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Contact: 91-231-2535706/07 Fax: 91-231-2535708

Website : www.siberindia.edu.in Email : sajmr@siberindia.edu.in, sibersajmr@gmail.com

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C O N T E N T

Level of Continuous Quality Improvement and Factors Affecting the Implementations of CQI in Public Hospitals - Addis Ababa, Ethiopia

Ketemaw Zewude
Public Health Department in Reproductive Healths, at Yekatit 12 Hospital Medical College, Addis Ababa, Ethiopia

Dessie Abebaw
Public Health Department of Reproductive Healths,Yekatit 12 Hospital Medical College,Addis Ababa, Ethiopia

Baye Sisay
Department of Public Management, Ethiopian Civil Service University, Addis Ababa, Africa

Getabalew Endazenaw
Public Health Department of Reproductive Healths, Yekatit 12 Hospital Medical College,Addis Ababa, Ethiopia

ABSTRACT : Background: In the health care sector quality is highly important to reduce the cost of care and Quality Improvement is also a proven, effective way to improve care for patients, residents, and clients, and to improve practice for staff. However, either internal or external factors like availability of leadership engagements, human resources participation, resources allocation, improper paling patient cooperation, or a quality culture among providers affect its implementation.

Objective: To assess the level of continuous quality improvement and factors associated with it in public Hospitals, Addis Ababa Ethiopia, 2021.

Methods: Institutional-based cross-sectional study design was conducted from April 30 to June 30, 2021, to investigate factors affecting continuous quality improvement in Gandi Memorial Hospital and Minilk II Referral Hospital. A simple random sampling technique was used to select the study participants. A total of 384 study participants were involved in the study. Data was entered into EPI data version 3.1 and analyzed by SPSS version 25. Findings were presented in texts, tables. Multi-variety. Logistics regression was used to identify factors statistically associated with the outcome variable, with 95% confidence intervals and a p-value of less than 5% as a statistically significant association.

Result: A total of 384 staff participated with a response rate of 100%. More than half (52.1%) of the respondents were male. The overall level of continuous quality improvement was 77.6%. Variables of staffs participation, quality improvement plan (4.728(2.433-9,189),use of indicators (0.44(0.209-0.925), staffs recognition (0.267,95% CI (0.128-0.564)),and staffs satisfaction (0.289 (0.106-0.791) were the identified predictors of continuous quality improvement implementation in the study settings.

Conclusion: More than half of respondents have implemented continuous quality improvement and staff satisfaction, QI plan and indicators use are among the factors affecting continuous quality improvement implementation.

Introduction

Continuous quality improvement, also known as total quality control, is a management philosophy that aims to help organizations of all types improve performance by eliminating poor quality during the production or delivery of a product or service rather than attempting to fix the results after the product has been manufactured(1).

Another term for CQI is "Total Quality Management," which is a quality management system that demands everyone in the organization to work together to deliver services or products that consider quality from the standpoint of the customer. All services and goods must meet or surpass

the expectations of the customer. quality is an integral aspect of every stage of the manufacturing process under total quality management (2).

Delivering high-quality health service by health facilities is achieved through the implementation of continuous quality improvement and quality improvement is now a driving force in health care and is an essential aspect of service delivery at all levels(3, 4).

Because quality is such a broad word with so many definitions and interpretations, the term "continuous quality improvement" is frequently used to refer to techniques for enhancing treatment. quality improvement is a distinct management approach and collection of tools and strategies that are coordinated to guarantee that departments consistently meet their communities' health needs(5).

Quality Improvement is a tried-and-true method for improving patient, resident, and customer care, as well as staff practice. There are always possibilities to improve, streamline, develop, and test procedures in the healthcare system, and quality improvement should be a constant process and an inherent part of everyone's job, regardless of role or position within the company(3).Physicians and other health care providers in practice improvement (PI) and quality improvement activities are an important part of improving health care, improving patient and provider satisfaction, and lowering healthcare costs(6).

Continuous Quality Improvement in Health Care is a systematic organizational process in which physicians and other health care professionals plan and implement continuing proactive changes in care processes to provide high-quality health care outcomes(7).Quality improvement is now a driving force in health care, and it is a necessary component of service delivery at all levels(4).

Quality and safety in the health care sector are highly important was reduce the cost of care, prevent adverse healthcare outcomes, enhance the overall quality of care provided to the patient and maintain public confidence in the health sector. quality of Health Care is the degree to which health services for individuals and populations increased the likelihood of desired health outcomes and are consistent with current professional knowledge.

Continuous quality improvements are various road blocks to project implementation affected by deference factors, some of the factors are insufficient training of the staff this indicates there was less understanding about the quality improvement, lack of confidence, line supervisor resistance; Lack of management support for the quality improvement initiatives, poor monitoring system, physical resources, lack of Planning. Another important aspect for barriers is no proper planning for quality and Objectives are not being publicized, Mostly government hospitals are disorganized and the staff spends most of their time on non-value-added activities. Hence they are unable to concentrate on their quality improvement activities, Incompatible rewards, and compensation, (8).

In 2016,Ethiopia's ministry of health started a healthcare quality effort, with governance structures in place at the federal, regional, and sub-regional levels to supervise implementation. To achieve the health improvement strategy builds on some quality initiatives and tools that have been developed and implemented all of which have been aimed at improving the quality of health care delivery and services.From 2006 started national Health Care quality Strategy builds on existing quality initiatives within our Ministry and across Regional quality initiatives(9). Gandhi Memorial Hospital currently has more than 470 clinical and non-clinical staff and Minilik II Referral Hospitals has also more than 978 clinical and non-clinical staff, patients referred from all over the country. The two hospitals are dedicated to serving maternity service and other different service and it provides health care through different departments.

In light of the above preliminary examination of health-care quality is a key global concern in the healthcare delivery system. Many people are damaged during the healthcare delivery system, according to a World Health Organization study from 2017, resulting in lasting injury or death.

Medical errors are the third largest cause of death in the United States, according to this report.(10)Many low- and middle-income nations have adopted ambitious health policies and strategies to improve health service delivery (HSD) and achieve the health-related Millennium Development Goals, but they are having trouble putting them into practice (12).

There are several aspects that go into implementing continuous quality improvement programs in health care institutions to address quality issues. These elements include primarily leadership-related, human resource-related, planning-related, proper data analysis, and decision-making-related aspects, as well as work-processing-related factors, Moreover, it could be caused by knowledge gaps, incorrect applications of current technology, an organization's unwillingness to change, a failure to align practitioner incentives, or other factors(11).

The Ethiopian Ministry of Health has shown a strong commitment to enhancing health care quality by launching the fifth health sector transformation initiative (2016-2020), which prioritizes quality and equity. The country attempted to combine quality improvement solutions that solve quality issues while also speeding up the improvement process in the program of healthcare quality at all levels of healthcare establishments However, the reality on the ground revealed a barrier in implementing continuous quality improvement across all health facilities. (12).Lack of adequate studies in the domain of continuous quality improvement implementation factors in the health facility,is the key problem in conducting this research.Because of its relevance not just in promoting health but also in affecting government budgets for the upkeep of health care settings, continuous quality improvement is becoming a major concern. As a result, reliable and timely giving care is critical to the effective operation of healthcare services and to support the government in making decisions about the provision of high-quality and treatment at the regional and national levels.

The importance of this research is thought to be in locating valuable evidence and resources to overcome problems in implementing continuous quality improvement. This research provided evidence and understanding for public health care, facilities to witness leadership involvement and employee commitment as a result of this increase the quality of health care delivery for clients in need of services and policy implementation gaps on ongoing quality improvement and ensuring the involvement of health care personnel and administrative staff must be addressed level of continual quality improvement researches, according to the researcher's knowledge, was not found in its published form today, As a result, this research is critical as a baseline for the Ministry of Health, health institutions, and individual researchers to enhance the health-care delivery system. This demonstrates a gap in continuous quality improvement implementation and identifying the factors that influence continuous quality improvement implementation, both of which aid in improving health care quality. As a result, the goal of this research is to determine the primary factor that influence efficiency. Further, the results of CQI is the curiousity of health experts and other researchers to undertake additional research in the area. This aids in proper healthcare management as well as the development of an evidence-based health care delivery system in the country.

Conceptual framework

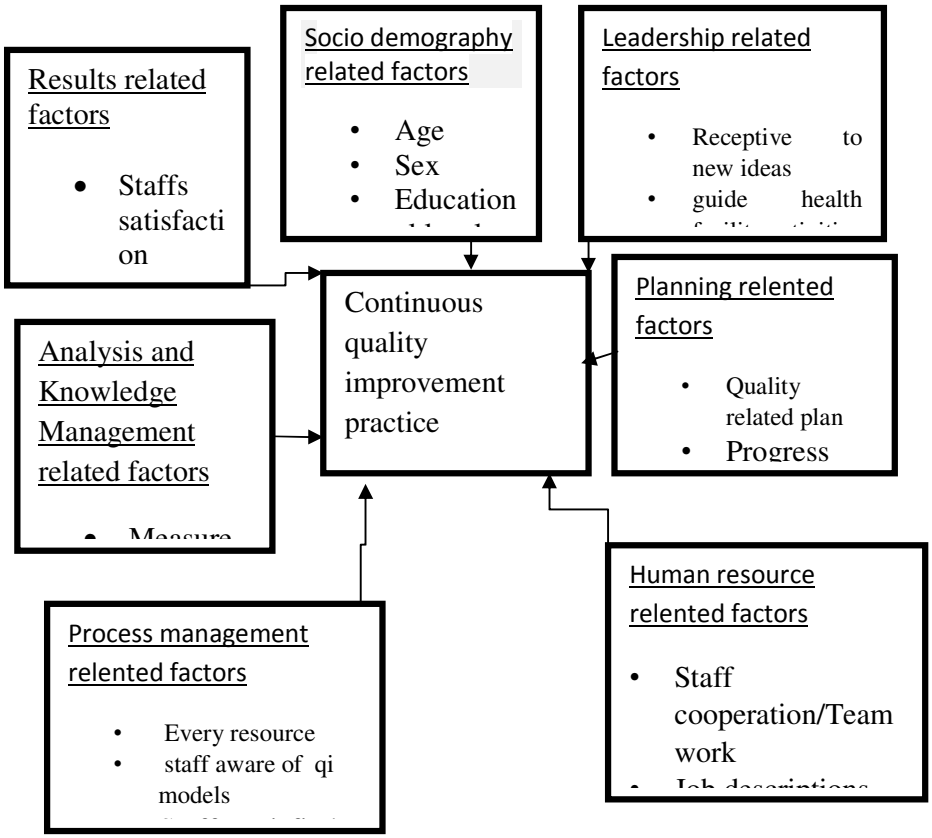

Figure 1 : Conceptual framework for implementing research (developed by the researcher after reviewing relevant literature) (33-36)

Method

Study area and period

This study was conducted in Gandhi Memorial and Minilik II Referal Hospital, Gandhi Memorial Hospital is found in Addis Ababa, Kirkos sub-city, near to Ethiopian Red Cross main office led by Addis Ababa Health Bureau. Gandhi memorial hospital is the only known Mother-child service hospital in Addis Ababa city administration. It was established in 1959. Currently with 470 employees from these 304 health professionals and 166 are the supportive staff.

And it has given different clinical services such as inpatient services, outpatient service, antenatal and neonatal, clinics which also include child and adult ART clinics and it also serves more than 1 million people, as a referral hospital providing the community with preventive and curative service for the Gynecologist and obstetric care. In 2020 Gandhi Memorial Hospital has served 48,133 clients and Menelik II Referral Hospital is also the earlier and historical public hospital established in 1909 found in, Addis Ababa in Yeka sub-city and it is lead by. Addis Ababa city administration health bureau, currently has 978 employees from these 633 health professionals and 345 are the supportive staff. The hospital has been serving more than 2 million populations as a referral hospital, with outpatient, inpatient, and emergency services providing all general service, urological, gynecological, orthopedics, ophthalmology, and emergency surgery services. There are 1448 total health workers in both hospitals, with 637 Healt Professionals and 511 administrative staff.The data gathering period lasted from April 30 to June 30 in 2021

Study design

An institution-based cross-sectional study was conducted was from October, 2020- January 4-10, 2021.

Source population

All employees working in Addis Ababa city administration government hospitals

Study population

An employee working in Gandhi Memorial Hospital, Minilik II Referal Hospital who were eligible according to the inclusion criteria from Octobe24,/2020- January 4-10, 2021.

Inclusion and Exclusive criteria

Inclusive criteria

- Employees who work in Gandhi and
- Minilk II Referal hospital for at least six months
- Employees volunteer to give consent.

Exclusion Criteria

- Employees less than six months of experience
- Employees who were critically ill
- Any medical students

Sample size determination

The sample size was calculated by using the single population proportion formula. The prevalence of the implementation of continuous quality improvement was 35%(30)CI =95%,α=0.05,

- $In = \frac{(z^{\alpha}/_{2})^2 P(1-P)}{d^2}$ =In $= \frac{(0.35)(0.65)(1.96)^2}{(0.05)(0.05)} = 349$,Considering 10% contingency the sample size will calculated to be =384.

Where n = required sample size
Zα /2= 1.96 (Z=score corresponds to 95% confidence level)
P= prevalence (35% is preferred to obtain the largest possible sample size)
D2= margin of error (0.05). N= total population.

Sampling technique and procedure.

A simple random sampling technique was used for the selection of sampling units There are a total of 6 hospitals were under Addis Ababa City Administration Health Bureau, from those 2 hospitals are selected(Gandhi Memorial Hospital and Minilik II Referal Hospital) by using simple random sampling (lottery) method and the calculated sample size was distributed to each hospital by proportion to population size then study participants was selected by using a stratified sampling method was used to select participants from Gandhi Memorial Hospital and Minilik II Referal Hospital, from April 30 to June 30, 2021, which was 511 from supportive staff and 637participants from health care providers.

From each stratum in Gandhi Memorial Hospital and Minilik II Referral Hospital simple random sampling technique with the first participant to be stratified again depending on their professional

status of health care provider, and then a simple random sampling technique was used to select each study participant from the stratum. The principal investigator was looking at the HRIS file and use a Hospital ID number to select study participants by using the lottery method. When the selected participant is absent from the working area due to medical conditions, Employees who do not give consent, Employees less than six months of experience, Employees who are mentally ill, Employees who are critically ill, or unpredictable events. For other reasons, the person with the next ID number was included in the study.

Study Variables

Dependent variable

- Continuous quality improvement implementation

Independent variables

- Socio demography characteristics (Age, Sex, Educational level, and Profession, Monthly income
- Leadership characteristics,(receptive to new ideas, guide health facility activities, Safe work environment, Share information, and Generate innovative ideas)
- Planning characteristics, (quality-related plan and Progress about service delivery)
- Human resource characteristics, (staff cooperation/Teamwork, Job descriptions, Trained on quality improvement, Improvement committee, and enough health staff).
- Process management characteristics, (making decisions about their work and Measure the quality).
- Workforce process characteristics, (Staff can get every resource they need to, Staff aware of QI models, and Staff satisfied with their work).
- Knowledge management characteristics, (Workplace relate and Knowledge and skill).

Operational definitions

Continuous quality Improvements implementation: For the current study, a health facility is considered to having a good continuous quality Iimprovements implementation don, if they scored above the median (38%) percent on constructs making up the continuous qualityIimprovements implementation, otherwise poor if below the median (1),(30).

Data collection procedure

The questioners adapted from Malcolm Bridge national quality award criteria (MBNQAC) of a structured self-administered questionnaire that addresses the objective of the study were developed by the principal investigator for data collection. It contains seven sections includes Socio demography, leadership, planning relented, human resource, process management, workforce process, and knowledge management. The questionnaire was developed, first in English then translated into the local language by officially authorized personals, the data collectors were trained health providers (two BSC nurses and two Health officers).

Data quality assurance

The data collectors were trained by two BSC nurses and two health officers who have to work at Gandhi Memorial Hospital and Minilik II Referral Hospital. Data consistency and completeness were checked, throughout the data collection process. Pre-testing was conducted one week before at Zewditu Memorial Hospital on 5% of study participants (18 participants), by using the Cronbach alpha test73%. Continuous supervision will be done by the principal investigator to control the data collection procedure and completeness of all the data forms. Each data collector

checked the data for its completeness and missing information during data collection. The data was cross-checked and corrected by the investigator before analysis.

Data analysis

Data was entered into EPI data version 3.1 and analyzed using SPSS version 25, analysis was described by frequency distribution, mean, median mode, an SD would be used, tables, graphs, and paragraphs were used to display the main finding of the response given by the participants. Multi-variate Logisticc regression was used for the variables having a p-value is ≤ 0.2 to analyze the association b/n dependent and independent variables. Results are claimed to be statistically significant when the p-value is equal to or less than 0.05. Odds ratio along with 95% CI was used to determining the strength of association.

Results

Socio-demographic characteristics

A total of 384 health professionals and administrative staff participated in this study. All of them were willing to participate and replied, giving a response rate of 100%. More than half of the respondents, 200 (52.1%) were male. More specifically by age group, less than half of the respondents, 187 (48.7 %), were found with the age group of between 21 and 30 and 130(33.9%) were between 31-40 years. Concerning the type of profession, 104 (27.1 %) of the respondents were nurses followed by physicians, 79 (20.6 %). On the other hand by their educational level of the respondents showed that more than half of the participants, 228 (59.4 %) have first degree holders followed diploma, 95 (24.7%. The majority of the respondents, 253(65.9%) were from the clinical service area. (**Table 1)**

Leadership characteristics

From 384 respondents, 167(43.5%) said that the hospitals didn't implement continuous quality improvement in the last year whereas, 252(65.6%) half of the respondents had not got the opportunity to participate in a quality improvement,194(50.5%) of the respondents had said that their leaders were not receptive to a new idea while 182(47.4%) said that the leaders did not use the values of the organization to guide health facilities activities. According to the respondent's rate 191(49..9%) leaders did not share information about health facility service delivery status. 229(59.6%) of the study participants said that leaders were not creating a safe work environment. Of the total respondents, 187(48.7%) did not perceive that leadership encourages learning that will help all employees advance their knowledge. 180(46.9%) of the study participants have responded that the leadership didn't encourage employees to generate innovative ideas whereas 175(45.6%) have responded that leaders were not engaged in quality improvement implementation action(**Table 2)**

Planning characteristics

Among 384 respondents more than half, 197 (51.3%) of the respondents said that the health facility has a quality improvement project plan while the 166(43.2%) of the participants said that the hospitals solved quality-related problems by establishing multi-disciplinary team whereas 161(41.9%) said by assessment. Of the total respondents, 236(61.5%) did not know how to plan a quality improvement project. 198(51.8%) health facilities didn't use indicators to tell progress about service delivery. **(Table 3)**

Human resource characteristics

Among all participants majority of them, 243 (63.3%) have revealed that staff members have an effort to improve their working habit, while 85(22.2%) had not, and 50(13%) of the respondents

did not know at all, 190(49.5%) of the respondent said that sometimes, all staff members were cooperative and worked as a team while 155(40.4%) were always cooperative and worked as a team while 39(10.2%) of respondents did not cooperate at all. 216 (56.3%) said that their preference to improve the medical service delivery system in the hospital was to work as a team. Most of the respondents responded that 218(56.8)%) all Staff has job descriptions including specific responsibilities of the Staff while 52(13.5%) had not at all. 199(51.8%) of the study participants were given QI training.196(51%) of the staff said that the hospitals were established quality improvement departments independently. 115(29.9%) of the staff were absent and 73(19%) of the staff didn't know.149(64.8%) of the respondents said that the hospitals have established performance monitoring teams and 136(35.2%)of the staff did not know the establishment of performance monitoring. 235(61.2%) of participants said that the health facility had no enough. 164(42.7%) of the participants responded that the hospitals were supported by external quality experts. 151(39.3%) of study participants said that the hospitals have been recognized for their work. **(Table 4)**

Measurement and analysis characteristic

Measurement and analysis characteristics of 384 participants, 88(22.9%) of them had responded that all staff of the health facilities has known how to measure the quality of their work while 102(26.6%) of respondents said that they didn't know at all. 65(16.9%) of the respondents said that hospital Staff has known how to analyze the quality of their work to see if changes are needed. Out of the total participants, 236 (61.5%) of the respondents said that staff used the analysis for making decisions about their Work. 63(16.4%) of the study participants said that the hospital staff has got all the important information they need to do their work while129(33.6%) of them didn't get any important information about their work. (Table 5)

Process management characteristics

Out of the 384 respondents, 248 (64.6%) of them said that they got some resources needed to do their job and 73(19%) of them said that they were getting every resource needed and the rest, 63(16.4%) said that nothing was available. Out of the total respondents,58(15.1%) of them said that their health facility staff were aware of QI models, and utilize them while 263(68.5% of respondents said that staff was awarded quality improvement but not properly used it. On the other hand, 86(22.4%) of the respondents said that they thought that it is very easy to implement the steps to develop the quality improvement projects while 159 (41.4%) of the respondents said that it is moderately easy to implement and 75(19 .5%) of them said that it is quite difficult to implement. **(Table 6)**

Result related characteristics

Among 384 study participants, more than half of the respondents 217 (56.5%) said that they were not satisfied with their work while 84(21.9%) were satisfied and 83(21.6%) of respondents were neutral. 143(37.2 %%) of the respondents didn't think that their health facility uses staffs' talent well while 77(20.1%) of participants didn't think so. Of the total participants, 69(18%) of the participants said that their health facility was removing almost all barriers for quality improvement implementation. Out of all 172(44.8), respondents said that they were removing some barriers and 143(37.2%) did not know. The majority of the respondents, 206 (53.6%) thought that quality improvement project implementation could contribute to improving the respective hospitals for their work while 25(6.5%) didn't think so. Among the participants, 93(24.2%) of the respondents believed that quality knowledge was the factor critical to the successful implementation of a quality improvement project while 86(22.4%) were agreed that employer involvement was very crucial, following this, while, 79(20.6%) believed that leadership could be important about quality and 66(17.2%) of them said that teamwork could be best to contribute the successful implementation of a quality improvement. On the other hand, 27(7%) of the study participants said

that enough resources could be the factor for the successful implementation of a quality improvement implementation (33(8.6). **(Table7)**

Factors affecting continuous quality improvement

In the bi-variate logistics regression; Variable that was significantly associated were included ever got the opportunity to participate in a quality improvement implementation, hospitals prepared a quality improvement plan, organizations implement quality improvement in the last year, staff use indicators to tell progress about service delivery, in your working area leaders receptive to new ideas, leaders share information about health facility service delivery status, staff recognized for their work, leadership encourages employees to generate innovative ideas, staff satisfied with their work, leaders engaged in quality improvement, quality improvement implementations could contribute to improving the work, health facility establish a performance monitoring team and health facility have enough staff. Variables that are associated significantly in the multi-variate logistics regression includes:- quality improvement implementations could contribute to improving the work, staff satisfied with their work, staff recognized for their work, staff use indicators to tell progress about service delivery, opportunity to participate in a quality improvement implementation and hospitals prepared a quality improvement plan.

The bi-variate logistics regression, ever got the opportunity to participate in a quality improvement implementation, Hospitals prepared a quality improvement plan, Staff use indicators to tell progress about service delivery, Staff recognized for their work, Staff satisfied with their work, and quality improvement implementations could contribute to improving the work at your unit. Were the non-implementation of continuous quality improvement was 70.7% higher among workers who never had an opportunity to participate in quality improvement compared against those who ever had participated (AOR:0.293, 95%CI: 0.117-0.732, P<0.01). Hospitals that didn't prepare a quality improvement plan was 5 times more likely to prepare and implement continuous quality improvement plans than staff prepared quality improvement plan (AOR=4.728,95%CI:2.433-9.189, CI, P<0.1). The odds of non-implementation of continuous quality improvement was 56% higher among staff who didn't know the use of indicators to tell progress about service delivery compared against those who use indicators to tell progress about service delivery (AOR: 0.4495%CI:0.209-0.925,p<0.05). While the odd of non-implementation of continuous quality improvement was 73.3% higher among Staff who didn't recognize for their work compared against those who were recognized for their work (AOR: 0.267,95%CI:.128-0.564,p<0.01).In another way, the odds of non-implementation of continuous quality improvement was 71.1% higher among Staff who did not satisfied with their work compared to those who were satisfied with their work (AOR:0.289,95%CI:0.108-0.791:P<0.05). But the odds of non-implementation of continuous quality improvement was 76.4% higher among staff who had neutral satisfaction with their work compared against those who were satisfied with their work (AOR: 0.23, 95%CI: 0.80-0.698: p<0.01). On the other hand, the odds of non-implementation of continuous quality improvement was 75.8% higher among Staff who didn't believe that quality improvement project implementations could contribute to improving work at their unit compared against those who believed that Quality improvement project implementations could contribute to improving for their unit (AOR: 0.242,95%CI:0.094-0.624,p<0.01). But the odds of non-implementation of continuous quality improvement was 56.2% higher among staff who believed that to some extent quality improvement project implementations could contribute to improving work at their unit compared against those who believed that quality improvement project implementations fully contribute to improving work at their unit(AOR:0.438,95%CI:0.25-0.758, P<0.01). (**Table8)**

Discussion

The aspects connected with the execution of continuous quality improvement are grouped into six theme areas in this study: leadership, planning, human resource management, process management, measurement and analysis and resultcharacteristics.According to the findings, 22.4

percent of the participants in this survey did not adopt continuous quality improvement. The results are better than those of research performed in the South Nation Nationality People Region, which found that 35% of respondents said their institution did not adopt continuous quality improvement. (30).

This is due to the high degree of professional involvement in this study, which included administrative staff and employees who had sufficient resource to support the implementation of continuous quality improvement. In this study, not-implemented continuous quality improvement among workers who never had an opportunity to participate in a quality improvement was 65.6% which is lower than those who had participated. A similar study conducted at St PoulMilinum medical college Hospital showed that not continuous quality improvement implementation among workers who never had anopportunity to participate in a quality improvement was 80.6% which was higher, this is the fact that workers had got the opportunity to participate in CQI more experienced(25).

The opportunity not to participate in quality improvement implementation of continuous quality improvement had an association with continuous quality improvement implementation inline study conducted in St paul Miliniem Medical college(25).

Because this is the fact that the opportunity to participate in quality improvement implementation can improve continuous quality improvement implementation.In this study, staff were not recognized for their work which was(34.9%) lower than the study conducted in the Southern Nations Nationalities and Peoples Region of Ethiopia (38.9%) (30)

Hospitals that didn't prepare a quality improvement plan was less likely to prepare and implement continuous quality improvement plans than staff prepared quality improvement plan73.3% which was less than the study conducted in Southern Nations Nationalities and Peoples Region 86.2%((30)because in this study there was a high level of professionals involvement including administrative staff and workers had gots enough resources and information that support to prepare a plan on quality improvement.

The staff did not use indicators to tell progress about the service delivery of non-implementation of continuous quality improvement was 51.6% higher among staff who didn't use of indicators to tell progress about service delivery as a compared study conducted in South nation nationality people Region which was 28.7%(30).

In this study, the Staff did not satisfied with their work(29.2%) which is less than the study conducted in the South nation nationality people region (61.7%) (30) this is due to leadership engagement, administrative staff involvement, study site is urban and comfortable to the staff.

Staff who didn't believe that quality improvement implementations could contribute to improving work at their unit(6.5%) which is less than the study conducted in south nation nationality Region,(30.9%)(30), compared to those who believed that quality improvement implementations could contribute to improving their unit. But the odds of non-implementation of continuous quality improvement was 56.2% higher among staff who believed that to some extent quality improvement project implementations could contribute to improving work at their unit compared against those who believed that quality improvement project implementations fully contribute to improving work at their unit.

Conclusions and Recommendations

Conclusion

Based on the finding from this study the following points conclude about continuous quality improvement project implementation factors:

The level of continuous quality improvement implementation in the included hospitals was better achievements than previous research. I identified high factors affecting the continuous quality improvement implementation such as quality improvement implementations could contribute to improving their work, staff satisfaction with their work, staff recognized for their work, staff use indicators to tell progress about service delivery, opportunity to participate in a quality improvement implementation and hospitals prepared a quality improvement plan.

Recommendation

After analyzing the major findings from this study the following recommendation was forwarded to Public Hospitals.

- ❖ A strategic quality improvement plan shall be developed by each respective hospital to implement the continuous quality improvement implementation effectively
- ❖ The satisfaction level of all staff shall be boosted for better implementation of continuous quality improvement implementation.
- ❖ Hospitals should be recognized by all staff with their work and the hospital chief executive and the quality team should enhance staff use indicators to tell progress about service delivery,
- ❖ The health facility should be inviting staff to participate during the quality improvement preparation plan.

List of Acronym

AARHB	:	Addis Ababa Regional Health Bureau
ANC	:	Antenatal Clinic
CI	:	Continuous Improvement
CQI	:	Continuous Quality Improvement.
FMO	:	Ministry of Health.
HMC	:	Hospital Medical College
HO	:	Health Officer.
HRIS	:	Human resources information system
IHI	:	Institute for Health Care Improvement.
IOM	:	Institute of Medicine.
LHD	:	Local Health Departments.
PI	:	Physicians in Practice Improvement.
PRCMM	:	Performance Review and Clinical Mentoring Meeting.
QI	:	Quality improvement
REC	:	Reaching Every Community
WHO	:	World health organization

Ethics approval and informed consent

A support letter was received from the Y12HMC research publication office then ethical approval and clearance were obtained from Addis Ababa public health research and emergency management directorate to the three selected public hospitals.

Permission letter would provide to Menelik II Referral Hospital, Yekatit 12 Hospital Medical College, and Rasdesa Damtew Hospital chart documentation office to proceed with data collection. Anonymity will be assured on the data retrieval form by omitting names, telephone numbers, and chart numbers of patients, and confidentiality of the information from an individual chart are maintained.

Consent form for the study subjects

I the undersigned have been informed about the purpose of this particular research project and I have been informed that the information I give will be used only for the study. Besides, I am also informed that my identity, as well as the information I will be providing, will be kept confidential. Based on this, I agree to participate in the research voluntarily.

Data sharing statement

All relevant data were included in the manuscript.

Conflict of interest

The authors have no conflict of interest relevant to this article.

Authors' Contribution

The first authors developed the proposal, undertook the literature search and review, and then collect and analyse the data under supervision of my respective advisers. The second and the 3rd authors give constructive comments and guidance and work with the main author with respect to the research objective.

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