategic vision, skilled stakeholder and effective resource allocation to implement new guidelines effectively. The DOI framework could address FCP gaps by promoting the adoption of systematic screening and MDTs [4]. DOI theory explains how new ideas and practices spread within a society and can guide the necessary changes in KSA's healthcare system [4].

The role of transformational leaders as catalysts in the diffusion of innovation in healthcare has been well studied and reported [56]. Leaders who can inspire a shared vision, either as individuals or in a shared roles, can strengthen the future vision [24]. Co-leadership that enables employees to share the same values and vision has a significant impact in uniting departments and resolving any potential intergroup tension. When healthcare leaders adopt the DOI principles, KSA can improve coordination, consistency, and effectiveness in frailty care..

Data-driven, digitally enabled patient-centric transformational leadership

Frailty can be difficult to identify. There are various instruments and identification criteria, thus leading to confusion among clinicians regarding the ideal option for accurate evaluation [57]. To operationalise an FCP effectively, healthcare leaders need to embrace technology to integrate

domains for early frailty identification. Our interviewees specifically emphasised the need for healthcare leaders to be technologically aware. Furthermore, digital health technologies, especially telemedicine, integrated electronic health records (EHRs), mobile health (mHealth), and wearable devices are necessary to facilitate the diffusion of innovation in healthcare [58]. The adoption of technology can enable patients to maintain independent living and stay safe in their homes. Studies have demonstrated the effectiveness of technology with a reduction in hospital readmissions, length of hospital stays, and improved independence [59].

This study highlighted that leaders need to align processes, systems, and culture with the mission. The integration of digital health solutions within KSA healthcare systems reflects a leadership approach that combines authority with innovation. Such an approach requires leaders to move beyond operational oversight and to drive data-driven, patient-centric innovation by fostering continuous learning, interdisciplinary collaboration, and technological adaptability among clinicians [60]. For instance, the deployment of Seha Virtual Hospital in Riyadh exemplifies a fully digitally enabled healthcare delivery model that is world leading. This incorporates frailty care and could serve as a model for regional digital-first healthcare centres.

It is vital to standardise the identification of frailty and embed digital tools into clinical workflows. Leadership that effectively leverages digital capabilities can enhance care consistency, improve patient outcomes, and support broader national healthcare transformation goals, including those outlined in Saudi Vision 2030.

KSA can take inspiration from other countries that have faced an ageing population crisis in the past decade and have developed healthcare policies to address the challenges posed. In Japan and Singapore, a structured primary care system that enables the coordination of comprehensive healthcare services is key to ensuring care for the elderly and frail. KSA could also draw inspiration from its own private healthcare system, where the digital transformation of the governance and workforce of 10 private hospitals in the Eastern Province was successfully implemented by underpinning the policy change that was supported by DOI principles [61].

In summary, our recommendations for consideration by the KSA Health Ministry include: (a) Strengthening the primary healthcare infrastructure to support the implementation of the FCP so that referrals are made to primary rather than secondary or tertiary care. (b) Building workforce capabilities to manage frailty, developing MDTs that specialise in frailty care, and better multi-level integration of functions across the healthcare system, and (c) nurturing and empowering data-driven, transformational leaders to champion innovation, inspire a shared vision, improve awareness, and align organisational goals to an FCP. This is already taking root in Riyadh and other major cities but needs to be expanded more widely across the Kingdom.

Research Limitations and Opportunities

There are several limitations in this research. Firstly, there was a scarcity of peer-reviewed management studies relating to the HSTP or FCP within KSA. Secondly, only five semi-structured interviews were conducted as frailty is a new specialism and relatively few senior members of the Saudi healthcare community are engaged in this field [53]. Thirdly, the literature search was restricted to publications in English. Consequently, regional studies published in Arabic were not reviewed. Finally, the findings revealed limitations within the DOI framework that are consistent with those identified in previous findings [62]. Antwi, et al. [63] highlighted the importance of socio-cultural and individual-level factors in determining the success of innovation within KSA. The DOI framework adopts a largely linear perspective and does not account for macroeconomic and systems-level complexities that influence the diffusion of innovations.

Recent sector-specific adaptations of the DOI, such as the NASSS framework, facilitate the dynamic visualisation of the seven components required for the successful implementation of innovation [64].

Conclusion

In summary, based on the findings from this research, there are opportunities to ensure the success of FCP implementation. KSA's healthcare system faces significant structural challenges in delivering an appropriate FCP at the primary care level. The model of care established by the HSTP shows promise but suffers from systemic gaps, including a lack of standardised protocols, workforce shortages, underdeveloped health system integration, and structured leadership training for clinicians.

Leadership integration across healthcare systems is critical. A fragmented organisational structure pushes mid-tier leaders toward reactive rather than strategic behaviour. The DOI framework is proposed as a mechanism to embed systematic frailty screening and multidisciplinary coordination, supported by transformational leadership aligned with Vision 2030.

Finally, digital health technologies including telemedicine, EHR integration, and mHealth are identified as enabling tools for early identification of frailty, independent living, and reduced hospital utilisation. The findings may be extended to Saudi Arabia's neighbouring GCC nations that are implementing healthcare transformations[65].

Statements anonymized

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Statement of Ethics

This human study was approved by XXX Ethics Committee on 23 May 2024. All adult participants provided written informed consent to participate in this study.

Conflict of Interest Statement

Authors disclose no conflict of interest with this work.

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Author Contributions

Data Availability Statement

Data that support the findings of this study are not publicly available due to privacy reasons. Further details can be provided upon reasonable request to the corresponding author at xxx@xxx**.**

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Figure Legends

Figure 1. Saudi Arabian population by age and sex in 2025 (Source: United Nations, 2024, DESA, Population Division. Licensed under Creative Commons licence CC BY 3.0 IGO. http://population.un.org/wpp/)
Figure 1 depicts the predicted population pyramid of Saudi Arabia in 2025 based on the 2024 UN World Population Prospects database.

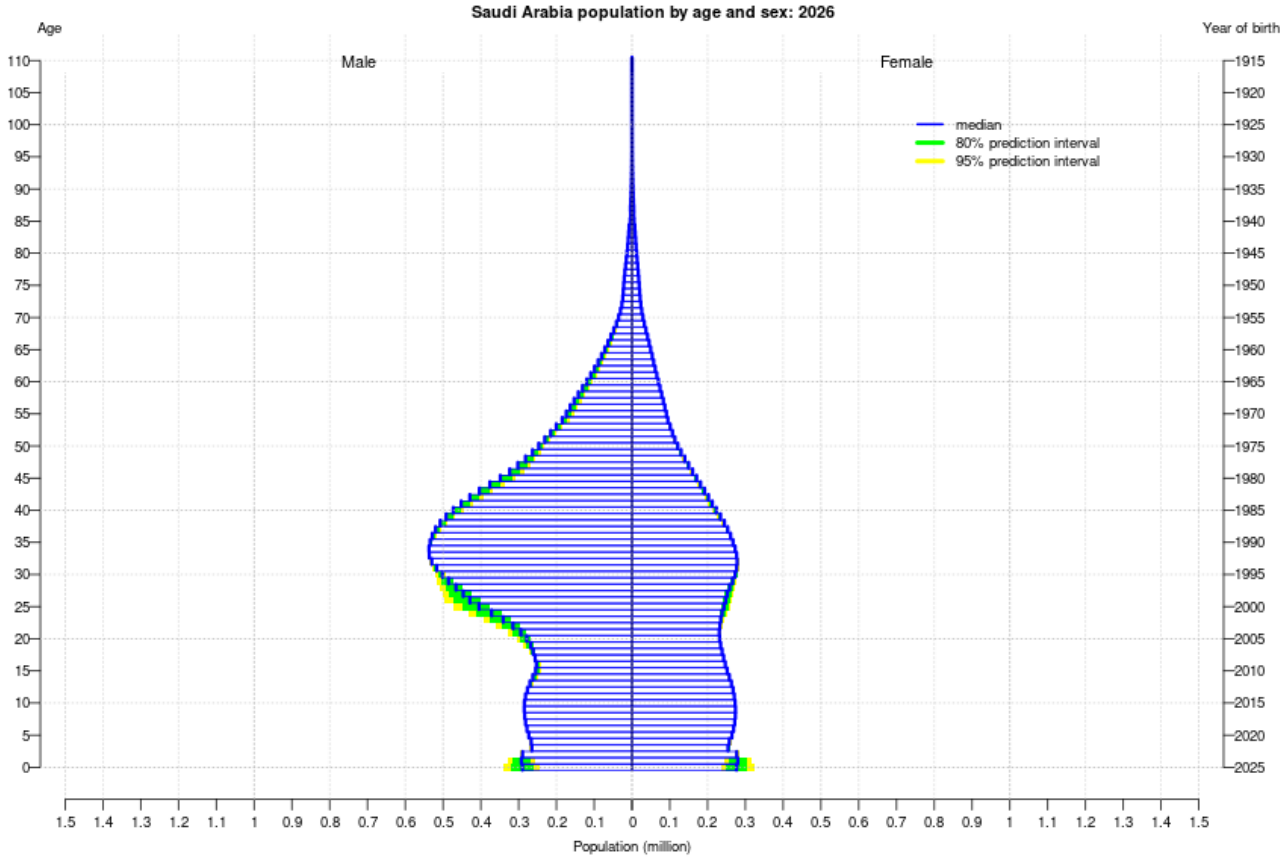
Figure 2. Saudi Arabia old-age dependency ratio (Source: 2024 United Nations. Creative Commons license CC BY 3.0 IGO. http;//population.un.org.wpp/)

Age dependency ratio (% of working-age population) - Saudi Arabia | Data

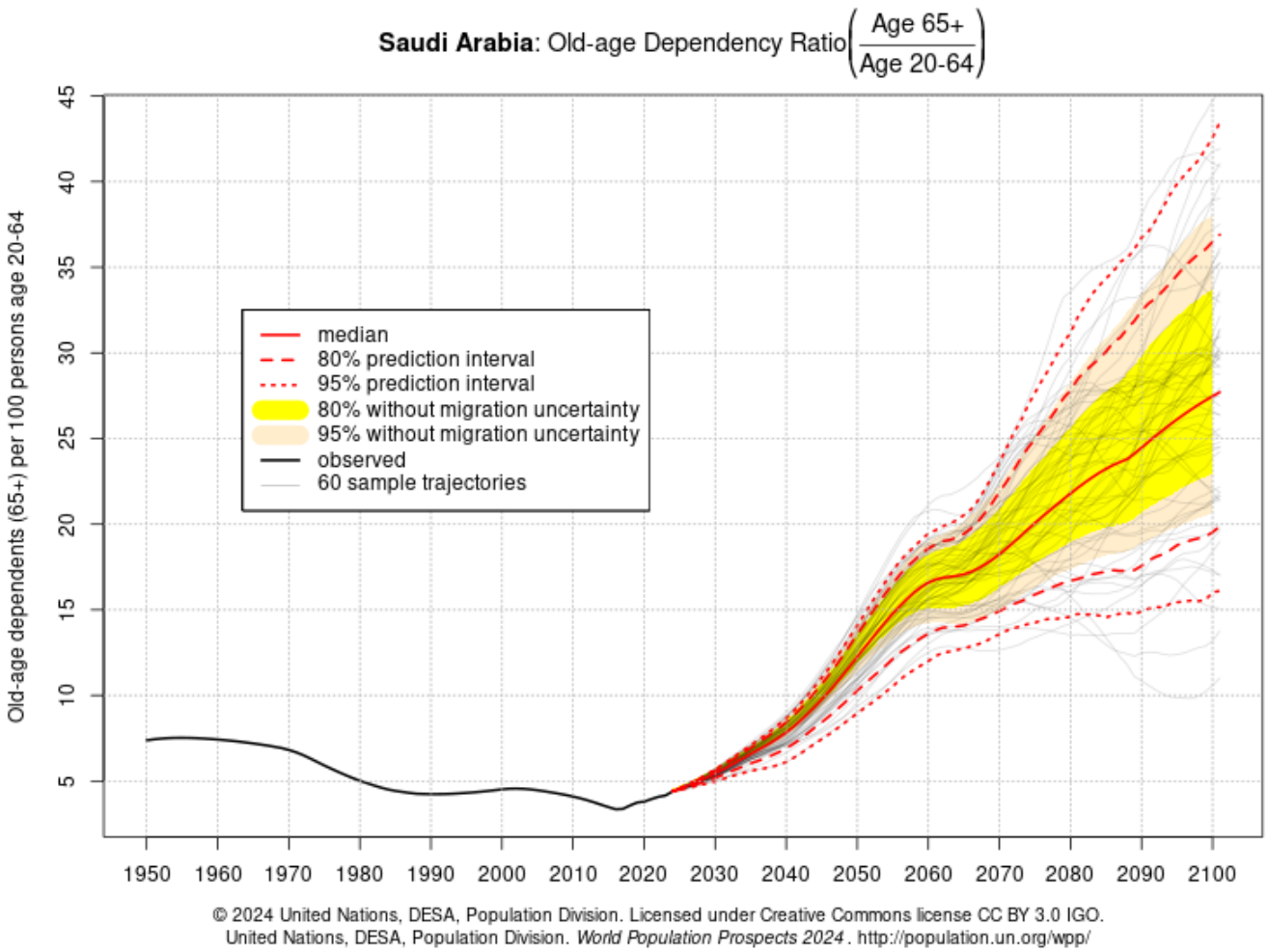
Figure 2 depicts the dependency ratio of the population who are 65+ and the working age population, i.e., 20-64 years. The image was generated using the UN Department of Economic and Social Affairs World Population Prospects 2024 database.

Figure 3. Roger's (1962) five step diffusion process (Source: Balas and Chapman, 2018)

Roger's (1962) five-step diffusion process (see Balas and Chapman, 2018) has been adapted to depict the diffusion of innovation in the frailty pathway.



United Nations, DESA, Population Division. *World Population Prospects 2024*. http://population.un.org/wpp/



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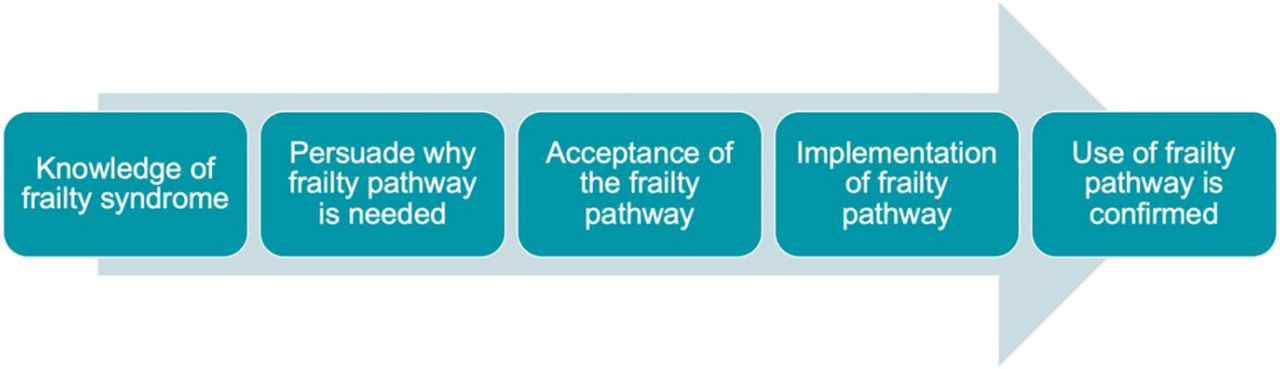

Table 1. Inclusion and exclusion criteria for the literature review

Inclusion criteria	**Exclusion criteria**
1. Studies conducted in KSA 2. From 1 January 2016 to 1 August 2024 3. Studies in the English language	1. Not conducted in KSA 2. Studies before 1 January 2016 3. Not in the English language 4. Nursing specific reports 5. Dedicated papers to COVID-19 leadership 6. Unrelated to the health sector

Table 2. Healthcare leadership studies conducted in KSA

Study	Methods	Sample Size	Findings	Author(s)
1	Descriptive cross-sectional study.	127	Work satisfaction ratings showed negative correlations with individual concern, idealised influence, contingent compensation, and inspiring motivation. The evaluation indicated that transformational leadership negatively impacts job satisfaction. (-) negative impact	Khusheim (64)
2.	Cross-sectional study, survey questionnaire.	327	Three leadership styles, namely transformational (strategic), transactional, and authoritative leadership, positively influence employee performance. (+) positive impact	AlFlayyeh and Alghamdi (45)
3	Descriptive qualitative.	9	The results showed that internal factors, such as qualifications, experience, and the innate qualities of a winner are the most important factors that contribute to women's leadership. Women's role expectations, gender norms, and the patriarchal nature of the community have a negative impact on women's leadership. Negative attitudes and lack of support from female colleagues. (-) negative impact	Al Mutair, Al-Ghuraibi (65)
4	A qualitative methodology (semi-structured interviews).	25	The study unequivocally demonstrates that dysfunctional leaders display harmful behaviours such as abuse, favouritism, and degradation of employees. These actions directly result in employees leaving their jobs, feeling alienated at work, and experiencing significant psychological and physical issues. The negative impact of dysfunctional leadership extends beyond the workplace and affects both the organisational environment and family life. (-) negative impact	Abalkhail (66)
5	Qualitative study.	17	Based on the study participants, common social problems in Saudi primary healthcare included financial burdens, familial challenges, mental health issues, and difficulties related to an aging population. The hindrances in primary healthcare were attributed to: (1) Lack of physician knowledge or training	Almujadidi, Adams (67)

			(2) Organisational barriers such as time constraints and patient referral/follow-up (3) Patient cultural norms (4) Lack of awareness of the physician's role in managing social determinants of health. (-) negative impact	
6	Semi-structured interviews.	11	Most participants believed that leadership positions are filled based on seniority or clinical knowledge, rather than leadership skills. (-) negative impact	Hejazi, Al-Rubaki (42)
7	Cross-sectional design.	270	68% of the individuals showed high adherence to the "idealized influence" facet of transformational leadership, while 64% followed "management-by-exception", and only 28% adhered highly to the "laissez-faire" leadership style. About one-third of healthcare providers reported satisfaction, 9.3% expressed dissatisfaction, and 51.3% were ambivalent. The laissez-faire leadership style was found to be significantly correlated with the job satisfaction of most healthcare providers, followed by transactional leadership.	Alqahtani, Nahar (68)
8	Self-administered questionnaire and SPSS to explore how transformational leadership can affect an organisation's readiness for change.	83	The researchers found that transformational (strategic) leadership has the potential to change the attitudes, beliefs, and intentions of members of healthcare organisations and help them accept and understand a change initiative. (+) positive impact	Alharbi (43)
9	Mixed methods: questionnaires and interviews.	60	The study used questionnaires and interviews to assess the quality improvement (QI) implementation in Saudi hospitals. It found that the implementation was significantly poor across seven dimensions. The study also identified organisational barriers, such as culture, human resources, processes, and structure, which strongly impact QI in Saudi hospitals. (-) negative impact	Shamsuddin Alaraki (41)
10	Quantitative research.	269	A significant positive correlation between the eight practices of TQM (total quality management) and hospital performance with a correlation coefficient r value of 0.9 (P = .0001). The study revealed that Saudi hospitals are facing difficulties in engaging clinical staff in quality initiatives. The findings showed that accredited	Alaraki (69)

			hospitals have applied TQM practices significantly more than unaccredited hospitals.	
11	Qualitative study, interviews with EMS providers from multiple nations currently working in Riyadh.	19	Leadership in emergency medical services (EMS) is mainly learned through informal mentoring and on-the-job training in less supportive environments, with limited resources available for EMS leadership education beyond patient care leadership.	Leggio (70)