Management and leadership competence for hospital managers: a systematic review and best fit framework synthesis

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Research article

Keywords: Competencies, competency development, management, leadership, hospital managers, best fit framework, systematic review

Posted Date: August 23rd, 2019

DOI: <https://doi.org/10.21203/rs.2.13455/v1>

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Abstract

Background Competent managers are vital to the productivity and service quality of healthcare organizations and the sustainability of the healthcare system including hospitals. The purpose of this study is to synthesize the evidence related competency to management and leadership in healthcare organizations including hospitals through the Best Fit Method.

Methods A systematic literature review was performed to identify studies focusing on confirming and/or assessing the competency requirements of health service managers in particular hospital managers. The following electronic databases were searched from January 2000 and December 2018: ISI/Web of Sciences, PubMed, Scopus, Emerald, and the Scientific Information Database. Applying the Best Fit Framework Synthesis Method, we mapped all of the competency and associating behavioral items against the validated MCAP management competency framework which includes 6 core competencies, 18 subthemes and 83 associating behavioural items.

Results Eleven studies were identified for inclusion in the review. The mapping of the competencies and relevant items identified in these studies with the validated MCAP management competency framework and associating items confirm that the MCAP framework has vastly represented findings of all recent studies. Although the MCAP framework incorporated behavioral items associating with the competency of Professionalism into the six core competencies, the study found the necessity of treating Professionalism as an independent competency to be included in the global management competency framework for health service managers, in particular hospital managers. As a result, the proposed Global Management Competency Framework includes the following 7 competencies: evidence-informed decision making, operations, administration and resource management, knowledge of healthcare environment and the organization, interpersonal, communication qualities and relationship management, leading people and organisation, enabling and managing change, and professionalism.

Conclusions This review and the mapping of the competencies identified in previous studies with the validated MCAP framework resulted in the recommendation of Global Management Competency Framework for health service managers. It provides useful guidance to the formulation of training and development direction for the health service management workforce. However, since management competencies are context sensitive, in order to developing a more targeted approach or target curriculum for the development managers from different sectors, management levels, validation is recommended.

Background

Nowadays health care systems around the world face with several challenges such as increased healthcare needs and costs as a result of growing population that are aging with disability; rising levels of risk factors such as obesity and physical inactivity; poor management and increasing prevalence of chronic disease and multiple chronic diseases; high percentage of preventable hospitalisation as a result; health workforce shortages and imbalanced distribution, and poor quality and safety of service provision [1-3]. In addition, inequities in health, lack of access to quality health care, and insufficient skilled health workforce represent some of the major challenges facing many countries in the Eastern Mediterranean Region [4].

As a result, reforms have been implemented to improve the effectiveness and efficiency of service delivery in the organizational level including streamlining the management structure, focusing more on performance improvement and benchmarking service outcomes [5, 6]. The changing healthcare landscape and requirements of service delivery requiring new skillset for health professionals,

therefore, a novel managerial approach is needed to lead and manage such transition and consolidation [7, 8]. Such changes inevitably impact on how healthcare managers work and the competencies required to make their work effective [6, 9, 10].

Managers in healthcare systems play a pivotal role in providing efficient and effective health services who are required to demonstrate a number of core management competencies consisting of knowledge, behavior, skills, attitudes and values [11]. Such core management competencies are said to be critical to the effective management outcomes linking to better health service delivery and performance [11, 12].

In Iran, since the late 1980s, there had been profound changes in health system. The legislation for structure and duties of Ministry of Health and Medical Education (MOHME) was approved in 1988. Consequently, traditional Universities were separated and independent medical universities under the name of University of Medical Sciences and Health Services at the provincial level under the supervision of MOHME were formed. A few years later MOHME (1995) designed and implemented a reform, known as “hospital autonomy reform”, in payment mechanism and permitted public hospitals to fund themselves through revenue-generating fees (fee-for-services) [13, 14].

Following, MOHME by Deputy of Management and Resources Development conducted a comprehensive reform project in 2003 to deal with public hospitals organizational reform in six aspects. They contained: hospital restructuring, operational budgeting, performance-based management, outsourcing, physical resources maintenance management, and hospital information system [13].

The Health Sector Evolution Plan launched in 2014 set the reform agenda and direction for the Iranian health system. As a result, hospital-oriented transformation of the health service was launched in all public hospitals to address the substantial increase in healthcare costs in the past decades. The main objectives of the reform include the reduction of health expenditure, the improvement of efficiency and quality of hospital services, and the increase access to inpatient services. [14]. These changes have required hospitals to improve performance and demonstrate greater transparency and accountability in response to the increasing health care needs. The Iranian healthcare system provided the public services at three levels including primary care level in healthcare networks for provision of basic healthcare services in rural area, and, secondary and tertiary healthcare services in hospitals affiliated to Universities of Medical Sciences at each province [15]. The private sector mainly focuses on secondary and tertiary healthcare in urban areas. [16]. Iran spends between 55% and 80% of their health care budget on hospitals [17-19]. There are 981 hospitals and 129,604 beds in Iran. Approximately 68.5% of beds in hospitals are regulated by the MOHME.

Iranian hospital management positions are unregulated with no specific registration or credential requirements. Competency requirements for health managers have not been clearly established providing limited guidance to the design of formal and informal training and development programs. Although Bachelor, Master, and Doctorate level degrees with a specialization in healthcare management/health administration are in offer together with two informal training programs offered by the MOHME and a private institution around the country, there is no evidence that alumnus and participants have acquired the necessary skills and competences for management. This is largely a result of the unclear focus on management competency development by the informal and formal training. Managers are not often selected on the basis of their capacity and competency, predominantly in the public and sector [20-22].

The review of the bachelor and Master programs in healthcare management/health administration confirms the ad hoc design adopted for developing the teaching and training curriculum without a universal guiding competency framework [21]. Recent studies indicate a huge diversity in terms of overall focus and content requirements amongst the Iranian formal and informal educational programs in health service management and a lack of agreement on the approach taken to management development [22, 23].

Managers are required to demonstrate core competencies consisting of knowledge, skills and attitudes to perform the managerial tasks and fulfill their managerial responsibilities [24]. The need for developing management and leadership competencies in hospitals and accepting management as a recognized profession are constantly reinforced [25, 26]. However, efforts in developing competent health-care managers and leaders have proven insufficient without clear focus and direction [25, 27, 28]. In developing countries such as Iran, hospitals are often administered by clinicians without prior management related training (physicians, nurses and other clinical staff). Hospital administration should be a discipline of its own right, however, most of the managers have not been equipped with required leadership and managerial knowledge and skills.

Studies in other countries have confirmed the poor level of competence demonstrated by hospital managers [21, 25, 27-30]. However, no studies have been completed in Iran to develop understanding of the management and leadership competencies required for hospital managers. To systematically develop the public hospital management workforce, we first need to establish a management competency framework in the Iranian healthcare context.

International literature has confirmed the existence of core management competencies for health service managers [31, 32] with a number of proposed management competency frameworks that can be applied to guide the designing of health service management training [2, 9, 10, 33-37]. Given the context sensitive nature of the management competency [38, 39], competencies identified in other countries and different healthcare settings may not be applicable to hospital managers working in Iran without validation.

In such context, a PhD research has commenced aiming at confirming a set of core management competencies that can guide the development of healthcare organizations management workforce including hospitals in Iran. The first step of the study is to conduct a systematic literature review to develop a better understanding of the characteristics and management competency requirements of healthcare organizations management managers including hospitals as identified in the international literature. The aim of the paper is to present and discuss the findings of the systematic literature review aiming at answering the following questions:

- What are the core management competency requirements for health service managers consistently recognized globally that can be tested in the Iranian healthcare context?
- What are the behavioural items that can be used to demonstrate / measure each of the core competencies?

Methods

Study method

We conducted a systematic literature review between July and December 2018 covering the literature that focused on management and leadership competencies for health service managers and

published between 2000 and 2018. This publication period was chosen because it signaled the significant development in the understanding of management competency in the health sectors [10]. Papers were selected and included according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) [40].

Study inclusion and exclusion criteria

Inclusion criteria:

The following inclusion criteria were used as a guide for searching and screening the articles: 1) articles are published in either English or Farsi language; 2) empirical studies focusing on identifying and the development of management or leadership competencies.

Exclusion criteria:

Publications that did not go through a peer review process, and articles that do not present results of empirical studies such as book reviews, commentaries and opinion articles were excluded from the analysis.

Search strategy and data sources

Five databases were searched, including the PubMed, Web of Science (ISI), Emerald, Scopus as well as Iranian bibliographic - the Scientific Information Database (SID). These databases were chosen because majority of the studies focusing on health service and health service management research are indexed in these databases. The references used in the journal articles included in the final analysis were also screened to identify relevant studies. But the screening of the references did not result in new articles to be included. Google Scholar was also searched for grey literature. The following key words / combination of key words were used to guide the search: (hospital manager* OR hospital management OR hospital leadership OR healthcare leadership OR health service manager* OR health manager* OR healthcare manager*) AND (skill* OR competenc*).

Studies quality assessment

The quality of selected papers was assessed using the mixed methods appraisal tool (MMAT) [41]. The MMAT is effective as it is designed to appraise the most common types of empirical studies including qualitative, quantitative and mixed-methods studies [42]. The MMAT is based on constructionist theory and has already been used by more than 100 systematic mixed study reviews (<http://mixedmethodsappraisaltoolpublic.pbworks.com/>). Two of the review authors (EK, MAZ) independently appraised the included studies based on MMAT. When there are disagreements between reviewers in the studies quality assessment resolved by a third reviewer (MGH)

The assessment process starts from responding to the following two screening questions.

Each included study was then rated in the appropriate category of criteria as either 'yes', 'no' or 'can't tell'. While calculation of an overall score is discouraged, the MMAT provides a more detailed presentation of the ratings of each criterion to better inform the quality of included studies (Appendix 1).

Study selection process and data extraction

After conducting the search, the retrieved papers imported into the EndNote software (V.X8), and then the duplicate papers deleted. Two authors (EK, MAZ) performed the initial screening of article titles and abstract for their relevance to determine articles that warrant full text reading. After screening the studies, the data were extracted in order to meet the research objectives and questions. To this end, a data extraction form was initially designed and tested on 5 randomly selected papers. The form was designed and completed for each article in the Excel software. Two reviewers (EK, MAZ) independently extracted the following information: surname of the first author, years, country of origin, types of study, study objectives, settings, and main findings were extracted on this basis. At this stage, one of the authors extracted the data from the selected articles, and the second author examined the data. When there are disagreements between reviewers in the paper review and selection process, a third reviewer (AJ) was involved to make a final decision.

Data synthesis

Three review authors (ZL, EK and MAZ) independently synthesized the data which was analyzed using the Best Fit Framework Synthesis Method to identify similarities and differences between the literature and the selected Model that details of the studies would map against.[43, 44]. During this process, the papers best meet the topic requirements were selected. Competencies/skills identified in the studies were mapped against the themes, sub-themes of the selected Management Competency Model (MCAP)

The specific study process was guided by the understanding of the relationship between tasks and competencies (Figure 1), as detailed in Liang's study on the impact of health reform on the competency requirements of NSW senior health executives conducted in 2004 [45]. In practice, the confirmation of major tasks of managers (the top of the pyramid) can guide the identification of core competencies required in order to perform these tasks effectively. Each competency consists of set of knowledge, skills and attitudes that are essential for the demonstration of the competency.

Figure 1 insert here

Following the study conducted in NSW, Liang and colleagues completed another study between 2011 and 2015 to identifying the core competencies required for health services managers in Australia together with detailed behavioral items that can measure each of the competencies. As a result, a management competency framework – the MCAP framework was developed and validated [34, 35, 46]. In the present study, the MCAP framework was selected as the primary framework for grouping, comparing and contrasting competencies of health services managers. All competencies extracted from selected studies were compared, contrast and regrouping into the following six core management competencies as included in the MCAP framework:

- Evidence - evidence-informed decision making;
- Resources - operations, administration and resource management;
- Knowledge- knowledge of healthcare environment and the organisation
- Communications - interpersonal, communication qualities and relationship management;
- Leadership - leading people and organisation, and
- Change - enabling and managing change.

We used the MCAP Framework because it is the most recent and fully validated framework on health service managers themselves [35] and the framework includes behaviour items that can measure each of the core management competencies. Using the Best Fit Method, it was expected that the mapping of the identified competencies/skill/behavioral items from the studies against the selected MCAP framework may lead to the confirmation of competencies/skills/behavioral items that cannot fit into the MCAP Framework. As a result revised Management Competency Framework may emerge [43,47] (Table 1). Competencies and behaviors items were initially coded as semantic units. In the first stage, competencies and behaviors items related to the dimensions of the initial model were inserted deductively through explicit analysis.

The research team contacted authors of the MCAP framework to obtain details of the behavioural items for each competency and the possible sub-theme in grouping the behavioural items in each of the competencies. Details of the subthemes for each of the six competencies are listed in the below table. The sub-themes and relevant grouping of the behavioural items are included in Appendix 2.

Table 1 insert here

Stage one: the purpose of this stage is to confirm whether competencies included in the recent studies can be included in the existing MCAP framework. At this stage, each competency identified including its description (in some of the case may not called behavioural items) was compared and contrasted with the relevant competencies in the MCAP framework. The reviewing of the behavioral items simultaneously was an important step as name of the competencies may differ but, the behavioral items or description included are compatible to the MCAP competencies. In such case, they should be included as part of the MCAP framework, rather than being treated as newly identified competencies. In the case that competencies fit into the MCAP framework, but with additional behavioral identified from other studies, these additional behavioral items would be included in the existing competencies in the revised framework.

Stage two: the purpose of stage is to identify any competencies that cannot be emerged into the existing MCAP framework. At this stage, competencies together with the associating competencies identified in the recent studies that have not been included in the MCAP framework are confirmed which would be included in the revised framework to reflect on the most recent findings of management competency requirements for health service managers globally. The above two phases were completed and cross-checked by the first two named authors to ensure accuracy and consistency.

Results

In the initial search, 5316 articles (5206 English and 110 Persian articles) were found in the five selected databases by key word search as explained earlier. The text of 52 studies was read in full and, finally, 11 studies (details are included in Table 2) were selected based on the inclusion and exclusion criteria Figure 2 shows the process of searching and selecting studies and the total number of studies/papers included in each step of the review.

Figure 2 insert here

Characteristics of the 11 included studies

All studies were published between 2003 and 2018. Four studies [22, 36, 48, 49] were conducted in Asia (Iran, China, Thailand and Vietnam), six studies were completed in three different countries: two in the USA [50, 51] , two in Australia [35, 46] and two in South Africa [37, 52], and one study [2] was conducted in Finland.

All of the studies identified included hospital managers as part of their study population such as chief executive officers/Head of hospital, chief operating officer, nursing managers, finance managers, and human resources managers. From a methodological standpoint, 5 studies utilised a qualitative method, 3 studies exploited the mix-methods and the 3 remaining investigations used the quantitative descriptive. The characteristics of the studies included are shown in Table 2.

All included studies have been evaluated for quality to confirm their inclusion for analysis. The qualitative studies met the tool assessment requirements. Among the mixed method studies, two of them did not state the sufficient logic of utilizing this method. None of the cross sectional studies mentioned the sampling methods. Using the MMT tool, the quality of the studies was evaluated (See additional file 1: Tables S1 to S3).

The analysis of the above 11 studies confirmed that the term competency have not been consistently applied to all studies and not all competencies identified in the studies have been provided with detailed description of what behavioural items can be used to measure them consistently. Instead, knowledge, skills, behavioural and competencies were used interchangeable in some of the studies. Without changing their meanings and what they represent, all of these items were carefully considered and put into the right column of Appendix 2 according to their relevance to the subtheme of the MCAP framework. These items are then compared carefully with the behavioural items from the MCAP framework included in the third column from the right. The authors of the MCAP framework was contacted to cross check the accuracy of the step.

The completion of the above steps confirm that vast majority of the behavioral items identified in the studies either fully represented by the MCAP behavioural items or can be included in the exiting MCAP competencies. Although the MCAP framework has merged some items relevant to Professionalism, the previous studies found more items that can also be considered. As a result a new competency 'Professionalism' will be added to the new competency framework to be tested in the Iranian healthcare context. Additional file 3: Table S5 provides details of the MCAP Competencies and behavioral items (grouped into sub-themes), and also all items (including non-behavioral items) identified in other studies. Additional file 2: Table S4 mentioned above provides a summative view of the MCAP behavioral items that have not been fully covered or partially covered by other studies, the items identified from non-MCAP studies that cannot be found within the MCAP framework, and also items that may considered to be added to an additional competency: Professionalism.

Discussion

In the past fifteen years, only handful of studies were conducted to understand the competency requirements of health service managers. This maybe partially due to the fact that health service management competency is a new and an emerging field of study [34], and the concept of competency-based education and training has only been adopted by small number of health service management training programs mainly in the US, UK, Australia and few European countries [35]. However, the systematic literature review completed by the team was able to confirm core competencies required for health service managers to demonstrate globally. These global competencies can be validated and used in countries yet to develop their own management competency framework to guide training and developing their health service management workforce. However, it is worth to note that management competencies are context sensitive, competencies and associating behaviorual items identified in the studies conducted in one healthcare context/country may not be 100% applicable to other healthcare context/countries [35]. For example, behaviorual items in each of the competencies may not be equally important to hospital managers in Australia and Iran. In addition, behavioral items in each of the competencies may not be equally important between different management levels and types of management positions. For example, behavioural items that are important to Executive Directors of hospitals may not be seen as equally important to Director of Nursing if the core tasks they need to perform are different (refer to Figure 1 and explanation earlier).

The mapping of the competencies identified and confirmed in the studies conducted in the past fifteen years using MCAP framework and associating behaviorual items as the guiding framework confirm the following global competency framework (Figure 3) for health service managers which will be validated in the Iranian healthcare context in the next step of the PhD research.

Figure 3 insert here

The six core competencies that have been included in the MCAP framework as detailed earlier in the paper have been well discussed in the literature and agreed by recent studeis. Hence, there is no doubt of their importance to be included as core competenceis for health service managers to acquire in order to perform their managerial responsibilities effectively [11, 35, 53]. Although the MCAP framework did incorporate behavioural items associating with the competency of Professionalism, the systematic literature review and the mapping confirmed the neccessity of including Professionalism as a separate competency for health service managers.

Professionalism defined as “the ability to align personal and organizational conduct with ethical and professional standards that include a responsibility to the patient and community, a service orientation, and a commitment to lifelong learning and improvement” ([54], p 364).

Nowadays, healthcare organizations especially hospitals have adopted a paitent-centred approach. For patients to receiving quality service, health care providers need to maintain high professional and ethical standards, and keep up with the most up-to date knowledge and information. The objective is to monitor and maintain the quality and standards in the performance of managers [9]. Therefore, professionalism requires development in education and training in healthcare services [9, 34, 46, 54].

Managers can access managerial professional development through a variety of ways. There is number of useful mechanisms including formal education at universities in the field of management; in-service training; in-house use of mentors and study groups; offsite intensive training, and seminars and conferences for acheive it [55]. To facilitate managerial development, It has been suggested that

competency-based education and training for health services managers be established and adopted [53].

The proposed framework together with a specific assessment process can be used for promoting, monitoring and evaluating the competence of health service managers, guiding the design of position description, recruitment, and assessing the competency gaps, hence training needs assessment of managers [56, 57]. In addition, this model can serve as a benchmark to educate and empower managers in health care organizations. In a more immediate term, considering the importance of competence-based education in developing health service managers and workforce development, the identification and development of the management competency framework can not only improve the relevance of the existing informal and formal training to health service managers in meeting the management workforce needs of the healthcare industry, but also contribute to the effectiveness and efficiency of health service delivery. In a longer term, the Framework reflects on the competency requirements of the overall health service management workforce providing guidance to developing system and organisation wide strategies in improving the overall workforce competency and preparing the future workforce in meeting the constant challenges and changes facing the health system.

Strengths And Limitations

The review of the literature confirms that this was the first study to systematically identified the competencies of hospital managers based on a validated competency framework. All stages of the research (screening, quality appraisal, data extraction and data analysis) were performed by two researchers independently to ensure its accuracy and consistency. The main limitation of our study was that it did not differentiate the competency requirements by sectors, management levels and positions. Therefore, the Framework recommended may require further validation prior to use for guiding the teaching and development managers when specific context is to be taken into consideration. However, it does provide a generic framework for understanding the overall competency development needs of health service management workforce.

Conclusions

The paper presented findings of a systematic literature review on health service management competency studies, discussed the process and results of the management competency mapping using the validated MCAP Framework as the basis. As a result, a global management competency framework consisting of 7 core management competency is proposed. Whilst the identified management competency studies described diverse characteristics of required competence in hospital managers, the management and leadership competencies required from managers are similar across sectors, management levels and positions. The study supported the findings in earlier studies on the existence of core competencies across various hospital management positions. The seven core competencies identified for hospitals managers provide a very useful guide for revising and developing the current healthcare management training curriculum and to select and recruit candidates appropriate to different management roles. In sum, the development of management and leadership competence will strategically and systematically improve general organizational

performance and essential managerial functions and will guide developing and preparing and competent managers and leaders.

Abbreviations

MOHME: Ministry of Health and Medical Education, PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-analysis PRISMA, SID: Scientific Information Database, MMAT: Mixed methods appraisal tool, PDA: Position description analysis.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Availability of data and materials

All data generated during this study are included in this published article [and its supplementary information files].

Competing interests

The authors declare that they have no competing interests.

Funding

The research was conducted as part of a broader project. The whole project was funded by Tabriz University of Medical Science (IR.TBZMED.REC.1397.909). The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Authors' contributions

EK conducted the design of the review, the screening studies, extracting data, analysing data, assessment of studies quality and writing the manuscript. ZL was involved in review of the literature for this manuscript, interpretation of results and writing the manuscript. MGH was involved in conceptualising the research question, screening studies, extracting data, interpreting data and writing the manuscript. MAZ was involved in the database searches, identification of relevant literature, screening studies, extracting data, interpreting of the data, and preparation of the manuscript. AJ was involved in quality assessment of studies and preparation of the manuscript. BM was involved in interpretation of data analysis, and writing of the manuscript. All authors have read and approved the manuscript.

Acknowledgments

Not applicable

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Tables

Table 1 MCAP competencies vs sub-themes [35]

MCAP Competencies	Sub-themes
Evidence	1-Evidence appraisal 2-Evidence application and decision making 3-Evaluation of decision
Resources	1-Staff management 2-Financial Management 3-Organisation Management
Knowledge	1-Knowledge of healthcare environment 2-Knowledge of organisation 3-Application of knowledge in legal and quality practices
Communications	1-Relationship Management and team work 2-Communication 3-Personal quality
Leadership	1-Leading people and team 2-Leading organisation 3-Leader quality
Change	1-Change preparation 2-Change implementation and evaluation 3-Leader quality in change

(Table 2 Characteristics of included studies (listed in the order of the year of publications

Author,year	Country	Type of participants	Study design	Data collection method	Setting	Number Of Competency
Liang <i>et al.</i> , 2018	Australia	Health Service managers	Mixed-method	Position description analysis (PDA), Focus group discussions and Online surveys	Hospitals and Community health services	6 competencies and 79 behavioural items
Tuong and Thanh, 2017	Vietnam	Hospital managers	Mixed-method	PDA, Survey	Public Hospital	12 competencies and 74 behavioural items
Barati <i>et al.</i> , 2016	Iran	Hospital managers	Qualitative	Interviews and Focus group discussions	Public hospital	8 competencies
LUO et al.,2015	China	Nurse managers	Qualitative	In-depth interviews	Hospital	19 competencies
Kantanen <i>et al.</i> ,2015	Finland	Nurse Managers	Quantitative descriptive	Literature review, Expert panel and Survey	Hospital	12 competencies
Liang <i>et al.</i> 2013	Australia	Hospital Manager at the Middle and Senior Levels	Mixed-methods	PDA, Focus group discussions and Online survey	Hospital	6 competencies
Wongprasit.,2013	Thailand	Hospital directors	Qualitative	In-depth interview	Private hospital	6 competencies and 26 behavioural items
Pillay,2010	South Africa	Senior Nursing Managers	Quantitative descriptive	Review and Survey	Public and private hospital	7 competencies and 51 behavioural items
Pillay, 2008	South Africa	Hospital managers	Quantitative descriptive	Review and Survey	Public and private hospital	5 competencies and 39 behavioural items
Sherman <i>et al.</i> ,2007	USA	Nurse managers	Qualitative	Face-to-face interview	Hospital	6 competencies
Connelly <i>et al.</i> ,2003	USA	Charge Nurse	Qualitative	Interview	Hospital	4 competencies

						and 54 behavioural items
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Figures

Fig. 1 The pyramidal relationship between tasks, roles and competencies [46]

Figure 1

The pyramidal relationship between tasks, roles and competencies [46]

Fig. 2 The process of selection of studies

Figure 2

The process of selection of studies

Fig. 3 Final generated model of management and leadership competence for hospital managers

Figure 3

Final generated model of management and leadership competence for hospital managers

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