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Full Length Research Paper

Factors that can affect the quality of emergency obstetric care in the health center level in developing countries: a systematic review of the literature

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Abstract

The focus of the paper is a systematic literature review which emphasis on factors that can affect the quality of emergency obstetric care in the health center level in developing countries and in reduction of maternal and child health. **Methods:** A systematic search of the research which was conducted before 2015, based on the following key words "quality of emergency obstetric care" AND "factors that can affect quality of emergency obstetrics in developing countries". Research papers were analyzed according to component of structure and process. **Results:** This review leads to the following main conclusions: (1) poor skill of health care provider to manage emergency obstetric, (2) Absence of essential equipment and essential drug, (3) Health care provider shortages.

Key Words: Emergency, Care, quality.

INTRODUCTION

Worldwide 250,000–280,000 women die during pregnancy and childbirth every year and an estimated 6.55 million children die under the age of five. Approximately 15% of expected births worldwide will result in life-threatening complications during pregnancy, delivery, or the postpartum period (WHO, 2012; UNICEF, 2012). Almost 99% all maternal, newborn, and child deaths occur in developing country, unquestionably, appropriate interventions along with appropriate health resources in these countries have significant potential for reducing the burden of maternal and child mortalities. Although substantial progress has been made towards achieving the Millennium Development Goals (MDGs) 4 and 5, the rates of decline in maternal, newborn and under-five mortality remain insufficient to achieve these goals by 2015 (Sines *et al.*, 2006; Bayer, 2001).

The fifth Millennium Development Goal is to reduce maternal mortality by 75% between 1990 and 2015. Recent evaluations show that progress has been especially slow in sub-Saharan Africa because of

weakened health systems, poor quality of care, inadequate human resources, financial barriers to care and insufficient political commitment (WHO, 2005).

Emergency Obstetric and Neonatal Care (EmONC) is a cost effective priority intervention to reduce maternal and neonatal morbidity and mortality in poor resource settings. Basic EmONC alone can avert 40% of intrapartum related neonatal deaths and a significant proportion of maternal mortality (Sines *et al.*, 2006). Universal access to EmONC is considered essential to reduce maternal mortality and requires that all pregnant women and newborns with complications have rapid access to well-functioning facilities that include a broad range of service delivery types and settings (WHO, 2014; Campbell and Graham, 2006).

A recent study has shown there are too few health institutions providing EmONC to meet the united nation standards of at least five (four basic and one comprehensive) EmONC institutions per 500,000 populations. Only 7% of deliveries took place in institutions,

including only 3% in institutions that routinely provided all signal functions. Six percent of women with obstetric complications were treated in health institutions, whereas only one-half of these women were treated in fully functional comprehensive EmONC facilities (Admasu *et al.*, 2011).

A set of seven key obstetric services, or "signal functions," has been identified as critical to basic emergency obstetric and newborn care (EmONC): administration of parenteral antibiotics; administration of parenteral anticonvulsants; administration of parenteral uterotonic, removal of retained products (manual vacuum aspiration); assisted vaginal delivery; manual removal of the placenta; and resuscitation of the newborn (WHO, 2014). So this review is made to overview factors that can affect the access of quality EmONC to improve the quality of maternal and new born health by collecting available evidence.

MATERIALS AND METHODS

Searches were carried in early 2016. The following combination of keywords was used: "quality obstetric care" "AND" "factors that affect quality care at the health center level in developing countries".

Eligibility criteria for selecting articles were that they were either quantitative or qualitative studies on the quality of EmOC in developing countries at health center level. No restrictions on the term "quality" were established. Then a narrative synthesis and a descriptive summary of the selected studies were carried out.

Analytical framework

Conceptualize EmOC into two dimensions of quality: structure and process (Campbell *et al.*, 2000; Chin and Muramatsu, 2003; Donabedian, 1997). The concept of "quality of care" was defined in this study as the level at which health services increase the probability of the desired results for individuals and populations, according to the current state of knowledge (Mainz, 2003). The structure includes material and human resources. The process includes technical and interpersonal aspects of care (Chin and Muramatsu, 2003; Donabedian, 1997). This framework was modified and adapted to support the analysis of EmOC quality (Morestin, 2007).

RESULTS

Of the 151 articles that met criteria, 29 were retained for further analysis. Articles finally selected included five (WHO, 2005) literature reviews, seven explanatory analytical studies (Campbell and Graham, 2006), seven descriptions of EmOC programs (Campbell and Graham, 2006), nine normative evaluations (WHO, 2014).

Material resources

Adequate availability of infrastructure is a crucial prerequisite for effective EmONC service delivery. It is extremely difficult for the health care provider to offer quality services without physical space (rooms), beds for patients and a source of electricity and running water. Similarly, functional mode of transport and communication systems is essential for timely and quick referral of emergency patients to a next higher level of health care facility (Campbell and Graham, 2006). Key interventions that were most often absent included assisted vaginal delivery and manual removal of the placenta. Among the explanations offered for these clinical deficiencies were limited task delegation to peripheral sector staff, inadequacy of equipment and the absence of a well-equipped unit (Gerein *et al.*, 2006).

Study in Somalia stated that 50% of the MCH were not having designated physical space available to carry out delivery services. The building was too small for EmONC facility. In one of the MCH, the delivery services, ANC clinic and general Outpatient department are all housed in one room. The number of maternity beds and delivery are below the WHO standards (2004) for prenatal and postnatal care (30-32 for every 1000 deliveries) (Campbell and Graham, 2006).

Study in Tanzania stated Oxytocin, which is used for bleeding control, was found in very few facilities (28%); surprisingly, Ergometrine, which is now not recommended for bleeding control, was found to be present in seven (39%) facilities. Despite its importance in the initial stabilization of women who experience obstetric emergencies, IV infusions, Ringer lactate and normal saline were present in only half of the facilities (Olsen *et al.*, 2010).

Study in Malawi stated that all the facilities did not have postnatal care monitoring equipment like sphygmomanometer and thermometers in their maternity departments. In addition, guide- lines and teaching aids for postnatal care were not available in all the facilities (Rogo *et al.*, 2006).

Health care provider

Even when the best combinations are identified, many obstacles must still be overcome. Among them is the inadequacy of health care provider in developing countries. In the health sector in general, and in maternal health in particular, health care professionals are at the heart of the success of EmONC interventions. The performance of any health system, and thus the improvement of a population's health, depends on the productivity, competence, availability and responsiveness of health professionals (WHO, 2006). The intrapartum health center strategy aims at ensuring deliveries in health centers with midwives and their assistants. These qualified personnel are able to provide adequate essential

obstetric care to women. However, they must also be able to detect complications and handle them, either by giving basic EmONC or by referring the most complicated cases to well-equipped hospitals for complete EmONC (Rogo *et al.*, 2006).

HealthCare provider availability

There is a critical shortage of health-care providers in Africa; the World Health Organization (WHO) reported that 36 of the 57 countries facing chronic human resource shortages in the health sector are in SSA and that only 2.6 and 12.0/10,000 of physicians and nursing/midwifery personnel, respectively, are in Africa compared to 33.1 physicians and 80.5 nurses/midwives per 10,000 people in the European region. This shortage of skilled birth attendants is even more severe in rural compared to urban areas (Rigoli and Dussault, 2003).

Study in Addis Ababa stated the ratio of midwives to 100 expected births were 0.26 in 2008 and 10.3 in 2013 (Campbell and Graham, 2006). The selected studies mention several threats, such as turnover, abandonment of public structures that affect the availability of health care provider for EmOC. They point out that these staff shortages weaken the quality of care by increasing professionals' workloads and patients' waiting times (Rigoli and Dussault, 2003).

Health care provider competency

Health care provider competency influences the quality of care. As shown in a skill and knowledge evaluation in Addis Ababa, Benin, Ecuador, Jamaica and Rwanda, EmONC professionals scored only 50% in the required skills. Knowledge was evaluated using multiple-choice questions and skills, by tests on anatomical models (Campbell and Graham, 2006). Health care provider competency also influences users' perceptions of the quality of care. This is reported in Tanzania in 2003, where the low rate of utilization of health centers providing EmOC is partially due to the poor perception of quality of care. This bad perception is the consequence of shortfalls in skilled professionals. Therefore strongly recommend implementing skill-based training approaches supported by regular clinical supervision, as tried by several teams. Among the reasons suggested for this gap in theoretical knowledge and skills are inadequate training methods, insufficient practice of learned procedures due to lack of equipment inability to delegate tasks and large variations in clinical protocols (Olsen *et al.*, 2010).

Technical aspects of care by health care provider

The overall evaluation of professional skills, together with the quality of equipment, and human resources, shows interdependency among all these aspects of good quality

EmOC (UNICEF, 2012). Indeed, some EmOC interventions depend on the availability of specific equipment like forceps and vacuums. In such cases, the absence of equipment can decrease the probability of accomplishing these functions.

DISCUSSION

In maternal health as well in the health care sector overall as reported by historical analyses, professionalization of midwives is among the successful health care provider strategies that have contributed to reducing maternal mortality in developed countries (Saizonou *et al.*, 2006). This review confirms the importance of health care provider of EmOC services. This review leads to three main conclusions: (1) skill gap of health care provider to manage emergency obstetric (2) Absence of essential equipments and essential drug (3) Health care provider shortages.

1). Skill gap of health care provider

Globally, efforts to reduce deaths among women from complications related to pregnancy and childbirth have been less successful than other areas of human development – with the result that having a child remains among the most serious health risks for women. The lack of skilled personnel contributed significantly to the high burden of maternal deaths in Africa. A focus on these factors is critical to Africa's vision of ending preventable maternal deaths by 2030 (Amdd, 2004). Furthermore, providing birth attendants with simple equipment and training is a low tech, low-cost opportunity to prevent neonatal deaths.

Providers skilled in emergency obstetric and newborn care (EmONC) services are essential, particularly in countries with a high burden of maternal and newborn mortality. One of the contributing factors to Africa's high maternal mortality is the low utilization of skilled birth attendance. The lack of skilled birth attendants contributes to more than 2 million maternal, stillbirth and newborn deaths each year worldwide. Some other aspects of EmOC staff performance that have rarely been examined, such as organizational stability and staff productivity, should also be analyzed. Staff performance in greater depth, and particularly their executive competence, which is scarcely documented in the selected studies (UNICEF, 2014).

2). Absence of essential equipment and essential drug

Adequate availability of infrastructure is a crucial prerequisite for effective MNH services delivery. It is extremely difficult for the health care provider to offer quality services without physical space (rooms), beds for

patients and a source of electricity and running water. Similarly, functional mode of transport and communication systems is essential for timely and quick referral of emergency patients to a next higher level of health care facility (Campbell *et al.*, 2006).

Bearing in mind, on the one hand, ethical and logistical constraints, and on the other, the extent to which staff performance depends on material and human resources existing theoretical models and robust research designs should, with valid instruments, make it possible to evaluate and analyses the executive competence of EmOC personnel (WHO, 2014).

3). Health care provider shortages

Even when the best combinations are identified, many obstacles must still be overcome. Among them is the inadequacy of health care provider in developing countries. In the health sector in general, and in maternal health in particular, health care professionals are at the heart of the success of EmONC interventions. There is a critical shortage of health-care providers in Africa; the World Health Organization (WHO) reported that 36 of the 57 countries facing chronic human resource shortages in the health sector are in SSA and that only 2.6 and 12.0/10,000 of physicians and nursing/midwifery personnel, respectively, are in Africa compared to 33.1 physicians and 80.5 nurses/midwives per 10,000 people in the European region. This shortage of skilled birth attendants is even more severe in rural compared to urban areas (Rigoli and Dussault, 2003). Taking these factors into account when trying to improve the availability of EmOC personnel remain a formidable challenge. While still trying to address EmOC staff shortages, the quantitative objectives of health policies should be revisited, updated and adapted to changing contexts.

Most studies continue to refer to the original WHO standards, for which the basis of calculation is now being questioned. New standards are estimated at 20 midwives, or equivalent staff, and health centers of 60 to 80 beds in a district of 120 000 inhabitants. This staff distribution would depend on the population's dispersal: either nine or 10 midwives in a hospital and the rest in the health centers of the district, or one midwife per village, with intensification of the referral system. These new standards, although better adapted because they take into account population size, needs and existing health structures, are nevertheless still based on a normative approach, and the validity of these normative references is being called into question (WHO, 2005).

CONCLUSION

Health care providers are the key component in all the dimensions of EmOC services and determine their quality.

This review demonstrates that impacts of health care provider's incompetency and shortage as well absence of essential materials and drugs on the production of good-quality EmOC. Overcoming this problem into consideration would help to improve the quality of EmOC. Providing EmOC to health care provider and by transferring skills for those who don't take the training and by giving orientation for those managers as well stake holders regarding the concept of EmONC so that it help to address the availability of essential equipment and drugs at health center levels so that significantly important to reducing maternal and infant mortality and, thereby, to achieving the fourth and fifth Millennium Development Goals.

STRENGTHS AND LIMITATIONS

As possible a published literature-based study was incorporated and only focus in developing countries.

COMPETING INTERESTS

The authors declare that they have no competing interests.

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