

# BMJ Open Quality of care in university hospitals in Saudi Arabia: a systematic review

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## ABSTRACT

**Objectives:** To identify the key issues, problems, barriers and challenges particularly in relation to the quality of care in university hospitals in the Kingdom of Saudi Arabia (KSA), and to provide recommendations for improvement.

**Methods:** A systematic search was carried out using five electronic databases, for articles published between January 2004 and January 2015. We included studies conducted in university hospitals in KSA that focused on the quality of healthcare. Three independent reviewers verified that the studies met the inclusion criteria, assessed the quality of the studies and extracted their relevant characteristics. All studies were assessed using the Institute of Medicine indicators of quality of care.

**Results:** Of the 1430 references identified in the initial search, eight studies were identified that met the inclusion criteria. The included studies clearly highlight a need to improve the quality of healthcare delivery, specifically in areas of patient safety, clinical effectiveness and patient-centredness, at university hospitals in KSA. Problems with quality of care could be due to failures of leadership, a requirement for better management and a need to establish a culture of safety alongside leadership reform in university hospitals. Lack of instructions given to patients and language communication were key factors impeding optimum delivery of patient-centred care. Decision-makers in KSA university hospitals should consider programmes and assessment tools to reveal problems and issues related to language as a barrier to quality of care.

**Conclusions:** This review exemplifies the need for further improvement in the quality of healthcare in university hospitals in KSA. Many of the problems identified in this review could be addressed by establishing an independent body in KSA, which could monitor healthcare services and push for improvements in efficiency and quality of care.

## INTRODUCTION

Access to healthcare in the Kingdom of Saudi Arabia (KSA) has improved dramatically over the past three decades. This improvement in access has brought challenges for healthcare organisations, their

## Strengths and limitations of this study

- This is the first systematic review conducted on the quality of healthcare in university hospitals in Kingdom of Saudi Arabia (KSA).
- This review has highlighted heterogeneity in the delivery of care within university hospitals in KSA.
- The limited number of studies in this review may not represent the actual quality of healthcare in university hospitals in KSA.
- The review is restricted to English-language publications due to the lack of relevant research literature in Arabic.

staff and other stakeholders, highlighting a need to improve the quality of healthcare. These challenges include: increasing demand for healthcare services coupled with a rise in costs, changing patterns of disease, shortage of healthcare professionals, a significant annual pilgrim population, a rise in medical errors and long waiting times.<sup>1–4</sup> A key policy being implemented as a part of the ninth development plan in KSA (2009–2014), with regard to health services, is the need to adopt methods to improve quality of care, and to apply these methods across all health sectors to ensure that appropriate levels of efficiency and quality are achieved.<sup>5 6</sup> Indeed, measurement of patient satisfaction is central to identifying areas for improvement and thus achieving optimal delivery of healthcare services. In addition to patient satisfaction, it is important to consider access to healthcare as a fundamental quality of care indicator.

Ovretveit addressed the definition of quality in health services as ‘fully meeting the needs of those who need the services most, at the lowest cost to the organisation, within limits and directive set by higher authorities and purchases’.<sup>7</sup> In addition, better health outcomes and greater efficiency in developing countries such as KSA can be achieved by adopting quality

improvement methods. Al-Ahmadi and Roland reported that 'Quality improvement can be driven both internally through organised effort within the healthcare system, and externally through public pressure'.<sup>8</sup> Furthermore, Groene addressed seven ways to improve quality and safety in any hospital as the following: (1) 'Align organisational processes with external pressure. (2) Put quality high on the agenda. (3) Implement supportive organisation-wide systems for quality improvement. (4) Assure responsibilities and team expertise at departmental level. (5) Organise care pathways based on evidence of quality and safety interventions. (6) Implement pathway-oriented information systems. (7) Conduct regular assessment and provide feedback'.<sup>9</sup>

The health system in Saudi Arabia (SA) has three sectors: the Ministry of Health sector (MOH), the private sector and other government sectors. The MOH is the major government provider of health services in SA, with a total of 268 hospitals (38 970 beds), covering 60.2% of the total health services in SA. The private sector provides 22.1% of the total health services, especially in cities and large towns, with a total of 136 hospitals (14 310 beds). The other government agencies sector, which provide services to a defined population, usually employees and their dependents, operates 39 hospitals (11 497 beds). This covers 17.7% of the total health services, include referral hospitals (eg, King Faisal Specialist Hospital and Research Centre), security forces medical services, army forces medical services, National Guard health affairs, ARAMCO hospitals, Royal Commission for Jubail and Yanbu health services, Red Crescent Society and Ministry of Education hospitals (university hospitals).<sup>10</sup>

The university hospitals include King Fahd University Hospital (KFUH) (428 beds) in the eastern region of SA, King Abdulaziz University Hospital (KAUH) (507 beds) in the western region, and King Abdul-Aziz University Hospital (KAAUH) (85 beds) and King Khalid University Hospital (KKUH) (752 beds) in the central region.<sup>10</sup> In some countries, such as the USA, university hospitals are often perceived to provide better quality of care than other hospitals.<sup>11</sup> No study has examined whether this is the case in KSA. We carried out a systematic literature review to examine the following questions:

1. What is the quality of care in university hospitals in KSA?
2. What are the common issues, problems, barriers and challenges particularly in relation to the health services and the quality of care in university hospitals in KSA?
3. How does the quality of care in university hospitals compare with that of other health sectors in KSA?

The objectives of the review were to:

- Identify the key issues, problems, barriers and challenges particularly in relation to the health services and the quality of care in university hospitals in KSA;
- Highlight the weaknesses and strengths of quality of care;

- Provide recommendations describing how better quality of care can improve patient outcomes in university hospitals in KSA in the future.

## METHODS

### Search strategy and selection

The search strategy identified relevant studies through an online literature search using the following electronic databases: Medline, ISI Web of Knowledge, PubMed, Embase and Cochrane. The search terms used (table 1) were quality, OR quality of care, OR healthcare quality, OR safe, OR effective, OR patient-centred, OR timely, OR efficient, OR equitable AND university hospital, OR teaching hospital, OR medical school, AND KSA, OR SA. Details of the study identification and selection process are shown in figure 1.<sup>12</sup>

### Study criteria

#### Inclusion criteria

Studies were included if they met the following criteria, they were: focusing on the quality of care in university hospitals in SA; focusing on issues, problems, barriers and challenges particularly in relation to the quality of care in university hospitals in KSA; published between January 2004 and January 2015; published in peer reviewed journals and only in English as there is no relevant Arabic research database.

#### Exclusion criteria

Studies were excluded if they investigated the quality of care outside the university hospitals in KSA such as studies carried out in MOH, King Faisal Specialist Hospital and Research Centre security forces medical services, army forces medical services, National Guard health affairs and ARAMCO hospitals. Studies were excluded if they were published before 2004.

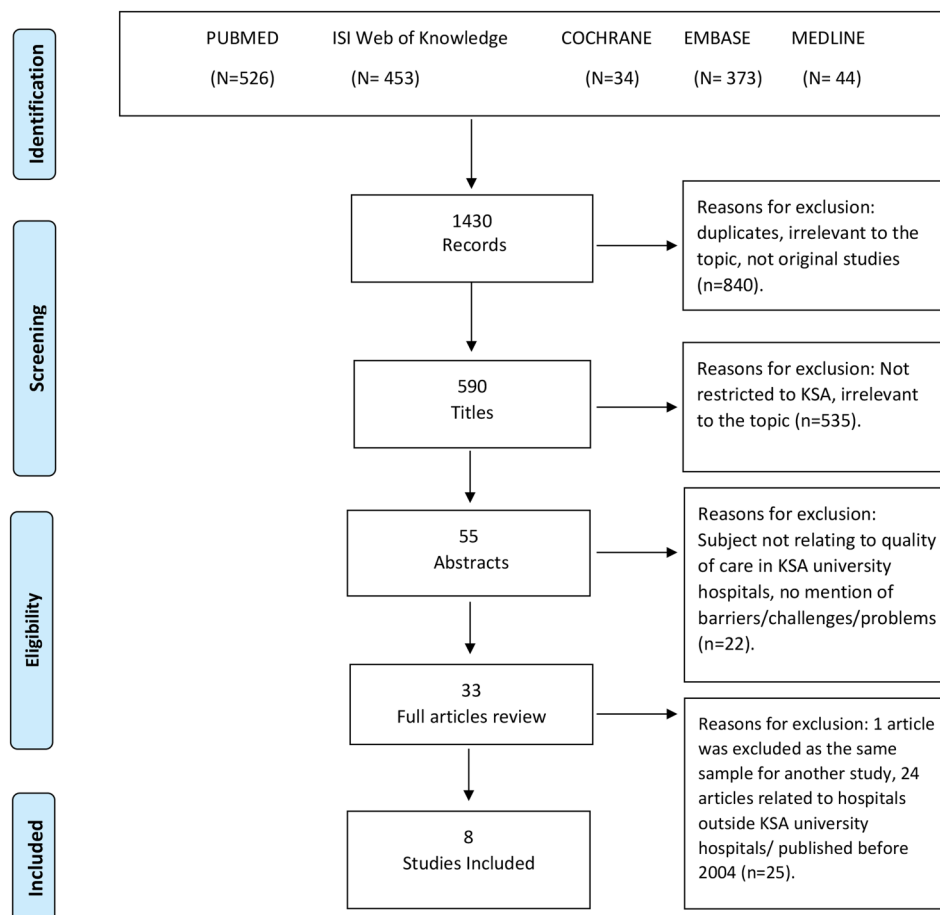
### Data extraction and quality appraisal

We developed a standardised sheet for data extraction from the studies that met the inclusion criteria. The data extraction sheet was based on the following characteristics of the included studies (authors, location and year, aim and objectives, study design, results, outcomes, limitations). All data were extracted from each study by three researchers. A full list of the data extraction criteria

**Table 1** Search terms used in electronic database search

Search terms	
Quality	Quality of care, healthcare quality, safe, effective, patient-centred, timely, efficient and equitable
Hospitals	University hospital, teaching hospital, medical school
Saudi Arabia	Kingdom of Saudi Arabia, KSA, Saudi Arabia, SA

**Figure 1** Flow chart of study selection process.<sup>12</sup>



is presented in [table 2](#). After we developed a standardised sheet for data extraction from the included studies, all articles were reviewed and analysed by the researchers. The quality and the risk of bias of all studies were evaluated using the Newcastle Ottawa scale for cross-sectional studies that was adapted by Herzog *et al.*<sup>13</sup> In addition, all studies were assessed using the Institute of Medicine (IOM) indicators of high quality of care: safe, effective, patient-centred, timely, efficient and equitable.<sup>14</sup>

### Ethics statement

Ethical approval was not required as this study was a systematic literature review.

### RESULTS

Of the 1430 references identified in the initial search, 590 titles and 55 abstracts were reviewed. After applying the inclusion criteria for titles and abstracts, 33 full-text articles were evaluated for more detailed evaluation. Twenty-six studies were excluded as they did not meet the inclusion criteria and one study was excluded because the study used the same sample as that used for another study. Eventually, eight studies were identified and met the inclusion criteria for this systematic review. The included studies are summarised in [table 2](#). The Newcastle-Ottawa scale, a widely used tool for observational studies, was utilised to determine the risk of bias

and the quality of the studies included. Some of the studies included show low scores on the quality scale, which questions their reliability. Most of the studies included scored well in the following domains of the Newcastle Ottawa scale: representativeness of the sample, satisfactory sample size and use of a validated measurement tool. However, many studies failed to report comparability between the respondents and non-respondent characteristics, which may not adequately control for confounding variables and may introduce an element of self-selection bias ([table 3](#)). Moreover, the reliance of many included studies on self-reporting may introduce information bias. All studies were assessed based on four indicators (Safe, Effective, Patient-centred and Timely) out of the six IOM indicators ([table 4](#)). The Efficient and Equitable indicators were not specifically reported on in any of the included studies.

### Safety

Five studies examined issues and concerns related to the safety domain. Al Awa *et al* reported nursing staff commenting on the creation of barriers due to a multicultural and multilanguage environment at KAUH. However, there is a statistically significant improvement in the post-accreditation period compared with pre-accreditation ( $p<0.001$ ) in all domains measured, namely: nursing clinical information, patient medication

**Table 2** Summary of study characteristics included in the systematic review

Study location and year	Study design	Aim and objectives	Sample size	Results	Limitations
Al Awa <i>et al</i> , <sup>15</sup> KAUH, 2011	Cross-sectional survey	To achieve an unbiased assessment of the impact of accreditation on quality of patient care and patient safety as perceived by nursing staff.	721	675 met the survey criteria. Accreditation has an overall statistically highly significant perceived improvement on quality of patient care and patient safety.	Subjective—nurse based perceptions via questionnaire, conducted retrospectively.
Atallah <i>et al</i> , <sup>22</sup> KKUH, 2013	Cross-sectional survey	To examine the patients' satisfaction level on quality of nursing care provided and to identify differences in patients' satisfaction of quality of nursing care provided related to selected Demographic characteristics.	100	100 agreed to participate with an agreement rate of 40%. 'Patients have a high level of satisfaction with nursing care provided, although certain aspects of nursing care such as language, information giving and attentiveness, were identified with lower rates'.	Selection bias: only those who expressed interest in participation were asked to fill out the questionnaires' polarised results. Not multicentre sample.
Al Doghaither, <sup>16</sup> KKUH, 2004	Cross-sectional survey	To assess inpatient satisfaction with physician services at KKAUH.	350	350 patients (87.5% response rate). 'These findings offer hospital management information about shortcomings requiring remedial intervention. More specifically, less satisfied groups being: Higher educational level and male.	Should have conducted multicentre study at other Saudi teaching hospitals to produce more representative data.
Alamri, <sup>17</sup> KAUH, 2012	Cross-sectional survey	To determine the knowledge of the residents working in KKAUH about palliative care.	80	Of 80 residents, 65 responded (response rate of 81%). Resident physicians enrolled in postgraduate programmes possess suboptimal knowledge of basic palliative care. There is a need to improve palliative care education at undergraduate and postgraduate level.	Study does not account for older doctors, who may have greater knowledge/authority over palliative care, which could influence the results. Does not describe characteristics of non-responders.
Mokhtar <i>et al</i> , <sup>20</sup> KFUH, 2012	Retrospective cohort/case–control	To determine the 28-day readmission rate for DM patients at KFUH and to assess compliance of healthcare providers with the American Diabetic Association guidelines and to identify factors predicting readmission.	124 (62 cases, 62 controls)	84% of the 62 cases were readmitted once within 28 days, 11% were readmitted 2 times, 3% 3 times and 2% 4 times. Quality of inpatient care exerts a substantial influence on the risk of readmission. Study hospital should improve the quality of care delivered to diabetic patients.	Retrospective data analysis. N=62, quite small sample size—should have pooled results in a multicentre study to improve their sample size.
Hussein, <sup>18</sup> KAUH, 2014	Cross-sectional survey	To investigate the relationship between ICU nurses' and physicians' perceptions of the organisational health of a hospital and quality of patient care, and to assess and compare their perceptions.	128	75/77 nurses and 49/51 physicians. Teamwork was the highest scoring domain among the hospital health determinants characterising participants' work environment. Participants gave lower ratings to domains of effectiveness, patient-centred care and safe care.	Self-reported questionnaire Not multi-centred.

Continued

**Table 2** Continued

Study location and year	Study design	Aim and objectives	Sample size	Results	Limitations
El-Jardali <i>et al</i> , <sup>19</sup> KKUH&KAAUH, 2014	Cross-sectional survey	To conduct a baseline assessment of the patient safety culture in a large hospital in Riyadh. To compare results with regional and international studies that utilise the same tool. The study was conducted to 'Explore the association between patient safety culture predictors and outcomes, taking into consideration respondent characteristics and facility size'.	2572	2572/3000 (85.7% response rate). The dimensions with the highest positive score were Organizational Learning and Continuous Improvement (79.6%), and Teamwork within Units (78.5%). The lowest scores were in the dimensions of Hospital non-punitive response to error (26.8%), Staffing (35.1%) and Communication Openness (42.9%). Comparing with other regions (USA and Lebanon): KSA fared better in dimensions of Teamwork across Hospital Units, Hospital Handoffs and Transitions, and Organizational Learning & Continuous Improvement. Compared to Lebanon, KSA scored lower in: Communication, Openness and Overall Perception.	Lack of rigorous statistical analyses (Cronbach- $\alpha$ values ranged between 0.214–0.892; internationally accepted values generally >0.6). Has only accounted for HCP perception in patient safety, but has not asked patients themselves. Questionnaire-based.
Wahabi <i>et al</i> , <sup>21</sup> KKUH, 2011	Cross-sectional survey	To explore the opinion and practice of the healthcare professionals in KKUH in the use of clinical practice guideline CPGs.	2225	1257/2225 (56.5% response rate). Cronbach's $\alpha=0.67$ . Most respondents had a positive attitude to the use of CPGs in decision making. >90% thought that they were effective in unifying and improving the quality of patients' care. 97% respondents agreed that CPGs were a good educational tool. <50% respondents agree that clinical practice should be based on scientific evidence all the time. Overall, there is a good positive attitude towards the use CPGs in clinical practice.	Self-reported questionnaire. Low response rate overall (56.5%), especially physicians (25%) → introduced a selection bias, as physicians are the ones using CPGs most often.

CPGs, clinical practice guidelines; HCP, health care professionals; ICU, intensive care unit; KAUH, King Abdulaziz University Hospital; KAAUH, King Abdul-Aziz University Hospital, Riyadh; KFUH, King Fahd University Hospital; KKUH, Khalid University Hospital; KSA, Kingdom of Saudi Arabia.

**Table 3** Results of the critical appraisal of the included studies

Representativeness of the sample	Selection		Study (first author)	Non-respondents	Ascertainment of exposure	Outcome			Total out of 10
	Sample size					Comparability	Assessment	Statistical test	
Al Awa <i>et al</i> <sup>15</sup>	+		+		+		+	+	5
Atallah <i>et al</i> <sup>22</sup>			+		++	++	+	+	7
Al-Doghaither <sup>16</sup>	+		+	+	+	++	+	+	8
Alamri <sup>17</sup>	+		+		++		+	+	6
Mokhtar <i>et al</i> <sup>20</sup>	+		+			++	++	+	7
Hussein <sup>18</sup>	+		+	+	++		+	+	7
El-Jardali <i>et al</i> <sup>19</sup>	+		+		++		+	+	6
Wahabi <i>et al</i> <sup>21</sup>	+		+		+		+	+	5

information, risk management information and nursing action to prevent risk. The greatest improvement was seen in the category of 'risk management information', namely, a 44% perceived improvement in 'communication to patient about safety' (46–90%).<sup>15</sup> In addition, Al-Doghaither showed that the mean satisfaction score of inpatients with regular physician check up on their condition/follow-up on daily rounds was 4.20. While the mean was only 2.10 for the category of 'physicians are unable to know the individual condition of each patient with so many patients to see'.<sup>16</sup> In a study about palliative care, the knowledge of physicians regarding opioid use as an important medication in palliative care was generally very low.<sup>17</sup> Another study indicated that nurses gave a significantly lower score to patient safety than did physicians, which could be due to failures of leadership, a requirement for better management or the need to establish a culture of safety alongside leadership reform in university hospitals.<sup>18</sup> The first study to compare KSA patient-safety composite values with those of other regions around the world (USA and Lebanon) found that feedback and communication about errors are most strongly associated with frequency of events reported.<sup>19</sup>

### Effective

Five of the reviewed studies that met the inclusion criteria considered matters related to the IOM 'effective' domain. Al-Doghaither reported that having many physicians in charge of care resulted in a conflict in opinions regarding patient conditions and therapy plan.<sup>16</sup> In addition, Alamri showed that knowledge in palliative care is suboptimal, thus impeding future practice.<sup>17</sup> A study of the relationship between quality of inpatient care and early readmission for diabetic patients found that quality of inpatient care had a substantial effect on the risk of readmission. Adherence to the validated American Diabetes Association guidelines was also associated with reduced risk of readmission. However, adherence of healthcare providers to these guidelines was found to be suboptimal, which compromises the effective delivery of care.<sup>20</sup> Furthermore, Hussein<sup>18</sup> reported that a greater emphasis was needed on enhancing teamwork and developing the competencies of healthcare professionals, to increase the hospital's capacity to function effectively and address patients' needs. The fifth reviewed study explored attitudes and practices of the healthcare providers in KCUH towards clinical practice guidelines (CPGs). According to the healthcare professionals' opinion, less than 50% of respondents agree that practice should be based on scientific evidence, which shows resistance to evidence-based medicine in KSA. However, 97% of respondents agreed that CPGs were a good educational tool and >90% thought that they were effective in unifying and improving the quality of patients' care.<sup>21</sup>

### Patient-centred

Four studies considered the patient-centred domain. To assess the efficacy of hospital care provision, patient

**Table 4** Summary of studies based on safe, effective, patient-centred and timely indicators

Indicators	Findings	Sources
Safe	<ul style="list-style-type: none"> <li>▶ Despite the barriers due to a multicultural and multilingual environment in KAUH, there is a statistically significant improvement in postaccreditation compared with preaccreditation period in all domains measured (<math>p &lt; 0.001</math>). The greatest improvement was seen in the 'Risk Management of Information' domain, namely a 44% perceived improvement in 'communicating to patients about safety' (46–90%) by nursing staff.</li> <li>▶ The mean satisfaction score of inpatients with 'Physician regularly checking up on patient's condition/follow-up on daily rounds' was (4.2). While the mean for 'Physicians are unable to know the individual condition of each patient with so many patients to see' was (2.1).</li> <li>▶ The knowledge of physicians regarding opioid use as an important medication in palliative care was generally very low.</li> <li>▶ Nurses' and physicians' perceptions give safety a total mean score of 59.1% (low) with nurses giving a significantly lower value than physicians (56.6% vs 62.9%) and that could be due to failures of leadership, need for better management and need to establish culture of safety alongside leadership reform in university hospitals.</li> <li>▶ First study to compare KSA patient-safety composite values with other regions around the world, namely, USA and Lebanon. Baseline assessment has identified key areas of strengths and weaknesses in overall perception of patient safety (from staff). Feedback and communication about errors are most strongly associated with frequency of events reported.</li> </ul>	15 16 17 18 19
Effective	<ul style="list-style-type: none"> <li>▶ Conflict in opinions regarding patient conditions and therapy plan arises with so many physicians in charge of care.</li> <li>▶ Knowledge in palliative care is suboptimal, which impedes future practice in palliative care.</li> <li>▶ Quality of inpatient care exerts a substantial influence on the risk of readmission for diabetic patients at KFUH. Also, adherence to validate the American Diabetes Association guidelines was associated with reduced risk of readmission. However, adherence of healthcare providers to these guidelines was found to be suboptimal in the cases, therefore it can be thought to compromise effective delivery of care.</li> <li>▶ More emphasis is required to enhance teamwork and to develop the competencies of healthcare professionals in order to increase the hospital's capacity to function effectively within the context of the patient's needs.</li> <li>▶ &lt;50% of respondents agree that practice should be based on scientific evidence, which shows resistance to evidence-based medicine in KSA. 97% respondents agreed that CPGs were good educational tools. &gt;90% thought that they were effective in unifying and improving the quality of patients' care.</li> </ul>	16 17 20 18 21
Patient-centred	<ul style="list-style-type: none"> <li>▶ To assess the efficacy of hospital care provision, patient satisfaction is widely accepted as a key outcome measure by which one can assess the quality of hospital care. '86% of patients showed an overall satisfaction about the quality of nursing care provided'. 2 key factors impeding optimum patient-centred care are: 'communication in Arabic' and 'lack of instructions given to patient during preadmission'.</li> <li>▶ The mean of 'necessary precautions for maintaining patient's privacy during physical examination' was (4.70), and the mean of 'patient's condition, opinion and preference considered in planning his/her care activities' was (4.78). However, the mean of 'physicians ask patient about his/her opinion of the quality of care provided and the problems encountered' was (1.45) and the mean of 'most physicians focus on treating illness rather than taking a real interest in the patients and their complaints' was (3.2).</li> <li>▶ It is recommended that improvements be made on health education given to patients regarding diabetes, to improve the quality of their care.</li> <li>▶ Nurses and physicians share a similarly low perception of patient-centred care (58.7 v 58.8%) is postulated due to: 'insufficient support given by the leadership to a patient-centred approach'.</li> </ul>	22 16 20 18
Timely	<ul style="list-style-type: none"> <li>▶ The mean satisfaction score of inpatients with 'physician services for patients' requests are promptly attended to by treating physician at any hour of the day' was (3.82).</li> </ul>	16

CPGs, clinical practice guidelines; KAUH, King Abdulaziz University Hospital; KAAUH, King Abdul-Aziz University Hospital, Riyadh; KFUH, King Fahd University Hospital; KSA, Kingdom of Saudi Arabia.

satisfaction is a key outcome measure by which one can assess the quality of hospital care. In a study about patients' satisfaction relating to the quality of nursing

care, 86% of patients were satisfied with the quality of nursing care. However, two key factors impeding optimum patient-centred care were: 'communication in

Arabic' and 'lack of instructions given to patient during preadmission'.<sup>22</sup> In addition, another study aiming to assess 'inpatient satisfaction with physician services', showed that the highest mean satisfaction scores were for patient condition, opinions and preferences (4.78) and for maintaining patients' privacy during physical examination (4.70). The lowest mean score was for asking patients about their opinions on the quality of care and the problems faced.<sup>16</sup> Mokhtar *et al*<sup>20</sup> recommended that improvements should be made in the health education given to patients regarding diabetes, to improve the quality of their care. Furthermore, a study about the relationship between nurses' and physicians' perceptions of organisational health and quality of patient care reported that nurses and physicians share a similarly low perception of patient-centred care (58.7% v 58.8%). This may be due to 'insufficient support given by the leadership to a patient-centred approach'.<sup>18</sup>

### Timely

Only one of the included studies concerned the 'timely' domain. The study by Al-Doghaither showed that the mean satisfaction score of inpatients with physician services was higher for patients whose requests were promptly attended to by the treating physician.<sup>16</sup>

## DISCUSSION

This review identifies and summarises the prior studies on the quality of healthcare in university hospitals in KSA. Four of the reviewed studies collected their data in KKUH and KAAUH. Three of the studies were conducted in KAUH. One study used the medical records of diabetic patients admitted to KFUH.

The review highlights a need to improve the quality of healthcare delivery, specifically in areas of patient safety, clinical effectiveness and patient-centredness, at university hospitals in KSA. A recent study exemplified a link between these three dimensions, suggesting they should be considered as a group.<sup>23</sup> Five of the reviewed studies concern patient safety as one of the important indicators of quality of care. A study by Hussein<sup>18</sup> indicated that there was a significant difference between the mean scores of nurses' and physicians' perceptions regarding the safety domain, giving nurses (56.6) a lower value than physicians (62.9;  $p=0.024$ ). Therefore, this difference could be due to failures of leadership, a need for better management and a need to establish a culture of safety alongside leadership reform in university hospitals. According to Hughes<sup>24</sup> argument, the demands of patient care are carried out mainly by nurses rather than physicians. Moreover, nurses spend more time than physicians do, looking after patients, which could explain the nurses' higher workload. In addition, El-Jardali *et al*<sup>19</sup> found that feedback and communication about errors are most strongly associated with lower frequency of events reported. This finding could be due to fear of reporting and some respondents' beliefs that reporting

errors could be held against them. Van Geest and Cummins<sup>25</sup> reported that the reasons for not reporting errors could be related to fear, humiliation and the presence of a punitive response to error. However, there is a statistically significant improvement in the postaccreditation compared with preaccreditation period. The greatest improvement was seen in communicating to patients about safety (46–90%) as reported by nurses.<sup>15</sup> Similarly, a previous study indicated that the accreditation programme enhanced and improved the performance and quality of care provided by healthcare services.<sup>26</sup>

The review also highlighted various issues relating to the effectiveness domain. A study about inpatient satisfaction with physician services at KKUH reported that physicians are unable to know the individual condition of each patient, with so many patients to see, which causes increasing conflict in opinions regarding patient conditions and therapy plans.<sup>16</sup> Furthermore, another study examining the knowledge of physicians about palliative care in KAUH indicated it was suboptimal, impeding best practice in palliative care.<sup>17</sup> Similarly, a US study showed that a low level of knowledge in palliative care has been documented for physicians who care for patients having diminished mental capacity.<sup>27</sup> Continuous medical education and practical training should be made available to improve the level of knowledge in palliative care. In addition, a study regarding nurses' and physicians' perceptions of organisational health and quality of patient care reported that more attention is required to enhance teamwork and to develop the skills of healthcare professionals in order to increase the hospital's capacity to function effectively within the context of patient's needs.<sup>18</sup> A study of the perspectives of health professionals about CPGs showed that the number of respondents agreeing that practice should be based on scientific evidence is below average, which shows resistance to evidence-based medicine in KSA.<sup>21</sup> However, using practice based on scientific evidence should lead to improved outcomes and reduced costs, and should also form the basis for monitoring variability in practice and identify opportunities for improvement.<sup>28</sup>

Patient satisfaction is a key outcome measure by which one can assess the quality and efficacy of hospital care provision. A study of patients' satisfaction with the quality of nursing care provided reported an overall high level of satisfaction. However, lack of instructions given to patients during preadmission and language communication were key factors impeding optimum patient-centred care.<sup>22</sup> Decision-makers in KSA university hospitals should consider programmes and assessment tools to reveal problems and issues related to language as a barrier to quality of nursing care. Another study reported that most physicians focus on treating illness rather than taking a real interest in the patients and their complaints, and they do not ask patients about their opinions of the quality of care provided.<sup>16</sup> Also, Hussein<sup>18</sup> indicated that nurses and physicians share a

similarly low perception of patient-centred care. Thus, the establishment of continuing training programmes in communication and interaction skills is needed for physicians and nurses, to make them aware of the problems impeding optimum quality of care. Our study highlighted results similar to those of a previous study regarding the quality of care in KSA.<sup>29</sup> The results of this systematic review show a need to enhance and improve the quality of care in the university hospitals in KSA.

## Implications

Further studies are needed to identify the major contributory factors to the current and future quality of healthcare in university hospitals in KSA. In addition, with the new government planning to increase the number of university hospitals from 4 to 23 in less than 10 years, ensuring high quality of care across all these hospital units will be a major issue. Thus, it may be necessary to establish an independent governing body for university hospitals in KSA. This organisation would offer numerous benefits, addressing the unique needs of all university hospitals. The organisation will help to develop quality health services that are coordinated and responsive to patient needs, while establishing a stronger position to improve services at university hospitals, ensuring they are tailored to the needs of the local population. This review outlines a need to provide training programmes in communication skills for healthcare professionals within university hospitals.

## Limitations of this review

The limited number of studies in this review may not represent the actual quality of healthcare in university hospitals in KSA. The majority of the reviewed studies used a cross-sectional study design. The Newcastle Ottawa scale, used to assess the risk of bias and quality of the studies included, yielded low scores for most studies reviewed. Also, most of the study methodology used is questionnaire based and self-reported, which can lead to information bias. Moreover, the small sample size of the studies affects the generalisability in all university hospitals in KSA. Another limitation of this review is that most studies lack an adequate description of non-respondent characteristics. Although each study is conducted in just one university hospital, conducting multi-centre studies at other Saudi university hospitals is essential to produce more representative data.

## CONCLUSION

This review exemplifies the need for further improvement in the quality of healthcare. Many of the problems identified in this review could be addressed by establishing an independent governing body in KSA, which could survey healthcare services and push for improvements in efficiency of care provision. Moreover, a comprehensive and continuous quality assessment and improvement system in university hospitals is essential to

achieve these objectives. Future research should aim to provide more objective assessments and identify effective interventions to improve the quality of care in university hospitals in KSA.

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**Contributors** MA, SR and AM prepared the study protocol. This included designing the search strategy, helping in selecting studies for inclusion and developing a data extraction form. FM and ZC also helped in selecting studies for inclusion. MA, FM and ZC carried out the search, identified potential studies for inclusion, extracted the data, assessed the quality of the included studies, and carried out the data analysis under the supervision of SR and AM. MA, FM and ZC wrote the manuscript, which was then revised by SR and AM. All the authors have approved the final version. The guarantor is MA.

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