

Factors Affecting the Implementation of Continuous Quality Improvement in Health Facilities in Southern Nation and Nationalities Peoples Region (SNNPR), Ethiopia

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Background: Continuous quality improvement (CQI) has become an important aspect of healthcare organizations. The objective of this study was to identify contributing factors for implementing continuous quality improvement projects in health facilities for the better delivery of healthcare service in the region of South Nation and Nationalities Peoples Region (SNNPR), Ethiopia.

Methods: A cross-sectional study was conducted from April to May 2018 in health facilities within two districts (woredas) located in SNNPR. Descriptive, bivariate, and multivariate analyses were used. During the analysis, a *P*-value less than 0.05 and 95% confidence interval (CI) were used to assess the significance of the associations.

Results: A total of 144 health professionals participated in the study. The majority of the respondents (75%) were male and 35% reported that their respective health facilities have implemented continuous quality improvement projects. More than half of the leaders (51.4%) were not receptive to new ideas and the majority of leaders were not encouraging learning (62.5%) or engaged in the quality improvement project implementation process (66%). Multivariate logistic regression analysis revealed that 84% of the health facilities were implementing a continuous quality improvement project (AOR=0.138 (0.029–0.652)). Similarly, client satisfaction was 90% (AOR=0.101 (0.019–0.522)) and the percentage of staff who believe that the quality improvement project contributed to the improvement of work at their respective health facility was 80% (AOR=0.181 (0.047–0.696)).

Conclusion: The following variables, “Leaders receptiveness to new ideas”, “Leaders share information/data about health facility service delivery status”, “Health facility has a quality improvement project plan”, “Staff know using indicators to tell progress about service delivery”, and “Health facility assess client satisfaction level” were found to be independent predictors of continuous quality improvement (CQI) project implementation.

Keywords: continuous quality improvement, health facilities, SNNPR, Ethiopia

Introduction

Those involved in the healthcare system, including health professionals, professionals, patients and their families, researchers, payers, programmers, and educators agree that, in order to have better patient outcomes, better system performance and better professional development through needs continuous quality improvement (CQI) projects are needed.¹ Continuous quality improvement has become an

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important aspect of healthcare organizations as they are forced to change and improve, due to demographic pressure such as an aging population,² technical innovations and medical treatment development,³ and financial strains and expectations from stakeholders such as governmental agencies and patients.⁴ Quality improvement projects which eliminate inefficiency, errors, and redundancy can continually improve critical processes and reduce costs associated with poor quality.⁵ Ethiopia has implemented a number of innovative and successful national interventions for improving quality of care and Water and Sanitation Hygiene (WASH) in its healthcare facilities.⁶ The 2015–2020 Ethiopian National Health Care Quality Strategy (NQS) was crafted as a call to action to improve quality across the entire Ethiopian health system. Formally launched in March 2016, it was developed in order to achieve the health improvement goals stated in the Health Sector Transformation Plan. The NQS was launched as part of the four transformation agendas unveiled in which Regional Health Bureaus (RHBs), representatives from health facilities, and healthcare workers were included as part of the process.⁷

The NQS builds on the existing quality improvement efforts in Ethiopia which includes a number of national quality initiatives and tools that have been developed and implemented over the last 20 years – all of which have been aimed at improving the quality of healthcare delivery and services.

The aim of the NQS is to consistently improve the outcomes of clinical care, patient safety, and patient-centeredness, while increasing access and equity for all segments of the Ethiopian population by 2020.⁷ The strategy focuses on ensuring reliable, excellent clinical care, protecting patients, staff, and attendants from harm, and improving the efficiency of the delivery of care, while increasing access, equity, and dignity of care for all Ethiopians.

The international non-governmental organization Institute for Healthcare Improvement (IHI) has proposed a 5-year project aiming to introduce continuous quality improvement (CQI) approaches and improve maternal and newborn health (MNH) care in five regions of Ethiopia, namely Tigray, Afar, Amhara, Oromia, and South Nation and Nationalities Peoples Region (SNNPR).⁸ Thus, the main objective of this study was to identify factors which contribute towards the implementation of CQI projects in health facilities aimed at improving delivery of healthcare services in SNNPR, Ethiopia.

Materials and Methods

Study Area

The study was conducted in health facilities located across two woredas (districts) within the Southern Nation Nationalities People Region (SNNPR), namely Dugana fango Woreda (Wolita zone) and Chench Woreda (Gamogofa zone).

Study Design and Period

A cross-sectional study design with quantitative approach was employed to conduct the investigation on CQI project implementation factors in the health facilities of SNNPR, Ethiopia; from April to May 2018.

Sample Size Determination and Sampling Procedure

The convenient sampling technique was used to select the study participants from health facilities across the two woredas due to limitations in both time and resources. Accordingly, six health centers (Dorze, Ezzo, Doko Zolo, Wobera, Zozo, and Dokomesho) and two hospitals (Chench Primary Hospital & Arbaminch General Hospital) from Chench Woreda as well as five health centers (Dendo, Edo, Kerchech, Dimitu, and Anka) and one hospital (Bitena Primary Hospital) from Dugana Fango Woreda, were included in the study. Thus, 144 conveniently selected healthcare providers and health facility leaders working in IHI supported health facilities were invited to participate in the study.

Data Collection Instrument and Procedure

After obtaining informed verbal consent, data on factors contributing towards quality improvement project implementation, the health professional's level of involvement, challenges faced during CQI project implementation, and stakeholder involvement within CQI project implementation in the health facilities were collected through the Malcolm Bridge National Quality Award Criteria (MBNQAC). This pre-tested, structured, and self-administered questionnaire was adopted from the National Institute of Standards and Technology (NIST) of the United States.⁹

Data Analysis

Data was checked manually for completeness, and then coded, entered, and analyzed using SPSS version 20 software. After the data was explored and cleaned, descriptive

analyses such as percentages, frequency distribution, and measures of central tendency were conducted. Bivariate analysis between dependent and independent variables was then performed using bivariate logistic regression. Finally, variables that were found to have a significant association on the bivariate analysis were entered into multiple logistic analyses to control for possible confounding variables and to identify independent predictor variables. During the analysis, a 0.05 *P*-value and 95% confidence interval (CI) were used to assess the significance of the associations.

Ethical Consideration

The study was reviewed and the acceptability of verbal informed consent was approved by the Institutional Review Committee, department of project management, Addis Ababa University. The ethical clearance was obtained and submitted to each Zonal Health Administration. Management officials of the health facilities involved in the study were informed verbally about the study. In addition, verbal informed consent was taken from each respondent prior to enrollment and gathering of relevant information.

Results

Socio-Demographic Characteristics

A total of 144 health professionals were approached to participate in this study, of which all were willing to be interviewed, giving a response rate of 100%. The majority of the respondents (75%) were male. Regarding age group, the majority of respondents (54.9%) fell between 22 and 30 years of age. In terms of health professions and education, the highest numbers of respondents (34%) were nurses, and the majority of respondents (52%) had received their diploma (Table 1).

Implementation Status of Continuous Quality Improvement Projects

Among the 144 respondents, 65% said that their respective health facility implemented a continuous quality improvement project. The rest of the participants' facilities (35%) have not started the preliminary implementation process to improve the healthcare service delivery system.

Leadership Factors That Contribute to the Implementation of CQI Projects

Leadership factors that contribute towards CQI project implementation were assessed through leader's receptiveness for new ideas, use of organization values, creating a safe work

Table 1 Socio-Demographic Characteristics of Health Professionals Working in SNNPR, Ethiopia, (N=144)

Variables	Frequency	Percent
Sex		
Male	108	75
Female	36	25
Age		
22–30	79	54.9
31–40	49	34.0
41–50	16	11.1
Profession		
Midwife	32	22.2
Nurse	49	34.0
Health Officers	32	22.2
Physician	8	5.6
Health Informatics	8	5.6
Other	15	10.4
Educational level		
Diploma	76	52.8
Degree	52	36.1
Postgraduate	16	11.1
Working facility		
Health center	80	55.6
Hospital	44	30.6
Woreda health office	20	13.9

environment, etc. Accordingly, as shown in Table 2, more than half (51.4%) of the leaders were not receptive to new ideas. Moreover, the majority of leaders (62.5%) were not encouraging of learning, and 66% were not engaged in any quality improvement project implementation process (Table 2).

Customer Factors That Contribute Towards the Implementations of CQI Projects

In order to implement quality improvement projects, customer related factors are ultimately needed for identifying quality related problems and possible solutions. According to the respondents, 50% stated that their respective health facilities have a mechanism for receiving client feedback, while 38.4% stated that their health facilities measure client satisfaction regularly, as shown in Table 3.

Human Resource Factors That Contribute to Implementations of CQI Projects

Only 12 (8.3%) respondent said their respective health facility staff were fully trained on quality improvement project

Table 2 Leadership Factors That Contribute Towards the Implementation of a Continuous Quality Improvement Project in Health Facilities in SNNPR, Ethiopia, 2018

Variables	Frequency	Percent
Leaders are receptive to new ideas		
Yes	62	43.1
No	74	51.4
I Do Not Know	8	5.6
Total	144	100.0
Leaders use the values of the organization to guide health facility activities		
Yes	46	31.9
No	86	59.7
I Do Not Know	12	8.3
Total	144	100.0
Leadership works to create a safe working environment		
Safe working environment created	36	25.0
There are initial activities to create safe working environment	80	55.6
Safe working environment not created	28	19.4
Total	144	100.0
Leadership shares information/data about health facility service delivery status		
Yes	97	67.4
No	47	32.6
Total	144	100.0
Leadership encourages learning		
Yes	44	30.6
No	90	62.5
I Do Not Know	10	6.9
Total	144	100.0
Leadership asks employees to generate change/create innovative ideas		
Yes	51	35.4
No	93	64.6
Total	144	100.0
Leader was engaged in quality improvement projects		
Yes	45	31.3
No	95	66.0
I Do Not Know	4	2.8
Total	144	100.0

implementation. The majority of respondents (61.1%) mentioned that staff recognition for the work they performed in the health facilities was available. Quality improvement

Table 3 Customer Factors That Contribute Towards the Implementation of a Continuous Quality Improvement Project in the Health Facilities in SNNPR, Ethiopia, 2018

Variables	Frequency	Percent
Health professionals understand their client's needs		
Yes	108	75
No	28	19.4
I Do Not Know	8	5.6
Total	144	100
Health professionals understand their client's preferences		
Yes	72	50
No	63	43.8
I Do Not Know	9	6.3
Total	144	100
Health facility has a mechanism for receiving client feedback		
Yes, and reviewed frequently	72	50
Yes, but not reviewed	52	36.1
No	16	11.1
I Do Not Know	4	2.8
Total	144	100
Health facility assesses client satisfaction level		
Yes, regularly	56	38.9
Yes, but not regular	60	41.7
No	28	19.4
Total	144	100.0
Health facility encourages client/community involvement in decision-making		
Yes, regularly	44	30.6
Yes, but not regular	72	50.0
No	28	19.4
Total	144	100.0

teams for project implementation were available according to 63.9% of respondents. Only 27.3% of respondent said that their respective health facilities had enough health staff to implement CQI projects, as shown in [Table 4](#).

Determinants of CQI Project Implementation

In order to determine the independent variables associated with the implementation of CQI projects, a multivariate analysis was used. Variables that showed an association with the outcome variables in the bivariate analysis were selected for multivariate analysis. Variables which were

Table 4 Distribution of Human Resource Factors That Contribute Towards the Implementation of CQI Projects in the Health Facilities in SNNPR, Ethiopia, 2018

Variables	Frequency	Percent
Health staff cooperate and work as a team		
Yes	116	80.6
No	28	19.4
Total	144	100.0
Health staff are recognized for their work		
Yes	88	61.1
No	56	38.9
Total	144	100.0
Health staff have job descriptions		
Yes	57	39.6
No	87	60.4
Total	144	100.0
Health staff are trained on quality improvement		
Yes, all of the staff	12	8.3
Yes, some of the staff	120	83.3
No	12	8.3
Total	144	100.0
There is a quality improvement committee or team		
Yes	92	63.9
No	44	30.6
I Do Not Know	8	5.6
Total	144	100.0
Health facility has enough health staff		
Yes	40	27.8
No	104	72.2
Total	144	100.0

found to be independent predictors of CQI project implementation included the following: leaders receptiveness to new ideas, leaders share information/data about health facility service delivery status, health facility has a quality improvement project plan, staff know how to use indicators to tell progress about service delivery, health facility assess client satisfaction level, health staff are recognized for their work, health staff are satisfied with their work, and leadership encourages learning (Table 5).

According to the multivariate logistic regression analysis, if the health facility has a strategic quality improvement project plan, 84% of the health facility will implement a continuous quality improvement project (AOR=0.138

(0.029–0.652)). Similarly, if the health facility assesses client satisfaction, even if the assessment is not regular, 90% (AOR=0.101 (0.019–0.522)) of the health facility will implement a continuous quality improvement project as compared to health facilities which were not able to assess the satisfaction level of clients. Moreover, if the health facilities staff believed that the quality improvement project contributed to the improvement of work at their respective health facility, 80% (AOR=0.181 (0.047–0.696)) of the health facilities more likely implement a continuous quality improvement project as compared to those health facilities with staff who did not believe a CQI project had contributed to their work.

Discussion

In this study factors associated with continuous quality improvement project implementation were explored using health professional responses. From the findings, 35% of the respondents mentioned their respective health facilities had implemented CQI projects, which is lower than comparison studies conducted in Sri Lanka (43%).¹⁰

In this study the logistic regression identified factors associated with continuous quality improvement project implementation. Facilities with leaders that were receptive to new ideas were 1.4-times more likely than health facilities without such leaders in implementing CQI projects (AOR=1.385 (0.317–6.051)). Notably, only 72% of respondents indicated that their health facilities had leaders that were receptive to new ideas, a lower finding when compared to other studies.¹¹ This discrepancy might be due to differences in the setting and assessment tools.

The majority (77.8%) of respondents indicated that their respective health facilities had a quality improvement project plan. Of these respondents, 86% also reported that their health facilities had specifically implemented CQI projects (AOR=0.138 (0.029–0.652)).

The questionnaire results showed that the majority of the respondents were not satisfied with their work (54%) and what they had accomplished. Furthermore, those who were satisfied with their work were 7-times more likely to work within health facilities that were implementing CQI projects (AOR=6.349 (0.993–40.588)). This finding is similar to a study conducted in a Swedish County,¹² where the quality improvement project had contributed towards improvement of the work at the unit, and progress was assessed. The item “How much commitment do you feel toward the

Table 5 Factor Associated with CQI Project Implementation in the Health Facilities of SNNPR, Ethiopia, 2018

Variables	Implemented	Not Implemented	COR (95% CI)	AOR (95% CI)
Leaders are receptive to new ideas				
No	10 (20%)	64 (68.1%)	0.16 (0.04–0.73)*	0.57 (0.097–3.37)
Yes	36 (72%)	26 (27.7%)	1.385 (0.3–6.051)	4.54 (0.765–26.9)
I Do Not Know	4 (8%)	4 (4.3%)	I	I
Leaders share information/data about health				
No	9 (18%)	38 (40.4%)	0.32 (0.14–0.74)*	0.98 (0.171–5.57)
Yes	41 (82%)	56 (59.6%)	I	I
Health facility has a quality improvement project plan				
No	5 (10%)	27 (28.7%)	0.276 (0.1–0.77)*	0.138 (0.03–0.7)*
Yes	45 (90%)	67 (71.3%)	I	I
Staff know how to use indicators assess tell progress				
No, they cannot	7 (14%)	27 (28.7%)	1.815 (0.3–9.923)	2.3 (0.19–27.905)
Yes, they are able to report	22 (44%)	20 (21.3)	7.7 (1.5–38.16)*	5.627 (0.5–65.9)
Yes, they able to report progress figure	19 (38%)	33 (35.1%)	4.03 (0.83–19.7)	5.274 (0.5–59.2)
I Do Not Know	2 (4%)	14 (14.9%)	I	I
Health facility assesses client satisfaction level				
No	3 (6%)	25 (26.6%)	0.14 (0.04–0.5)*	0.1 (0.02–0.5)*
Yes, regularly	19 (38%)	37 (39.4%)	0.59 (0.3–1.243)	0.19 (0.06–0.6)*
Yes, but not regularly	28 (56%)	32 (34%)	I	I
Health staff are recognized for their work				
No	11 (22%)	45 (47.9%)	0.307 (0.14–0.7)*	0.2 (0.07–0.721)*
Yes	39 (78%)	49 (52.1%)	I	I
Health staff are satisfied with their work				
Not satisfied	22 (44%)	58 (61.7%)	1.04 (0.3–3.6)	3.308 (0.5–20.4)
Yes, satisfied	39 (78%)	49 (52.1%)	2.64 (0.74–9.5)	6.35 (0.9–40.6)*
I Do Not Know	4 (8%)	11 (11.7%)	I	I
Quality improvement project contribute the improvement of work at your Health facility				
No	5 (10%)	29 (30.9)	0.2 (0.09–0.692)*	0.2 (0.05–0.696)*
Yes	45 (90%)	65 (69.1%)	I	I
Leadership encourages learning				
No	27 (54%)	73 (77.7%)	0.34 (0.161–0.7)*	2.1 (0.664–6.948)
Yes	23 (46%)	21 (22.3%)	I	I

Note: *Significantly associated with *P*-value of <0.05.

improvement idea?" showed a large engagement in the quality improvement initiative. In line with the above idea, the majority of respondents believe that CQI will contribute towards improvements in their work. Moreover, of the 82% of respondents who believed that their work would be improved through CQI, 82% work within facilities that have implemented CQI projects (AOR=0.181 (0.047–0.696)). This finding is also similar to the previously mentioned study conducted in a Swedish County.¹²

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.¹³

Limitations of the Study

One of the challenges in conducting this research was the absences of adequate local studies in the area of continuous quality improvement projects in the health facilities which were used to compare to our findings. In

addition, the sampling method we used may have a potential effect on our result, and also the finding is not generalizable as far as we used a convenient sampling method.

Conclusion

Implementing a quality improvement project is a pillar for improving client satisfaction. However, in SNNPR only small numbers of health facilities have active projects to improve service delivery. The implementation of continuous quality improvement projects was associated with factors such as leadership receptiveness, leadership encouragement for learning, health facility assesses for client satisfaction level, and the level of satisfaction of health staffs with their work. Strategic quality improvement plans should be developed by each respective health facility in the SNNPR in order to implement a CQI project effectively.

A client satisfaction survey and client engagement in CQI project should also be conducted regularly to identify quality problems and to effectively implement appropriate quality improvement projects.

Abbreviations

AIDS, Acquired Immuno Deficiency Syndrome; CQI, Continuous Quality Improvement; IHI, Institute for Healthcare Improvement; FMOH, Federal Ministry of Health; MNH, Maternal and Newborn Health; NQS, National Health Care Quality Strategy; QI, Quality Improvement; RHB, Regional Health Bureaus; SNNPR, South Nation and Nationalities People Region.

Data Sharing Statement

The data that supported the findings of this study will be available from the corresponding author upon reasonable request in the form of Statistical Package for Social Sciences (SPSS).

Ethics Approval and Consent to Participate

Ethical approval was obtained from Department of Project Management, Addis Ababa University and submitted to the appropriate management officials of the health facilities involved in the study. In addition, verbal consent was obtained from the respondents by explaining the objective of the study and confidentiality.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare that they have no competing interests.

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