

## The status of knowledge management framework for knowledge sharing in healthcare sector, challenges and opportunities in Ethiopia: a systematic review

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### Abstract

*Knowledge is considered as a prime asset of organizations, especially in knowledge intensive organizations like, health sector. However, current status on practices and implementation of knowledge management framework for knowledge sharing practices is still low in healthcare institutions. The aim of this systematic review is to investigate the status of knowledge management framework for knowledge sharing in healthcare sector, challenges and opportunities in Ethiopia. The researcher searched from six databases using keywords such as Knowledge Management in Healthcare sector”; “Knowledge Management Implementation in Healthcare sector”; “Knowledge Management Framework in Healthcare sector and its adoption”; “Current Status of Knowledge Management Framework in Healthcare sector and its adoption”; “Knowledge Management Framework for Knowledge Sharing in Healthcare sector and its adoption”; “Current Status of Knowledge Management Framework for Knowledge Sharing in Healthcare sector and its adoption” and “Technological Based Framework for Knowledge Sharing Practices in Healthcare sector and its adoption”. The researcher included articles published between 2010-*

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*2020; and excluded non-English articles, less cited articles, poor methodology and article with no full text found. 28 articles were reviewed and data were extracted to: (I) current status of knowledge management framework for knowledge sharing in healthcare sectors (II) barriers that prevent knowledge management framework for knowledge sharing in healthcare sectors from attaining the pinnacle in serving its purpose, and (III) available opportunities to be seized for this sector for its full scale development. The major challenges that can affect knowledge management framework for knowledge sharing practices in the healthcare sectors are found limited level of awareness time and security. Beside this challenges knowledge management framework for knowledge sharing practices in the healthcare sectors have opportunities: quality of care cooperation and innovation and medical error reduction.*

**Keywords:** Challenges, Healthcare sectors, Knowledge, Knowledge management, Knowledge management framework, Knowledge sharing practices, Opportunities.

## **INTRODUCTION**

Knowledge is used as source of economy. People depend on knowledge to perform daily activities and largely communicate ideas both at local and international levels for successful execution of routine responsibilities and activities (Ghosh and Mahanti, 2014; Hosseini et al., 2019; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b). According to Haughom (2014) and Adeyelure et al. (2019), solving problems and making informed decisions in healthcare is profoundly dependent on access to knowledge. In today's increasingly complex environment, it is becoming important for healthcare organization's to effectively manage both internal knowledge and externally generated knowledge to provide the best possible healthcare, achieve operational excellence and foster innovation. Knowledge management is a process used by organizations and individuals to locate, store, retrieve, share, adapt, and use of knowledge that supports the organization to achieve its objectives (Karamat et al., 2018). Organizations have now realized

that if they want to survive in the rapidly changing environment, their knowledge must be well used.

Knowledge management comes to beginning in the early 1990s, has potential of attaining greater competitive advantage among their competitors (Wakuma et al., 2017). As defined by Hosseini et al. (2019) Knowledge management is a set of principles, tools and practices that enable people to create knowledge ,to share, translate and apply what they know to create value and improve effectiveness.

Knowledge management plays effective roles in many organizations, such as in healthcare organizations, industries, educational institutions, governmental and business organizations and many more (Ghosh and Mahanti, 2014; Alawneh and Aouf, 2016; Mulate and Gojeh, 2020a; 2016; Mulate and Gojeh, 2020b). Many study's postulated that healthcare delivery is a knowledge driven process and hence knowledge management and knowledge management framework capacity provides an opportunity for improvement in process performance. Application of knowledge management in the healthcare sector does not really differ from other organization. However, the increasing complexity of the healthcare sector makes knowledge management implementation more difficult than other sectors because the three domain of knowledge creation, knowledge normalization and knowledge application correspond to three knowledge management perspectives i.e., personal values, social norms and objective facts, respectively, which have inherent tension between and within them (Wickramasinghe, 2010; Mohajan, 2016; Lee, 2017). Bell et al. (2010) and Alawneh and Aouf (2016) emphasizes that a well-organized and effective strategy for knowledge management in healthcare can help healthcare organization's achieve these goals.

The healthcare sector is increasingly becoming a knowledge-based community that depends critically on knowledge management activities to improve the quality of care. In this knowledge based community the important activity of knowledge management is knowledge sharing, i.e., how to share knowledge to make or produce best benefits to the organization (Dessie, 2017; Lee, 2017). Knowledge sharing is one of the crucial element in knowledge management (Alhalhouli et al., 2014).

Knowledge transfer is process or way is placed on a continuum that is passed from one generation to another. It improves communal

activities and engagements, corporate cognitive experiences and competitive advantage, which includes scientific communications (Ghosh and Mahanti, 2014; Dessie, 2017; Adeyelure et al., 2019; Hosseini et al., 2019; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b). So, having a knowledge sharing culture enables the healthcare sector workers to implement their best practices and generate new ideas and better quality healthcare service can be delivered.

Knowledge sharing among health professionals in healthcare sector is considered to be critical for improving the quality of patient care. In particular, tacit knowledge sharing amongst health professionals, such as the sharing of clinical experiences, skills, know-how or know who, is known to have a significant impact on the quality of medical diagnosis and decisions (Sabeeh et al., 2018). However, the study done by Asemahagn (2014) showed that there is poor knowledge sharing opportunity in the healthcare sector, the more likely healthcare sector professionals to practice knowledge sharing. According to Dessie (2017) healthcare sector should have the culture of knowledge sharing practices to make better use of know-how, experience and skills of their healthcare professionals.

In healthcare sector practitioner's need up-to-date health information from reliable sources to improve their knowledge and provide evidence based healthcare services to their clients. Developing knowledge sharing habits within the organizations is essential for the success of health institutions and their customers by increasing intellectual capital, reducing costs, and making individuals and organizations competitive in their environment (Diriba et al., 2016). These authors revealed that knowledge sharing practices in the hospital is low or in its infancy stage, the possible reasons could be poor information and communication technology infrastructure, resource and poor attention from management and staff, lack of familiarity with information and communication technology, lack of skilled personnel in the field of information and knowledge management. Based on the finding, the study recommend the need to develop knowledge sharing framework

From healthcare knowledge management perspective, it is vital to harness and facilitate tacit knowledge sharing among clinical teams, particularly when they are not always physically co-located but must exchange their critical experiential knowledge (Sabeeh et al., 2018). To

facilitate knowledge sharing in healthcare sector requires development of a proper knowledge management framework, namely one which can ensure that knowledge is manifested into readable form rather than hidden in professional's minds which support the full spectrum of knowledge needs in the medical process has become an important issue for health professionals (Fichman et al., 2011; Pasha, 2012; Zaher, 2016; Wakuma et al., 2017; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b).

Even though knowledge sharing practices among different healthcare sector being acknowledged, globally it is poorly practiced due to lack of organized knowledge management framework (Dessie, 2017; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b). Study conducted in China among referral healthcare services indicated that 61% of hospital doctors rated patient-centered knowledge sharing as very poor practice (Zhou and Nunes, 2016). Another study done in Jordan hospitals revealed that knowledge sharing practice among healthcare workers was 73% (Alhalhoul et al., 2013).

Andualem et al. (2013) opined that in hospitals of resource limited countries, knowledge and experience sharing are poorly practiced. The absence of this essential issue in hospitals is the main cause for the presence of various medical errors such as severe injury, miss diagnosis, wrong treatment, increased multidrug resistance and unexpected deaths. In most of the healthcare institutions healthcare providers simply work by referring to their handouts and remembering their school trainings (Andualem et al., 2013). Knowledge sharing is not taken as strategic part of work process due to the fact that knowledge sharing in healthcare sector is at infancy stage. Few researches are conducted on knowledge management framework in healthcare sector to deliver efficient and effective service for the sector.

Mahmood et al. (2012) proposed healthcare workflow management and information and communication technology Healthcare sectors process of knowledge management involves the ability to identify and capture existing knowledge, create new knowledge and transfer existing knowledge throughout the organization, and mainly emphasizes on the flow of knowledge from one entity to another.

Bordoloi and Islam (2012) had developed and evaluate a framework to understand the impact of knowledge management in the

area of evidence based medicine and interpersonal care. The focus of the framework is limited to the effect of knowledge management activities on measuring effectiveness and quality in clinical patient care.

A study conducted by Alhalhoul et al.(2013) on an updated healthcare sectors to enhance knowledge sharing among stakeholders in Jordanian Hospitals using social networks used interview survey and interviewed randomly selected five doctors, nurses and pharmacists in government, military and private sectors. Furthermore, the study conducted by Shehira (2015) on a contextual framework for improving knowledge sharing among healthcare professionals at St. Peter's hospital. The purpose of this project is to explore the current knowledge sharing practice among health professionals so as to propose contextual framework that enable to enhance knowledge flow in St. Peter's Hospital.

A study conducted by Mitiku et al. (2016) on knowledge management approach and a framework for sharing and acquisition of indigenous knowledge of traditional healthcare practices: the case of Horro Guduru Wollega Zone, Ethiopia. The study was aimed to investigate knowledge management approach for sharing and acquisition of indigenous knowledge of traditional healthcare practice in local communities of Horro Guduru Wollega zone, Ethiopia.

Previous studies conducted in Ethiopia indicated lower level of knowledge sharing practices among health professionals due to several reasons that include: lack of knowledge management framework, lack of opportunity for knowledge sharing, lack of interest to share (openness). The studies also showed that there is lack of formal knowledge sharing opportunities, lack of integrated framework for knowledge sharing with the hospital work process and lack of infrastructures that help to facilitate knowledge sharing practices. The majority of respondents are not motivated to share knowledge and poor management support of the knowledge management activity of the hospital (Amezenech, 2014; Asemahagn, 2014; Mulate and Gojeh, 2020a). Several studies have been conducted on current status of knowledge sharing practices and factors affecting knowledge sharing practices in healthcare sector in Ethiopia but the status of knowledge management framework for knowledge sharing in healthcare sector, challenges and opportunities in Ethiopia have not yet been studied.

Therefore this review is aimed at determining the status of knowledge management framework for knowledge sharing, the barriers as well as the opportunities under the setting of Ethiopia.

### **Review questions**

1. What is the current status of knowledge management framework for knowledge sharing in Ethiopia?
2. What are the barriers that prevent knowledge management framework for knowledge sharing in Ethiopia from attaining the pinnacle in serving its purpose?
3. What are the available opportunities to be seized for this sector for its full scale development?

## **METHODOLOGY**

### **Search Strategy**

The researcher conducted a systematic review of published articles on knowledge management framework for knowledge sharing. The researcher searched the published articles from electronic databases: PubMed/Medline, EMBASE, Scopus, Web of Science, journal articles, conference papers, dissertations and theses works. Accordingly, Science Direct, Scopus, IEEE Explorer, ACM Knowledge, AIS eLibrary, Yahoo sites, Springer, Elsevier, Google Scholar, Emerald and other websites was searched using key terms for English articles without restricting publication year. Sensitive search strategy was used by combining a keywords: “Knowledge Management in Healthcare sector”; “Knowledge Management Implementation in Healthcare sector”; “Knowledge Management Framework in Healthcare sector and its adoption”; “Current Status of Knowledge Management Framework in Healthcare sector and its adoption ”; “Knowledge Management Framework for Knowledge Sharing in Healthcare sector and its adoption ”; “Current Status of Knowledge Management Framework for Knowledge Sharing in Healthcare sector and its adoption ” and “Technological Based Framework for Knowledge Sharing Practices in Healthcare sector and its adoption ”.

The key search strategy terms designed like: “Knowledge sharing framework in healthcare sector” were included in the search strategy not to miss out fundamental articles because it is a practice,

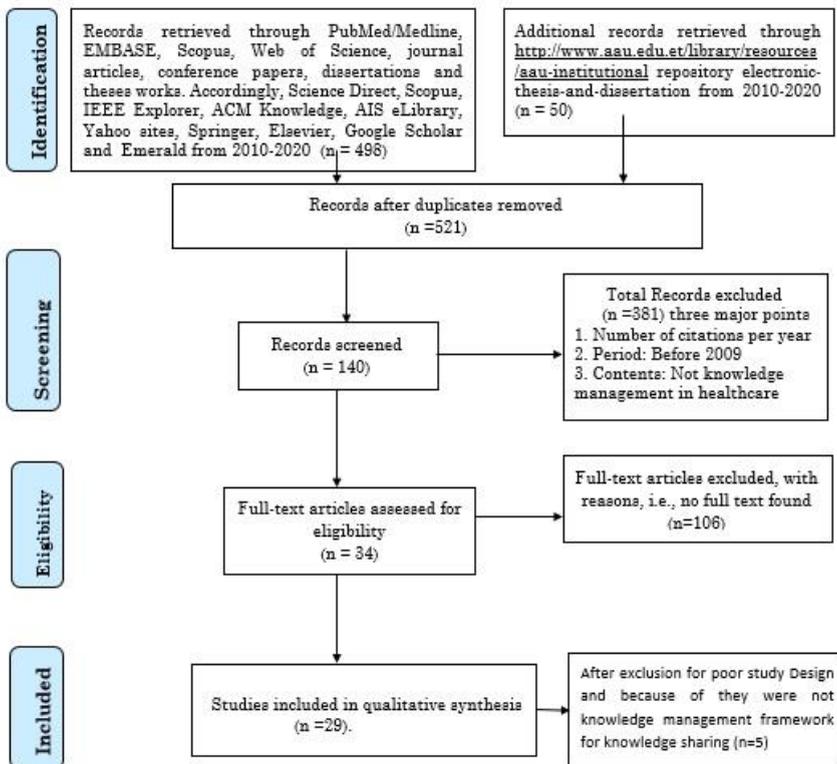
which is paramount in healthcare sector for sharing and managing knowledge. As an example, for PubMed Central database, the detailed search with a key term “Current Status of Knowledge Management Framework for Knowledge Sharing in Healthcare sector ,Challenges and Opportunities in Ethiopia” was done in such way:-(“current status of knowledge management framework for knowledge sharing in healthcare sector , challenges and opportunities in Ethiopia “[MeSH Terms] OR (“current”[All Fields] “status” [All Fields] “of”[All Fields] “knowledge”[All Fields] “management”[All Fields] “framework” [All Fields] “for”[All Fields] “knowledge”[All Fields] “sharing”[All Fields] “in”[All Fields] “healthcare” [Health Journals] “sector” [All Fields]) “challenges” [All Fields] “and”[All Fields] “opportunities” [All Fields] “in” [All Fields] AND “ Ethiopia” [All Fields]) OR (“current status of knowledge management framework for knowledge sharing” [health Journals] “in healthcare sector” [health Journals]) AND “challenges and opportunities in Ethiopia” [health Journals]. Addition, the researcher searched electronically available grey literature through Google Scholar, Ethiopian journal of health sciences, American Journal of Health Research and the bibliography of key included studies.

For the three open source journals; namely, Ethiopian journal of health sciences, BMC Health Services Research and American Journal of Health Research, hand searching was employed by accessing the archived journal issues from their respective official websites. Therefore, published articles on healthcare sector were downloaded selectively because these journals address knowledge management in various sectors besides healthcare.

To identifying the resources to be used for the systematic review the following steps was involved such as searching, screening, eligibility for inclusion or exclusion. Searching was conducted using the aforementioned key words by the author independently mentioned above. Duplicates was removed using Mendeley. The total 548 resources was searched from different database by using the above key term designed for search strategy and then the collected records was screened to eliminate non-relevant records by reading the title, abstract and finally the full text based on the set inclusion and exclusion criteria.

After the screening activity must have been completed, the selected articles/resources was checked for completeness and retained

for the review work. Finally, the published articles and the unpublished articles such as dissertations /theses was found to be eligible or not for the systematic review with the agreement of the author. Finally, 29 articles were found eligible for the present review with the agreement of researcher, and then information abstraction from the findings of the selected articles was performed to produce the systematic review article. The different steps developed in this research on 29 articles, the bibliometric analysis highlighted the following characterization of the database using the following categories: 1) year of publication; 2) author of the article; 3) Journal; 4) article type; 5) methodology of the article; 6) main findings of that work also included. To this end, PRISMA flow chart/diagram was used to produce the systematic review article. Therefore, the steps to be followed are depicted in figure 1 below being the PRISMA flow chart/diagram.



**Figure 1: PRISMA Flow diagram for study selection**

### **Study Inclusion and Exclusion Criteria**

The researcher searched for the keywords “knowledge management framework for knowledge sharing in healthcare sector” in six electronic databases (Medline, Cinahl, Ethiopian journal of health sciences, BMC Health Services Research, American Journal of Health Research and Health Source: nursing/academic edition) for nearly a 10-year period of time (2010 to 2020). The researcher chose these databases because they are healthcare-focused. All articles were reviewed independently for inclusion by one researcher. The study employed the following inclusion criteria: peer-reviewed English-language publications, original papers on knowledge management framework for healthcare sector, articles focused on healthcare framework services improvement and potentially relevant to the research questions raised above. Publications before 2009 and after 2020 were excluded by limiting the search to ten years. Published articles in languages other than English were excluded. In addition the studies were excluded when key outcome variables not reported.

The abstracted information was categorized based on the themes identified to be addressed, namely implementation of knowledge management in healthcare sector, knowledge management framework in healthcare sector, current status of knowledge management framework for knowledge sharing in healthcare sector, opportunities and challenges of knowledge management framework for knowledge sharing in healthcare sector.

### **FINDINGS SECTION OF THE REVIEW**

The search activity returned a total of 548 records of which 27(4.9 %) were excluded after reading just the titles because of the duplicates items. After reading the abstracts, 381(69.5 %) articles were excluded because of the fact that number of citations per year, period: before 2009, contents: they were not on knowledge management and/or on knowledge management of other sectors. Out of 140 records screened 106 (19.3%) full-text articles excluded, with reasons due to duplication and also since full texts could not be obtained for some. As depicted in the above figure 1, 34 full-text papers assessed for eligibility. Based on the quality of the study designs, 29 (5.3 %) were selected for full review (See Figure 1 above), though the 29 studies included two low quality

design studies due to the nature of the information provided by these studies. However, 5(0.9%) of full texts record was excluded due to poor study design and because of they were not knowledge management framework for knowledge sharing.

The findings are categorized under four main headings; namely: I) Implementation of knowledge management in healthcare sectors; I) knowledge management framework in healthcare sectors; III) current status of knowledge management framework for knowledge sharing in healthcare sectors; IV) opportunities and challenges of knowledge management framework for knowledge sharing in healthcare sectors. Accordingly, under the first heading, knowledge sharing; knowledge sharing in healthcare sector and knowledge sharing mechanisms in healthcare sectors are the themes identified, as these are the forms in which knowledge management is used in healthcare. Under the last theme, basically illustrated opportunities and challenges of knowledge management framework for knowledge sharing in healthcare sectors. For instance, knowledge sharing implementation requires knowledge management framework and fast and efficient knowledge sharing for informed decision making in healthcare sectors is impossible without knowledge management framework implementation in healthcare sectors, these themes are presented below. Below table 1 shows that the reviewed articles for those four theme listed above.

**Table 1: Key findings on current status of knowledge management framework for knowledge sharing in healthcare sectors and opportunities and challenges.**

Year	Author(s)	Journal	Article	Methodology	Main findings
2010	Martin et al.	Swiss medical weekly	Article	literature review	The most common outcome measures included clinical, social utilisation of medical services.
2010	Ryan et al.	Informing Science	Article	Using knowledge-based view	Results support that a healthcare sectors of core organizational knowledge sharing practices enable to deliver quality services.
2011	Acharyulu	International Journal of Innovation, Management & Technology	Article	Empirical literature review on healthcare KM	Utilizing KM systems to manage medical information and health care knowledge to support the full spectrum of knowledge needs in all the departments of health care organizations.
2012	Mahmood et al.	International Journal of Computer Applications	Article	Health ontology	Health information system improves the access to the patient data & facilitates decision making process in least amount of time.
2013	Alhalhouli et al.	Middle-East Journal of Scientific Research	Article	Conducted an interview survey	This study had proposed a conceptual healthcare sectors for knowledge sharing based on TPB and TAM and this result comes from several steps.
2014	Alhalhouli et al.	International Journal of Computer & Information Technology	Article	Conducted questionnaire survey	The results from survey indicated factors influence knowledge sharing practice behaviors of stakeholders, 12 out of the 14 proposed hypotheses are supported.

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2014	Asemahagn	BMC health services research	Article	A cross sectional study design complemented with qualitative method	Majority of the respondents acknowledged the need of health information to their routine activities.
2014	Gebretsadik et al.	American Journal of Health Research	Article	Cross-sectional study design	Healthcare professionals are the knowledge creators within the hospital and the produced knowledge should be translate into organizational knowledge; this requires effective KS management & KS practice.
2014	Jabar et al.	Knowledge Management International Conference	International Conference	Cardiothoracic patients in hospitals	Finally, this study will be carried on in future to produce a conceptual framework and validate it in selected case studies.
2014	Tabrizi &Morgan	International journal of management & applied research	Article	Review on the current healthcare sectors	This study provide the organizations and policy makers with a framework to the better understand KS practices from different perspectives.
2015	Mkhize	South African Journal of Information Management	Article	Applied techniques of grounded theory analysis	Findings revealed that the informal sharing of knowledge takes place in discussion forums within communities of practice through web-based, socially orientated platforms.
2015	Muda & Yusof	Scientific Journal Of PPI-UKM	Article	Qualitative approach	The finding discovered that KS framework according to the jurisdiction of IHLs. Such a framework could serve as a guideline for future planning in setting up knowledge sharing initiatives, particularly among lecturers later.
2015	Shehira	<a href="http://www.aau.edu.et/library/resources/aa-u-institutional">http://www.aau.edu.et/library/resources/aa-u-institutional</a>	Thesis	A facility based quantitative and qualitative study with cross sectional study design.	The study St.Peter's hospital shows that most of healthcare professionals are aware of the importance of KS and have appropriate personality for knowledge sharing but they are not engaged in knowledge sharing frequently. So the hospital administration should plan a way to strengthen KS practice by improving the identified contextual factors by implementing framework.
2016	Arshad et al.	International Conference on Information & Communication Technology for The Muslim World, IEEE.	International Conference	Empirical literature review	A comprehensive analysis emphasizes that there is always an opportunity to improve and enhance the way the knowledge is handled in healthcare organizations.
2016	Ayodele et al.	In Proceedings of the UMP-NCON conference	Article	An extensive review on the barriers and motivations influencing knowledge sharing	The theoretical findings show that four barrier & motivation factors influence knowledge sharing among the non-academic staff of University. An effective KS process among the non-academic section of the University will benefit both the individual non-academic staff and the university at large.
2016	Diriba et al.	Journal of European Academic Research	Article	A cross-sectional research design	According to the qualitative research result the most of the interviewees have limited idea about KS practices. In addition, 89 % of health professionals said there is no knowledge sharing strategy.
2016	Li-Ying et al.	Journal of nursing management	Article	Multi-source survey study	Different aspects of KS affect innovation, depending on the strength of the control of care quality within the unit.
2016	Nebiyu	<a href="http://www.aau.edu.et/library/resources/aa-u-institutional">http://www.aau.edu.et/library/resources/aa-u-institutional</a>	Thesis	Object oriented system development methodology	Storing knowledge, discussion on a specific topic, retrieval of stored knowledge, locating health professionals as well as health care institutions were also the major functionalities. The newly designed system is enabled reliable, adequate

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					performance, security features and attractive as well as easy to use user friendly interface
2016	Kansakoski	Informaatio tutkimus	Article	Qualitative methods such as Interviewed and document analysis	The study findings indicate that the patients' and families' role in the IKPs is fairly healthcare sectors. Families are mainly involved in the process of information collection and they are receivers of the information and knowledge use of professionals. Shared decision making would require more knowledge sharing.
2016	Mitiku et al.	Universal Journal of Public Health	Article	Descriptive analysis style using qualitative analysis methodology	The results of th study proved that the local communities shared indigenous knowledge of traditional healthcare by using traditional knowledge practices in socio-cultural events. Study was identified some factors like poor KS culture, lack of trusts, political dimensions or social status, poor recognition of indigenous knowledge.
2016	Mohajan	American Journal of Social Sciences	Article	Systematic review on procedure that maps out the processes, approaches by using secondary data.	The paper basically discussed telemedicine and information technology across healthcare sectors. Nursing contributes an important role to improve the quality of healthcare. So, KM is an essential issue in nursing profession.
2016	Zaher	The JF Oberlin journal of b American Journal of Social Sciences business management studies	Article	A case study	Using technology is essential in facilitating this pathway of diagnosis and treatment and also to ensure that the flow of information is sustainable and traceable. So that other practitioners can also be able to follow through. In this way, knowledge is shared in an open space
2017	Al-Madi	Staffordshire University library	Dissertation	The survey was based on a mixed approach combining both questionnaires and interviews (i.e. quantitative and qualitative approaches).	New knowledge management framework is proposed as a way to reduce the information overload problem outlined in the analyzed results of the primary research.
2017	Betelehem	<a href="http://www.aau.edu.et/library/resources/aa-u-institutional">http://www.aau.edu.et/library/resources/aa-u-institutional</a>	Thesis	A facility based cross sectional mixed qualitative and quantitative	ICT is one of an independent predictor for KS. Based on the findings of the study a framework that support the knowledge flow process was proposed.
2017	Dessie	American Journal of Health Research	Article	Institutional based cross-sectional quantitative study supported with qualitative	The main determinants of KS practices are access to ICT infrastructure, familiarization available technologies, trust between staff and knowledge sharing opportunity.
2017	Karamitri et al.	International journal of health planning and management	Article	Systematic literature search	Opportunity for collaboration and knowledge sharing should be encouraged. Successful KM should be patient-centered to gain its maximum value.
2018	Sabeeh et al.	Cognition, Technology & Work	Article	Qualitative approach of in-depth interview technique	Findings resulted stated that successful knowledge-sharing activities & learning initiatives in the healthcare organization.
2020a	Mulate & Gojeh	Universal Journal of Management	Article	Cross-sectional research method	The study concludes that there were variations in the opinions of the categories of health professionals on the current status and factors

					affecting knowledge sharing practices in the hospital.
2020b	Mulate & Gojeh	European Academic Research	Article	Design science research method	Result showed that knowledge management framework was not available in the hospital for use by all categories of health professionals that included - nurses, doctors, radiologists, health officers ,pharmacists and laboratory technologists; all categories of health professionals variously had mixed opinions on individual, organizational & technological factors that influence their knowledge sharing practices.

### **I) Implementation of knowledge management in healthcare sectors**

Knowledge sharing is one of the most important components in knowledge management process. Also considered knowledge sharing as a crucial process between a source and a recipient within organizational setting and as a vital means for achieving collective outcomes as part of the work requirements (Pasha, 2012; Alhalhouli et al., 2014; Mkhize , 2015). Moreover, knowledge sharing is necessary for adapting, extending and creating new knowledge and innovation which can result in the establishment of knowledge repository (Mohajan, 2016; Muda and Yusof, 2015; Ayodele et al., 2016; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b).

Knowledge sharing is the key to healthcare organization for patient care. Once knowledge is created there is healthcare quality that results from its sharing because more than one individual can use knowledge at the same time and shared knowledge stimulates the creation of new knowledge (Ryan et al., 2010). The healthcare sector is a knowledge rich community which deals with patients’ lives and wellness. Losing the opportunity of having the right knowledge at the right time can lead to medical errors. Therefore, knowledge sharing is crucial in healthcare sector (Tabrizi and Morgan, 2014).

Effective knowledge exchange between patient, nurses and physicians is essential in providing safe and effective care, as poor communication represents a major etiology of preventable adverse events in hospitals. Poor knowledge sharing between healthcare professionals has a negative impact on the provision of healthcare and on patient outcomes. The consequences reach far beyond stress and frustration levels experienced by professionals; they can result in adverse events such as medication errors and failure to rescue patients (Martin et al., 2010).

Knowledge in healthcare is considered as an essential asset to achieve better results for transferring and generating knowledge within a healthcare organization. In healthcare sectors, healthcare environments, efficient healthcare referral services are indispensable for the provision of high quality, patient centered healthcare services. Healthcare organizations depend on employees' knowledge sharing behavior to increase their competitive advantage and value. Health information sharing between patients and their healthcare providers may improve diagnoses, increase patient education and promote self-care (Mohajan, 2016).

Knowledge sharing mechanisms is defined as the formal and informal mechanisms for sharing, integrating, interpreting and applying know-what, know-how and know-why embedded in individuals and groups that will aid in the performance of organizational tasks. If knowledge is shared through personalization mechanism, it is closely tied to the person who developed it and shared through direct person-to-person contacts. If knowledge is shared through a codification mechanism, knowledge is carefully codified and stored in databases and documents, where it can be accessed and used easily by employees in the company. A codification strategy attempts to document the parts of experiential knowledge that can be made explicit (i.e. it can be written down), thus detaching it from the individual employee and making it available to others in a codified form. Other employees who encounter similar situations can refer to and apply this document learning experiences whenever appropriate without direct contact to the expert (Karamitri et al., 2017).

Li-Ying et al. (2016) identified four mechanisms for sharing of individual knowledge within healthcare sector. The first mechanism is contributing knowledge to the hospital databases; in this case every employee contributes their ideas, information and expertise to the hospital database. The second is sharing knowledge in formal interactions within or across teams or work units or across employees working in different teams, departments and divisions. Meeting is one example of sharing knowledge through formal interactions. The third mechanism of sharing knowledge is sharing through informal interactions. In this case employees share their knowledge with each other through chat, telephone and the like. The final mechanism of knowledge sharing is, establishing community of practices (i.e.,

voluntary forums created around a particular topic of interest). Community of practices enables employees within the hospital to communicate in topics of interest. It is informal structure and can be extended beyond hospital boundaries. In other study Diriba et al. (2016) postulated various types of mechanisms to share knowledge and experiences health professionals showed their preferred way to share knowledge they need during work. This author reported that respondents indicated the mechanisms to share knowledge in the hospital are/ through face to face interaction encompass (review meeting, training, team work, workshop, community of practices) written documentation review, telephone and web based application.

As organizations, healthcare institutions face similar challenges that many other nonprofit and for-profit organizations face as they seek to create, capture, store and share information and knowledge among people within the organization. Despite decades of effort by governments and nations of the world, there is still much to do in decreasing and eliminating health related problems especially in developing countries. According to Sabeeh et al. (2018) knowledge is now being seen as the most important strategic resource in healthcare sector and the management of this knowledge is considered critical to healthcare sector success.

Knowledge management can assist healthcare organizations to become viable by giving healthcare information context, so that other healthcare providers can extract knowledge and not just information. Knowledge management in healthcare sector is aligning peoples, processes, data and technologies to optimize information, collaboration, expertise and experience in order to drive organizational performance and growth (Acharyulu, 2011).

Gebretsadik et al. (2014) stated that organizations working in global health often have two types of useful knowledge to share. The first type is knowledge related to the various typical areas of health for example, family planning and reproductive health. The second type is knowledge of a particular functional area that supports health goals for example; policy and advocacy, behavioural change communication or service delivery. The management of this knowledge help healthcare sector. In addition, Dessie (2017) postulated that healthcare organizations should have the culture of knowledge sharing practices to make better use of the know-how, experiences and skills of their

healthcare professionals. Effective knowledge management enables the healthcare organizations to reach their goals. In healthcare sectors health care the empowered patients are active partners, whose preferences, needs and values should be taken into account. Shared decision making aims at involving the patient and the health professionals as equal partners in care (Kansakoski, 2016).

Knowledge management is becoming an established discipline with many applications and techniques, its adoption in healthcare has been challenging. Although the growth trend of this sector along with implementation of Knowledge management framework have shown some notable achievements but it is still lacking the expectations with respect efficiency and effectiveness (Gebretsadik et al., 2014; Shehira, 2015; Diriba et al., 2016; Mitiku et al., 2016 ; Dessie, 2017, Mulate and Gojeh ,2020a).

## **II) Knowledge management framework in healthcare sectors**

Knowledge management framework is information technology based systems and they is developed to enhance and bring effectiveness in organizational processes of knowledge creation, storage, sharing and application. Many knowledge management components depend on information technology as core enabler. Current progress in information technology enhances knowledge management capabilities that were not possible before (Al-Madi, 2017). Jabar et al. (2014) proposed implementation of knowledge management framework must be constructed based on a structure which presents plan on how to apply Knowledge management.

The healthcare sector is characterized by a collective of diverse specialists working in specific environments towards a collaborative goal of quality patient care. The poor access of knowledge is detrimental to the goals of the healthcare sector to provide quality care using innovation to reduce costs and improve patient care. Using knowledge management framework can improve performance by helping knowledge workers who deal with the fragmented knowledge that exists in medical environments. Knowledge in healthcare sector is derived from patients, clinicians as well as external sources. Medical knowledge is highly dynamic, while healthcare sector depend on evidence based medicine practice, the inability to share knowledge can be detrimental to the achievement of the goals of using innovative

therapeutic treatments to provide quality care to patients through effectively using the abundant knowledge in the healthcare sector (Zaher, 2016).

The ultimate goal of the healthcare sector is to improve patient care in the communities that they are service. To reach the outcome of effective patient care, healthcare providers must access the knowledge about the patient and then use the right equipment to manage the patient. Using technology is essential in facilitating this pathway of diagnosis and treatment and also to ensure that the flow of information is sustainable and traceable so that other practitioners can also be able to follow through. In this way, knowledge is shared in an open space (Zaher, 2016; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b).

Studies postulated that many research has been conducted regarding knowledge management framework in various fields of studies but the healthcare sector is still lacking a considerable amount of research and literature with respect to effective knowledge management framework (Arshad et al., 2016; Mulate and Gojeh, 2020a). Healthcare is a knowledge driven process. Recently, the healthcare sector has begun to deal with the systematic management of knowledge. Knowledge management framework can assist healthcare organizations to become viable by giving healthcare information context (Mulate and Gojeh, 2020a). Knowledge management framework for knowledge sharing in healthcare sector enhance two ways of communication process that takes place among health practitioner and between a patient and health practitioners (Mahmood et al., 2012; Alhalhoul et al., 2013; Shehira, 2015; Zaher, 2016; Mulate and Gojeh ,2020a; Mulate and Gojeh, 2020b).

### **III) Current status of knowledge management framework for knowledge sharing in healthcare sectors**

Studies postulated that many research has been conducted regarding knowledge management framework in various fields of studies but the healthcare sector is still lacking a considerable amount of research and literature with respect to effective knowledge management framework (Arshad et al., 2016; Mulate and Gojeh, 2020a). Healthcare is a knowledge driven process. Recently, the healthcare sector has begun to deal with the systematic management of knowledge. Knowledge management framework can assist healthcare organizations to become

viable by giving healthcare information context (Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b). Knowledge management framework for knowledge sharing in healthcare sector enhance two ways of communication process that takes place among health practitioner and between a patient and health practitioners (Mahmood et al., 2012; Alhalhoul et al., 2013; Shehira, 2015; Zaher, 2016; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b).

Regarding with the current status of knowledge management framework for knowledge sharing in healthcare sectors to determine whether health professionals around the world are using knowledge management framework for knowledge sharing in their hospital, review was conducted on 29 full text articles. Regarding with presence of organized knowledge management framework for knowledge sharing as one part of daily work process, the vast majority of published articles was used for systematic reviews , 24(82.8%) of the paper proved that there is no organized knowledge management framework for knowledge sharing in the hospital. However, 5(17.2%) of the paper verified that there is knowledge management framework for knowledge sharing in the hospital. From the result it can be concluded that the presence of knowledge management framework for knowledge sharing in the world were not good.

#### **IV) Opportunities and challenges of knowledge management framework for knowledge sharing in healthcare sectors.**

##### **Opportunities**

###### **Medical error reduction**

Knowledge management is able to assist in medical errors reduction, and consequently their cost, by providing a decision support for practitioners (Alhalhouli et al., 2014). Already, knowledge management has been recognized as a tool used to cut the medication prescription errors; some cases report error reductions as high as 55% (Alhalhoul et al., 2013; Shehira, 2015; Zaher, 2016; Mulate and Gojeh, 2020b).

###### **Cooperation and innovation**

In a complex field such as the health care, cooperation between the different health care providers is vital in order to deliver quality of care

(Alhalhoul et al., 2013). Studies have shown that lack of cooperation in health care is a leading cause of many medical mistakes, hence the need for coordinated inter-professional care strategy (Alhalhouli et al., 2014; Mohajan, 2016; Muda and Yusof, 2015). Thus, cooperative diagnosis can be achieved by the health care actors via the implementation of knowledge management systems (Mahmood et al., 2012; Alhalhoul et al., 2013). Besides, cooperation is a chance for innovation; this has been recognized by researchers and resulted in the creating of knowledge transfer networks (Karamitri et al., 2017; Diriba et al., 2016; Kansakoski, 2016). Furthermore, the health sector is a innovation driven field, hence management of clinical knowledge using paradigms such as distributed knowledge management (Alhalhoul et al., 2013; Arshad et al., 2016; Zaher, 2016; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b) becomes paramount. In this perspective, innovation facilitation methodologies (Martin et al., 2010; Jabar et al. ,2014; Mohajan, 2016; Al-Madi, 2017; Karamitri et al., 2017; Mulate and Gojeh, 2020b) as well as the analysis of knowledge flow barriers, in teams and organizations, should be tackled (Alhalhoul et al., 2013). Finally, discovering knowledge sharing mechanisms and organizational factors that influence them is essential for cooperation and innovation (Zaher, 2016).

### **Quality of care**

Enhancing the quality of care is a major objective in all health research; therefore, finding, sharing, collaborating, and developing clinicians' knowledge is necessary to discover and develop knowledge and hence quality of care. The adoption of knowledge management techniques is capable of enhancing the quality of care as suggested by (Shehira, 2015; Mitiku et al., 2016; Nebiyu, 2016; Betelehem, 2017; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b).

### **Challenges**

Application of knowledge management framework for knowledge sharing in healthcare sectors in health care is facing several major challenges, some of which are proper to the nature of the health care sector are, system and policy ,awareness ,technology , information security ,reward and recognition ,work environment, job security leadership, culture, structure, time, skill, and expertise, as well as

external challenges including social, political, legal, and economic have been considered as enabling or obstructing the knowledge management framework for knowledge sharing healthcare sectors. The basic challenge remains the awareness of the importance and the potentials of knowledge management framework for knowledge sharing in healthcare sectors. Once knowledge management is recognized as an organizational and practical asset, a knowledge management strategy is needed (Gebretsadik et al, 2014; Zaher, 2016; Li-Ying et al., 2016; Dessie, 2017; Karamitri et al., 2017, Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b).

Once the strategy is in place, change management should be planned for in order to establish a knowledge management adoption culture in the workplace and find knowledge management champions among practitioners to facilitate knowledge management adoption (Shehira, 2015; Diriba et al, 2016; Mitiku et al., 2016; Nebiyu, 2016; Betelehem, 2017; Mulate and Gojeh, 2020a; Mulate and Gojeh, 2020b). Any knowledge management initiatives should take account to both people and technology. A powerful knowledge management tool won't probably thrive if concerned individuals are not committed in its use. And reciprocally, employees highly motivated to adopt knowledge management could lose their motivation if the tools supporting knowledge management have low usability or do not provide relevant features. In highly competitive businesses, an efficient knowledge management can make the difference between success and failure; nevertheless, knowledge management is neither fad nor cure-all, rather it should be integrated in the organization culture. Consequently, usability is a major challenge that is facing knowledge management in healthcare; especially that health care professionals are working in a stressful environment and are stretched in time. Any non-usable, non-human centered design is detrimental to knowledge management endeavours.

Different studies including Asemahagn (2014), Dessie (2017), Mulate and Gojeh (2020a) pointed out those challenges or obstacle that affect the main core components of knowledge management such as knowledge sharing the hospital in their research. Mulate and Gojeh (2020a) and Mulate and Gojeh (2020b) for example classified them in to four as human oriented (individual), organizational, technological, and management, grouped them as internal or organizational factors

and external or environmental factors. Apart from their level of influence in any way, all these challenges could also affect KM in the healthcare sectors context as well.

### **Awareness**

A fundamental part of knowledge management framework in healthcare sector is to spread and make knowledge accessible and usable. Knowledge which is not shared and used or applied for a specific purpose is useless. Awareness among individuals is the first phase of knowledge sharing initiative in healthcare sectors. Awareness is defined as the degree to which an employee aware of the importance of knowledge sharing and benefits he/she could gain from the sharing. The awareness about the importance of knowledge sharing considered as an attitude that every employee should have including the top management. Healthcare organizations at unawareness phase does not realize the contribution of knowledge against their competitors. A study conducted Among Health Care Workers at Public Hospitals in North Shoa, Amhara by (Dessie, 2017) and the study conducted in Harar Hiwot Fana Specialized University Hospital by (Mulate and Gojeh 2020a; Mulate and Gojeh, 2020b) about knowledge sharing, barriers to knowledge sharing, and strategies to promote knowledge sharing. The results show that most of the respondents agreed that there is a knowledge sharing strategy and there is a growing awareness of the benefit of knowledge sharing in the organization.

### **Security**

One of the most critical knowledge healthcare sectors organizations seek to have is the knowledge about other healthcare sectors to get experience. In the same manner they exert their best effort to secure their own capabilities and vulnerabilities. Security involves actions taken to counter threats and vulnerabilities during all steps of the knowledge management process in that healthcare to secure patients information access from unprivileged person. Security activities include encryption of data at rest, granting access to information on a need-to-share basis, and using secure, authorized processes to disseminate and display information. Security ensures the confidentiality, integrity, and availability of information traversing networks and residing on information systems from the time it is

collected, processed, and stored until it is discovered, distributed, and used by the users, systems, and decision makers. Therefore security is one of the most critical requirements for the healthcare sectors, when knowledge and knowledge management is concerned. Now a day's one of the big challenges of knowledge management framework for knowledge sharing in healthcare sectors is security. That means knowledge management framework for knowledge sharing does not stand alone without security, because in the hospital or healthcare sector keeping confidentially the patient information is one of the major tasks beyond delivering better service to patients (Mulate and Gojeh, 2020b).

### **Time**

Time is also critical for healthcare sectors. Healthcare sectors need knowledge and expertise to be available immediately when needed in order to respond properly to emerging patient's injury and challenges. Modern healthcare sectors relies on information from many sources that must be assessed and compiled for immediate use. Decisions are made in each and every minute in healthcare sectors when emergency happen. When knowledge is timely available, it will enable the health professionals to develop an understanding of the situation, make good decision, and implement them faster to respond for patient's case. Otherwise, slight delay could have a devastated effect that couldn't be reversed. Time is one of the distinctive characteristic of the healthcare sectors organization. Therefore, healthcare sectors require knowledge management framework for knowledge sharing in the hospital healthcare sectors that match the patient's treatment of operations(Mulate and Gojeh, 2020b).

Many studies revealed that delivering safe and high quality services to patients is highly dependent on sharing the following types of knowledge, i.e. medical knowledge, scientific knowledge, incident knowledge and experience knowledge with in the appropriate time when it is needed. Medical knowledge is defined as the required information for diagnosis and treatment. Scientific knowledge is about applying research findings in practice. Incident knowledge refers to learning from medical errors. Finally, experience knowledge refers to experienced healthcare providers educating the less experienced practitioners about the best practices and procedures. Failure to share

the aforementioned knowledge types with time can impact patient safety. Thus, all these types of knowledge require attention in order to create environment to improve the quality of healthcare services. 48% of patient's case were most likely preventable if the right knowledge was applied with the write time. The conclusion drawn from the studies was that the under-utilization of healthcare knowledge and time delay to respond to the case contributes to incorrect clinical decisions, medical errors, sub-optimal utilization of resources and high healthcare delivery costs. Figure 2, below depicted knowledge management framework for knowledge sharing in healthcare sectors with their influence / challenges.

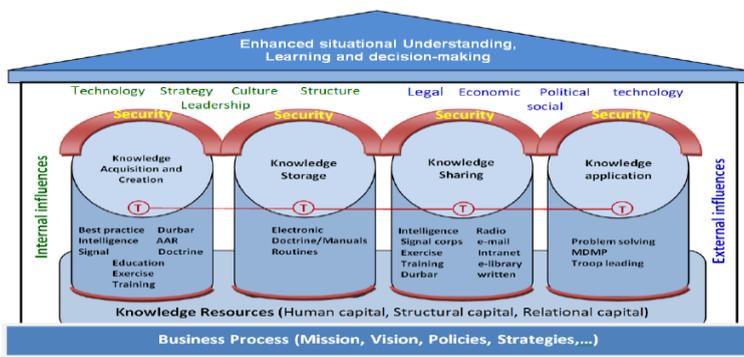


Figure 2: Conceptual knowledge management framework for knowledge sharing in healthcare sectors and their challenges

## DISCUSSION AND CONCLUSION

The healthcare sectors has no designated manager and structure for administering knowledge management. However, despite the absence of the designated structure, it is observed that the existing structure facilitates information flow in all direction in most part due to the strong organizational culture that promotes knowledge sharing in the healthcare sectors. The organization utilized different methods and tools for knowledge sharing. Some of them are specific to the patient treatment domain and some are common in the business world. Some of the major patients treatment specific units the healthcare sectors uses to share knowledge in the medication process include intelligence and decision support system. However, it has been known that the

organization doesn't properly utilize information and communication technology to support knowledge sharing among its employees. The existing information and communication technology infrastructure does not meet the needs of individual users for knowledge sharing and the use of technology-based tools for knowledge sharing is limited to some areas in the organization. Therefore non- information and communication technology tools are mostly used for knowledge sharing than the information and communication technology based ones. The organization also has limitations in the utilization of databases to store policies, manuals, procedures and other organizational resources, in the provision of education and training opportunities in knowledge and knowledge management, as well as encouraging social networks in the organization.

Similarly, in response to this, organizational challenges that abort the practice of knowledge management framework for knowledge sharing in healthcare sectors as enablers or impeters, and additional knowledge management framework requirements critical to the healthcare sectors context have been identified from literature.

As organizational requirements are concerned, the major challenges that can affect knowledge management framework for knowledge sharing practices in the healthcare sectors are found to be lack of system and policy that support knowledge sharing, limited level of awareness regarding for knowledge management, and technological limitations. Leadership, culture, structure, time, security, skill, and expertise, as well as external factors including social, political, legal, and economic factors have been considered as enabling or obstructing factors in addition to those listed in the primary data collection. Beyond this challenges knowledge management framework for knowledge sharing practices in the healthcare sectors have opportunities: - quality of care cooperation and innovation and medical error reduction.

The healthcare sectors, as an organization, is similar to other large public and private sector organization, but it also differs in many aspects. Key differences include its organizational culture, mission, governance, and its operational environment. Members of the Healthcare sectors often operate in high-risk and high-stake situations in dangerous environments. They are expected to operate and make the best possible decisions in highly uncertain situations. Therefore they

need real-time knowledge deeply embedded in the context of the operational area in order to deliver quality service to patients.

A number of individuals and organizations have developed frameworks for knowledge management. However, there is a lack of cohesiveness across frameworks. There is no single definition of what constitutes a for knowledge management framework and there are many concepts that are common to multiple frameworks, as well as the ordering or structure of the frameworks also varies. No such a framework specifically designed for the healthcare service delivery context has also been found. Thus, it was necessary to identify which available frameworks can be used as a basis for building a framework for the healthcare sectors.

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