

SYSTEMATIC REVIEW

Determinants of interprofessional collaboration in implementing Basic Emergency Obstetric and Neonatal Care (BEmONC) services

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Article Info	ABSTRACT
<p>Received Mar 15, 2024 Revised Sep 12, 2024 Accepted Sep 20, 2024 Published Apr 1, 2025</p> <p>*Corresponding author: Yuninda Loviana Ersianti lovianayuninda@gmail.com</p> <p>Keywords: BEmONC Interprofessional collaboration Referral Primary healthcare Maternal health</p>	<p>Objective: Maternal and infant mortality is a global challenge due to inadequate access to high-quality healthcare services. The WHO has implemented the BEmONC program in Indonesia to reduce MMR and IMR. Although the program is widely recognized in the country, it has been deemed suboptimal due to various healthcare service-related issues. The purpose of this study is to identify the factors that affect the execution of essential emergency obstetric and neonatal services in primary healthcare facilities.</p> <p>Materials and Methods: The literature review was conducted using a descriptive analysis approach with the aid of Mendeley and Biblioshiny in R-Studio. Sixteen reputable articles were selected from four online databases based on specific inclusion criteria.</p> <p>Results: The study identified three key areas for enhancing and assessing the BEmONC team. These areas involve optimizing team performance through factors such as health workers, infrastructure, teamwork, and appropriate training. Additionally, the study emphasizes the importance of effective BEmONC management, which includes policy development, communication strategies, management enhancements, and strong leadership. Finally, when evaluating the implementation of BEmONC, it is important to consider factors such as self-efficacy, the health workforce, as well as societal admiration, confidence, and trust. The primary factors contributing to the success of BEmONC were efficient cooperation, administration, and targeted assessment. Enhancing the implementation of maternal and newborn health services can be achieved by addressing the lack of facilities, improving the effectiveness of health workers, and fostering community admiration.</p> <p>Conclusion: Effective teamwork, management, and community trust are critical to advancing maternal and newborn health outcomes in BEmONC services.</p>

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How to cite: Ersianti YL, Fernandez V, Aulia R, et al. Determinants of interprofessional collaboration in implementing Basic Emergency Obstetric and Neonatal Care (BEmONC) services. *Majalah Obstetri & Ginekologi (Journal of Obstetrics & Gynecology Science)*. 2025;33(1):53-64. doi: 10.20473/mog.V33I12025.53-64.

Highlights:

1. BEmONC has been proven to diminish both newborn and mother death rates and morbidity.
2. The study identified three main areas for improving and assessing the determinants of interprofessional collaboration (IPC) in the implementation of BEmONC services: team performance, management, and BEmONC evaluation.



INTRODUCTION

Maternal and child health services still require government attention because it is among the measures of a nation's development.¹ In resource-limited settings, up to 94% of maternal deaths are caused by postpartum hemorrhage, infection, and pre-eclampsia, whereas neonatal deaths are commonly caused by birth asphyxia, complications of premature delivery, and sepsis.² The SDG goal is to reduce maternal mortality to less than 70 deaths per 100,000 live births between 2015 and 2030, and achieving this goal will require increased access to antenatal care services.³

The high MMR is caused by lack of access to quality health services and delays in care due to slow recognition of danger signs and decision-making.⁴ Other factors affecting intrapartum care in developing countries include poor health infrastructure, lack of collaboration among health care teams, patient communication, and gaps in referral management for obstetric emergencies.² World Health Organization (WHO) made a policy to reduce maternal mortality rates (MMR) and infant mortality rates (IMR) through the Basic Obstetric and Neonatal Emergency Care (BEmONC) Program worldwide.⁴ In Indonesia, efforts to reduce MMR and IMR have been conducted through interprofessional collaboration (IPC), which has proven to improve the quality of health treatment.⁵

Basic Obstetric and Neonatal Emergency Care, in Indonesia known as a *Pelayanan Obstetri dan Neonatal Darurat Dasar* is a basic emergency service at primary care facilities such as *puskesmas* that operates for 24 hours.⁵ BEmONC provides treatment and referral for 1) asphyxia; 2) infant feeding problems, LBW, jaundice, hyperbilirubinemia, hypoglycemia, hypothermia; 3) postpartum hemorrhage; 4) puerperal infection; 5) shoulder dystocia and vacuum extraction; 6) hypertension in pregnancy; 7) infants with respiratory distress; 8) infants with seizures; 9) infants with infections; 10) general preparation; 11) monitoring during pregnancy.¹

For ideal healthcare services, each district/city should have at least four BEmONC-capable in *puskesmas* and CEmONC (comprehensive emergency neonatal obstetrics) in hospitals available for referral. Collaborating with health care providers to advanced referral health facilities can significantly reduce maternal mortality and morbidity.⁶ Understanding associated factors with interprofessional collaboration BEmONC may increase our knowledge on how to plan suitable program for community to enhance quality health services to dismiss maternal and neonatal mortality. This study aimed to examine associated

factors with interprofessional collaboration in BEmONC implementation services.

MATERIALS AND METHODS

The research approach uses a systematic literature review design with a screening method that follows the PRISMA checklist through the processes of identification, screening, eligibility, and inclusion. A systematic literature review is a research approach that collects and then analyzes the essence of prior research, as well as reviews written by different experts in the main text. The results of a systematic literature review help understand the sources of knowledge development and policy making, generate new ideas, and become a guide for further research in a particular field. Researchers use a descriptive analysis approach using a literature review, so this research does not test hypotheses. The descriptive analysis approach aims to identify the facts of a phenomenon.⁷ The 16 selected articles passed a comprehensive screening process. The screening utilized keywords such as "Interprofessional," "Collaborative," "Emerg-ency," "Obstetric," "Neonatal Care," and "Primary Health Care" across four databases: Google Scholar, Science Direct, SINTA, and EBSCO. Boolean operators like AND were employed to refine the search (e.g., "Interprofessional Collaborative AND Emergency Obstetric AND Neonatal Care AND Primary Health Care"). Mendeley was then used to remove duplicate articles. Additionally, keywords, titles, and abstracts relevant to the study were thoroughly reviewed. The data were analyzed using Biblioshiny in R-Studio, providing a comprehensive overview of the most relevant articles, authors, journals, institutions, and countries from the selected articles, as well as illustrating the co-occurrence network among the articles.

The next stage uses the inclusion criteria, among others: 1) The selected article is the result of an original study, not including a literature review; 2) Articles are accessible and not repositories; 3) The research used is quantitative or qualitative research; 4) Articles published in the last 10 years in the range of 2013-2023. Ensure articles do not belong to the exclusion criteria, including: 1) Articles published more than 10 years ago; 2) Articles in the form of books, theses, or reviews; 3) Articles that could not be accessed in full; and 4) Articles on interprofessional collaboration but not on BEmONC. To manage and address the focus of the review, the researchers used the PEO framework (Population, Exposure, Outcome, and study design) to develop the search strategy and focus of the review. The framework PEOs (Table 1) and flow chart (Figure 1) shows the flow of literature search and collection for this study.

Table 1. PEOs Framework

P (Population)	E (Exposure)	O (Outcome)	S (Study Design)
All individuals involved with BEmONC, including healthcare providers (doctors, midwives, nurses, and other health workers), were included.	Interprofessional collaboration	BEmONC implementation	All publications original research regarding interventions in Interprofessional Collaboration concerning the implementation of BEmONC (Basic Obstetric and Neonatal Emergency Care) were reviewed.

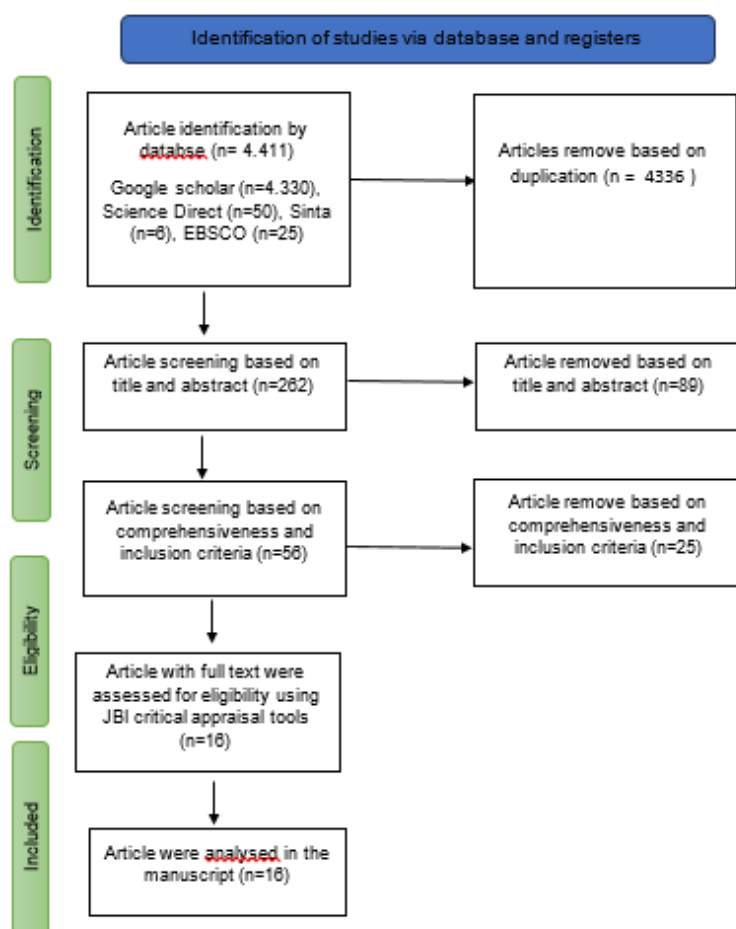


Figure 1. Prisma flow-chart

RESULTS AND DISCUSSION

Articles meeting the inclusion criteria will be extracted, grouped, and summarized, considering journal biography, population, intervention, comparison, results

and outcomes, and study time. These articles will then be synthesized into tables, including the article titles, results, study designs and methods, and outcomes. The following 16 articles have been synthesized as seen in [Table 2](#).

Table 2. Synthesized data of the article reviews

No	Authors	Outcome	Research design and method	Result
1.	Zhong et al., 2021	Participants get better performance in both teams and individually, as well as increased confidence to handle emergencies in the future. ²	In South India, a qualitative descriptive study was conducted with 125 health workers, including medical and nursing staff and other health workers, using pre and post-workshops. Workshop one-Simulation approach using realistic scenarios and simulation. ²	Participants highlighted patient relationships, support from other health professionals, perceived gaps in knowledge and experience, and a lack of resources as variables influencing their experience with obstetric emergencies. Participants' learning centered on increasing team and individual performance, as well as gaining confidence in dealing with future emergencies. ²
2.	Susanti et al. 2019	Evaluate the implementation of BEmONC at Puskesmas Bangetayu Semarang and identify factors that promote and hinder the success of the program. ¹	Descriptive qualitative research using interviews with informants selected using purposive sampling technique. Informants included representatives from the Semarang City Health Office, Bangetayu Community Health Centre (Puskesmas Bangetayu), and the program's target communities. ¹	Studies show that implementation of BEmONC is less effective. This is due to the lack of health resources in terms of quantity and quality. In addition, health workers did not receive BEmONC training. This was exacerbated by inadequate facilities and infrastructure. BEmONC implementation is influenced by the communication process between organizations and the community's socialization process, both of which are not ideal. ¹
3.	Haider et al., 2019	To improve maternal and neonatal care in Bahawalnagar district, barriers to the provision of emergency obstetric and neonatal services should be removed. ³	A sequential exploratory mixed methods design study in Pakistan. Participant interviews were used to acquire qualitative data, which was guided by key informants. Quantitative data were acquired from the same subjects through a rank-order survey. In the Bahawalnagar district's primary health unit, 79 healthcare professionals provided 24-hour BEmONC services. ³	Interpersonal challenges include a lack of teamwork, dispute resolution, communication, and an imbalance of power. Job instability, a lack of organizational culture, challenges with human resource placement, and a lack of role clarity are all significant organizational impediments. At the system level, important challenges included a lack of target management, a lack of resource availability, homework requirements, and difficulty with dual practice. ³
4.	Edward et al., 2019	Research will assist in a uniform continuing professional development program to assure its relevance and integrity, and to catalyze the ongoing development of interprofessional education programs, independent of organizational size or location. ⁸	A mixed-method study with 114 participants from Australia. The survey consisted of sixty (60) questions, and although the majority of the questions were closed, three (3) asked respondents to make further remarks, and twenty-five (25) questions had an 'Other (Please specify)' option. The open-ended questions in this poll provide qualitative data. ⁸	The results showed an association between special education departments (DEDs) and the quality of maternal care offered. ⁸
5.	Kumar et al. 2021	The training applied to their daily practice, and their eagerness to learn how to handle complex births demonstrated the ongoing importance of obstetric and neonatal emergency simulation training. ⁴	A semi-structured one-on-one interview strategy was utilized in this qualitative study conducted in India. All doctors, midwives, nurses, and health workers who participated in the ONE-Sim program, N=48. ⁴	The interviews revealed five themes: comparing simulation to clinical practice, learning and working in teams, thinking retention and sustainability, integrating Simulation-Based Education into the role, and managing leadership. ⁴
6.	Kost et al., 2019	Nurses, midwives and doctors on duty were given the opportunity to train in two significant obstetric crises in a realistic simulated environment that matched the actual situation. ⁹	Pre and post simulation quantitative research study in Philadelphia. This quality improvement intervention adopted a blended curriculum approach, widely used in simulation research and proven superior to traditional in-service training. The program involved 30 registered nurses (75% of the unit's nurses) and 13 obstetric clinicians (59% of	The objectives of this assignment are: The objectives of this assignment are: 1) to enhance the team's perception of environmental safety in patient care, 2) to improve the effectiveness of team collaboration in managing obstetric crisis events, 3) to improve compliance with the best practice list for addressing postpartum haemorrhage (PPH) and shoulder

			obstetricians or nurse midwives). ⁹	dystocia (SD) occurrences, 4) to enhance the self-efficacy of obstetric personnel in managing obstetric crisis events, 5) address any potential system or process affecting patient care, 6) Use simulation training to improve obstetric staff satisfaction, and 7) Increase the effectiveness of post-simulation briefings. ⁹
7.	Berg et al., 2023	The utilization of a structured model of process-oriented group reflection for healthcare practitioners on labor and birth care proved to be a crucial part of the training intervention, as it supplemented the information gained through theory- and simulation-based education. The three-pillar training intervention enhances care routines that promote healthy birth and the management of problems. ¹⁰	Qualitative research in Congo with an interview approach by 131 health care providers. ¹⁰	Group reflection contributes valuable information to the other components of the three-pillar training intervention. Sharing and analysing care circumstances helps healthcare personnel build self-awareness, tools for implementing regulated and safe care routines, and teamwork. ¹⁰
8.	Mselle et al., 2023	Investigate how health professionals, management, and communities viewed the introduction of a comprehensive obstetric and neonatal emergency training program in rural Tanzania. ¹¹	Qualitative research design with FGDs in five (5) healthcare facilities In rural Tanzania, enrolling in a thorough emergency obstetric and neonatal training program Twenty-four (24) focus group discussions comprising health management board teams, health facility managers, staff receiving training, and community members. ¹¹	Participants discussed the acquisition of skills required for quality and safe obstetric and neonatal care. The study revealed five themes: 1) Competent and confident health teams, 2) Increased commitment to teamwork, 3) Community trust and confidence in the health team, 4) Mentoring as a vital success factor, and 5) Improved training and practice. These five emerging themes reflect greater community confidence and trust, as well as better health-care team competency in supporting mothers during pregnancy and labor at the health center. ¹¹
9.	Kumar et al., 2019	The provision of BEmONC and CEmONC services in Pakistan continues to pose a significant challenge, particularly in light of the substantial burden of maternal and neonatal mortality. The objective of the study was to evaluate the accessibility of emergency obstetric and newborn care within Sindh Province, Pakistan. ¹²	A cross-sectional study of 12 districts selected in Sindh Province, Pakistan for their child and maternal health considerations. Data were collected from 63 public sector health facilities, including district-level hospitals, Taluka (sub-district) central hospitals, and rural health clinics. BEmONC and CEmONC services were evaluated via direct observation and interviews with facility directors, managers, and employees. ¹²	BEmONC is available but does not meet WHO requirements. Seven components of basic emergency obstetric and neonatal services revealed that 92% of health facilities had parenteral antibiotics, 90% had oxytocin, 92% had manual placenta services, 87% had staff capable of removing the remaining products of conception, 82% had normal birth facilities, and 80% had neonatal resuscitation services available. ¹²
10	Tria et al., 2019	The dominant variable that has a relationship to referral requirements and preparation with standard operating procedures. ¹³	Quantitative analytic study with survey method in Aceh, Indonesia with BEmONC teams from 18 health centers totaling 72 people (total sampling). ¹³	SOPs in preparation and referral requirements have not been met and feedback from CEmONC-BEmONC is difficult to work with. Staff lack BEmONC standards and training. There is also no referral infrastructure. Insufficient facilities are available in the ambulance. Communication between BEmONC-CEmONC is one-way, SOPs are incomplete and placement of SOPs is not ergonomic so they are not easily seen by health workers. ¹³
11	Sulistyaningsih et al., 2022	Other studies show evidence that Interprofessional teamwork can boost health-care quality and reduce medical errors. The goal of this project is to create a	Qualitative design with single case study with holistic case design in Bantul, Yogyakarta, Indonesia. Researchers collected data by observation followed by in-depth	The study identified four themes: work culture mechanisms, environmental mechanisms, practices in interprofessional collaboration, and institutional support mechanisms.

		model of BEmONC Inter-professional Collaboration Practice (ICP) at health centers. ⁵	interviews and then ending with documentation. The informants were 19 members of BEmONC. Supporting informants were two patients and their families ⁵	These mechanisms are interrelated, influencing the effectiveness of interprofessional collaboration and the quality of BEmONC. ⁵
12	Ernawati et al., 2023	The implementation of BEmONC puskesmas has not been optimal, as evidenced by the MMR, IMR, and under-five mortality rate. Support from the local government and related parties is needed with the hope of being able to meet resource needs in the context of organizing BEmONC primary health facilities. ⁶	Qualitative research using a descriptive approach. In the Solok district of Indonesia, data was collected through interviews, document analysis, and observation. A total of 7 informants, including the field manager, MCH manager, program subdivision, 4 BEmONC puskesmas. ⁶	The implementation of BEmONC capable health centers has not been optimal due to the unavailability of resources, infrastructure, equipment, medicines and provision of BEmONC team. In addition, the process of commitment, communication, and community interaction among stakeholders has not been optimized. The implementation of the BEmONC program requires coordination with local government support through awareness of budget determination, coordination as well as involvement between stakeholders in the hospital environment, professional associations, NGOs, local communities and CEmONC as a unified referral system. ⁶
13	Yamuragiye et al., 2023	To optimize MCH, policymakers, professional health educators, and clinicians must identify measures for improving interprofessional interactions and contributing to the quality of obstetric and neonatal care. ¹⁴	A semi-structured interview was used to perform a descriptive qualitative study at five Northern Rwanda public hospitals. The study included 25 health workers, including nurses, midwives, doctors, and non-physician anaesthetists who worked in maternity wards. ¹⁴	Some of the benefits of effective interprofessional collaboration include reducing child and maternal mortality and morbidity, and optimizing quality care. However, there are challenges related to communication and competition in interprofessional collaboration, stressful work environment and lack of resources. ¹⁴
14	Cornthwaite et al., 2013	The primary objective of the training is to enhance maternity care. Therefore, participants should receive positive feedback, but formal assessment should be avoided. However, monitoring outcomes is still essential to ensure the safety and quality of care. It is essential to remember that the training's effectiveness should be assessed by the safety of both mothers and babies, not only exam scores. ¹⁵	Quantitative research study with a pre and post training experimental approach in the UK with practical midwifery multiprofessional respondents. ¹⁵	This study recommends formal evaluation of training programs with a focus on clinical needs and outcomes, rather than participants' exam scores. Research highlights the importance of good team communication and coordination to reduce risks to mothers and babies. The analysis revealed variations in team management. Optimal teamwork is defined as effective action toward a common goal. Effective leadership is developed through internal and evidence-based training, as well as clinical practice. Simulation, inter-professional training, and leadership training are essential for enhancing teamwork and leadership in labor emergencies. This can be achieved by focusing on situation awareness, structured communication, and evidence-based learning. ¹⁵
15	Walker et al., 2015	PRONTO training was effective in strengthening obstetric and neonatal care professionals' knowledge and confidence, resulting in improved clinical practice. ¹⁶	Quantitative study with pre and post-test simulation training in obstetric and neonatal care providers in 15 clinics in the country of Guatemala. ¹⁶	Knowledge and self-efficacy scores rose significantly across all instructional areas. At the end of the program, scores were connected across all topics. More than 60% of the objectives established for improving clinic function and emergency treatment were met. No predictors of goal achievement were found. These positive results confirm the positive impact of PRONTO training in the context of neonatal and obstetric care in a limited-resource

16	Tanjung et al., 2016	The study evaluated the implementation of the BEmONC Program at Puskesmas Tegal with a focus on context, input, process, and product (CIPP). ¹⁷	A qualitative study using in-depth interviews, observation, and document review in Indonesia. A total of 10 key informants were selected for this study, including the head of Puskesmas, the head of the Family Health and Nutrition Division of the Tegal Regency Health Office, the midwife in charge of the BEmONC operation, and mothers with severe pre-eclampsia. ¹⁷	environment. ¹⁶ The results of the evaluation showed that BEMONC in Tegal Health Center managed to implement the program well, although there are still some areas that need to be improved, such as nurse involvement, resource allocation, and some constraining factors. The evaluation results showed that the number of health workers was deemed adequate, yet nurses were not entirely involved (context). In addition, there is no specific funding for the operation of the BEMONC health center. Training for emergency services and efforts to improve facilities were well implemented (input). BEMONC services and health workers are performing well (process). Intersectoral cooperation is working well. Constraining factors include the slow processing of BPJS claims and low public awareness. The results show a high level of patient satisfaction with BEMONC services (product). ¹⁷
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Table 3. Country distribution of the articles

Countries	Freq.	Countries	Freq.
Australia	1	England	1
Congo	1	Pakistan	2
Guatemala	1	Philadelphia (US)	1
India	2	Rwanda	1
Indonesia	5	Tanzania	1

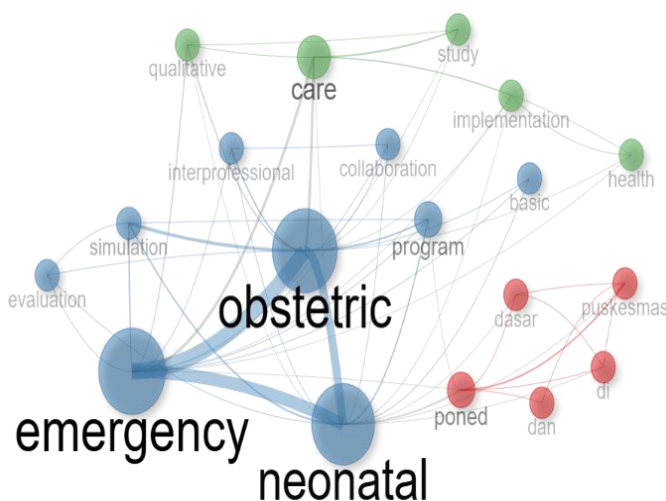


Figure 2. Co-occurrence network of the articles

Table 4. Articles' summary

No	Theme	Subject matter
A	Team Performance of BEmONC	a. Health workers [2, 3, 9, 13] b. Infrastructure [2 and 10] c. Teamwork [1, 3, 5, 6, 8, 11, and 16] d. Appropriate training [1, 5, 6, 7, and 8]
B	BEmONC management	a. BEmONC implementation policy [10 and 12] b. Professional and community communication [2, 10, 12, and 13] c. Fixed management issues [3,6, and 11] d. Leadership [5] e. Support and assistance from the BEMONC team [4, 8, 11, and 12]
C	Evaluation of BEmONC Implementation	a. Self-efficacy of health workers [1, 6, 8, and 15] b. Public satisfaction, confidence and trust in health workers [6, 8, and 14]

Characteristics

The results of the search and conformity with the key words of the research were obtained 16 articles. Various countries, both developed and developing, were included in the results of the review articles. Some developing countries in the review articles include India, Indonesia, Pakistan, Congo and Tanzania. While articles from developed countries include Australia, England, Guatemala, Philadelphia (USA), North Rwanda (Africa). The following are the countries in the article that became the research site.

This review article discusses interprofessional collaboration BEmONC in health care facilities. The focus of the article review includes team performance, management, and evaluation of BEmONC implementation. The articles were original research using qualitative,^{1,2,5,7,8,11,12,13,16} quantitative,^{6,9,10,14,15} and mixed-methods^{3,4} research designs.

Thematic analysis

According to the Indonesian Ministry of Health (2016), BEmONC has been proven to diminish both newborn and mother death rates and morbidity.⁶ Based on the review of articles, several variables contribute to the effectiveness of BEmONC services, which are categorized into the main themes and topics (Table 4).

The implementation of referrals must be carried out with adequate and rapid preparation in order to guarantee the quality of the service, effectively and efficiently. One of the barriers to the referral system is the lack of trained staff and the unavailability of blood transfusion units in all districts. The dominant factors for successful referral are health workers, transportation, teamwork, facilities, SOPs and communication. Strengthening the health referral system can overcome the problems and challenges of BEmONC at *puskemas* in making referrals to hospitals.¹³

Team Performance of BEmONC

Health workers

Research has shown that resource availability is a crucial factor in addressing obstetric and neonatal emergencies.² Barriers to resources are primarily felt at the organizational level, with issues such as lack of organizational culture, lack of role clarity, human resource deployment problems, and job insecurity.³ The quality of healthcare resources and supporting infrastructure influences service quality in two ways: partially and simultaneously. Setyawan believes that the quality of health care is positively related to the quality of human resources, supporting facilities, and infrastructure.¹⁸

Infrastructure

In review articles, some BEmONCs with inadequate facilities and infrastructure.^{2,10} On the other hand, health facilities and infrastructure affect the level of accessibility to health services.¹⁹ The availability of complete facilities and infrastructure followed by standard operating procedures for referrals that are carried out as well as possible, competent human resources, established liaison between BEmONC health centers and CEmONC Hospitals, referral requirements and preparations have been established according to standards will result in accurate, fast, safe referrals, and ideal times so as to maximize emergency cases of maternal and infant health can be handled.¹³

Teamwork

The study was conducted at the Tegal Community Health Unit in 2017¹⁶ revealed that nurses have not been fully utilized in the BEmONC Team, which consists of doctors, nurses, and midwives collaborating to handle obstetric and neonatal emergencies at the health center.¹⁷

Interprofessional teamwork is essential for ensuring the effective execution of BEmONC at *Puskesmas*.^{1,3,5,6,8,11} Research indicates that the quality of health services is significantly impacted by the job satisfaction of health workers and their ability to work in teams.²⁰ To increase the quality of health services, it is vital to perform regular evaluations every six months and focus patient happiness through training and teamwork.²¹

Relevant training

According to Bloom's theory, behavior is built upon knowledge, skills, and attitudes. Human knowledge is divided into six areas: knowledge, understanding, application, analysis, synthesis, and evaluation.^{22,23} Research indicates that training in Normal Childbirth Care (APN) has an impact on midwives' behavior.²² To provide evidence-based healthcare to patients, it is necessary to develop skills in basic obstetric and neonatal emergencies. This includes increasing competence in knowledge, perception, skills, and experience.^{1,5-8} The BEmONC simulation training aims to enable medical and health workers to reflect on their training by comparing simulation and clinical practice, learning and working in teams, addressing retention and sustainability, connecting relevance and roles, and managing leadership.¹²

BEmONC management

BEmONC implementation policy

Research on BEmONC-capable health centers in the Solok District Health Office area indicates suboptimal policy implementation. The health office is responsible for policy implementation, including the preparation and selection of BEmONC-capable health centers, as well as the availability of health resources such as infrastructure, BEmONC teams, medicines, equipment, and consumables.⁶ According to Tria et al review article, referral and preparation requirements are suboptimal.¹³ Additionally, feedback from hospitals with CEmONC to BEmONC at *puskesmas* is challenging, and communication between BEmONC and CEmONC is one-way. The standard operating procedures (SOPs) are incomplete, and the installation of SOPs is in an ergonomically unfavorable location, making it less visible to health workers.

Professional and community communication

Research shows that BEmONC-CEmONC communication is not supportive.¹³ Other research shows that the process of community involvement, stakeholder communication, and socialization is not optimal. The implementation of BEmONC requires good coordina-

tion through budget awareness, co-ordination and involvement between support from local government, stakeholders in the hospital environment, professional associations, NGOs, local communities and the importance of the role of CEmONS hospitals as an integrated referral system.⁶

Fixed management issues

The BEmONC program has obstacles in implementation due to lack of conflict management and inappropriate distribution of power. The need for the application of management functions in building work culture and environmental mechanisms. The management functions that are widely used in the scope of health centers include systematic planning (P1), then followed by mobilization accompanied by the implementation of management functions (P2). In addition, the primary health care management function is monitoring, program control, and evaluation (P3).²⁴

Leadership

A review article demonstrated that leadership in BEmONC teams is linked to team members teaching each other, adopting a gradual approach to management, and delegating leadership when necessary.⁴ Leadership is a crucial factor in the success of organizational activities. The future development of *Puskesmas* will prioritize programs that align with the context, conditions, and needs of the community in the functional area of the *Puskesmas*. Additionally, there will be a focus on developing environmental protection programs and improving the quality of health services. The regional *Puskesmas* will also work towards self-financing, and communities will be empowered and mobilized in the health sector.²⁴

Support and assistance from the BEmONC team

The implementation of BEmONC requires institutional support mechanisms, including management, resource, and policy support. A good work culture mechanism can aid in developing a collaborative work culture, effective communication, and interpersonal skills. Environmental mechanisms can be implemented to foster a productive work environment, facilitate the advancement of information and communication technologies, and encourage the growth of information systems.⁵

Evaluation of BEmONC Implementation

Self-efficacy of health workers

According to Bandura (1997), self-efficacy does not arise on its own, but rather from the relationship between individual characteristics, behavior patterns, and environmental factors.²⁵ Health workers' self-efficacy is not directly related to the skills they possess, but rather to their self-assessment of their abilities.²⁵ Emergency training such as PROMPT improves clinical practice and clinical outcomes and increases obstetric emergency management confidence after training.⁸ Training to assess evidence-based knowledge and self-efficacy can be conducted for health workers who provide maternal and neonatal services through a simulation-based team training program. The results showed that 60% of participants experienced an increase in knowledge as well as self-esteem after attending a training program to handle maternal and neonate emergency cases.¹⁶

Public satisfaction, confidence and trust in health workers

Poor team collaboration has an effect on maternal and infant mortality, leading to diminished public perception of health workers. The risk of maternal emergencies that are not handled properly makes 20% of mothers feel dissatisfied, especially when they want to recreate the experience of giving birth in the future, poor service results in the psychology of the mother in providing breast milk to her baby, and disrupts the inner bond between mother and baby. Even though the mother is very trusting of the services provided by health workers. Good communication among health staff can restore mothers' trust in health providers.¹⁵

The study's findings showed that indicators of responsiveness, characteristics, safety, empathy and reliability affect patient satisfaction. The variable that has the greatest influence on patient satisfaction is the responsiveness variable.²⁶ The more health workers who are successful in their health services, the more the community accepts the services provided by health workers such as the number of women who choose to give birth at the primary health care is growing. So that to maintain this increase in trust, strategies must be implemented to strengthen obstetric and neonatal emergency skills that involve the community during the implementation of interventions.¹¹

CONCLUSIONS

After reviewing the data, it can be concluded that collaboration among the BEmONC team has a positive impact on reducing morbidity and mortality rates for both mothers and newborns. Effective collaboration among the BEmONC team, including doctors, nurses,

and midwives, along with efficient management and focused evaluation, are key factors for success in implementing obstetric and neonatal services in primary healthcare contexts. Although some barriers, such as lack of facilities and infrastructure, and suboptimal communication, were identified, efforts to improve the self-efficacy of health workers and community satisfaction in receiving maternal and neonatal health services can lead to success. Further research is necessary to continually enhance and evaluate the impact of BEmONC team collaboration on clinical practice and maternal and neonatal health outcomes in primary healthcare.

DISCLOSURES

Acknowledgment

The researcher wishes to recognize the Indonesia Endowment Fund for Education (LPDP) of the Ministry of Finance of the Republic of Indonesia for their scholarship funding. The researcher also would like to thank Universitas Padjadjaran, the supervisors and all those who supported and played a role for supporting this research.

Conflict of interest

There are no conflicts of interest in this study's content among all authors

Funding

This research has received no external funding.

Author contribution

All authors have contributed to all processes in this research, including preparation, data gathering and analysis, drafting and approval for publication of this manuscript.

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