

ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES



Assessment of Quality Improvement Project Implementation Practices at Addis Ababa Public Hospitals

BY: Shemsedin Omer Mohammed

A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF MASTER OF ARTS DEGREE IN PROJECT
MANAGEMENT

Advisor: Abebaw Kassie Gualu (PhD)

February, 2022
Addis Ababa, Ethiopia

Assessment of Quality Improvement Project Implementation Practices at Addis Ababa Public Hospitals

BY

Shemsedin Omer Mohammed

Advisor: Abebaw Kassie Gualu (PhD)

A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF MASTER OF ARTS DEGREE IN PROJECT
MANAGEMENT

February, 2022

Addis Ababa

ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES

Assessment of Quality Improvement Project Implementation Practices at Addis Ababa Public Hospitals

BY

Shemsedin Omer Mohammed

Approved by Board of Examiners

Dean Graduate Studies

Signature & Date

Advisor

Signature & Date

External Examiner

Signature & Date

Internal Examiner

Signature & Date

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Dr. Abebaw Kassie Gualu. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in fully to any other higher learning institution for the purpose of earning any degree.

Student's Name

Signature & Date

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for Examination with my approval as a university advisor.

Advisor's Name

Signature

ACKNOWLEDGMENT

I would like to express my deepest and greatest appreciation to my Advisor, Dr. Abeba Kassie for his valuable and constructive comments and advice in the course of this paper preparation which genuinely guided me in the right direction.

I am also greatly indebted to Addis Ababa City Administration Health Bureau, Addis Ababa Public Hospitals Medical Directors and Hospitals quality improvement unit staff for their positive cooperation during data collection process of this study.

Last but not least I want to extend my gratitude to my family for their support and understanding during my study and thesis work.

Table of Contents

List of Table	ix
List of Figure	x
Acronym	xi
Abstract	xii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background information	1
1.2 Statement of the problem	3
1.3 Research Questions	4
1.4.1 Research Objective	4
1.4.1 General Objective	4
1.4.2 Specific Objective	5
1.5 Significance of the study	5
1.6 Scope of the study	5
1.7 Limitation of the study	6
1.7 Organization of the study	6
CHAPTER TWO	7
LITERATURE REVIEW	7
Introduction	7
2.1: Theoretical Review	7
2.1.1: Classical theory of change	7
2.1.2: Planned Models of Change	8
2.1.3: Organization theory	8
2.1.4 Quality Improvement Concept	9
2.1.5 Project and Project implementation	10
2.2 Empirical Review	12
2.2.1 Project Management in Health Care	12
2.2.2: Quality improvement Principles	13
2.2.3: Quality Improvement in Ethiopian Health Sector	14
2.2.4 Factors affecting quality improvement implementation	15
2.3: Synthesis of Literature Review	17

2.4 Theoretical framework	18
CHAPTER THREE	19
RESEARCH METHODOLOGY	19
Introduction	19
3.1 Description of the study Area/Organization and projects.....	19
3.2 Research Approach and Design	19
3.3 Sampling Technique and Sample Size.....	20
3.3.1: Sampling Techniques	20
3.4 Target population and Sample.....	20
3.4.1 Target population.....	20
3.4.2 Sample size determination & Sampling selection procedure	20
3.5 Data Collection Techniques and Procedure.....	21
3.5.1 Data Source.....	21
3.5.2 Data Collection Tool.....	21
3.5.3 Data Collection Procedure	21
3.6 Data analysis and Data Presentation	22
CHAPTER FOUR	24
DATA ANALYSIS AND INTERPRETATION.....	24
4.1 Socio demographic characteristics	24
4.2 Quality Improvement Implementation Experience	26
4.3 Leadership Engagement on QI project Implementation.....	28
4.4 Data Collection, Analysis and Use for Quality Improvement.....	30
4.5 Quality Improvement Team Perceived Competency.....	31
4.6 Team Work on Quality Improvement Project Implementation.....	32
4.7 Resource Availability for QI project Implementation	33
4.8 Attitude on Quality improvement and its result.....	34
CHAPTER FIVE	35
SUMMARY OF FINDING, CONCLUSION AND RECOMMENDATION.....	35
5.1 Summary of the finding	35
5.2 Conclusion.....	37
5.3: Recommendations	38
REFERENCE.....	39
Appendix: Questionnaire	43

List of Table

Table 3. 1: Decision rule for univariate analysis	22
Table 3. 2: Reliability statistics of the questionnaire for variables of interest	23
Table 4. 1: Socio demographic characteristics of Quality Improvement Team members at Addis Ababa Public Hospital, Ethiopia, (N= 60), July 2021	24
Table 4. 2: Quality Improvement Experience of QI team members at Addis Ababa Public Hospital, July 2021	26
Table 4. 3: Leadership engagement in quality improvement project implementation at Addis Ababa public hospital, July 2021 (N=60).....	28
Table 4. 4: Data collection, analysis and use for quality improvement at Addis Ababa public hospital, July 2021 (N=60)	30
Table 4. 5: Addis Ababa public hospitals staff perceived competency on QI implementation, July 2021 (N=60).....	31
Table 4. 6: Team work on QI project implementation at Addis Ababa Public Hospitals, July 2020.....	32
Table 4. 7: Resource availability for QI project implementation at Addis Ababa public hospitals, July 2020.....	33
Table 4. 8: Attitude of Addis Ababa public hospitals QI team members on quality improvement project and its result, July 2020	34

List of Figure

Figure 2.1: Theoretical framework of this study (Source, own).....	18
Figure 4. 1: Things that QI team members of Addis Ababa Public Hospitals Can Influence during QI project Implementation	27

Acronym

ANC	Antenatal Care
BMJ	British Medical Journal
CI	Confidence Interval
CQI	Continuous Quality Improvement
EHCQI	Ethiopian Health Care Quality Initiatives
FDRE	Federal Democratic Republic of Ethiopia
FMOH	Federal Ministry of Health
HSDP	Health Sector Development Program
HSTP	Health Sector Transformation Plan
IPO	Input Process Output
MOI	Model of Improvement
PDSA	Plan Do Study Act
NHQS	National Health Quality Strategy
NHS	National Health Service
QI	Quality Improvement
SaLTS	Saving Lives through Safe Surgery
SNNP	South Nations Nationality People
TQM	Total Quality Management
UHC	Universal Health Coverage

Abstract

To achieve better health outcomes at the societal level, it is important to emphasize quality across the spectrum of health systems from the sub-national to the national and across primary, secondary and tertiary levels of care. The quality issue in Ethiopian health system was given high prominence in Health Sector Transformation plan (2015/16-2019/2020). The objective of this study was to assess the quality improvement (QI) project implementation in Addis Ababa Public Hospitals. Cross sectional descriptive study design with quantitative approach was used. Self-administered structured questionnaire was used to collect primary data electronically from 12 Addis Ababa Public Hospitals. Out of 72 study participants for whom the questionnaire was sent 60 have responded making the response rate 83.3%. The questionnaire internal consistency was checked using Cronbach's alpha. The data was analyzed using SPSS version 20 software. All 12 hospitals have started at least one new QI project while more than half of study participants (56.7%) have reported that their hospitals had graduated at least two QI projects within 12 months prior to the study. The QI team members have least influence on preparing project goal and resource allocation. The descriptive analysis shows that there is high perceived competency on QI implementation, QI team have positive attitude toward QI project, there is high level of team work on QI, there is gaps in using generated evidence for decision making and sustaining gains. The hospital leader's and physician engagement on QI project implementation as well as resource allocation for QI project are sub optimal. The hospital management is recommended to further empower QI team, maximize use of evidence for decision making, improve resource allocation, sustaining gain from QI project implementation, and work to enhance physician engagement. Lastly encouraging new ideas, actively monitoring the QI project implementation and facilitating cross learning among employees were recommended as a means to improve leadership engagement.

Key Words: *QI project implementation, Leadership, team work, Attitude, staff competency*

CHAPTER ONE

INTRODUCTION

1.1 Background information

To achieve better health outcomes at the societal level, it is important to emphasize quality across the spectrum of health systems from the sub-national to the national and across primary, secondary and tertiary levels of care (Mensah Abrampah et al 2018). Today's healthcare services increasingly use modern management tools and techniques such as Continuous Quality Improvement (CQI), Total Quality Management (TQM), Process Reengineering, Benchmarking, Supply Chain Management (SCM), Six Sigma, etc. to satisfy both internal and external customers (Lee, Khong, Ghista , et al 2006).

Plan, Do, Study, Act (PDSA) and the model of improvement (MOI) were the main CQI models used. Although PDSA appeared more effective than MOI in improving half or more of clinical process outcomes in randomized control trial (RCTs), MOI is more effective than PDSA in improving patient outcome (Hill, Stephani, Sapple,, & Clegg, 2020). However, many of these are general guidelines and do not specifically approach the unique problems of the different units of the hospital-based healthcare system. Moreover, they are characterized by their fragmented approach *i.e.*, they are not linked with the strategic intent of the organization (Dey, Hariharan, & Chen, 2007).

In the last 20 years, Ethiopia has successfully implemented its strategy of expanding and rehabilitating primary health care facilities. Ministry of health (MOH) have invested on thousands of health facility construction, investment in human resource development and management has been scaled up; reformed supply chain and logistics management to ensure continuous availability of health commodities at an affordable price in a sustainable manner; and strengthened coordination and partnership (FMOH 2015). Since the launch of the Health Sector Development Program (HSDP) in the 1990s, there have been significant achievements in improving health outcomes for the Ethiopian population, such as the reduction of child deaths by more than two-thirds to meet Millennium Development Goal Four (Magge, Kiflie, Nimako, K. et al 2019). The

ever growing demand of the public urge the government to be increasingly focused on addressing quality in health services provision (FMOH, 2015).

A number of service and/or program specific quality improvement initiatives were developed and implemented. These include - but are not limited to - Maternal Newborn and child health Quality of Care initiative, Saving Lives through Safe Surgery (SaLTS), and the Learning Health Facility initiative (FDRE MOH 2019). In Ethiopia context the health care quality initiative design and lessons learned from woreda collaborative design was documented (Magge H., et al 2019). A “change concept” is an idea that can stimulate change that leads to improvement. Multiple small scale quality improvement projects that lasts from 12-18 months has been implemented in specific health facilities. Local lessons on the result of quality improvement project has been reported with success in some area while failure is also reported from others. However quality improvement project implementation practice in Ethiopian Hospital context was not studied.

Quality as a concept seems to vary both in definition and in understanding. Even well-known authors define quality in different ways (Endashaw. 2020). QI embraces a philosophy of meeting or exceeding customer expectations through the continuous improvement of the processes of producing a good or service. QI posits that the quality of goods and services depends foremost on the processes by which they are designed and delivered. Hence, QI focuses on understanding, controlling, and improving work processes rather than on correcting individuals’ mistakes after the fact. (Weiner, Alexander, Shortell, et al 2006).

A project is a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of the projects indicate a definite beginning and end. The end is reached when the project’s objective have been achieved or when the project is terminated because its objectives will not or cannot be met or when the need of the project no longer exist. (PMI, 2008). The Project Management Institute (2000) indicates that the project implementation phase requires close collaboration with clients to ensure that the project is delivered on time within the defined scope and cost to meet the organization’s needs

1.2 Statement of the problem

Cognizant of the problem the Ethiopian MOH make excellence in quality improvement and assurance as one of the pillars of excellence of health sector transformation plan I (2015/16-2019/20). Following its launch National Quality Strategy was developed in 2016 focusing on ensuring reliable, excellent clinical care, protecting patients, staff, and attendants from harm, and improving the efficiency of the delivery of care. The Strategy has prioritized five major health priority areas namely Maternal and Child Health, nutrition, Communicable Diseases, Non Communicable Diseases, clinical and surgical services (FDRE MOH 2016).

Quality of care remains a key determinant of service utilization and universal health coverage (UHC) in Africa. A significance amount of efforts has gone into improving availability of services, with less focus on the quality of those services (World Health Organization 2018). The quality of care index of Africa is 0.63 which indicate that quality of care in the Region is only 63% of what is feasible. Ethiopia's quality of care index falls in 0.51-0.59 which is even lower than the continental average figure.

The focus on system-level quality improvement has resulted in CQI methods being identified, and increasingly used, as an approach to enhance the quality of care and reduce costs. In systematically reviewing the evidence comparing the use of CQI with non-CQI interventions in health care, it was apparent that, regardless of the growth in evidence in the last 10 years, the results were largely equivocal (Hill, Stephani, Sapple, & Clegg, 2020).

Healthcare systems are operating in complex and dynamic working environment. (Emma colis et al, 2020) identified; leadership, organizational culture, individual skills and capabilities, organizational capacity and capability, data and technical infrastructure, readiness for change, championship and relationships, as factors that influence the implementation, effectiveness, sustainability and transferability of QI initiatives in healthcare.

Globally the most studied subcategory of quality programs is hospital quality programs, particularly US hospital total quality management programs. However there is limited evidence of

QI in developing country (Øvretveit, & Gustafson, 2002, Hill et al 2020). Hospital based descriptive study in Serilanka reported that top management commitment, training, teamwork, physical structure and monitoring system as independent variables that influence the CQI implementation programs. In Ethiopian context one study (Nebiyou et al) assessed factors affecting continuous quality improvement in health centers and primary hospital setting of Southern Nation Nationality and People Regional State. In Ethiopian context only limited health service are provided at health center and primary hospital level while most public hospital at Addis provided different specialty service with highly trained doctors. However there is no empirical evidence on the QI implementation practice in Addis Ababa public hospital setting which is very different from district and primary level health care context. Therefore this study aimed at assessing the quality improvement project implementation practice in the public hospitals of Addis Ababa City Administration.

1.3 Research Questions

The study aimed at addressing the following research questions

- To what extent the Addis Ababa Public Hospitals are implementing QI projects?
- Does Hospital leader adequately engage in QI projects implementation?
- Are health care workers satisfied with QI project achievements or implementation?
- Do the hospital staff have the competency to implement QI project?
- What are the level of team work on QI project implementation?
- To what extent the hospital gave emphasis on generation of quality data and use of evidence for decision making?

1.4.1 Research Objective

1.4.1 General Objective

The general objective of the study is to assess quality improvement project implementation in Addis Ababa public hospitals

1.4.2 Specific Objective

The specific objective of the study are

- Assess the QI project implementation practice in Addis Ababa Public Hospitals
- Assess the leadership engagement on QI project implementation in Addis Ababa Public Hospital
- Assess the health workers attitude toward quality improvement project implementation

1.5 Significance of the study

This study is designed to assess the implementation of quality improvement project in Addis Ababa public hospitals. The finding can potentially inform the program people what to consider for effective implementation of QI project. The study have also assessed the perception of health workers toward QI and the extent of collaborative work among health workers staff. Hence the finding will help in designing strategy to ensure sustainability of QI achievement. Furthermore the finding from this study contribute to limited availability of information on QI project implementation and serve as reference for further study.

1.6 Scope of the study

The scope of this study is limited to assessing the quality improvement project implementation practice at Addis Ababa public hospitals. The study focused on: leadership commitment, team work on QI, staff competency on QI implementation, attitude toward QI implementation, the existing practice of monitoring QI performance and resource availability. The study had also assessed the QI team satisfaction on QI achievement. Data was collected from the available hospitals found in Addis Ababa. The potential respondents for this study were quality improvement team members of the Addis Ababa public hospitals and the study period was from April to July 2021. Patient level information was not collected. This study did not examine the extent to which the quality improvement projects was implemented and it did not determine the change attributed to interventions.

1.7 Limitation of the study

This study use cross sectional descriptive study design only. Using mixed method which include qualitative study design could have provided added information on the practice of quality improvement project implementation. Likewise the primary data source for this study are QI committee of the hospitals. Therefore the finding could not be generalized to the general health workers.

1.7 Organization of the study

The research had comprised five respective chapters in which the researcher clearly state the entire process of the research, this include: Chapter one introduce the overall picture of the study which include the background of the study, statement of the problem, research questions, research objectives, significance of the research, Scope and Limitation of the research and organization of the research. Chapter Two looks into the concepts related with literature. This part of the research deals with the literature (theory and empirical evidences) relevant to the proposed research. Chapter three describes about the research area and methodology used. In this chapter the researcher described the subject/participant of the study, the sources of the data, the data collection instruments used, the procedures of data collection and the method of data analysis. Chapter four is about result of the study. In this chapter detail of the result finding was presented both in narrative as well as using tables and graphs. Chapter five is about conclusion and recommendation. The summary of major finding and recommendation made by researcher was written under this chapter.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This section covers review of literature from different scholars and authors that have been reviewed in the area of project management with special focus on quality improvement project. It deals with theoretical, empirical, and conceptual findings of various researchers concepts related to projects, project management, quality improvement, quality improvement principles, and factors that affect quality improvement project implementation. It deals with the review of related literature gathered from different secondary sources such as published books, articles and related websites. In this regard, efforts were exerted to include as much significantly related literatures as possible by reviewing available documents that exhibits points, targeting at the attainment of the research objectives.

2.1: Theoretical Review

According to McDonald. et al (2004) theory describes and explains what is observed and why it happens. It expands on the “what” question by addressing “how” and “why” these quality improvement (QI) strategies or their components might or might not be effective, and under what conditions (“when” and “where”).

This section briefly outline three theories that can help in understanding the quality improvement and also can be used in designing interventions to modify interactions among individual patients, health care providers, and the organizations they function within. Additionally basic quality concept is also included. Furthermore the concept of project and project implementation structure was described briefly.

2.1.1: Classical theory of change

Classical theories/models of change (sometimes referred to as descriptive or normative theories) are passive; they explain or describe the naturalistic process of change or diffusion of innovation. Perhaps the most prominent example of a classical theory of change is Everett Rogers’ diffusion of innovation theory (Rogers 1995). Some of the better known observations deriving from Rogers’ work are the innovation-decision process, which describes how potential adopters’ perceptions of

the attributes or characteristics of an innovation influence diffusion of the innovation, and the relationship between adopter types and diffusion. The innovation-decision process consists of five stages that potential adopters pass through as they decide to adopt an innovation. These stages are: knowledge (becoming aware of the innovation), persuasion (developing positive attitudes toward the innovation), decision (making a cognitive decision to adopt the innovation—i.e., developing an intention to adopt), implementation (using the innovation), and confirmation (continuing to use the innovation, adapting the innovation, or abandoning it). While classical theories/models of change may help to identify potential determinants of change, they provide little information on the best way to either accelerate or hinder natural diffusion.

2.1.2: Planned Models of Change

A planned change model/theory is a set of logically interrelated concepts that explain, in a systematic way, the means by which planned change occurs. These models predict how various forces in an environment will react in specified change situations, and help QI implementers control variables that increase or decrease the likelihood that change will occur (Tiffany CR 1994). Planned change, in this context, refers to deliberate (not haphazard) efforts to engineer change in groups that vary in size and setting. Those who use planned change theories/models may work with individuals, but their objective is to alter ways of doing things in social systems. Planned change models provide broad frameworks for planning implementation activities, but are less helpful when considering which specific interventions to use.

2.1.3: Organization theory

Organizational behavior is the study of individual and group attitudes and actions within an organizational setting, and describes how the resultant behavior affects the goals of the organization. Macro theories regarding how organizations function and behave fall into three major typologies: 1) rational system theories, which focus on the internal structures and processes of an organization, 2) natural-system theories, which also focus on internal workings, but emphasize the organization as a social system, noting the importance of unplanned processes and events, human relations, and integration of individual and organizational goals, and 3) open-system theories, which emphasize the ways in which an organization's environment relates to its structure and behavior (Scott WR 1998). Shortell posits that the health care system can be best understood

in light of all three of these theories, because of its complex inner, social, and external structures (Shortell, Kaluzny AD 1988 and 1994)

2.1.4 Quality Improvement Concept

To date, there is no universally accepted definition of “quality.” Within the global health care community, the definition from the US Institute of Medicine (Richardson, 2001) is generally used: “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”.

The BMJ’s Quality Improvement series uses the Academy of Medical Royal Colleges definition (Backhouse, & Ogunlayi, 2020). A systematic continuous approach that aims to solve problems in healthcare, improve service provision, and ultimately provide better outcomes for patients.

The Ethiopian National Health Quality Strategy (2016) defined quality as “Comprehensive care that is measurably safe, effective, patient centered, and uniformly delivered in a timely way that is affordable to the Ethiopian population and appropriately utilizes resources and services efficiently.”

The following are among other varies definition of quality improvement

- Improvement in patient outcomes, system performance, and professional development that results from a combined, multidisciplinary approach in how change is delivered. (Batalden, & Davidoff, 2007).
- The delivery of healthcare with improved outcomes and lower cost through continuous redesigning of work processes and systems. (Ham , Berwick, Dixon, 2016)
- Using a systematic change method and strategies to improve patient experience and outcome. (, Øvretveit. 2009)
- To make a difference to patients by improving safety, effectiveness, and experience of care by using understanding of our complex healthcare environment, applying a systematic approach, and designing, testing, and implementing changes using real time measurement for improvement. (Backhouse, &Ogunlayi, 2020).

2.1.5 Project and Project implementation

A project is “a temporary endeavor undertaken to create a unique product, service, or result.” Operations, on the other hand, is work done in organizations to sustain the business. Projects are different from operations in that they end when their objectives have been reached or the project has been terminated (Turner 2017)

Project management is “the application of knowledge, skills, tools and techniques to project activities to meet the project requirements.” Project managers must not only strive to meet specific scope, schedule, cost, resource, risk, and quality requirements of projects, they must also facilitate the entire process to meet the needs and expectations of the people involved in or affected by project activities (Lester 2006).

The fundamental difference between project management and general management stem from the difference in the type of work they manage. Project management deals with management of projects (which are temporary and unique) whereas, general management deal with management of operations (which are ongoing and repetitive). Generally project organization changes continually as the project progresses through its various phases and terminate when the mission is accomplished; whereas the ongoing organizations that manage operations sustain at least over a period of time and continue assuming a broader outlook (Hendrickson and Carmichael, 2004)

Implementation of approved projects require choosing among different organizational Structures. There are three main types of project organizations: Functional, matrix and project or task force. Functional organization consists of specialist or functional departments, each with their own departmental manager responsible to one or more directors. Such an organization is ideal for routine operations where there is little variation of the end product. Functional organizations are usually found where items are mass produced. The functional structure gives the least power to a project manager, but offers plenty of other advantages: It works well for small teams and small projects because the function has full control over the team members and other resources required (Lester, 2006).

Matrix organization structure is probably the most common type of project organization, since it utilizes an existing functional organization to provide the human resources without disrupting the day-to-day operation of the department. In matrix organization, many employees would end up

working both under a department head and a project manager of an interdisciplinary project team. When compared with other organizational forms, a matrix organization is a mixed form in which traditional hierarchy is overlaid by some form of lateral authority, influence, or communication. This overlay present in a matrix creates two chains of command—one along the functional lines, the other along project lines (Gobeli and Larson, 1986). Given the complexity of project management in the actual business world, the matrix structure is often used where the need for strong technical assistance across many areas is required (El-Najdawi, & Liberatore. 1997)

In project organization the project team are usually located in one area, which can be a room for a small project or a complete building for a very large one. Lines of communication are short and the interaction of the disciplines reduces the risk of errors and misunderstandings. This type pf structure is essential for large project with so many area of business. The key to success lies with the personality of the project manager and his or her ability to inspire the project team to regard themselves as personal stakeholders in the project (Lester, 2006)

2.2 Empirical Review

2.2.1 Project Management in Health Care

A project is a useful way to introduce innovations, address new needs, or find solutions to problems that the status quo does not accommodate (Turner, 2009).

Project management is presented as an approach that allows the implementation of strategic changes within organizations (Turner, 2009). It is also presented as a way of improving organizational performance (Crawford and Helm, 2009). Although project management appears to be the ideal approach to meet the challenge of operational improvement in order to bring about a better performance of health care systems (Shirley, 2011, Lavoie-Tremblay *et al.*, 2012), its implementation in health sector is limited.

Results of the literature review indicate that the information technology project management in health sector is the favorite topic of researchers. Furthermore, very little of the research on health sector project management is published in the project management discipline's journals and, on the other hand, a minority of the articles reviewed make reference to the works that are published in the project management Journals (Afzal, & Gauthier, 2017).

There is less evidence of the explicit use of project management in the delivery of organizational changes in the healthcare sector. There is no question that organizational change can be considered as a project (Englund, Graham, & Dinsmore, 2003), or that formal project management is commonly found in IT projects delivered in a healthcare context (Kumpf & Wittelsberger, 2005). However, relatively little attention has been paid to project management in other facets of healthcare. Some exceptions to this include the application of a project management approach when managing healthcare infrastructure and patient needs (Sa Couto, 2008), the development of internal project management systems to assist in healthcare service provision (Kumpf & Wittelsberger, 2005), and the 2005 former partnership between the Project Management Institute's (PMI) Healthcare Project Management Specific Interest Group and the executive committee of the National Association for Public Health Information Technology (Claudio, 2005).

2.2.2: Quality improvement Principles

The primary intent of quality improvement is to bring about measurable improvement to a specific aspect of healthcare delivery, often with evidence or theory of what might work but requiring local iterative testing to find the best solution (Ogrinc et al 2013). QI uses an iterative process of testing change ideas by adopting a theory of change which emphasizes a continuous process of planning and testing changes, studying and learning from comparing the results to a predicted outcome, and adapting hypothesis in response to results of previous tests (Reed, & Card, 2016, McNicholas, et al 2019)

There are certain agreed available QI methodologies. Commonly cited methodologies include the Model for Improvement, Lean, Six Sigma, and Experience-based Co-design (Ham, Berwick, Dixon, 2016). Systematic review shows that the choice of tools or methodologies has little impact on the success of QI provided that the chosen methodology is followed consistently (Alderwick, et al 2017). Though there is no formal agreement on what constitutes a QI tool, it would include activities such as process mapping that can be used within a range of QI methodological approaches. National Health Service (NHS) Scotland's Quality Improvement Hub has a glossary of commonly used tools in QI (Backhouse, & Ogunlayi, 2020).

Most of the QI project uses the PDSA cycle together with the model for improvement. The four key methodological feature of QI are: Use of an iterative cyclic method, Use of continuous data collection, Small-scale testing and explicit description of the theoretical rationale of the projects. A systematic literature review study done by Knudsen, S. et al (2019) that included 120 QI projects revealed almost all project reported improvement (98%). However, only 32 (27%) described a specific, quantitative aim and reached it. The application of the key PDSA features appeared to be highly inconsistent. A total of 72 projects (60%) documented PDSA cycles sufficiently for inclusion in a full analysis of key features. Of these only three (4%) adhered to all four key methodological features. The researcher concludes adherence to key methodological features in the individual projects pose a challenge for the legitimacy of PDSA-based QI to draw firm conclusions about the size and the causality of the reported improvements in quality of care.

QI approach is known for its empowerment of front line staff and service users. QI work should engage staff and patients by providing them with the opportunity and skills to contribute to

improvement work. Recognition of this need often manifests in drives from senior leadership or management to build QI capability in healthcare organizations, but it also requires that frontline staff and service users feel able to make use of these skills and take ownership of improvement work (Mary, Sarah, & Graham, 2012).

Quality improvement project uses data for evidence informed decision to drive improvement. As a tradition it is requirement to document baseline drive, continuously collect data to measure the impact of change idea implementation over time and understand variation in processes and outcomes. Measurement for improvement typically prioritizes this narrative approach over concerns around exactness and completeness of data (Shah, 2019).

QI advocate for testing change idea in small scale and recommend scale-up and with adaptation to specific context. As interventions tested using a QI approach are scaled up and the degree of belief in their efficacy increases, it is desirable that they spread outward and be adopted by others. Key to successful diffusion of improvement is the adaption of interventions to new environments, patient and staff groups, available resources, and even personal preferences of healthcare provider's in surrounding areas, again using an iterative testing approach (Horton, et al 2018, Massoud, 2016)

2.2.3: Quality Improvement in Ethiopian Health Sector

Quality and equity was given high prominence in five years Ethiopian Health Sector Transformation plan by considering this issue as one of transformation agenda (FMOH, 2015). To operationalize the agenda the national health quality strategy (NHQS) was developed by the FMOH with support from institute of health care improvement (IHI) at the beginning of the initiative, in March 2016. The NHQS identified four strategic focus areas: (i) developing an integrated approach to quality management, (ii) igniting consumer demand for quality, (iii) linking UHC strategy with the quality agenda and (iv) strengthening data systems and feedback. Implementation of the NHQS is underway with the leadership of the FMOH, including creating quality governance structures at all levels, building QI capability and convening annual QI summits to support a QI 'movement'.

The FMOH and IHI co-designed three pronged multi-level approach (prototype phase 15 months, test of scale phase 18 month and full sale to all woreda) for the Ethiopian Health Care Quality Initiatives (EHCQI) that, anchored in the Juran Trilogy of quality planning, QI and quality control, was intended to ensure large-scale implementation and sustainability of effective QI efforts (Magge H. et al 2019). The combination of a national strategy, expanded QI capability across the system and successful demonstration of QI method implementation holds promise for scale-up and sustainability of this comprehensive approach to improve outcomes across the Ethiopian healthcare system.

2.2.4 Factors affecting quality improvement implementation

Christopher M., et al (2018) study conducted on contextual factors that influence quality improvement implementation in primary care revealed variation between respondents' views on individual contextual factors (e.g., perceptions of the meaning and value of QI) based on staff role. At the organizational- and team-level, respondents from all roles reported similar challenges including lack of clear communication about QI, differences between stated leadership priorities and leadership support for QI (e.g., time and resources), and differences in top-down versus bottom-up QI priorities.

Study by Somatunga et al (2015) on Factors Influencing Continuous Quality Improvement Programme in Government Hospitals of Sri Lanka identified top management commitment, training, teamwork, physical structure and monitoring system as independent variables that influence the CQI implementation program. All the participants rated lower for teamwork and felt that teamwork had little influence on CQI program implementation. This study have also reported varies roadblock to CQI implementation such as insufficient training of the staff, First line supervisor resistance; Lack of management support for the quality improvement initiatives, Organization objectives are not being publicized, mostly government hospitals are disorganized and staff spend most of their time for non-value added activities. Hence they are unable to concentrate on their quality improvement activities. Lack of proper planning, incompatible rewards and compensation are also reported to be important barrier of quality improvement implementation.

Another study by Catherine Hart, et al (2015) also reported Successful QI is achieved by combining a thorough understanding of not only the methodology and science but also the “softer skills” of change management. Capable leaders and well-balanced teams must personalize and adapt their approaches to create cultures and contexts where change will flourish. Incontrovertibly, central to every test of change and innovation must be an engaged patient or family, directing the future of healthcare in the very ways that matter most

A qualitative study on health administrator perspective (Kash, Spaulding, Johnson, , &Gamm, 2014) have reported the following ten success factors: culture and value, business process, people and engagement, service quality and client engagement, coherence planning, leadership, market force and external demand, access to information and communication. “In health care setting culture, people and engagement, and service quality are more relevant factors than are leadership and communication factors, frequently identified in the broad management literature. Another study done on sustainability and spread of quality improvement activities (Lisa Cranley et al, 2018)) reported that sustainability of a QI project which empowers and engages care aides is possible and achievable, but requires ongoing staff and leadership engagement.

An evaluation of QI program by Øvretveit, & Gustafson, (2002) reported that factors appear to be necessary to motivate and sustain implementation and to create conditions likely to produce results are: Senior management commitment, sustained attention and the right type of management roles at different levels, a focus on customer needs, physician involvement, sufficient resources, careful programme management, practical and relevant training which personnel can use immediately, and the right culture. Same study showed that little is known about long term result of QI achievement and what works in one area might not work in other area which call for context specific adaptation.

According to study done by Wendwessen, Dereje, and Gize (2020) The implementation of continuous quality improvement projects was associated with factors such as leadership receptiveness, leadership encouragement for learning, client satisfaction level, and the level of satisfaction of health staffs with their work. Overall, staff training on QI, team work, and leadership engagement did not show significant associations with CQI implementation, despite mentions by various previous studies as important determinant factors

2.3: Synthesis of Literature Review

Quality improvement is an iterative process that require continuous collection of data to measure improvement or change overtime. There is no universally agreed QI tools; however there is certain agreed methodological features even though adherence to recommended features is found to be inconsistent. QI project is usually implemented at small scale and most of the project self-reported results shows an improvement. However due to variability in methodology comparing one study finding with others is recommended to be interpreted with caution. The long term effect of quality improvement was not adequately studied.

The quality improvement literature evidence showed that what worked in certain environment might not perfectly apply for other setting which suggest that directly translating evidence into practice and implementing improvement initiative to achieve effective change is not straight forward. Improvement are context sensitive and hence contextual factors play great role.

Multiple studies (Øvretveit, & Gustafson, 2002; Catherine. Hart, et al, 2015 and Christopher M., et al 2018) reported that contextual factors related with organization capacity, leadership, physician involvement, team work, health workers skills, readiness for change, use of quality data and resource availability affects the effective implementation of QI.

The researcher found that even though studies have been done on quality improvement project implementation, most of them are done in other countries except one. One study done in Ethiopia is done at SNNP region in primary health care setting which is different from Addis Ababa City context. Therefore the investigator of this study took this knowledge gap as a source of research problem.

2.4 Theoretical framework

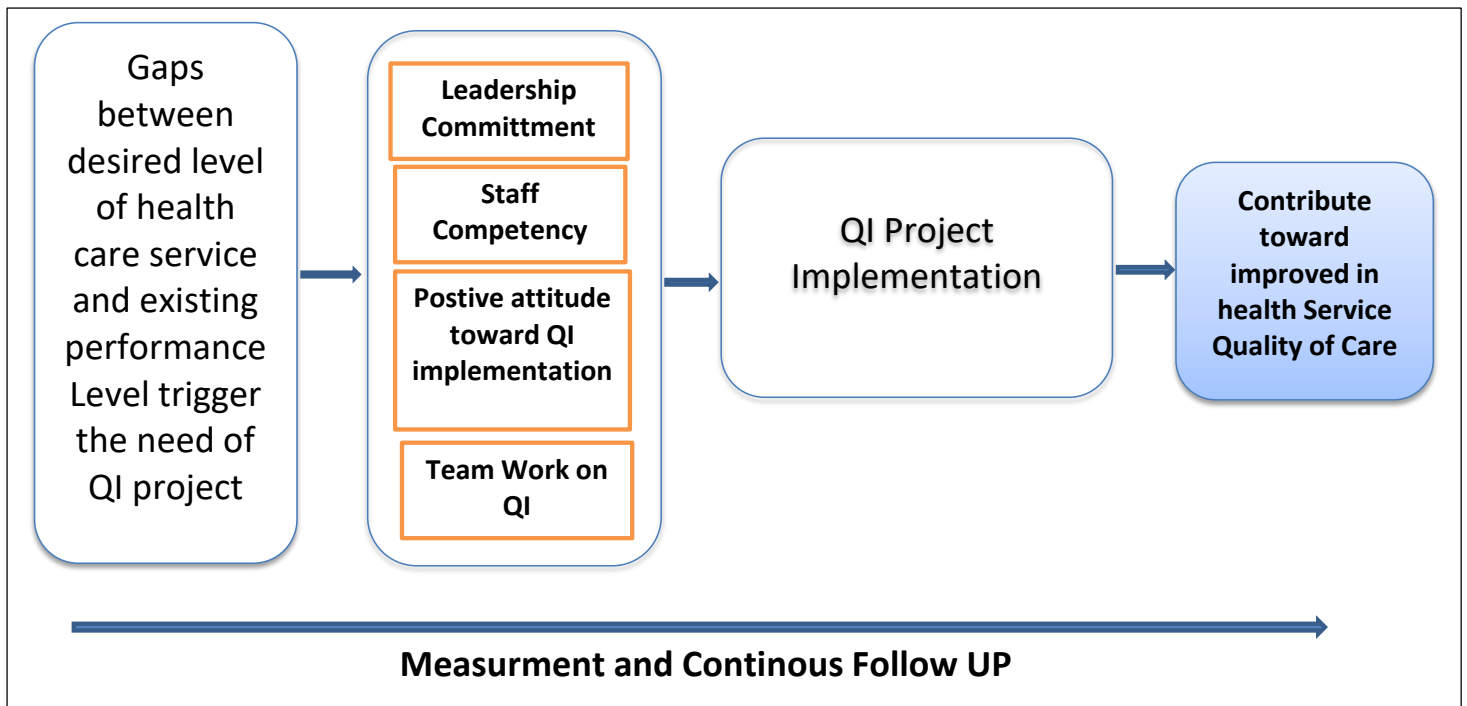


Figure 2.1: Theoretical framework of this study (Source, own)

Nationally there are desired level of health service care target in each area of department. When the gaps exists between the desired level of performance and actual performance the importance of improving it through quality improvement project is considered as one of the option.

From literature review and synthesis of literature, it is hypothesized that leadership commitment in leading QI project, capacitated hospital staff through training and follow up on how to implement QI project, the perception of staff toward QI implementation and teamwork plays paramount importance in designing and successful implementation of the project. Resource is not explicitly stated on the framework because it is one of the expected output from committed leaders.

Measurement and follow up is a cross cutting for QI project implementation from its inception to completion make continues data collection, analysis, interpretation and uses of evidence for decision making as one key component of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

Introduction

This chapter describes the methodology of the study that researcher follow. It includes description of study area, research approach and design. Moreover, it focused on data collection, sampling design, data collection instrument, data management and analysis that was used for the study.

3.1 Description of the study Area/Organization and projects

The Ethiopian health service is structured into a three-tier system- primary, secondary and tertiary level health care (FDRE MOH, 2015). The primary health care unit (PHCU) consists of health posts, health center, and primary hospital. One health center is attached with five-satellite health post to provide services to approximately 25,000 people altogether. General hospitals are categorized under the second tier of health care and serve on average one million people. The third tier in the Ethiopian health care system is the tertiary health care that consists of a specialized hospital that covers a population of approximately five million. It also serves as a referral center for general hospitals.

According to health and health related indicators (FDRE MOH, 2020) there are 12 public hospitals in Addis Ababa city that provide service to general public. The hospitals in Addis Ababa are categorized under either secondary or tertiary tiers of Ethiopian health system. According to 2012 EFY annual performance report, Ethiopian hospitals are at different level regarding QI project implementation. There are multiple projects that last 12-18 months being implemented in hospital setting since 2018. The projects are managed by hospital quality improvement units. However QI unit team members are expected to undertake other activities in the hospital while non-QI team member's staff have also a role in implementing the QI projects. The organization structure is more of weak type of matrix structure.

3.2 Research Approach and Design

John (2014) outline that research approaches are plan and procedures for a research that span the steps from broad assumptions to detailed method of data collection, analysis and interpretation. To answer this study stated research objectives the researcher have used quantitative research design

because addressing the research objective requires measuring variables and conducting relationship analysis. Saunders (2012) explained that quantitative research design help to examines the relationship between variables.

Research design as defined by Leedy (1997) was a plan to a study for providing overall framework of collecting data. Descriptive study design was used for this research to describe the quality improvement project implementation practice. Creswell (1994) stated that descriptive method of research is a techniques of gathering information about the present existing condition.

Therefore a cross-sectional descriptive study design with quantitative approach was used to assess the quality improvement project implementation at public hospitals of Addis Ababa from March to July 2021.

3.3 Sampling Technique and Sample Size

3.3.1: Sampling Techniques

There are two major alternatives on how to select appropriate sample: Probability and non-probability sampling. The researcher choose non-probability purposive sampling techniques for this research. Purposive or judgmental sampling is a strategy in which particular settings persons or events are selected deliberately in order to provide important information that cannot be obtained from other choices (Maxwell, 1996).

3.4 Target population and Sample

3.4.1 Target population

Source population

- All health care providers working in public hospitals of Addis Ababa

3.4.2 Sample size determination & Sampling selection procedure

The Ethiopian National Health Care Quality Strategy (FRDRE, MOH, 2016) outlined quality structure at different level of health system. The hospital quality unit is led by full time physician whose responsibility is coordinating QI activities in the hospital. The QI unit is supported by QI committee represented by clinical department and selected experts working in the hospital. The QI committee are expected to work to mainstream QI concept and activities in all department. At time

of data collection for this study each hospitals have on average a total of 6 QI committee members. All members of this committee were considered to be illegible for this study which make total sample size of 72. Therefore study participants were purposively selected. Detail list of public hospital QI committee member with telephone and email address were obtained from Addis Ababa Regional Health Bureau.

3.5 Data Collection Techniques and Procedure

3.5.1 Data Source

The primary sources of data was used in this study. It was collected from hospital quality committee members that were involved in process of quality improvement project implementation

3.5.2 Data Collection Tool

Structured self-administered questioner with the response options of multiple choices and five points Likert scale of agreement (strongly agree to strongly disagree) was used as a data collection instrument for the quantitative method used in this study. Additionally the questionnaire has also three open ended question as well. The questionnaire was adopted from Malcolm bridge national quality award criteria and previous study. The data collection questionnaire has a total of 41 questions divided into eight sections: socio-demographic variables, quality improvement initiative implementation experience, leadership engagement in quality improvement, Data collection, Analysis and use for quality improvement, QI process management, Resource availability, Perception on QI results and open ended question. The questions included in QI process management have composed of statement about staff competency and team work as well.

3.5.3 Data Collection Procedure

The questionnaire was prepared on google form and the link of questionnaire were emailed to potential respondents using address obtained from Addis Ababa regional health bureau and repeated follow up call were made to respondents by telephone. The Questionnaire was pre-tested at public hospital found in Harar and Dire Dawa because the facilities found in these two towns have similar characteristic while compared with that of Addis Ababa. Using the input collected during pre-testing the researcher have included few questions and modify some others. Furthermore the flow of questionnaire was also rearranged.

3.6 Data analysis and Data Presentation

The data collected by using google form was down loaded to excel sheet and variable names were shorten to make the file ready for analysis using SPSS version 20 software. Descriptive analyses using measures of central tendency was conducted. Likert scale response to multiple question are computed and mean score and their standard deviation are used. Decision rule table was developed to interpret the computed score in univariate analysis.

Table 3. 1: Decision rule for univariate analysis

Range	Decision attribute
$1 \leq X_i \leq 2.5$	Low level
$2.5 < X_i \leq 3.5$	Moderate level
$3.5 \leq X_i \leq 5$	High level

Source- (Somatunga et al 2015)

A reliability test using Cronbach's alpha was done to test internal consistent of construct in Likert scale. According to (Bonett, & Wright,) internal consistency reliability is a measure of consistency between different items of the same construct. A value of Cronbach's alpha above 0.70 can be used as a reasonable test of Reliability. In this study multiple items were used for leadership engagement; data collection and analysis; staff competency on QI; Team work on QI implementation process; resource allocation and the hospital staff perception on QI implementation outcome. The Cronbach's alpha of the aforementioned items were indicated as follows:

Table 3. 2: Reliability statistics of the questionnaire for variables of interest

Area	Number of items	Cronbach's alpha value
Leadership Engagement	5	0.909
Data collection, analysis and use	6	0.836
Staff competency	3	0.945
Team work	5	0.858
Resource allocation	4	0.841
Perception on quality improvement	3	0.720

3.7 Ethical Consideration

The written support letter was obtained from St Mary University School of graduate studies. The hospital's chief executive officers and medical director were informed about the study. Furthermore, the respondents were asked for their consent prior to filling the tools to gather the relevant information. The respondents were informed that no part of their response are exposed to anyone and confidentiality was maintained strictly.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

This chapter describes the analysis and interpretation of the collected data. Background information of respondents, descriptive analysis on QI project implementation experience and computed scores of leadership engagement on QI implementation, data collection, analysis and use practice for QI project implementation, perceived competency of QI team, team work on QI implementation, resource availability for QI project implementation and Attitude toward QI.

4.1 Socio demographic characteristics

Table 4. 1: Socio demographic characteristics of Quality Improvement Team members at Addis Ababa Public Hospital, Ethiopia, (N= 60), July 2021

Variable	Frequency	Percentage
Sex		
Male	34	56.7
Female	26	43.3
Age Category		
25-30 years	23	38.3
31-40 years	33	55
>41 years	4	6.6
Profession		
Physician	32	53.3
Public Health	14	23.3
Nurse	10	16.7
Others	4	6.6
Educational Level		
B.Sc Degree	12	20
MD degree	22	36.7
MD+ Specialty Certificate	8	13.3
Postgraduate	18	30

Out of 72 study participants for whom the questionnaire were electronically sent, 60 of them have filled and submitted their response which make the response rate of 83.3%. The majority of respondents 34 (56.7%) were male. Regarding age, more than half of the respondents, 33 (55%) fall in 31-40 years age category. The mean age of study participants was 32.6 years with standard deviation of 5.71. More than half, 32 (53.3%) of respondents were physician by profession

followed by public health 14 (23.3%). Frequency distribution of the educational level of the respondents, showed that 22 (36.7%) of them have medical doctor degree, 18 (30%) have post graduate degree, 12 (20%) have first degree and the remaining 8(13.3%) had MD+ Clinical Specialty Certificate, The above respondents socio demographic profile tells that they are well educated and they are from multiple health profession discipline. Hence the response obtained from this study respondents are assumed to be highly dependable.

4.2 Quality Improvement Implementation Experience

Table 4. 2: Quality Improvement Experience of QI team members at Addis Ababa Public Hospital, July 2021

Variable	Frequency	Percentage
Work Experience in years (n=60)		
Less than 6	31	50.7
6-10	14	23.3
Greater than 10	15	25
Hospital quality unit have approved plan		
Yes,	56	93.3
No	4	6.7
Frequency of QI committee meeting		
Every two weeks	20	33.3
Monthly	28	46.7
Quarterly	12	20
Number of newly started QI project		
1-3	17	28.3
4-6	37	61.7
7-13	6	10
Number of graduated QI project in 12 months		
No project was graduated	6	10
One project was graduated	20	33.3
At least two project was graduated	34	56.7
Opportunity to participate on QI project		
Yes	52	86.7
No	8	13.3
Staff training on QI		
Only QI team trained	16	26.7
Some staff trained	34	56.7
Most staff trained	10	16.7
Staff motivated on QI implementation		
Yes motivated	50	83.3
Not motivated	8	13.3
I don't know	2	3.3
Hospital Staff cooperate in team work		
Yes	54	90
No	6	10

Nearly half of the study participants, 31 (50.7%) have less than 6 years of work experience, 15 (25%) have greater than 10 years' experience while the remaining have 6-10 years' experience. Except 4 the remaining 56 respondents said that their hospital have approved quality unit annual plan. Regarding frequency of QI committee meeting the large proportion of respondents, 28 (46.7%) response indicate that they meet every months. All 12 hospitals have started at least one new quality improvement project while three of them did not graduated (completed) any project in the last 12 months. According to the majority, 37 (61.7%), of study participants their hospitals have started 4-6 new projects 12 months prior to this study data collection. Likewise more than half, 34 (56.7%) reported that their hospitals had graduated at least two quality improvement projects. More than three quarter 52 (86.7%) of study participants had get the opportunity to participate on QI projects. More than half 34 (56.7%) of study participants had reported that some of staff have received training on QI and the great majority 50(83.3%) said that staff are motivated on QI implementation project.

These finding shows that the Addis Ababa public hospitals are actively implementing the QI project with some degree of variation. The number of newly started project is greater than the number of project started which might be an indication for gaps in follow up to project completion. There is also difference in frequency of meeting which call for further standardization. The presence of motivated staff can be used as an opportunity to develop staff ownership to ensure sustainability of positive gains from QI project implementation.

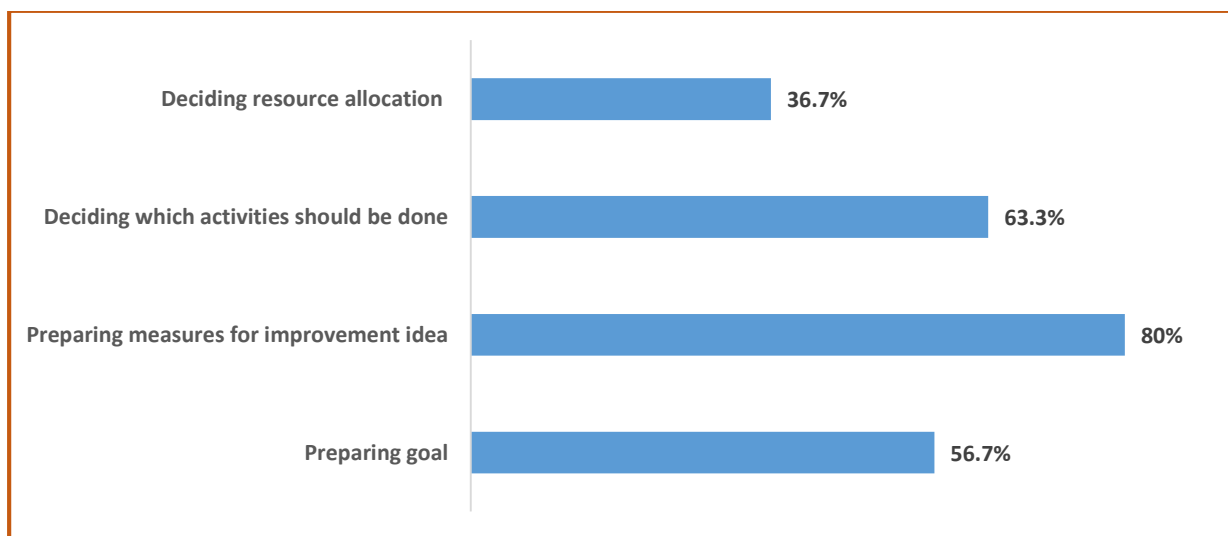


Figure 4. 1: Things that QI team members of Addis Ababa Public Hospitals Can Influence during QI project Implementation

As depicted on figure 4.1 above preparing measures for improvement idea is the most mentioned items as things that QI team members could influence during the QI implementation followed by deciding which activities should be done. The QI team member have least influence on resource allocation. This may be due to the presence of tradition in the Ethiopian hospital that primarily give the role of deciding on resource allocation and defining the goal of any initiatives to hospital CEO and senior management. The existing practice contradict with QI principle of empowering the frontline health workers such as QI team members. The QI approach is known for its empowerment of front line staff (Mary, D. W et al, 2012). Less empowerment might negatively affect overall QI unit performance.

4.3 Leadership Engagement on QI project Implementation

Table 4. 3: Leadership engagement in quality improvement project implementation at Addis Ababa public hospital, July 2021 (N=60)

Sr. #	Statement	Mean	SD
1	The hospital senior leadership are receptive to new idea	3.40	1.21
2	The CEO/Medical director is/are a primary driving force behind quality improvement efforts.	3.23	1.35
3	The hospitals leadership shares information/ data about health facility service delivery status	3.23	1.29
4	The hospital leadership consistently participate in monitoring QI activities implementation	3.33	1.120
5	The hospital leadership encourages learning that help all employees advance their knowledge	3.20	1.26

The leadership engagement on quality improvement activity was assessed by using five statements stated in table 4.3 using Likert scale. The statements are about leadership receptiveness to new idea, their participation on the monitoring of QI activities implementation, whether they are a primary driving force behind quality improvement efforts, their data/information sharing practice about health facility service delivery status and whether hospital leadership encourages learning that help all employees advance their knowledge. The overall leadership mean score computed from the five statement is 3.28 (SD=1.10) which indicate moderate level of leadership engagement in quality improvement project implementation at Addis Ababa public hospitals.

On the other hand, for the open ended question that asks the participant's opinion about the success factors of QI project implementation more than half of the respondents mentioned leadership commitment and engagement among major factors for the QI project implementation. One responded stated that *"if hospital CEO don't want thing to be done It will not be done"*. This statement shows the level of effect the hospital leadership have on the QI project implementation. Any initiatives not owned and led by hospital leadership could not be accomplished well.

The gaps related with leaders engagement on QI project implementation was also reported by previous study. The study conducted on QI project implementation at SNNP (Wendwessen N. et al, 2020) reported that majority of health facilities leaders were not encouraging learning (62.5%) or engaged in the quality improvement project implementation process (66%).

Leadership support or engagement in the process of QI project implementation was reported as a challenge by Christopher M., et al (2018) while Somatunga L C et al (2015) reported top management commitment as an independents variables that influence QI implementation program. If the gaps in the leadership engagement continue, it may affect successful implementation of the QI project implementation to the desired level.

4.4 Data Collection, Analysis and Use for Quality Improvement

Table 4. 4: Data collection, analysis and use for quality improvement at Addis Ababa public hospital, July 2021 (N=60)

Sr. #	Statements	Mean	SD
1	The hospital collects a wide range of data about the quality of care and services.	3.90	0.986
2	The hospital staff get the data they need whenever they need	3.63	1.089
3	The hospital staff analyses the collected data and use the information for decision making about their work	3.10	1.115
4	The hospital continually tries to improve the accuracy and relevance of its data on the quality of care and services provided.	3.63	1.025
5	The hospital continually tries to improve the timeliness of its data on the quality of care and services provided.	3.83	0.905
6	The data generated by hospital departments are highly reliable and trust worthy	3.70	1.013

The data collection, analysis and use for quality improvement was assessed using six statement listed in table 4.4. The response to the statements shows that the hospitals are collecting wide range of data about quality of care (mean score 3.90), the hospital staff can get the data they need whenever they need (mean score 3.63), hospitals are working on improving the quality of data and the respondents strongly believe that the collected data are trust worthy (mean score 3.70). However the study respondents moderately agree to the statement “The hospital staff analyses the collected data and use the information for decision making about their work”. Overall mean of data collection, analysis and use for quality improvement is 3.63 with SD of 0.813 which indicate high level of performance.

The relative better score on data collection and data availability may be attributed to the current practice of embedding the routine data improvement initiatives with quality improvement project implementation in the Ethiopian health system. A study conducted by Mullissa Z et al (2020) reported that improvement of data quality was observed while embedding it with the wider quality of care.

The ultimate purpose of collecting data is using it for evidence based decision making. However; according to this study, there is gaps in analyzing collected data and using it for decision making.

Similar finding was reported by Mullissa Z et al (2020). This might be attributed to low culture of data use practice.

Additionally limitation in follow up and sustaining lessons from QI project implementation was mentioned among the major challenges of QI project implementation by study participants. One of the respondents stated that *“there is critical gap in monitoring and following the QI project implementation until graduation”*

4.5 Quality Improvement Team Perceived Competency

Table 4. 5: Addis Ababa public hospitals staff perceived competency on QI implementation, July 2021 (N=60)

Sr. #	Statements	Mean	SD
1	The hospital QI team have adequate knowledge on developing measurable aim	3.80	0.988
2	The hospital QI team have the required skill to use the available QI tools	3.77	0.927
3	The hospital QI team has clear criteria for determining if change is an improvement	4.07	0.899

The quality improvement process team competency was assessed by a total of three statements listed in table 4.5. According to the study participant’s response the hospital QI team perceived that they have adequate knowledge on developing measurable aim (mean score 3.80); they have the required skill to use available QI tools (mean score 3.77) and the hospital QI team has clear criteria for determining if change is an improvement (mean score 4.07). Generally the mean score of three statement is 3.88 with SD of 0.899 which indicate the hospital QI team have high level of perceived competency to execute the QI implementation. Baernholdt, M. et al (2021) reported that QI project implementation requires the knowledge and skill of hospital staff to improve quality of care delivery. Therefore the hospital can consider this finding as an asset for their QI project implementation.

4.6 Team Work on Quality Improvement Project Implementation

Table 4. 6: Team work on QI project implementation at Addis Ababa Public Hospitals, July 2020

Sr. #	Statements	Mean	SD
1	Physicians are adequately engaged on the QI implementation process	3.27	1.103
2	The staff involved in the improvement idea are aware of their individual responsibilities	3.33	0.837
3	The project leader for the improvement idea places great emphasis on getting the work done.	3.70	0.823
4	The project leader has great confidence in the participants involved in the improvement idea	3.60	0.848
5	The change occurred from implementing change idea are discussed in team	4.20	0.835

The level of team work on quality improvement process was assessed by a total of five statements. According to the finding, project leader highly focused on getting the work done (mean score 3.70) and have high confidence on the staff involved in the QI project implementation (mean score 3.60). Likewise the hospital QI team discuss on the change happened from implementing QI project (mean score 4.20). However moderate level of physician engagement on the QI implementation process (mean score 3.27) and moderate staff awareness of their individual responsibility (mean score 3.33) are reported. Generally the mean score of five statement is 3.63(SD=0.74) which indicate the presence of high level of team engagement in QI project implementation process.

In hospital setting physician play significant role in healthcare service provision. Øvretveit, J., & Gustafson, D. (2002) reported physician involvement on QI project implementation among factors necessary to motivate and sustain QI implementation. If gaps in physician engagement is not addressed, it will have negative repercussions on QI implementation and its sustainability. Likewise the finding of gaps in staff awareness of their role and responsibility might cause conflict in the team.

4.7 Resource Availability for QI project Implementation

Table 4. 7: Resource availability for QI project implementation at Addis Ababa public hospitals, July 2020

Sr. #	Statements	Mean	SD
1	Adequate budget is allocated for change idea implementation	2.70	1.109
2	The hospital has assigned adequate number of staff for implementation of change idea	3.20	1.232
3	The hospital allocated adequate time for implementation of improvement idea	3.47	1.096
4	Required material, space and equipment for implementation of change idea are available	3.03	1.057

The resource availability for QI project implementation was assessed using four statements. From the four statement relatively high score (3.47) is reported for statement “The hospital allocated adequate time for implementation of improvement idea” while least score (2.70) is reported for the statement “Adequate budget is allocated for change idea implementation”. Otherwise all score fall in the moderate level of resource allocation for quality improvement project implementation. Overall the mean score for resource availability is 2.98 with SD 0.939 which indicate that resource are moderately available for QI project implementation.

From the open ended question section participants of this study mentioned shortage of budget and resource, as well as lack of adequate support from senior management as a major challenges for the QI project implementation. Without adequate resource and management support on resource allocation successful implementation of QI project remains a challenges.

4.8 Attitude on Quality improvement and its result

Table 4. 8: Attitude of Addis Ababa public hospitals QI team members on quality improvement project and its result, July 2020

Sr. #	Statements	Mean	SD
1	I believe that quality improvement project implementation has improved patient quality of care	4.43	0.673
2	Quality improvement project improved the work environment of our hospital	4.33	0.795
3	Overall I am very satisfied with the work done by quality improvement project	3.83	1.224

The participant's Attitude on quality improvement and its result was assessed by three statements. The participants of this study believe that quality improvement project implementation has highly improved patient quality of care (mean score 4.43) and the quality improvement project has highly improved the work environment of the hospitals (4.33). Likewise the result indicate that the study participants are satisfied with the work done by quality improvement project (mean score 3.83). The overall mean score of participant's Attitude (4.20 with SD 0.724) indicate that the staff have positive attitude toward the QI project implementation. Positive attitude is a precursor of practicing desired behavior which can be staff commitment on the QI project implementation.

CHAPTER FIVE

SUMMARY OF FINDING, CONCLUSION AND RECOMMENDATION

This chapter deals with the summary of findings, conclusions drawn from the findings and the recommendations forwarded for improvement of QI project implementation in Addis Ababa public hospital setting.

5.1 Summary of the finding

The main objective of this study is to assess the quality improvement project implementation practice in Addis Ababa public hospitals. On the process of undertaking the research, the questionnaire was adapted from Malcolm bridge national quality award criteria. Structured and self-administered questionnaire were electronically sent to a total of 72 potential respondents where by response were obtained from 60 of them making the response rate of 83.3%. The summary of this research finding are:

- The majority of respondents (56.7%) were male while more than half of the respondents (55%) fall in 31-40 years age category. The mean age of study participants was 32.6 years with standard deviation of 5.71. More than half, 32 (53.3%) of respondents were physician by profession. Nearly half of the study participants, 31 (50.7%) have less than 6 years of work experience
- Almost all respondents (93%) of reported that their hospital QI unit have approved annual work plan. The frequency of QI meeting varies. The large proportion of respondents, 28 (46.7%) response indicate that they meet every months while the remaining reported meeting every two weeks and quarterly. All 12 hospitals have started at least one new quality improvement project while more than half of study participants 34 (56.7%) have reported that their hospitals had graduated at least two quality improvement projects within 12 months prior to the study. More than three quarter 52 (86.7%) of study participants had get the opportunity to participate on QI projects while 56.7% of study participants had reported that some of the staff have received training on QI and the great majority 50(83.3%) said that staff are motivated on QI implementation project

- Preparing measures for improvement idea is the most mentioned items as things that QI team members could influence during the QI implementation. However the QI team members of Addis Ababa public hospital have least influence on resource allocation and preparing goals for QI project.
- Of the independent variables QI team member's staff attitude on QI project implementation has the highest mean (4.20 ± 0.724). This shows presence of favorable attitude toward QI implementation. Lowest mean score (2.98 ± 0.939) was reported for resource availability. Overall there is moderate level of leadership engagement (mean score 3.28 ± 1.10) on QI project implementation, there is high level of data collection efforts and with gaps in using generated evidence for decision making for QI implementation, high level of perceived QI staff competency to execute the QI implementation and high level of team engagement in QI project implementation process were reported.
- The major mentioned challenges for QI project implementation are shortage of budget and resource, lack of adequate support from hospital senior management and gaps in follow up and in sustaining achievements from QI project implementation.

5.2 Conclusion

Based on analysis carried out in chapter four and summary of the study finding, the following conclusion was made on the quality improvement project implementation practice at Addis Ababa public hospitals.

The public hospitals in Addis Ababa are widely practicing QI project implementation. However the frequency of meeting to follow QI project implementation varies which indicate that there are hospitals that meet too much frequent every two week while there are also hospitals that meet every quarter. The QI team members have least influence on preparing project goal and resource allocation.

The respondents perceive that the QI team members have the required competency (knowledge and skills) to execute QI project implementation and they have positive attitude toward implementation of the project. The QI team have high satisfaction on the work done by the QI project as well. There is also high level of team work on QI project implementation. Generally there is good practice in data collection and making it available for use even though there is gap in using the generated evidence for decision making.

The hospital leader's and physician engagement on QI project implementation were not adequate. The lowest mean score were reported for resource (budget, time, staff adequacy, material, space equipment) availability for QI project implementation.

5.3: Recommendations

Based on the study finding and conclusion the following recommendation were made

- Close follow up of QI project implementation is very important factors. However frequency of meeting to monitor QI project performance widely varies across hospitals. Therefore the Addis Ababa City Administration Health Bureau should work to standardize it through strengthening supportive follow up.
- The QI Unit or team member's involvement on preparing the project goal and resource allocation is limited. The hospital management should at least should empower the QI unit on preparation of the project goal by consulting them before making final decision.
- One of the study finding is the collected data are not adequately used for decision making and there is a gap in sustaining QI project implementation achievements. Therefore effort should be made by both QI unit and Addis Ababa public hospitals management to make use of evidence generated for decision making and sustaining positive gains obtained by implementing the QI project
- The study reveals that there were no adequate leadership engagement and resource allocation for QI project implementation. Therefore the hospital leadership have to improve their engagement by encouraging new ideas, actively monitoring the QI project implementation and facilitating cross learning among employees. Furthermore they have to improve resource allocation too.
- The Addis Ababa city Administration Health Bureau and Hospital Management have to continue providing QI training to sustain the current high level of staff competency to execute QI and find a way to increase physician engagement on QI project implementation.
- It would be good if the future research focus in the area of what motivate and demotivate staff to implement QI, the contribution of QI project implementation in improving patient level care and factors that affect sustainability of QI initiative in health care.

REFERENCE

- Afzal, A., & Gauthier, J. B. (2017). Project management and practitioners in the health sector: From the Quebec healthcare system perspective to pm literature review
- Alderwick, H., Charles, A., Jones, B., & Warburton, W. (2017). Making the case for quality improvement: lessons for NHS boards and leaders. London: King's Fund.
- Backhouse, A., & Ogunlayi, F. (2020). Quality improvement into practice. *BMJ*, 368.
- Baernholdt, M., Jones, T. L., Anusiewicz, C. V., Campbell, C. M., Montgomery, A., & Patrician, P. A. (2021). Development and Testing of the Quality Improvement Self-efficacy Inventory. *Western Journal of Nursing Research*, 0193945921994158.
- Batalden, P. B., & Davidoff, F. (2007). What is "quality improvement" and how can it transform healthcare?
- Bonett, D. G., & Wright, T. A. (2015). Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. *Journal of organizational behavior*, 36(1), 3-15.
- Brennan, S. E., Bosch, M., Buchan, H., & Green, S. E. (2012). Measuring organizational and individual factors thought to influence the success of quality improvement in primary care: a systematic review of instruments. *Implementation Science*, 7(1), 1-19
- Claudio, Y. (2005). Overcoming scarcity. *PM Network*, 19(12), 18–19.
- CRAWFORD, L. H. & HELM, J. (2009). Government and Governance: The value of Project Management in the Public Sector. *Project Management Journal*, 1, 73-87.
- Dey, P. K., Hariharan, S., & Chen, D. (2007). Managing healthcare quality in project management framework. *International Journal of Services and Operations Management*, 3(3), 261-278
- El-Najdawi, M. K., & Liberatore, M. J. (1997). Matrix management effectiveness: an update for research and engineering organizations. *Project Management Journal*, 28, 25-31.
- Endeshaw, B. (2020). Healthcare service quality-measurement models: a review. *Journal of Health Research*.
- Englund, R. L., Graham, R., & Dinsmore, P. C. (2003). *Creating the project office: A manager's guide to leading organizational change*. San Francisco, CA: Wiley.
- Federal Democratic Republic of Ethiopian, Ministry of Health (FDRE MOH), (2015). Ethiopian Health Sector Transformation Plan.
- Federal Democratic Republic of Ethiopian, Ministry of Health (FDRE MOH), (2016). Ethiopian Health Sector Transformation Plan. Ethiopian National Health Quality Strategy 2016-2020: Transforming the quality of health care in Ethiopian.
- Federal Democratic Republic of Ethiopian, Ministry of Health (FDRE MOH), (2019). Ethiopian Health care Quality bulletin: Continuous Health Care Quality Improvement through Knowledge Management.

- Federal Democratic Republic of Ethiopian, Ministry of Health (FDRE MOH), (2020). Health and Health Related Indicator:
- Gobeli, D. H., & Larson, E. W. (1986). Matrix management: More than a fad. *Engineering Management International*, 4(1), 71-76.
- Hagaman, A. K., Singh, K., Abate, M., Alemu, H., Kefale, A. B., Bitewulign, B., ...&Magge, H. (2020). The impacts of quality improvement on maternal and newborn health: preliminary findings from a health system integrated intervention in four Ethiopian regions. *BMC Health Services Research*, 20, 1-12.
- Ham, C., Berwick, D., & Dixon, J. (2016). *Improving quality in the English NHS*. London: The King's Fund.
- Hart, C. K., Dykes, C., Thienprayoon, R., &Schmit, J. (2015). Change management in quality improvement: the softer skills. *Current Treatment Options in Pediatrics*, 1(4), 372-379.
- Horton, T., Illingworth, J., & Warburton, W. (2018). *The spread challenge*. UK: Health Foundation.
- Knudsen, S. V., Laursen, H. V. B., Johnsen, S. P., Bartels, P. D., Ehlers, L. H., & Mainz, J. (2019). Can quality improvement improve the quality of care? A systematic review of reported effects and methodological rigor in plan-do-study-act projects. *BMC health services research*, 19(1), 683.
- Kash, B. A., Spaulding, A., Johnson, C. E., &Gamm, L. (2014). Success factors for strategic change initiatives: A qualitative study of healthcare administrators' perspectives. *Journal of Healthcare Management*, 59(1), 65-81
- Kumpf, D., &Wittelsberger, C. (2005, March). *Implementing project management in managed care: Opportunities and challenges*. Proceedings of the PMI Global Congress, Scotland, 1-7.
- Lee, P. M., Khong, P., Ghista, D. N., Dey, P. K., &Hariharan, S. (2006). *Integrated approach to healthcare quality management: a case study*. The TQM Magazine.
- Lester, A. (2006). *Project management, planning and control: managing engineering, construction and manufacturing projects to PMI, APM and BSI standards*. Elsevier.
- Magge, H., Kiflie, A., Nimako, K., Brooks, K., Sodzi-Tettey, S., Mobisson-Etuk, N. ... & Burrsa, D. G. (2019). The Ethiopia healthcare quality initiative: design and initial lessons learned. *International Journal for Quality in Health Care*, 31(10), G180-G186.
- Mary, D. W., Sarah, M., & Graham, M. (2012). Ten challenges in improving quality in healthcare: lessons from the Health Foundation's programme evaluations and relevant literature: Table 1. *BMJ Quality & Safety*, 21(10), 876-884.
- Maxwell, J. A. (2012). *Qualitative research design: An interactive approach*. Sage publications.
- McDonald, K. M., Graham, I. D., &Grimshaw, J. (2004). Toward a theoretic basis for quality improvement interventions. *Closing the quality gap: A critical analysis of quality improvement strategies*,
- Mukaka, M. J. M. M. J. (2012). Statistics corner: a guide to appropriate use of correlation in medical research. *Malawi Medical Journal*, 24(3), 69-71.

- Mensah Abrampah, N., Syed, S. B., Hirschhorn, L. R., Nambiar, B., Iqbal, U., Garcia-Elorrio, E., & Kelley, E. (2018). Quality improvement and emerging global health priorities. *International Journal for Quality in Health Care*, 30(suppl_1), 5-9.
- Mulissa, Z., Wendrad, N., Bitewulign, B., Biadgo, A., Abate, M., Alemu, H., ... & Parry, G. (2020). Effect of data quality improvement intervention on health management information system data accuracy: An interrupted time series analysis. *Plos one*, 15(8), e0237703.
- Ogrinc, G., Nelson, W. A., Adams, S. M., & O'Hara, A. E. (2013). An instrument to differentiate between clinical research and quality improvement. *IRB*, 35(5), 1-8.
- Øvretveit, J. (2009). Does improving quality save money? A review of evidence of which improvements to quality reduce costs to health service providers. London: The Health Foundation, 95.
- SaCouto, J. (2008). Project management can help to reduce costs and improve quality in health care services. *Journal of Evaluation in Clinical Practice*, 14(1), 48–52.
- Shah, A. (2019). Using data for improvement. *Bmj*, 364.
- Shirley, D. (2020). *Project management for healthcare*. CRC Press.
- Scott WR. *Organizations: rational, natural and open systems*. 4th ed. Upper Saddle River, NJ: Prentice Hill; 1998.
- Shea, C. M., Turner, K., Albritton, J., & Reiter, K. L. (2018). Contextual factors that influence quality improvement implementation in primary care: the role of organizations, teams, and individuals. *Health care management review*, 43(3), 261.
- Shortell SM, Kaluzny AD. *Health care management: organization, design, and behavior*. 3rd ed. Albany, NY: Delmar Publishers Inc.; 1994. AD, editors. *Health care management: a text in organization theory*
- Somatunga, L. C., Sridharan, S., Refai, M. A. C. M., Malavige, K. K., & Gamini, L. P. S. (2015). Factors influencing continuous quality improvement programme in government hospitals of Sri Lanka. *Int J SciTechnol*, 4, 118-123.
- Tiffany CR. Analysis of planned change theories. *Nurs Manage* 1994; 25:60-2.
- Turner J. *The handbook of project-based management: leading strategic change in organizations*. 3rd ed. London: McGraw-Hill; 2009
- Turner, O. (2017). *Guide to the Project Management Body of Knowledge PMBOK Guide*. Project Management Institute, Pennsylvania.
- .Reed, J. E., & Card, A. J. (2016). The problem with plan-do-study-act cycles. *BMJ quality & safety*, 25(3), 147-152.
- Rogers E. *Diffusion of innovations*. 4th ed. New York: Free Press; 1995.

Saunders, M., Lewis, P. and Thornhill, A. (2012). Research methods for business students, 6th ed. London: Prentice

Senthilnathan, S. (2019). Usefulness of correlation Analysis. Available at SSRN 3416918.

Wendwessen, N., Dereje, T., &Gize, A. (2020). Factors Affecting the Implementation of Continuous Quality Improvement in Health Facilities in Southern Nation and Nationalities Peoples Region (SNNPR), Ethiopia. *Journal of Multidisciplinary Healthcare*, 13, 855.

Weiner, B. J., Alexander, J. A., Shortell, S. M., Baker, L. C., Becker, M., &Geppert, J. J. (2006). Quality improvement implementation and hospital performance on quality indicators. *Health services research*, 41(2), 307-334

World Health Organization. (2018). The state of health in the WHO African Region: an analysis of the status of health, health services and health systems in the context of the Sustainable Development Goals.

Appendix: Questionnaire

Dear Respondents,

I am Shemsedin Omer Mohammed, a graduate student at St. Merry University. I am conducting a research on ‘Assessment of Contextual Factors Affecting Quality Improvement Project Implementation at Addis Ababa Public Hospitals’ in partial fulfillment of Master of Arts in project management.

On this questionnaire writing your name is not required and your answers will be kept completely confidential. Your honest answers will help me to understand in identifying which contextual factor most important for implementing quality improvement projects and to identify problems related to quality improvement project and finally to recommend the possible intervention to the problem. I would greatly appreciate your voluntary participation in filling the questionnaire by spending some of your time.

The potential respondent for this questionnaire are quality improvement (QI) committee members of public hospitals in Addis Ababa. You are purposively selected since you are QI team members of your hospital. With the objective of addressing the COVID-19 pandemic transmission concern electronic data collection approach is preferred. Therefore you too are kindly requested to respond electronically to the investigator.

This questionnaire has a total of eight sections: socio-demographic variables, quality improvement initiative experience, and leadership engagement in quality improvement, Data collection, Analysis and use for quality improvement, QI process management, Resource availability, Perception on QI results and open ended question. Filling this questionnaire approximately take 20-25 minutes. You are kindly requested to read the instruction at each section before filling the questionnaire.

Thank you in advance for your kind cooperation in filling the questionnaire.

If you have any questions or inquiry please communicate the investigator using below address at any time: Shemsedin Omer: Email address- zulala2009@gmail.com or shemsedin.omer@moh.gov.et, Telephone: 0911712777

Part I: Socio demographic characteristics of respondents

After reading the question choose your response from the available options. Please also write your specific response for question that asks short answer.

Sr. #	Question	Response Item	Remarks
101	Sex	1. Male 2. Female	
102	Age in years	_____ years	
103	Profession	1. Physician 2. HO 3. Nurse 4. Laboratory 5. Mid-wife Nurse 6. Pharmacy 7. Public Health 8. Other Specify _____	
104	Education level	1. Diploma 2. First Degree 3. Post Graduate 4. MD 5. MD+	
105	Your professional work experience (please write your experience in years)	_____ Years	

Part II: Quality improvement initiative implementation experience

This section is about your hospital experience on QI project implementation.

Sr. #	Question	Response Item	Remarks
201	Name of your hospital (Please select name of your hospital from dropdown arrow)	_____ hospital	
202	Does your hospital quality unit or directorate have approved annual plan?	1. Yes 2. No	
203	How frequent does your hospital quality committee member meet?	1. Weekly 2. Every two weeks 3. Monthly 4. Quarterly 5. Others specify	

204	Have your hospital started new quality improvement project in the last 12 months?	1. Yes 2. No 9. I don't know	If no Q. 204 skip to part III
205	How many newly designed QI projects are started in the last 12 months? Please list the number in the space provided under response	_____	
206	How many QI project did your hospital graduate in the last 12 months?	1.Our hospital did not graduate any project 2.Only one project was graduated 3.Two projects were graduated 4.Three projects were graduated 5.Four projects were graduated 6.Five projects were graduated 7.More than five projects were graduated	
207	Have you got the opportunity to participate in quality improvement project in the last 12 months?	1. Yes 2. No	
208	In your hospital does staff trained on quality improvement?	1. Yes all of the staff 2. Yes some of the staff 3. Yes, QI team members only 3. No one was trained 9. I don't know	
209	In your hospital are staff motivated to implement quality improvement project?	1. Yes, all are motivated 2. Yes, some are motivated 3. Not motivated 4. I don't know	
210	What can team members influence (multiple answer is possible)	1.preparing goals 2.preparing measures for the improvement idea 3.deciding which activities should be carried out within the improvement idea 3.deciding resource allocation 4. have no any influence	
211	In your hospital does health staff cooperate and work as a team?	1. Yes 2. No	
212	How would you prefer to work in the quality improvement project?	1. As individual 2. As team 3. As both individual and team	

Instruction for Section III to section VII: In circling a response, please keep in mind the following general guidelines regarding the choices of response categories. You should choose **Strongly Agree** when, for example, the statement represents a completely accurate description of your hospital. You should choose **Strongly Disagree** when the description is completely inaccurate. The response **Neutral** should be chosen when, based upon your experience, you believe the statement is neither a particularly accurate nor a particularly inaccurate description of your hospital. This situation may arise because there is wide variation in the activities the statement describes. For example, you might choose neither agree nor disagree when the statement is true of some departments but not of others.

Part III: Leadership engagement in Quality improvement project implementation

Sr. #	Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
301	The hospital senior leadership are receptive to new idea	5	4	3	2	1
302	The CEO/Medical director is/are a primary driving force behind quality improvement efforts.	5	4	3	2	1
303	The hospitals leadership shares information/ data about health facility service delivery status	5	4	3	2	1
304	The hospital leadership consistently participate in monitoring QI activities implementation	5	4	3	2	1
305	The hospital leadership encourages learning that help all employees advance their knowledge	5	4	3	2	1

Part IV: Data collection, Analysis and use for quality improvement

Sr. #	Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
401	The hospital collects a wide range of data about the quality of care and services.	5	4	3	2	1
402	The hospital staff get the data they need whenever they need	5	4	3	2	1
403	The hospital staff analyses the collected data and use the information for decision making about their work	5	4	3	2	1

404	The hospital continually tries to improve the accuracy and relevance of its data on the quality of care and services provided.	5	4	3	2	1
405	The hospital continually tries to improve the timeliness of its data on the quality of care and services provided.	5	4	3	2	1
406	The data generated by hospital departments are highly reliable and trust worthy	5	4	3	2	1

Part V: QI process Management

Sr. #	Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
501	Patient needs are considered during QI planning process	5	4	3	2	1
502	The hospital QI team member have adequate knowledge on developing measurable aim	5	4	3	2	1
503	The hospital QI team member have the required skill to use the available QI tools	5	4	3	2	1
504	Physicians are adequately engaged on the QI implementation process	5	4	3	2	1
505	The QI team member involved in the improvement idea are aware of their individual responsibilities	5	4	3	2	1
506	The project leader for the improvement idea places great emphasis on getting the work done.	5	4	3	2	1
507	The project leader has great confidence in the participants involved in the improvement idea	5	4	3	2	1
508	The hospital QI team has clear criteria for determining if change is an improvement	5	4	3	2	1
509	The change occurred from implementing change idea are discussed in team	5	4	3	2	1

Part VI: Resource Availability

Sr. #	Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
601	Adequate budget is allocated for change idea implementation when requested by QI team	5	4	3	2	1
602	The hospital has assigned adequate number of staff for QI unit/directorate	5	4	3	2	1
603	The hospital allocated adequate time for implementation of improvement idea	5	4	3	2	1
604	Required material, space and equipment for implementation of change idea are available	5	4	3	2	1

Part VII: Perception on quality improvement and its result

Sr. #	Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly disagree
701	I believe that quality improvement project implementation has improved patient quality of care	5	4	3	2	1
702	Quality improvement project improved the work environment of our hospital	5	4	3	2	1
703	Overall I am very satisfied with the work done by quality improvement project	5	4	3	2	1

Section VIII: Open ended questions

Instruction: Please write freely your opinion for below three open ended questions.

801. In your opinion what are the critical success factors for QI project implementations?

802. In your opinion what are the challenges for QI project implementations?

803. What do you think is/are the main reason(s) for most QI project not to achieve their objective?

Thank you very much for taking your valuable time in filling this questionnaire.