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Assessment of Quality Management System Implementation and its Associated Factors in Public Hospitals of Addis Ababa, Ethiopia

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This is to certify that the thesis prepared by **SENBETO AMENU**, entitled: **Assessment of quality management system implementation and its associated factors in public hospitals of Addis Ababa, Ethiopia** and submitted in partial fulfilment of the requirements for Master of Science degree in Clinical Laboratory Sciences (Clinical Laboratory Management and Quality Assurance) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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List of Abbreviations and Acronyms

BPR	Business Process Reengineering
EHAQ	Ethiopia Hospital Alliance for Quality
EHMI	Ethiopian Hospital Management Initiative
EHRIG	Ethiopian Hospital Reform Implementation Guideline
EHSTG	Ethiopian hospital Services Transformation Guideline
FMHACA	Ethiopian Food, Medicine and Health Care Administration and Control Authority
FMOH	Federal Ministry of Health
HMIS	Health Management Information System
HSDP	Health Sector Development Plan
PI	Principal Investigator
QI	Quality Improvement
QM	Quality Management
QMS	Quality Management System
TQM	Total Quality Management

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Abstract

Background: A Quality Management System is the organizational structure, processes, procedures, and resources needed to implement, maintain and continually improve the management of quality. The federal ministry of health of Ethiopia has chosen quality management system (QMS) as a comprehensive and applied strategy to achieve administrative development and improve the quality of health care services including the medical laboratory in order to respond to the needs and expectations of the clients on quality of services provided for them.

Objective: To assess current implementation status of quality management system and its determinant factors in public hospitals of Addis Ababa Ethiopia, from February to August 2020.

Methods: The study was used cross-sectional study design. It also used both quantitative and qualitative data to assess the implementation status of QMS and associated factors in all public hospitals in Addis Ababa Ethiopia. Data was entered and analyzed by SPSS version 23. Binary and Multivariable logistic regression analysis was done to identify predictive factors.

Results: The outcome of this study shows that the implementation status of quality management system of public hospitals found in Addis Ababa was 56.7% and also indicates that implementation was better in specialized hospitals based on professional's perception. Five variables found significantly associated with QMS in hospitals($p<0.05$) were presence of hospital quality mission, availability of established and functional quality committee, presence of specified budget for quality improvement, perceived significance of quality by professionals and presence of well aware professionals on quality management system.

Conclusion and Recommendation: This study found that the current quality management implementation status was found 56.7% based on perception of professionals. The quality management was more successfully implemented in specialized hospitals than general hospitals. The hospital management should focus on the quality mission of the hospital and the significance of QMS, allocate specified budget for quality improvement activities, strengthening quality committees to accomplish the QMS implementation.

Key words: QMS, health professionals, Medical laboratory, Addis Ababa, hospitals.

1. Introduction

1.1 Background

Quality management system is the processes by which an organization or institution confirms the continuing quality of services they provide, improves the quality of services provided and also obtains evidence to show that services meet the given requirements [1].

Quality management system is a key and essential factor that proves patient safety when health care provider institutions aspire towards the excellence of the process.

Quality management system is considered to direct and regulator hospitals with regard to quality. A management system of hospitals can include different management systems, such as quality management system and a financial management system [2].

Quality is defined in the Ethiopian quality management guideline as "Inclusive care that is significantly safe, effective and uniformly delivered in a timely way that is inexpensive to the Ethiopian society [1].

Ethiopian Hospital management initiative (EHMI) was launched in January 2005 in corporation with the Clinton Foundation HIV/AIDS Initiative and the Yale School of Public Health under the direction of the Ethiopian Ministry of Health [3].

Over the previous 20 years, Ethiopian Federal Ministry of Health (FMOH) progressively focused on how to improving the quality care by using such as Health Sector Development Plan (HSDP) Business Process Reengineering (BPR) and Balanced Scorecard. FMOH now a day implementing Kaizen, a quality improvement methodology adopted across multiple sectors in the country, as a means of achieving better health care and health outcomes [3].

The Ethiopian Hospitals Management Enterprise, which was established in 2006, is an original inventiveness to introduce a standardized based quality approach. The hospital reform was supplemented by the introduction of Key Performance Indicators for hospitals through the hospital performance monitoring and improvement guideline in 2011. The Ethiopian Hospitals Alliance for Quality (EHAQ) is based on experiences in implementing Ethiopian Hospital Service Transformation Guidelines [4].

Comparatively to achieve efficiency and effectiveness, total quality management is suitable way which leads to achievements such as success in long term, meeting the workers' and other interested parties' needs in the society [3].

Hospital quality management is focused not only on the quality and safety of healthcare but it also the means to achieve this. The hospital Senior Management and the others such as Governing Board should confirm that quality management systems are in place and should control their effectiveness. Also, all staffs should participate in quality management activities specific to their area of work [5,6].

Even though undeniable advantages of quality management for hospitals, there is no consensus about its framework, but there is a general consensus about the need for a systematic method or framework in order to make quality management achievable. This study tried to assess the implementation of QM and factors affecting it from professionals' perspective in public hospitals of Addis Ababa.

1.2 Statement of the problem

Implementing TQM in the health care industry is not as easy as or successful as in the manufacturing or service industries. Today hospitals are being challenged to look at their operations and find more efficient ways to do business. Many hospitals are turning towards QMS for cutting costs and overall improvement in the quality of the services provided. More prove the use of total quality management has provided a partial cure to service quality problems in healthcare organizations [6].

A recent 'World Health Reports' published by the WHO has called for health system strengthening as paramount to the goal of improving health outcomes [5] noting the critical role that hospitals play in efforts to strengthen health systems. Despite the potential role of quality improvement in health system strengthening [6], these are only limited evidence about its implementation and effectiveness in developing countries.

Quality care in the health system is related to the matter of social responsibility of the professional and services to the community. Therefore, it needs a transformational behavioral and

attitude change of the health care staffs. Such changes put the quality management system implementation on every individual in the health care system environment [7,8].

There are many reasons are raised behind the quality management system implementation in studies conducted in different hospital settings. These factors are hospitals structure, top managerial commitment, low level of employee participation and training on QMS, procedure development and employees' attitude and defect as well as lack of effective communication system on QMS are significantly associated with quality management system in surveyed hospitals [9,10].

Even though many efforts have been devoted over many years by health sectors to adopt quality management practices, the problem is not only how to implement the agenda, but how to make it work effectively and efficiently. This needs a break thorough assessment of implementation of the quality management system and problems come across in the implementation [4,11].

Unless the health sectors organization implement the quality management system, they are going to lose several benefits such as customer satisfaction, employee motivation and improved overall performance of health care delivery [12].

Despite there are studies conducted on quality management system in different sectors, there is only few published studies done on performance and quality management system in hospitals in Ethiopia. Thus, it becomes important to study the implementation of quality management from the professional's perspective to uncover activities that are not still addressed. So, identifying factors affecting the implementation are serious for the achievement of the implementation of quality management in the health sectors.

1.3 Significance of the study

This study on assessment of quality management system implementation and its determinant factors in public hospitals found in Addis Ababa, Ethiopia, helps to sort out the current status of implementation and determinants of implementation of QMS in public hospitals found in Addis Ababa from the professionals' perspective. Such information is important for policy makers in the construction of knowledge in the sector and as an evidence base for the planning and designing strategies toward quality management in hospitals.

Also, it helps the hospital management bodies to identify where necessary investments are needed in quality management system capacitating in order to indicate strength and gaps that need improvement in implementing the QMS. This in return pave the way to incorporate the system successfully in the Ethiopian health system. The findings can also serve as references for further studies.

2. Literature review

2.1 Quality Management in Healthcare

Florence Nightingale VI was put down the foundation for quality assurance programs in 1860s by advocating a uniform system for collecting and evaluating hospital statistics. Then Abraham Flexner in 1910 revealed the poor quality of medical education in the USA. The well-known innovators in assessing quality were Dr. E. A. Codman, who in 1914, studied the end result of quality care [9, 11].

Most of a study done by Codman's highlighted the same questions that are being discussed today when examining about the quality of care such as the importance of licensure or providers, the accreditation of an institutions, the need of taking into consideration the severity of the disease [11].

For the successful implementation of quality management system in health sectors, it is better to Understanding about the differences. Of any kind of the problems, quality management would not be simply transferred into the healthcare sector. It is the readiness of the quality professionals in healthcare to describe principles, philosophies and techniques that will determine the quality standards appropriate for their own industry [12,13].

In health care sector context, total quality management is defined as patient's satisfaction, professionals and other interested groups. In addition to the patient satisfaction and professionals, quality management focus more on continuous improvement, teamwork, process management, organization culture and structure, and commitment from management and supportive leadership [11,12].

Quality management has been one of the most worries to health sectors in the last decades. Also being a necessity of economic survival due to higher requests from consumers, it is an ethic, legal and social rights matter which goes through the full customer's satisfaction and the reduction of risks related to health care to a minimum which is acceptable [14].

2.2 Quality Management system implementation in hospitals

Study conducted in Lithuanian indicates that quality management systems were found operating effectively in 39.7 percent of support treatment and nursing hospitals and currently under implementation in almost half of surveyed hospitals [9].

Another study in Mauritius teaching hospital shows that the leadership and quality committee has great role on the quality management system implementation. The quality committee meet regularly in the hospital level and department level. Different professionals are represented in the quality committee with a dominance of clinician participation in the committee. Where as study done in Malaysia revealed that poor participation of physicians toward quality management system issues related to other professionals [8,12].

Another finding from the study done in Mauritius support that physician have high commitment in quality team activities than others professionals [12]. Also, other study revealed that using participative management systems such as quality circles and independent work clusters had more synergistic effects on quality management implementation [15].

Different studies have revealed that attitude of staffs toward quality management system is positive and they consider the it is useful for them and their department in respect with improving care quality and working condition that increase a commitment of staffs to take quality responsibility [13,16].

A similar study carried out on employees' attitude toward quality management showed that education and training have a positive relationship with career satisfaction [17]. Employees are able to define the causes and medical error correctly and also constantly and are aware of the causes of error, but they cannot change its effects in practice because administrative approach is the main influence system even if they are aware of the causes of error [18,19].

Previously done studies show the consequence of system insufficiency in implementing quality management. According to those studies, the acceptance of quality management system is highly affected by professional motivation because there are no appreciations for the staff when they reporting quality problems in their department which can reduce their motivation toward identifying and reporting quality problems. [15].

A study indicates that more challenging on implementation of quality are from middle- and first-line managers. Their irregularity put the hospitals on unambiguous. There is a fundamental requirement for the administrators to review their role and adjust their tactic and attitudes toward both customer and hospitals in a long-term horizon [18].

Similar study done in Kenya also indicates that hospitals culture has significant effect on quality management implementation. Management commitment has to be with the fact that the failure of most healthcare managers lacks off to see the true nature of the association between quality, efficiency and the competitive advantage is partially responsible for the lack of strong quality management system philosophy in healthcare sector [20].

According to different survey tactical complications were one of the main barriers of total quality management success. These include lack of planning, lack of mechanisms for policy framing, no clarity for objectives, inflexibility of hospitals toward technologies changes and lack of legal elements for providing quality services [15].

As indicated in different studies, successful implementation of quality management can result in significantly higher outcomes in health care sectors. From these outcomes: advanced quality service, improved health care quality performance, patient satisfaction, employee satisfaction, and patient safety are among the listed [16,18].

2.3 Factors affecting quality management system implementation

According to different studies, managerial approach to the quality management is major factors that affect QM implementation. On the other hand, inspiring administrators can ensure the ongoing change of health sector culture and mindset of employees toward quality management implementation [7,11].

Establishing quality management models can support managers plan an appropriate quality management system in order to attain successes in the current situation health care sector. It also helps hospital administrators to arrange corrective actions and change development strategies [12].

The influence of health care sector culture is also discussed in a study conducted in Saudi health care setting that an encouraging role of hospitals culture in supporting quality management in the hospital, and organization culture as critical factor in QM implementation. Organizational culture leads employee's attentions to acknowledge and recognize quality practice and quality initiatives [17].

Also involving employees with in quality care responsibility and allowing them to participate in quality management system implementation, empower and motivate them for teamwork, job satisfaction and career satisfaction. Also providing training on quality, involving them in planning and scheduling activities encouraging to communicate with clients are also serious factors in achievement of quality [16]. As different study identified, resistance of staffs who work for long time in the hospitals, lack of scheduled time for quality activities Meeting are also among factors affecting QM implementation. [13].

Another factor stated as factors affecting the implementation of quality management system in health care sector is Launching and formalizing working procedures [23]. Even though, from the constant quality perception, investments in assessments and monitoring are fundamental for the prevention of health care mistakes. One cannot manage, effectively and efficiently, what one does not know [23].

Study done in Amhara region of Ethiopia revealed that the overall QMS implementation in primary, general and referral hospitals was 62%. This study also showed that the implementation stage is based on the hospital magnitude where primary hospitals implement quality management system more successfully than other hospitals. This means the QMS implementation status is higher among primary hospitals (72%) than general (61%) and referral hospitals (51%) [24].

According to this study, quality committee chairs of the hospitals mentioned that budget had always been a problem in implementing quality management system in the hospitals. Second, the communication of QMS across the hospitals were the other factor determining the implementation and the third mostly mentioned factors to implementing QMS in the hospital were the commitment of top managers in managing quality effectively [24].

Laboratory provides a key information for the diagnosis, prevention, or treatment of any disease to assess the health of human beings. Therefore, implementation of quality system in laboratory and over all the hospital is one of the essential requirements in order to maintain quality standard in the performance of all activities in the hospitals from sample collection to release of reports [25].

Conceptual frame work

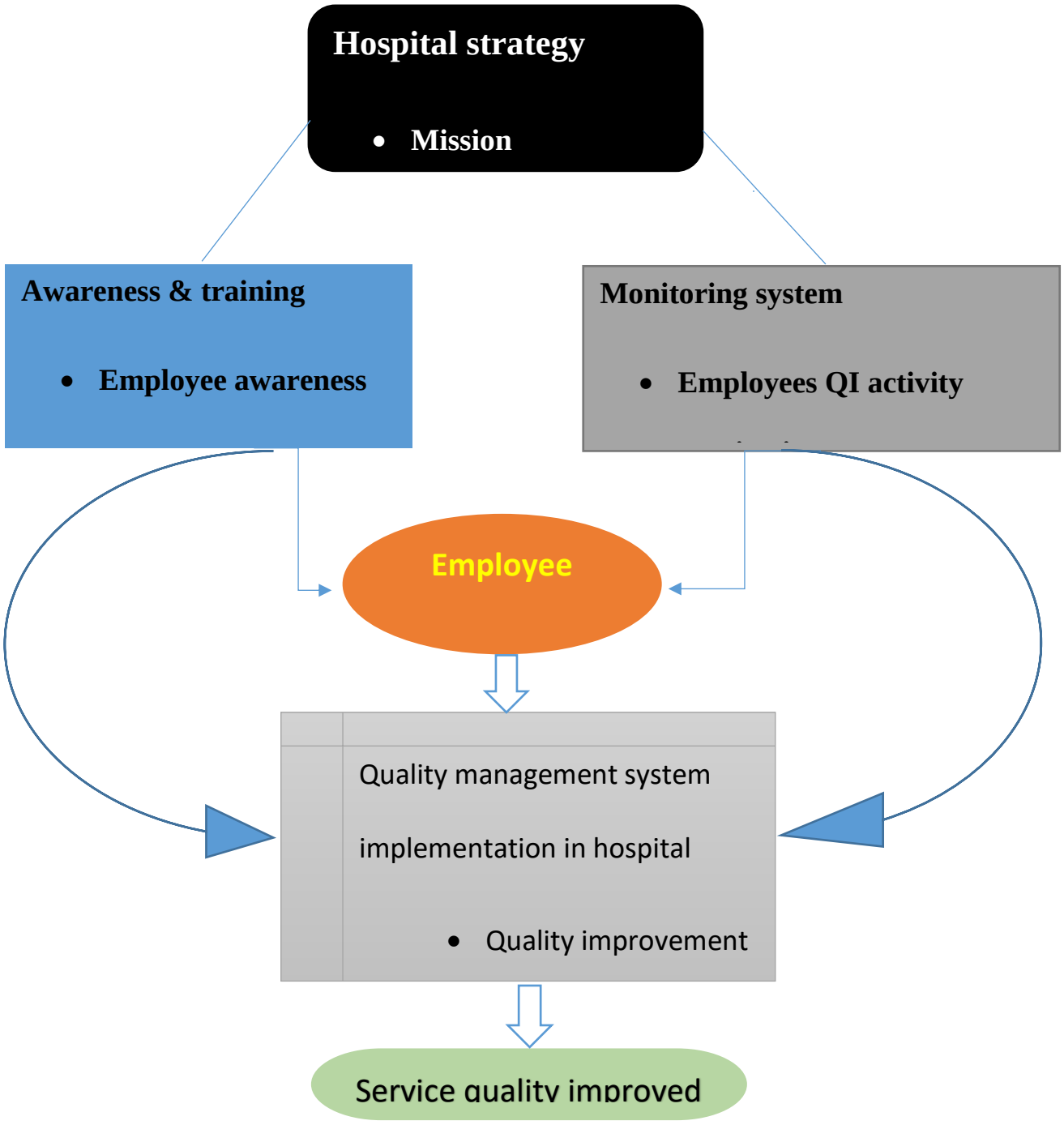

Figure 1*: Conceptual frame work for quality management system implementation in hospitals*

Source: - *this conceptual frame work is adapted from a study done in Amhara region of Ethiopia and by revising different literatures and books on quality management system in hospitals [24].*

3. Objective

3.1 General objective

- To assess the quality management system implementation and its associated factors in all public hospitals of Addis Ababa, Ethiopia, from February to August 2020.

3.2 Specific objectives

- To assess current implementation status of quality management system in public hospitals of Addis Ababa, Ethiopia, as perceived by professionals from February to August 2020.
- To identify factors affecting implementation of quality management system in public hospitals of Addis Ababa, Ethiopia. from February to August 2020.

4. Methods

4.1 Study area

The study was conducted in Addis Ababa City Administration which has 10 sub-cities and 117 Woredas. Addis Ababa is the capital city of Ethiopia with a total population of 3,384,569 according to the 2007 G.C census [26] and around 4 million according to recent estimation. There are 104 Health centers,11 public hospitals of which four of them specialized, one teaching and six general hospitals and 28 private hospitals and 882 clinics.

4.2 Study design

Cross-sectional study was used to assess the implementation status of quality management system in all public hospitals of Addis Ababa Ethiopia.

4.3 Population

4.3.1 Source population

The source populations of the study were all public hospitals in Addis Ababa Ethiopia and the professionals' working in these hospitals.

4.3.2 Study population

The study populations for the quantitative study were all public hospitals and health professionals working in these hospitals of Addis Ababa. And study populations for the qualitative study were all quality committee members (quality team) of these all hospitals, those fulfilling the eligibility criteria were the study population.

4.4 Inclusion and exclusion criteria

4.4.1 Inclusion criteria

- Health professionals those serve for at least 6 months in the hospital and willing to participate were included in the study.

4.4.2 Exclusion criteria

- Clinical staff with managerial position (department heads, and above) were excluded from the study.

4.5 Sampling determination

To calculate sample size for the health professionals to be interviewed, from all eleven (11) public hospitals in Addis Ababa, I have used: 95% confidence interval, 5% margin of error, proportion(p) is 62% from the research conducted before in Amhara region, Ethiopia [24] and 10 % non-response rate. Then the calculated sample size became 362 and with 10 % non-response rate the sample size became 398.

$$n = \frac{(z\ \alpha/2)^2\ p\ (1-p)}{d^2}$$

Where, z= confidence interval

p= estimate proportion

d= margin of error

n= total number of samples

Therefore, $n = \frac{(z\alpha/2)^2\ p\ (1-p)}{(0.05)^2}$ where, p=62%=0.62; z=1.96 and d= 0.5

$$n = \frac{(1.96)^2 * 0.62 * 0.38}{(0.5)^2}$$

n= 362

Then by adding 10% of non- response rate, it becomes 398.

For the qualitative study, all fifty-five (55) quality committee members working in eleven (11) public hospitals in Addis Ababa, Ethiopia.

4.6 Sampling procedure

4.6.1 Quantitative part

For all public hospitals in Addis Ababa, the sample size was distributed to each hospital in proportional to the number of all health professionals in the hospitals. Then final sample were selected from each hospital by random sampling techniques.

So, 398 health professionals were included.

By proportional to size allocation formula,

$$= \frac{ni * nf}{N}$$

Where: ni= Total number of health professionals in each hospital

nf= final sample size of the study

N = total number of health professionals working in 11 public hospitals in Addis Ababa

Example: -Menelik II Hospital $= \frac{700 * 398}{7486} = 37$

The same technique was employed to determine the final allocation.

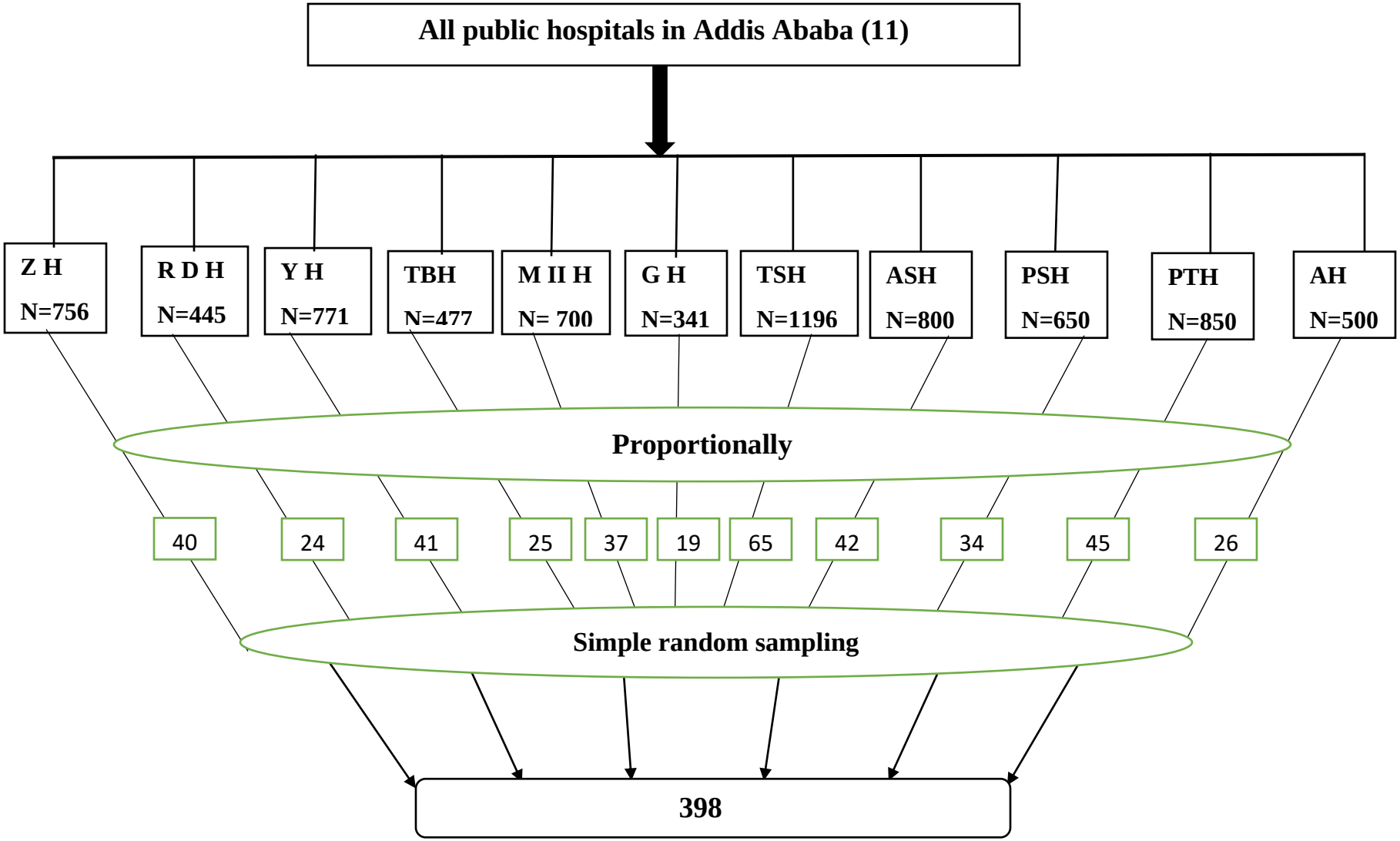

Figure 2: Schematic sampling procedure

4.6.2 Qualitative part

Purposive sampling was used to select participants of the qualitative study and all fifty-five (55) quality committee members were selected for key informant interview since they have direct work relation with the study objectives.

4.7 Study variable

4.7.1 Dependent variable

- Quality management system implementation status

4.7.2 Independent variables

- Quality policy and strategy (mission, quality plan)
- Employee awareness and empowerment
- Employee participation
- Monitoring system of QMS activities
- Education status

4.8 Data collection procedure

4.8.1 Quantitative part

The quantitative data on implementation of quality management system were collected by using self-administered, structured questionnaire from clinical staff of public hospitals in Addis Ababa. The data was collected by trained data collectors and supervision was conducted by the principal investigator and one trained supervisor.

4.8.2 Qualitative part

The qualitative data were collected from all quality committee members of the hospitals by using unstructured and structured interview and a guide questionnaire prepared in English. The interview was conducted by the PI, all the interviews were analyzed and major points were noted.

4.9 Data analysis procedure

4.9.1 Quantitative part

After data collection, filled quantitative data were entered in EPI Info software and were subjected to cleaning; analysis was made with SPSS 23 statistical software. Descriptive statics

such as Frequency distribution and cross tabulation of variables were computed to describe the major variables of the study. Bivariate and multivariate logistic regression model was used to determine associated factors. AOR with 95%CIand P-value less than 0.05 were used to determine statistical significance.

4.9.2 Qualitative part

The information was collected by recording the assumption of quality committee members on the implementation of QMS, involvement of professionals in QMS implementation and determinant factors of QMS implementation. The analysis was guided by content analysis. Major points raised in their answers were noted and laid in quotation. Also name of the respondents were coded.

4.10 Dissemination of results

The finding of this study will be delivered to Addis Ababa University department of Medical Laboratory Sciences and relevant bodies or stake holders. Also, the result of the study will be disseminated to Addis Ababa Health Research and Emergency Management Directorate and it will be available in library as reference materials for students, researchers and for policy makers for intervention. The result of this study will also be disseminated to scientific community through scientific presentation and published on peer reviewed journals.

4.11 Operational definition

Implementation of specific standard activities

- Those rated agree and strongly agree were taken as the activities are implemented
- Those rated neutral, disagree and strongly disagree are taken as not implemented.

Quality management system implementation status

- Quality implementation: putting an innovation in place in such a way that it meets the necessary standards that prepared by Ethiopian Hospital Service Transformation Guide line (EHSTG) to achieve desired outcomes [3].
- score less than 50% out of 11 standards considered as low implemented (AFMHACA 2016 proclamation).

4.12 Ethical consideration

Prior to data collection ethical approval was obtained from research ethics committee of The Medical Laboratory Department of Addis Ababa University and Ethical clearance and permission were also obtained from Addis Ababa Health Bureau and each respective hospital. And also Informed consent was also obtained from each study participant.

Name or specific address of the study participants were coded and remain anonymous as well as the participants were informed about the risk and benefit of the study. They were also provided with a right of refusing to respond at any time if they are not willing to respond. All hard and electronic data were kept confidential through locking and password protection.

5. Findings of the thesis

Findings of this thesis organised and presented through three parts of sets as fellow: in the first part, it brings out the socio demographic characteristics of the respondents. In the second part, it illustrates the descriptive findings of the study and in the third portion contains findings of binary logistic regression and multivariable logistic regression of variables with the implementation status of quality management system. In the last (fourth) part it describes the results of the key informant interview from quality committee members.

5.1 Socio demographic characteristics of respondents

Three hundred ninety-eight professionals working in eleven public hospitals participated in this study as respondents with 100% response rate. From these 228(57.3%) participants were from seven (7) general hospitals and 170(42.7%) were from four (4) Specialized hospitals. The mean age of the survey respondents was 37.1 years (SD=5.3, range 22 to 56 years). Based on their age, the majority 315(79.1%) of the respondents were found between 22to35 age group.

From all the respondents 246(61.8%) were female. The majority of the respondents 160(40.2%) were nurses, followed by 72(18.1%) Laboratory, 67(16.8%) were Midwifes, 49(12.3%) were Pharmacist, 42(10.6%) were Physician and the rest 8(2.0%) were Health Officer.

Regarding the educational status, 347 (87.2%) were degree holder, whereas 40(10%) were master's level and the remaining 11(2.8 %) were diploma level (Table 1).

***Table 1**: Socio-Demographic and general characteristics of study participants Addis Ababa City, 2020(n=398).*

Socio-demographic Variables	Categories	Frequency	percentage
Sex	Female	246	61.8
	Male	152	38.2
Age	22-35	315	79.1
	36-45	74	18.6
	>45	9	2.3
Education	Masters	40	10.0
	Degree	347	87.2
	Diploma	11	2.8
	General	228	57.3
Profession	Nurse	160	40.2
	Laboratory	72	18.1
	Midwife	67	16.8
	Pharmacist	49	12.3
	Physician	42	10.6
	Health officer	8	2.0

5.2 Quality Management System (QMS) implementation status

Quality management system implementation according to EHSTG standard

Professionals were asked about the implementation of quality management system activities in their hospital based on 11 operational standards included in quality management chapter 19 of EHSTG. And those who had a mean implementation score above 0.5 considered as QMS is implemented in the hospital and those who report mean implementation score below 0.5 were taken as the QMS is not implemented in the hospital as perceived by the professionals

Consequently, 225 (56.7%) of the participant answered that the quality management system is implemented and the rest 173 (43.3%) of them reported quality management system is not implemented in their hospitals.

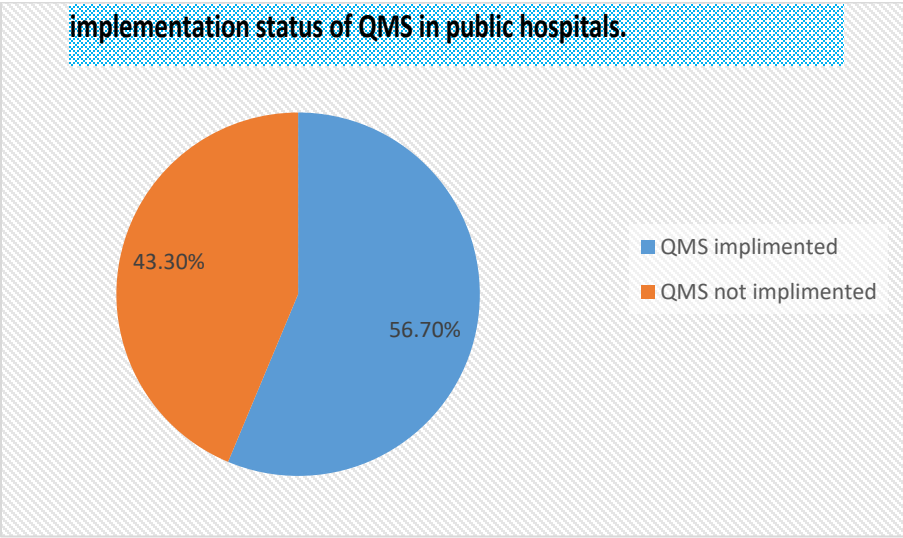

***Figure 3**: - QMS implementation as perceived by study participants or health professionals from the 11 public hospitals in Addis Ababa, 2020*

The implementation of quality management system was reported by 126(55.3%) participants in general hospitals and 98(57.7%) respondents in specialized hospitals[Figure4a]. Based on assesment using cheklist, all of the General and Specialized hospitals implimented QMS [Figure 4b].

As indicated in [Figure 4a], from the 11 standard questionnaire quality management system activities, most of the activities were found implemented more in specialized hospitals than in general hospitals.

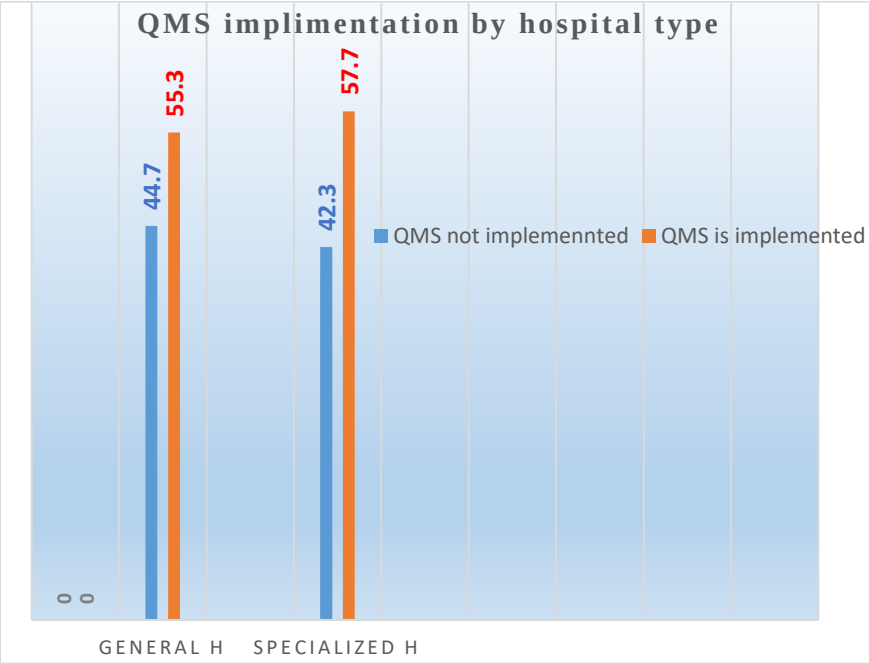

***Figure 4a**: - Professionals perceived quality management system implementation by type of hospitals, in Addis Ababa, 2020.*

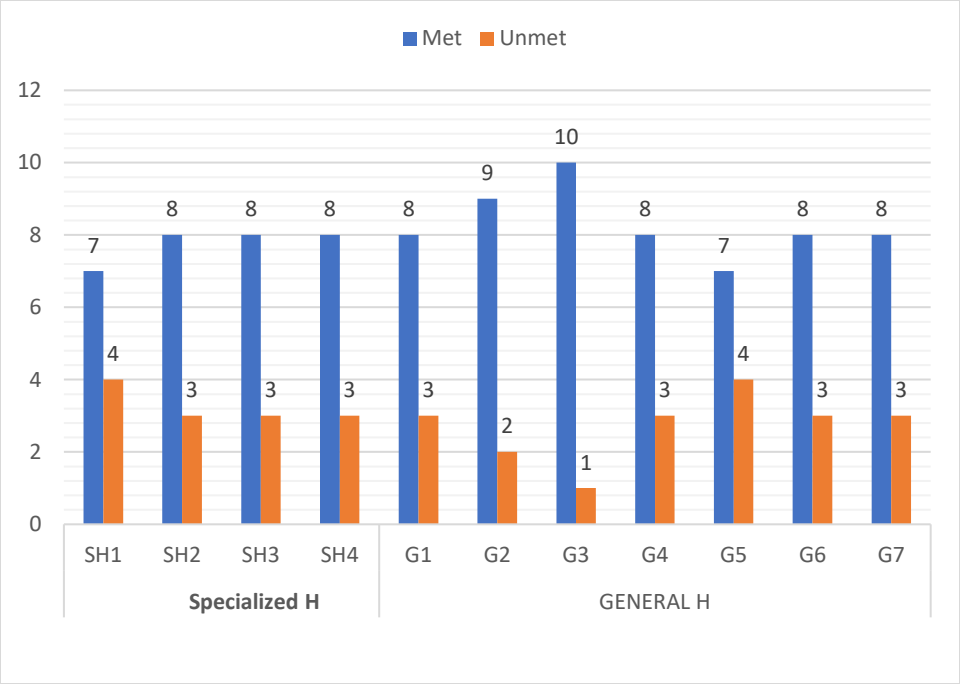

***Figure 4b**: - Based on assessment using checklist QMS implementation by type of hospitals, in Addis Ababa, 2020.*

From 11 standard activities of QMS included in the questionnaire, the implementation status of seven (7) standard activities were found above 50%. whereas four (4) standard activities that the implementation status was found below average (50%) as professionals perceived. Those standard activities under 50% were Benchmarking, Strategy to provide patient focused care, Compliant receiving and analysis, and developed quality improvement strategy and operational plan in each case team.

As indicated in Table2, from the 11 standard quality management system activities, most of the activities were found implemented more in specialized hospitals than in general hospitals when we compare by number of professionals participated in the study proportionally.

***Table2**: Perception of health professionals regarding standard quality management activities in hospitals, Addis Ababa 2020*

Activities		Quality management system Implemented				% of Total (Yes)
		Yes	%	No	%	
Hospital Quality Improvement Unit	Specialized	113	44.7	57	39.3	170(42.7)
	General	140	55.3	88	60.7	228(57.3)
	Total	**253**		**145**		**63.6**
Clinical audit	Specialized	109	41.3	61	45.5	
	General	155	58.7	73	54.5	
	Total	**264**		**134**		**66.3**
Incident reporting and analysis system	Specialized	112	43.1	58	42.0	
	General	148	56.9	80	58.0	
	Total	**260**		**138**		**65.3**
Monitoring clinical outcome	Specialized	127	47.4	43	33.1	
	General	141	52.6	87	66.9	
	Total	**268**		**130**		**67.3**
developed quality improvement strategy	Specialized	55	39.2	115	44.6	
	General	85	60.8	143	55.4	
	Total	**140**		**258**		**35.2**
Patient satisfaction survey	Specialized	93	39.6	77	47.2	
	General	142	60.4	86	52.8	
	Total	**235**		**163**		**59.0**
Patient right and responsibility	Specialized	91	43.3	79	42.0	
	General	119	56.7	109	58.0	
	Total	**210**		**188**		**52.8**
Compliant receiving & analysis	Specialized	58	40.6	112	43.9	
	General	85	59.4	143	56.1	
	Total	**143**		**255**		**35.9**
implements a strategy to provide patient	Specialized	58	41.1	112	43.6	
	General	83	58.9	145	56.4	

focused care	**Total**	**141**		**257**		**35.4**
Continuously& systematically reviews & improves all Activities	Specialized	106	41.6	64	45.8	
	General	149	58.4	79	55.2	
	Total	**255**		**143**		**64.1**
Benchmarking	Specialized	67	39.6	103	45.0	
	General	102	60.4	126	55.0	
	Total	**169**		**229**		**42.5**

5.3 Hospitals strategy toward Quality management system

Regarding the hospital's quality care mission, only 93(23.4%) of respondents answered that there was well communicated mission on quality throughout the hospital, 229(57.5%) reported there is quality mission but not communicated throughout the hospital and 76(19.1%) reported there was no mission for quality care delivery in the hospital.

Moreover,80 (20.1%) of respondents reported the availability of well communicated hospital quality plan, 252(63.3%) reported that the quality plan is available but not communicated in while hospitals, and 66(16.6%) of them said that there is no plan for quality in the hospital.

Only 42(10.60%) participants answered that there was specific budget for the purpose of quality improvement activity. Whereas 177 (44.5%) of respondents said there was no budget for quality improvement (Table 3).

Table3*: Perception of health professionals regarding hospitals strategy toward Quality management system in hospitals, Addis Ababa 2020.*

	Activities	Not available		Available but not applied		Available and applied	
		frequency	%	frequency	%	frequency	%
1	Mission regarding quality care	93	23.4	229	57.5	76	19.1
2	Hospital quality plan	66	16.6	252	63.3	80	20.1
3	Budget for quality improvement	177	44.5	179	45.0	42	10.6

5.4 Awareness of professionals on quality management system

From all respondents 138 (34.7%) professionals answered that they were not aware about the QMS at all and 158(39.7%) of the respondents' report that only less than 50% of professionals have general info about QMS. Whereas 81(20.4%) of the respondents said 50% and above of the professionals in their hospitals have only general information and the rest 21(5.3%) reported that 50% and above of the professionals have detailed information on the necessity of QMS (Table 4).

5.5 Training of employees

Of all respondents, 117(29.4%) said that professionals were not provided training on quality management system and 156(39.2%) were answered that the training was provided only for team leader. Whereas 81(20.4%) of the respondent's report that less than 50% of the professionals were trained and only 11(2.8%) of the respondents' report that more than 50% of professionals provided training on quality management system (Table 4).

5.6 Participation of Professional

The Professionals participation in quality management system was reported by 171(43%) respondents as less than 50% of professionals participated and 71(17.8%) respondents answered as more than 50% of professionals participated. Whereas the rest 156(39.2%) of respondents reported that the professionals are not participated in the QMS at all (Table 4).

From those reports' poor participation of professionals in QMS; 224(56.3%) said no communication on quality management with employees,149(37.4%) report that there is no opportunity for employees to participate in QMS and only 10(2.5%) of respondents report due to employee resistance (Table 4).

5.7 Significance of quality management system

As responded by 318(79.9%) respondents, most of professionals understood the quality management system is significant for the hospital where as 80(20.1%) were said many of professionals perceive the QMS is not significant. From those answered the QMS has a negative effect on professionals, 75(18.8%) said the system increases work load, 38 (9.5%) reported the system waste the time for unnecessary event registration and the rest 19(4.8%) reported tedious meetings without gain (Table 4).

***Table 4**: Perception of health professionals regarding employee's empowerment and participation in QMS in hospitals, Addis Ababa 2020.*

	Activities		f	%
1	Awareness of staff about QMS	Not aware at all	138	34.7
		<50% staff have general info	158	39.7
		>50% staff have general info but not clear the necessity of QMS	81	20.4
		>50% staff have detailed info on necessity of QMS	21	5.2
2	Training for employees on QMS	Not provided	117	29.4
		Only for case team leader	156	39.2
		<50% staff trained	81	20.4
		>50% staff trained	11	2.8
		Not know	33	8.2
3	Participation of professionals'	Not participated	156	39.2
		<50% staff participated	171	43.0
		>50% staff participated	71	17.8
4	Significance of QMS	Yes	318	79.9
		No	80	20.1

5.8 Result of binary and multivariable logistic regression

5.8.1 Binary logistic regression

The effects of selected independent variables on the status of quality management system implementation were investigated using binary logistic regression. In the binary logistic regression, all variables showed significant associations with quality implementation status of the hospitals. Except the three variables Departmental quality plan, professional participation and hospital types with p value=0.834,0.487and0.591 respectively, which were not significantly associated (Table 5).

Table 5*: variables significantly associated with QMS in the hospital based on professionals perceived.*

		QMS implementation			
Variables		**Yes (%)**	**No (%)**	**Crude odds ratio 95% CI**	**P value**
Awareness	**yes**	97(63.0)	57(37.0)	1.542(1.021-2.330)	0.040
	No	128(52.5)	116(47.5)	1	
Budget	**Yes**	155(61.5)	97(38.5)	1.735(1.149-2.620)	0.009
	No	70(47.5)	76(52.1)	1	
Departmental quality plan	**Yes**	167(56.2)	130(43.8)	0.952(0.604-1.503)	0.834
	No	58(57.4)	43(42.6)	1	
hospital quality plan	**Yes**	74(66.1)	38(33.9)	1.741(1.105-2.744)	0.017
	No	151(52.8)	135(47.2)	1	
Quality committee	**Yes**	62(66.0)	32(34.0)	1.676(1.034-2.715)	0.036
	No	163(53.6)	141(46.4)	1	
Type of hospital	**SH**	124 (58.0)	100(42.0)	0.896(0.601-1.337)	0.591
	GH	101 (55.4)	73 (44.6)	1	
Significance of QMS	Yes	137(62.6)	82(37.4)	1.728(1.157-2.580)	0.008
	No	88(49.2)	91(50.8)	1	
Professional Participation	**Yes**	142(55.3)	115(44.7)	0.863(0.569-1.308)	0.487
	No	83 (58.9)	58 (41.1)	1	

5.8.2 Multivariable regression

In the multivariable logistic regression, the outcome of confounding variables was used. All variables which were significant in binary logistic regression analyses were included in multivariable logistic regression. Consequently, five explanatory variables found to be significantly associated with perception of health professionals regarding quality management system in the hospitals.

From those who answered quality management system is implemented in their respective hospitals, 74(66.1%) were reporting the availability of quality plan in the hospital. A hospital with well communicated quality plan is about 1.8 times more likely to implement quality management system than hospital without well communicated a plan on quality **[AOR 1.832 CI (1.135 - 2.955)].**

Among those who answered quality management system is implemented in the hospital 62(66%) were reporting the hospital established functional quality committee in the hospital. Hospitals with established and fully functioning quality committee were found about 1.7 times more likely to implement quality management system than hospitals have no established quality committee in the hospital **[AOR 1.748 CI (1.055 - 2.896)].**

From those who report quality management system is implemented in the hospital 155(61.5%) were reporting the availability of specified budget for quality improvement in the hospital. Hospitals which established specified budget for quality improvement were found 1.5 times more likely to implement quality management system than hospitals did not established specified budget **[AOR 1.557 CI (1.003 -2.418)].**

Among those who answered QMS is implemented in the hospital, 97(63%) were reporting more than 50% of professionals have awareness on quality management system and also have general information on the necessity of the system and what is expected from them. Professional who has awareness on QMS were found about 1.68 times more likely implement the QMS in the hospital than those have no awareness on it **[AOR 1.688 CI (1.076 -2.649)].**

From those who reported quality management system is implemented in the hospital 137(62.6%) professionals were understood that the quality management system is significant for the hospital. Hospitals those have professionals who understood the quality management system is significant were found 1.6 times more likely to implement quality management system than hospitals lacking professionals perceive the quality management system is significant for the hospital **[AOR 1.595 CI (1.036 -2.457)].**

Table 6: *Variables significantly associated with QMS by multivariate logistic regression*

Variables		**QMS**		**COR 95% CI**	**AOR 95% CI**	**P-value**
		Yes (%)	**No (%)**			
hospital quality plan	**Yes**	74(66.1)	38(33.9)	1.741(1.105-2.744)	**1.832 CI (1.135 - 2.955)**	0.013
	No	151(52.8)	135(47.2)	1		
Quality committee	Yes	62(66.0)	32(34.0)	1.676(1.034-2.715)	**1.748 CI (1.055 - 2.896)**	0.030
	No	163(53.6)	141(46.4)	1		
Budget	Yes	155(61.5)	97(38.5)	1.735(1.149-2.620)	**1.557 CI (1.003 -2.418)**	0.048
	No	70(47.5)	76(52.1)	1		
Awareness	Yes	97(63.0)	57(37.0)	1.542(1.021-2.330)	**1.688 CI (1.076 -2.649)**	0.023
	No	128(52.5)	116(47.5)	1		
Significance of QMS	Yes	137(62.6)	82(37.4)	1.728(1.157-2.580)	**1.595 CI (1.036 -2.457)**	0.034
	No	88(49.2)	91(50.8)	1		

5.9 Result of the key informant interview

Data were gathered or collected by using tape record from all quality committee members of the eleven public hospitals in Addis Ababa. The interviews were open-ended in nature and primarily focused on the implementation of QMS, involvement of professionals in QMS implementation, and associated factors of QMS implementation. To analyse the collected data, content analysis was then conducted on the interview transcripts. As a result of content analysis, the following three categories and six sub-categories were identified.

5.9.1 QMS implementation

In the Specialized Hospital case, part of the argument that quality management system is implemented in the hospital that the implementation was explained by the improvement of standard quality indicators in the hospital.

Respondent1 from a specialized hospital said "*It is in progress, there is good start but needs further action especially in engaging all professionals (staffs).*"and

Responden2 said "*As university hospital quality management is seen in both ways academic and service delivery. In academic case I can say there is a strong system to maintain quality but in-service delivery it is difficult to say quality is implemented accordingly because most delivery service given by students (Residents, Intern) so quality implementation management is weak."*

5.9.2 Professionals participation

Most of the participants argued that the participation of professionals in the QMS is low. Even those who participated in QMS were only for document registration/event registration and reporting.

Respondent3 said that "*I wouldn't say that professionals are participated in the quality management system of the hospital, because only quality committee(officer) act to maintain service delivery."*

Respondent4 said that "*The engagement of professionals is good but not enough because the time needs further work"* Most respondents raised that the system itself had its own drawback on engaging professionals in the quality management system. Resistance of professionals were the other mostly raised up reasons behind the reduced participation of professionals in QMS. The resistance of professionals toward quality management was also explained because of lack of trainings on quality management system and related issues.

5.9.3 Associated factors

Almost all of the respondents raised that budget was the critical problem in implementing quality management system in the hospitals. Secondly lack of the top managers or leadership to support and engagement and the thirdly mentioned determinant factors was low staff and departmental commitment in participation of QMS. There were the most associated factors in implementation of quality management system in the hospitals.

Respondent5 said that "*even though there are many factors which can limit the implementation of QMS in the hospital, budget is the main factor which determine the quality management system implementation. When I say this if there is no specifically allocated budget for the quality implementation it is difficult to achieve the desired quality in the hospital*."

Using an observation checklist, the implementation status of quality management system in all 11 public hospitals in Addis Ababa city was assessed based on EHSTG standards. The guideline contains 11 questions and based on these questions the hospitals were evaluated and their results summarized as follows in the table shown below (Table 7).

As indicated in the table, as a strength all hospitals established the quality improvement committee/unit/ and also as weakness many (six out of eleven hospitals) had no strategy to provide patient focused care which incorporates, compassion, respect and dignity for patients.

The hospitals quality management system implementation status is displayed in the table7 indicated that out of eleven (11) standards, all (7) general hospitals scored above the average (i.e., GH_1=8, GH_2=9, GH_3=10, GH_4=8, GH_5=7, GH_6=8and GH_7= 8. Also specialized hospitals scored above average (>50%) SH_1=7, SH_2=8, SH_3=8and SH_4=8.

From this table, general hospitals had best performance on posting patient right and responsibility in service areas and developed quality improvement strategy and operation plan in each case team than specialized hospitals. This assessment also revealed that the specialized hospitals had good performance on Monitoring clinical outcome in each case team.

Table 7: *Assessment of QMS implementation of public hospitals in Addis Ababa using EHSTG standard checklist,2020.*

	Standards	SH_1		SH_2		SH_3		SH_4		GH_1		GH_2		GH_3		GH_4		GH_5		GH_6		GH_7	
		met	*Unmet*	*met*	*unmet*	*met*	*unmet*	*met*	*unmet*	*Met*	*unmet*	*met*	*unmet*	*met*	*unmet*	*met*	*unmet*	*met*	*unmet*	*met*	*unmet*	*met*	*unmet*
1	The hospital has Quality Improvement Unit	√		√		√		√		√		√		√		√		√		√		√	
2	Incident reporting and analysis system in each case team	√		√			√	√		√		√		√		√			√	√		√	
3	The hospital continuously and systematically reviews and improves all activities that directly affect patients and staff		√	√		√		√		√		√		√		√		√			√	√	
4	Clinical audit in each case team	√		√		√			√	√		√		√			√	√		√		√	
5	Monitoring clinical outcome in each case team	√			√	√		√			√	√		√		√			√	√			√
6	Patient right and responsibility posted in service areas	√		√		√			√	√		√		√		√		√		√		√	
7	Patient satisfaction survey conducted (in/out patient)		√	√		√		√		√			√	√			√	√			√	√	
8	Complaints received analyzed and discussed with the staff	√			√		√	√		√			√	√			√		√	√			√
9	Benchmarking and experience sharing with other hospitals		√	√		√		√		√		√		√		√		√		√			√
10	The hospital implements a strategy to provide patient focused care which incorporates, compassion, respect and dignity for patients	√			√	√			√		√	√			√	√			√		√	√	
11	The hospital developed quality improvement strategy and operation Plan in each case team		√	√			√	√			√	√		√		√		√		√		√	

6. Discussion

In this study the implementation status of quality management system in public hospitals found in Addis Ababa city was assessed both from the health professional's perspective and actual data based on assessment using EHSTG standard checklist.

6.1 Implementation status of quality management system

This study showed that the implementation status of quality management system in Addis Ababa public hospitals is 56.7% from the professionals' perspective, which is lower than a study conducted in Amhara region that the quality management system implementation was found 62.3% from professionals' perspective. It might be because of the participation of professionals in implementation of QMS in Addis Ababa public hospitals is lower when compared to Amhara region hospitals [24].

While the implementation status of QMS in this study found to be higher when related to other previous research done on the implementation of QMS where the implementation status was 4 per cent in Dutch hospitals,3 per cent in Finland and 0 per cent in Hungary [27]. But this comparison does not permit reaching on conclusions, because of the two studies used different standards or assessment measures for QMS implementation.

This study indicates that the implementation status of QMS is higher in specialized hospitals (57.7%) than in general hospitals (55.3%). Whereas study done in Amhara region revealed that QMS implementation was higher in general hospitals (61%) than specialized hospitals (51%) [24].

In this study the hospital having professionals understanding or accepting the significance of QMS has statistically significant association with quality management system ($p=0.034$) which also similar in study done in Ethiopia, Amhara region [24].

6.2 Factors affecting quality management system implementation

In this study implementation of quality management system were found higher in specialized hospitals than general hospitals similarly studies done in Lithuanian also shows that quality management practice is higher among professions of the large hospitals than the district hospitals [9,24].

The above result may be described as quality management system implementation is succeeds better in larger hospitals, whereas smaller organizations usually suffer a bigger shortage of resources, such as budget and human resources [9].

This study indicated that professionals' understanding about the significance of quality management system have statistically significant association with the implementation of quality management system status. This result was reliable with the finding of key informant reports that professional's attitude toward the significance of QMS was a reason behind less professional participation in quality management system. This can be explained since professional participation has high value in implementation of QMS, it indicates that professional's attitude toward quality management system may significantly affect the QMS implementation.

Also, a study done in Algeria public hospitals showed that understanding of professionals about the significance of quality management system is a serious issue for implementing the system effectively [11].

The above results suggest that management of the hospitals should be more committed to form a good image of the system in professional's attention through intensive training and awareness creation program. This helps to encourage employee participation, providing a culture that allows interaction and responsibility for advance of processes, intensifying their sense of commitment to progress and development in the hospitals.

In this study being a hospital having established a functional quality committee in their hospital is 1.7 times more likely to implement quality management system than those have not established and also not functional. This research results agreeing to a study done in Jordan hospitals and Amhara region hospitals, which shows the presence of statistically significant association between quality committee and quality implementation [11,24]. Whereas another

study done in Uk (London) and India results opposing the existence of significant association between QMS implementation and the availability of quality unit [7,15].

7. Strength and limitation

7.1 Strength of the study

- Using standardized questionnaire which was prepared by the Federal Ministry of Health of Ethiopia called Ethiopian Hospital Service Transformation Guideline (EHSTG).
- The study was also conducted in all public hospitals in Addis Ababa which makes the study representative of hospitals in Addis Ababa.
- This study also used observational checklist for the qualitative finding part which support to associate the quality committee response with what was observed.

7.2 Limitation of the study

- This study was made on the professionals' perception of the implementation status of quality management system, which may allow a certain level of subjectivity. However, effort is made to triangulate the finding using observational checklist and in-depth interview.

8. Conclusion

This study was conducted to assess current implementation status of quality management system and determinant factors affecting its implementation in public hospitals of Addis Ababa city. The implementation status of the system is fifty-six percent (56.7%) which was found lower than other previously done studies.

The Implementation status of the 11 operational standards included in EHSTG chapter 19 was found to be in range 5-11. Having the quality improvement unit was the top mostly implemented standard quality management activities in all hospitals whereas the two Complaints receiving, analyzing and discussing with the staff and strategy to provide patient focused care which incorporates, compassion, respect and dignity for patient's mechanism were poorly implemented standard quality management activities.

Generally, the implementation status of quality management system in the study hospitals were found significantly associated with existence of hospital quality plan, presence of specified budget for quality improvement, having aware professionals on quality management system, presence of professionals perceived significance of quality management system and presence of established and fully functioning quality committee.

The results of this study on the implementation of quality management system encourage that there is a need to have well established and fully -functioning quality committee, to form awareness in the professionals on the significance of quality management system for the hospitals, and adjust/lay specified budget for quality improvement activities in the hospitals.

9. Recommendation

To public hospitals found in Addis Ababa city

- The hospital management should focus on and communicating how the hospital quality mission with stakeholders and professionals across the whole hospital.

- The hospital management should give attention on how to escalating training opportunities for quality members and professionals on Quality and quality related issues.
- Highly focus on strategies on how to improving the quality improvement and how to provide patient focused care and compliant receiving and analysis system.

- The hospitals should allocate specified budget for quality improvement system and give awareness for professionals on how to improve their hospital quality.

To Addis Ababa Health Bureau and Federal Ministry of Health

- Strengthen and follow hospitals quality implementation status through external audit and also give technical support.
- Facilitate and arrange training schedules for managers on quality and quality members to ensure that all side of the hospitals, the organizational structure, management style, training, communications, compensation and promotion systems, and systems, procedures, and processes reflect QM values and principles.
- Also, they have to decide cut point for the standards to say whether quality was implemented or not.

To FMHACA

- Since they are external auditor and regulatory body on quality of all hospitals, they have to check seriously the implementation status of quality in hospitals and follow up by giving feedback at least quarterly in a year.

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Annexes

Annex I: Information consent sheet and self-administered questionnaire form in English version.

A questionnaire prepared to asses' current implementation status of quality management system and its determinant factors in public hospitals found in Addis Ababa Ethiopia, 2020.

Consent form

My name is Senbeto Amenu, a final year masters of science in Laboratory management and quality assurance student at Addis Ababa University. I am going to assess the implementation of quality management system of public hospital in Addis A baba city from professional perspective. The purpose of this study is to get information on the implementation of quality management system of hospital in Addis Ababa to design appropriate intervention to address quality management implementation gaps of the hospital. Therefore, your honest and genuine participation by responding the questions is highly appreciated and helpful to attain the study objectives. You may have your own contribution to the success of this study. Your name will not be written on this form and no individual response will be reported to anybody. Hence, your answers are completely confidential. You don't have to answer any question that you don't want to answer and you may refuse to answer all of the questions.

Name of the interviewer_____ sign_____date_____

Tel: - 0904130779 Email: - senbirasa2@gmail.com

***Part one*: Background information**

1.	Profession of the participant? 1. Physician ☐ 4. Midwife ☐ 2. Health officer ☐ 5. Laboratory ☐ 3. Nurse ☐ 6. Pharmacist ☐ 7. Others specify_____
2.	Sex A. Male ☐ B. Female ☐
3.	Age ☐
4.	. Educational background? 1. Diploma ☐ 2. Degree ☐ 3. MSc and above ☐ 4. Others specify_____
5.	Type of hospital that you serve? **1.** Specialized ☐ **2.** General ☐

***Part two*: Hospital Strategy**

- **For question 6-9:** use **1**= Not available 2= Available but not communicated throughout the hospital **3**= Available and communicated throughout the hospital **4** = don't know

	Activities	**1**	**2**	**3**	**4**
6	Mission statement regarding quality care delivery				
7	Quality plan of the hospital				
8	Departmental quality plan				
9	Budget for quality improvement				

***Part three*: Quality management system implementation**

Use the following 1= strongly disagree 2= disagree 3 = neutral

4 = agree 5= strongly agree

	Activities	**1**	**2**	**3**	**4**	**5**
10	The hospital has Quality Improvement Unit or case team					
11	Incident reporting and analysis system in each case team					
12	The hospital continuously and systematically reviews and improves all activities that directly affect patients and staff					
13	Clinical audit in each case team					
14	Monitoring clinical outcome in each case team					
15	Patient right and responsibility posted in service areas					
16	Patient satisfaction survey conducted(in/out patient)					
17	Complaints received analyzed and discussed with the staff					
18	Benchmarking and experience sharing with other hospitals					
19	The hospital implements a strategy to provide patient focused care which incorporates, compassion, respect and dignity for patients					
20	The hospital developed quality improvement strategy and operation Plan in each case team					

***Part four*: Employee empowerment and participation**

21.	How do you explain the quality management system in your hospital? **A.** The system had no significance at all. **B.** The negative effect of the system overrides the significance of the system. **C.** The system is significant but it can't be practically implemented in hospitals. **D.** The system creates improved environment in different aspects of the service. **E.** The system is a necessity question for the wellbeing of the hospital.	
22.	Who is/are the main player in the quality management system in the hospital? (2or more choices possible) **A.** No one **C.** Professionals **B**. Quality committee **D.** Staff on managerial position Others specify_____	
23.	How do you explain the quality committee in your hospital? **1**. Not established **2**. Established but totally non-functional. **3**. Established but not fully functioning **4**. Established and fully functioning **5**. Don't know Others specify_____	

24.	If your answer for question 24 is choice "1" or "2" or "3" what are the reason for poor quality committee functions? (2 or more choices possible) ☐ budget scarcity ☐ Loss of influence on quality matter ☐ Managerial dominance ☐ Dual and more committee membership Others specify_____	
25	How do you explain the awareness of the staff about quality management system? **A.** Not aware at all **B.** Only less than 50% of the staff has general information about the system concept **C**. 50 % and more of the staff have general information but not clear with the necessity of the system and what is expected from them. **D.** 50 % and more of the staff have detailed information on the necessity, expectation from them. Others specify_____	
26	How do you explain the participation of professionals in quality management system? **1.** Not participated at all. **2.** Less than 50 % of the staff participated **3.** 50 % and more of the staff participated **4.** Don't know Others specify_____	

27	If your answer for question 27 is choice "3" what are the activities that professionals participated in? ☐ Quality plan and evaluation ☐ Membership in quality circles /groups/projects ☐ Registration and reporting of procedures / HMIS data ☐ Influencing the fulfillment of community needs Others specify_____	
28	If your answer for question 27 is choice "1" or "2" what are the reason for poor participation of employees? (2 or more choice possible) ☐ Communication on quality management does not include employees ☐ No opportunity available for employees to participate ☐ Employee resistance Others specify_____	
29	How do you explain the training of employees on quality management system? **A**. Not provided **B**. Only for case team leader **C**. Less than 50% of the staff trained **D**. 50% and more of the staff trained **E**. Don't know	
30	Do you think the quality management system has negative effect in the hospital? **A.** Yes **B.** No Others specify_____	**Skip to 31 if " yes"**

31	If your answer for question 31 is yes, what are the negative effects of the system? (2 or more choice possible). ☐ Work load increase ☐ Time wasted for unnecessary registration ☐ Tedious meetings without gain Others specify_____	

Key informant Interview guide questionnaire

1.	How do you see the implementation of QMS in the hospital?	
	_____ _____ _____	
2	How do you see the participation of professionals in QMS in the hospital? _____ _____ _____	
3	What are the determinant factors for QMS implementation in the hospital? _____ _____ _____	

	Assessing the implementation status of quality management system in hospitals based on EHSTG standards			
S. N	**OPERATIONAL STANDARDS**	**VERIFICATION CRITERIA**	**Met**	**UnMet**
1	The hospital has Quality Improvement Unit	❖ Check the structure for implementation, monitoring and evaluation of QI projects by QU, GB, SMT and departments that all lead by the QU		
2	The hospital developed quality improvement strategy and operation plan that addresses the key components of quality such as: ✓ Safety and risk management ✓ Clinical Audit ✓ Patient focused care ✓ Patient and public involvement ✓ Benchmarking	❖ Ensure that the **strategy includes** ✓ Safety and risk management ✓ Clinical Audit ✓ Patient focused care ✓ Patient and public involvement ✓ Benchmarking		
3	The hospital developed and established procedures to monitor clinical practices and measure the outcomes	❖ Check list of clinical outcome measures developed and monitored regularly		
4	The hospital implements a regular clinical audit program in each case team	❖ Check whether *re-audits* are conducted to close gaps identified during previous audits & check if there is an improvement		
5	Incident reporting and analysis system in each case team	❖ View regular risk assessment reports and actions of case teams, laboratory and other departments at least quarterly.		
6	Patient right and responsibility posted in clearly displayed service areas	❖ Visit patient service areas and confirm that statements clearly displayed		
7	The hospital continuously and systematically reviews and improves all activities that directly affect to patients, staff and others.	❖ View strategy in QU that includes identified risks assessed		

8	The hospital surveys patient satisfaction at least quarterly	❖ Confirm that survey conducted regularly every 3 months		
9	The hospital implements a strategy to provide patient focused care which incorporates, compassion, respect and dignity for patients, effective communication, better hotel services	❖ View and confirm whether the strategy covers issues about respect and dignity, effective communication, better hotel services		
10	The hospital participates in benchmarking activities to learn from and share good practice with other hospitals	❖ Check and confirm that the hospital attends EHAQ Cluster meetings		
11	Complaints received analyzed and discussed with the staff and acted up on	❖ Check actions taken if documented		

Lists of eleven (11) public hospitals in Addis Ababa Ethiopia included in my research paper will be the followings:

1. Tikur Anbessa specialized hospital
2. St. Peter's Specialized Hospital
3. Amanuel Mental Specialized Hospital
4. ALERT Hospital
5. St. Paul's Hospital Millennium Medical College

Under Addis Ababa Health bureau

1. Dagmawi Menelik Hospital
2. Ras Desta Hospital
3. Zewditu Memorial Hospital
4. Tirunesh Beijing Hospital
5. Yekatit 12 Hospital
6. Gandhi Memorial Hospital

Declaration

I, the undersigned, declare that this M.Sc. thesis is my original work, has not been presented for a degree in this or any other university and that all sources of materials used for the thesis have been duly acknowledged.

M.Sc. candidate: **Senbeto Amenu (B.Sc.)**

Signature: _____

Date of submission: _____

This thesis has been submitted with our approval as advisors.

Advisor: **Aster Tsegaye (MSc, PhD)**

Signature: _____

Date: _____

Place: Addis Ababa, Ethiopia.

Advisor: **Alemayehu Nigatu (MSc, MPH)**

Signature: _____

Date: _____

Place: Addis Ababa, Ethiopia