QUALITY IMPROVEMENT FOR MATERNAL AND CHILD HEALTH IN PRIMARY HEALTH CARE: A SCOPING REVIEW

by Dhea Benedikta Tarigan

QUALITY IMPROVEMENT FOR MATERNAL AND CHILD HEALTH IN PRIMARY HEALTH CARE: A SCOPING REVIEW

Dhea Benedikta Tarigan[1], Inge Dhamanti[1,2,3]
[1]Faculty of Public Health Airlangga University, Indonesia
[2]School of Psychology and Public Health, La Trobe University, Australia
[3]Center for Patient Safety Research, Airlangga University, Indonesia
dhea.benedikta.tarigan-2018@fkm.unair.ac.id

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ABSTRACT

Background: Primary Health Care (PHC) is a gatekeeper in providing comprehensive services for maternal and child health (MCH). MCH services in PHC remain limited and have not been entirely handled and distributed. Based on this, MCH in PHC requires Quality Improvement (QI) interventions. **Purpose:** Identify the implementation of QI in maternal and child health in PHC and identify the most QI tools or approaches used. **Methods:** This is a scoping review of the qualitative and quantitative results of studies that focused on Quality Improvement for maternal and child health in Primary Health Care. The inclusion criteria consist of articles published in English and original articles; the topic is an improvement for maternal and child health in Primary Health Care; full text and open access. **Results:** Six findings have been found, which are: QI interventions for MCH problems mostly happen in Low Middle Income Countries (LMIC); Plan-Do-Study-Act (PDSA) was the most used QI intervention approach; the success of QI implementation including the interventions; the most used QI Intervention; the role of stakeholders; and factors related to the successes of QI intervention. **Conclusion:** Implementation QI is often carried out in Low-Middle Income Countries (LMIC). Furthermore, various QI interventions have been used to solve maternal and child health issues. The most used QI tool was PDSA. Training, mentoring, and workshops for midwives and clinic teams were most often QI interventions implemented.
Keywords: Quality Improvement, Maternal and Child Health, Primary Health Care, Implementation, QI Approaches

INTRODUCTION

Reducing maternal and child mortality is one of the Sustainable Development Goals (SDGs) targets. According to the World Health Organization (WHO), in 2018, the Maternal Mortality Rate (MMR) is still high, 810 mothers in the world died due to pregnancy and childbirth, and most of it occurred due to lack of access and unequal healthcare quality between urban areas and rural areas. The highest MMR is found in central Asia, eastern areas, Europe, and Northern Africa, according to WHO. Usually, mothers die due to severe bleeding, infectious diseases, high blood pressure during pregnancy, complications during childbirth, and unsafe abortions. WHO targeted the MMR in 2025 at 119 women per 100.000 pregnant women. While in 2020, there are more than 861 pregnant women deaths per 100.000 (CDC, 2020). Then in 2030, it will be 88 women per 100.000 pregnant women. This can be achieved by providing quality health care at primary health care (PHC) as the first gate of health providers. (WHO, 2021)

Various diseases and problems in pregnant women will lead to an increase in maternal mortality. In order to reduce it, health care has a significant role. PHC is a gatekeeper (Sibthorpe et al., 2017) and is responsible for the quality of life of the local area. Looking in South Africa, they need to know every update and data about visits of first antenatal care (ANC) before 20 weeks of gestation and pregnancy complications of pregnant women around the area (Odendaale et al, 2022). PHC provides comprehensive services, including preventive, promotive, rehabilitative, and curative for maternal and child health (Deepa and Devi, 2020). In PHC, maternal and child health services consist of reproductive health and family planning services, antenatal care, childbirth, newborn services, postpartum and family planning services, health services for infants, toddlers, pre-school children, and school children services. Some interventions to prevent Maternal and Child Mortality utilize maternal and child booklets, health counseling, delivery screening by midwives, and many more. (Limato et al., 2019).

PHC has preventive and curative uses. However, many MCH services have not been entirely handled and distributed, resulting in less comprehensive services (Haskins et al., 2020). If this problem continues and Quality Improvement (QI) intervention does not work, there will be many missed opportunities, ineffective delivery services (Lima et al., 2018), and an inability to accomplish the SDG's targets (Chetty, 2018). Based on the study in Singapore, in order to make QI successful, it depends on the QI tools used in the intervention (Fong et al., 2020). Comparing to last research, this paper will not only show what are the intervention that have been used, but also show which one QI tools that worked in MCH in PHC.

Maternal and Child Health (MCH) in PHC requires QI interventions. Previous research has discussed QI in Maternal Child Care at 3 PHCs in Indonesia, suggesting that MCH health services must transform from focusing on health access to QI in health services (Limato et al., 2019). In addition, the study stated that there were a lot of interventions of QI that were used in every PHC (Haskins et al., 2020). However, a review of the findings remains relevant to guide further improvement in the quality of PHC in order to continue to reduce maternal and child mortality. Therefore, this paper aimed to identify the implementation of QI interventions in MCH in PHC and identify the most QI tools or approaches used.

METHOD

This paper was a scoping review about quality improvement for maternal and child health in PHC. We identified what kind of intervention is used to enhance or improve the quality of MCH services in PHC and their success. Scoping review was a tool of a study that can avoid bias because it saw the bigger scope of the topic. (Ingemann C, 2018). Inclusion criteria for these articles consist of articles published in English and original articles about QI for MCH in PHC; full text and open access, the articles were published within 2017- 2021. Following the exclusion criteria for this paper consist of research that only discussed evaluation rather than quality improvements or did not include quality improvement and only discussed pediatrics only or did not include quality improvement.

The data were analyzed by searching and compiling articles through a scoping review of online databases. The databases consist of

PubMed and Google Scholar. The search terms used included: "quality improvement" AND "maternal and child health" OR "antenatal care" OR "maternal and pediatric care" AND "primary health care" OR "community care" OR "primary maternal care" to find related articles. There were 32 related articles in the PubMed database and 50 articles on Google Scholar. Titles, abstracts, and objectives were being reviewed for the first selection and 13 articles on PubMed and 50 articles on Google scholar had been found. The thematic analysis had been used to find fit and credible articles then followed by reading for full text and identifying maternal and child health quality improvement in Primary Health Care. Last, four potential articles on PubMed and three articles on Google Scholar were finally chosen (Table 1).
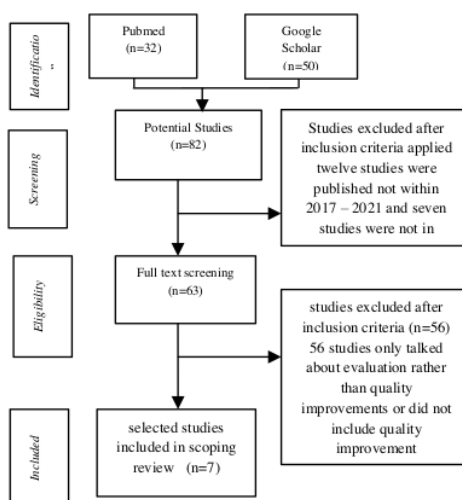

Figure 1. Articles Search Result Framework.

RESULT

In this scoping review, an article discussed primary care that carried out quality improvement in maternal care globally. This discussion will convey findings on the kind of intervention implemented on every QI of PHC, QI tools, the success of the QI, and what factors lead to the success of the QI. Articles that met the criteria consisted of 7 articles and will be discussed in the following table.

Table 1. Articles used in a review

No	Authors	Countries	Method	Data Collection	Findings
1.	Limato et al., (2019)	Indonesia	One year interventions on three *Puskesmas* or Primary Health Care (PHC)	Qualitative data were collected using 28 in-depth interviews at two points: pre- (April 2016) and post- QI intervention (April 2017), involving national, provincial, district, and Puskesmas managers; and Puskesmas QI team members. Thematic analysis of transcripts was conducted.	1. QI in Indonesian PHC regarding maternal health implemented and focused training for health workers, including screening and monitoring. 2. Using PDSA cycle tools of QI 3. QI intervention has not worked completely. 4. The Ministry of Health, Indonesian Midwives Association, and Province Officer were the stakeholder who helped to obtain information.
2.	Eboreime EA et al., (2019)	Nigeria	Mixed method study design Observation in 138 PHC's of Nigeria	Three times observation for each local government and annual review for the national sector.	1. Nigeria utilized DIVA tools (Diagnose - Intervene - Verify – Adjust) for advocating to stakeholders to solve maternal and child health issues. Interventions advocating consist of the commodity on immunization, commodity on integrated management of childhood illness, and weak delivery of skilled birth attendance. 2. Using DIVA and PDSA cycle 3. QI intervention succeed 4. Agency Chief Executive, Ministry of Health, and Ministry of Finance were the stakeholders who decided on the QI interventions.

Continuation of Table 1. Articles used in a review.

No	Authors	Countries	Method	Data Collection	Findings
3.	YapaHM et al., (2020)	South Africa	CQI interventions in 7 Primary Health Care clinics	Observations periodically and trial registration for 2 months of interventions	1. QI Interventions in PHC regarding maternal and child health were HIV Viral Load (VL) Monitoring to improve quality care and prevent transmission of HIV from mother to child. 2. Using Process mapping, fishbone diagrams, and PDSA cycles. 3. QI intervention has not entirely worked because of limited time 4. Local stakeholders helped to obtain data information.
4.	Haskins et al., (2020)	South Africa	Interventions were implemented in 27 Clinics that participated.	Five times every three months a year using pre and post-tests and interviews.	1. QI in South Africa's PHC showed that "Well Mother Baby Service" consisted of screening HIV care and monitoring service immunization. 2. Using BTS model (Breakthrough Series model) 3. QI intervention has not worked entirely because of administrative barrier. 4. The Health Department of Kwazulu was the stakeholder who helped license the QI interventions.
5.	Darmstadt G et al., (2020)	India	Ananya programs were implemented in 38 districts of Bihar's City on 2550 health sub-centers.	Multilevel assessment and Direct Observations of Delivery (DOD) in PHC	1. Interventions for PHC for maternal and child health using the Ananya program, which consisted of capacity building for FLW's, QI in Facilities, multimedia communications and self-help group facilitation, mentoring for nurses, and many more 2. The QI intervention using Ananya tools 3. The QI intervention was successful, but there are some issues with commodities and a lack of human resources. 5. Bill and Melinda Gates Foundation (BMGF) and the Government of Bihar (GoB) were the stakeholders who decided on the QI intervention and investment in the QI intervention program.
6.	Ahmed, S. et al., (2021)	Egypt	Operational research was conducted in two Primary Health Care in Giza	Pre and post were interviewing 50 clients attending ANC and 50 attending FP Clinics.	1. Using Clinical Audit as an intervention for maximizing service quality for MCH in Primary Health Care. 2. The QI intervention used audit as an approach 3. The QI intervention succeed 4. The District Health Office and Zone Health Department were the stakeholders who measured for pre-intervention until post-intervention, identified the gap, and developed the action plan.
7.	Argaw, M. D., (2021)	Ethiopia	Pre-post design in 159 PHC Units in 31 Districts	Data extracted from online databases and evaluated by Key performance indicators. The intervention was implemented for 12 months.	1. Using Community Scorecard Approach with six phases of implementation. It advocated an approach to improve maternal and child health care, skill delivery, growth mentoring intervention, and many more. 2. Tools were not identified. 3. The QI intervention succeed. 4. The Health Sector Reform Program (HSRP), Ministry of Health and Population (MOHP)-General Department for Quality (GDQ) were the stakeholder who built the QI intervention and evaluated the program through accreditation.

QI interventions for MCH problems di LMIC

Based on Figure 1. seven articles used QI intervention for maternal and child health in Primary Health Care. Quality improvement Interventions for MCH were carried out in 2771 Primary Health Care. This research was conducted in Indonesia, South Africa, Nigeria, India, Egypt, and Ethiopia. Frequently, QI in Healthcare is carried out in Low and Middle-Income Countries (LMIC). LMIC is a country with a Gross National Income (GNI) per capita of less than USD 4095, and the average GNI per capita is USD 2.2021 (OECD, 2021).

The QI interventions tools

Table 1. provided information on each article about primary health care interventions to improve MCH services. Respectively, the PHC used different approaches and tools; there are Plan - D0 - Study - Action (PDSA) cycle,

Breakthrough Series Model (BTS) Model, process mapping, fishbone diagrams, Diagnose-Intervene- Verify- Adjust (DIVA) model, and Ananya tools. Every PHC used a different approach and tool, but PDSA tools were the most commonly used. Moreover, PDSA tools were more effectively used for small regional scales so that data collection is easier to obtain. Meanwhile, for enormous scope, using other tools besides PDSA was more effective in achieving the target.

Time-related to QI successes

The research methods were also very diverse, ranging from three months to eighteen months to six years. This was highly influential on the desired outcomes and closely related to affect the number of participating PHC. The many PHC observed the long time it would take to do the MCH intervention. The longest time occurred in Bihar City, India. It took six years to implement the MCH QI intervention and use a clinical audit for every intervention on Bihar's PHC. The QI intervention was successful. This showed that the period of QI intervention is essential in QI intervention for MCH at PHC.

The most used QI Intervention for MCH

This intervention for MCH was very situation-dependent because it depended on the characteristics of the PHC in each region. Several characteristics such as behavior, culture, climate, and many more will affect the implementation interventions. Based on table 1. we saw that training, supervision, and workshops for health workers were the mainstay interventions in overcoming maternal and child problems. Other than training intervention, monitoring for the MCH program was also the dominant intervention carried out.

Role of stakeholders on QI intervention for MCH di PHC

Stakeholders had an enormous role in the sustainability of QI intervention for MCH in PHC. In this study, we saw that the government has contributed to the implementation of QI intervention. Some of the roles include providing complete information, license for research, decision-maker for the intervention, investing in the intervention program, and measurement of the report to detect the gap in developing an action plan. Participating stakeholders involve the local government, district health office, ministry of finance, national midwives association, and province officer.

Not All intervention can achieve the target

From the result above, there are many QI interventions. Unfortunately, not all interventions can achieve the target, such as QI intervention in Indonesia, South Africa, and India. This indicates that not every QI intervention is successful. Only three studies indicate the QI intervention was entirely successful of the seven studies.

DISCUSSION

QI implementation in LMIC

This study found that QI intervention for MCH was often undertaken in LMIC countries. This was related because, in LMIC, there were still much poor society, social exclusion, geographic isolation, and a lack of proper health services and education (Kumar et al., 2020). Mutually sustainable, the LMIC community has difficulty getting access to education, especially in geographic isolation. The articles show that the country was a resource-poor community using the Continuous Quality Improvement method (2020). The age-appropriate was also an issue for many adolescent pregnancies or unwanted pregnancies. Education about the use of contraceptives, infant health, and maternal health was very influential. The easier it is to access education and information, the more knowledgeable society improves their health and chooses contraception (Robbins,C.L., & Ott, M. A., 2017). Other than that, maldistribution of health services and incompatible health workers, especially in Primary Health Care, were also concerns at LMIC (Bhan, N. et al., 2020). Therefore, LMIC might be the priority for improving maternal and child health quality. The implementation of QI interventions had to be solved at the root of the problem for effective results.

The mainstay of QI intervention for MCH

There were many interventions for improving the quality of PHC in MCH services. Based on this study, we identified that PHC often conducts QI interventions on Health Workers or Human resources in PHC, training, mentoring, and workshops for midwives and clinic teams. It is because Health workers have a crucial role in the success of QI. The purpose

was for Health Workers in Primary Health Care to have clear goals and understand the QI intervention undertaken, the tools to be used, and the procedures for implementing the program. This was supported by research (Baker, U., et al., 2018) in Tanzania that cultivating a sense of ownership of health workers affects the success of QI implementation. The higher the ownership of health workers in QI intervention, the more enthusiasm and desire to learn and understand more about the implementation of health workers will be. The QI intervention will be successful and effective if Health Workers or Human resources in PHC can operate and work together to own the program. Research from WHO also supports that mentoring and training are dominant interventions because they can ensure and also build skills and competencies of each staff (World Health Organization, 2018)

PDSA cycle is the most used approach

QI intervention in PHC aimed to enhance and improve MCH services. However, the outcome showed that not all QI interventions could achieve the target. Several factors include the tools and approach used, time/period, potential, human resources, stakeholders, data, and information (Rakhmanova N. and Bouchet B., 2017). However, it did not mean that the QI intervention using the PDSA cycle would succeed; many factors need to be identified to make QI successful. This was supported by the research of Limato (2019). The implementation of QI intervention using PDSA tools was not necessarily successful in achieving the target. Approaches using PDSA tools became familiar because it was using real-time evidence and were frequently used in LMIC. This was because the implementation was undertaken periodically, making it easier for researchers to identify and know the emphasis of an intervention. According to Ahmed, S. et al. (2019), QI intervention with the PDSA approach would be successful and influenced by sufficient duration, collaboration, and supporting data. If there are no these factors, it will exacerbate the failure of the process.

Stakeholder role on the success of QI intervention

The role of stakeholders in the implementation of QI would support the success of the intervention, as stated in the Alma Atta conference. The stakeholder's role in the QI implementation might be the most significant influence on the success. This happened because the implementation QI needs a resource; financial, man participation, exposure, and data information. This was supported by the research of Spencer (2020), that failure of QI outcomes due to limited time, incomprehensive data, unclear policy, and financial issues are closely related to stakeholders (Spencer et al., 2020). According to Spencer, stakeholders often only play a role in the monitoring and consultation but were negligent in implementation, intervention involvement, and evaluation. In addition, building trust and engagement in interaction were critical to gaining clear policy, complete data, and any other issues. These factors aligned with the study results that stakeholders must participate in the sustainability of QI intervention at PHC in MCH services. For example, in PHC in South Africa, the implementation of quality care ANC in HIV requires data from the local government; if the data obtained is incomplete, then the QI outcome will also not be successful.

The Successful QI intervention on PHC for Maternal and Child Health

QI intervention has varied factors to be identified as a successful program. However, to make it a success, it must occur continuously and sustainably (Marquez, 2020). The success of this QI intervention was also influenced by the area it was implemented and its duration. The broader area to be intervened, the more data and resources needed. For example, the Ananya program takes seven years to implement, implemented on a national scale. When viewed from a narrow area, the duration will be narrow as well (Darmstadt, G. L.,2020). The data and resources required were also less. In addition, advocacy is also necessary. Based on this study, advocacy was also one of the solutions to the success of QI intervention; out of several QI interventions, a study carried out only one advocacy, and it was successful.

Research Limitation

This study only examines articles in English and is limited to 5 years, from 2016 to 2021. The research was limited to the policy side of each country.

CONCLUSION

Implementation QI was frequently undertaken in Low-Middle Income Countries (LMIC). This took place because there was a lack of proper health services, resource-poor communities, and many other issues at MCH. Furthermore, various QI interventions and approaches have solved maternal and child health issues. QI interventions are training, mentoring, and workshops for midwives and clinic teams. Meanwhile, PDSA approaches were still the most used QI intervention approaches or methods for LMIC. However, the duration of QI also influenced the success of the program. Unfortunately, mentoring, training intervention or a PDSA approach did not guarantee that QI intervention would succeed. The role of stakeholders was also essential for making decisions, quality and completeness of the data, and transparent policy, making QI intervention successful means to sustain it, which was also influenced by the duration and the area of QI intervention.

SUGGESTIONS

The success of QI interventions is related to the stakeholder of the countries. The maximizing advocation of the stakeholder power will raise the chance of success of QI interventions. A stakeholder might help to educate and be a role model to introduce the QI intervention, so the people know the purpose of the intervention.

CONFLICT OF INTEREST

Author have no conflict of interest.

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AUTHOR CONTRIBUTION

Author Dhea Benedikta Tarigan as the main researcher who chose the topic, conducted a search for data collection in this study. Author Inge Dhamanti as a final proofreading and reviewed research documents.

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