NJOG 2012 Jul-Dec; 7 (2):3-8

REVIEW ARTICLE

Maternal Mortality: Paradigm Shift in Nepal

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Achieving Millennium Development Goal (MDG) 5 still remains a challenge to Nepal. It is necessary to collect reliable evidence on maternal health for tackling MDG 5 with limited resources. A continuous assessment of maternal mortality is required to assure the progress towards the MDG 5. This study aims to assess the results of the different studies on maternal mortality in Nepal.

The results published in PubMed, Lancet, Medline, WHO and Google Scholar web pages from 1990 to 2012 have been utilized to prepare this paper. In spite of the low proportion of births attended by skilled persons and institutional delivery, the maternal mortality ratio (MMR) in Nepal has declined drastically between the years 1990 and 2011, from 850 to 229 deaths per 100,000 live births. In recent years, Nepal is also reaching progress in different maternal health indicators such as mothers receiving antenatal care from skilled providers (60%- up from 24% in 1996). More than one-third births in the past five years have been assisted by skilled care providers. Nearly, 45% of women received postnatal care for their last birth in the first two days after delivery, 38% of women is aware of abortion which has been legalized since 2003.

Though maternal health is a priority agenda of Nepal among the policy makers and the country is likely to achieve Millennium Development Goal 5 by the year 2015, there is still a wide gap between policies and charted targets, and the real accessibility and availability of the quality health services.

Keywords: Declining MM, millennium development goal 5, Nepal

INTRODUCTION

Reducing high maternal mortality is a priority agenda of the national and international community, as evidenced by the great interest in the Millennium Development Goal (MDG) 5.[1] Nevertheless attaining Millennium Development Goal-5 still remains a challenge to the world. Many countries are unlikely to attain many MDGs including that of maternal health, even though maternal health care has received particular attention from the developing countries of African and Asian regions.[2, 3]

As a signatory country of Millennium Declaration, Nepal faces the huge challenge of reducing high maternal mortality ratio. The maternal mortality of Nepal has declined noticeably even though the proportion of births attended by skilled persons and access to safe emergency obstetric care are not increasing as expected.[4] Government of Nepal had formulated the Maternal Incentive Scheme 2005 and implemented it to address the financial barrier for seeking care of skill birth attendance and reduce the emergency obstetric deaths of mothers.[5]

In spite of the low proportions of births attended by skilled persons and institutional delivery, the situation has changed radically over the last ten years, the maternal mortality ratio declining drastically between 1990 and 2011, from 850 to 229 deaths per hundred thousand live births. [7, 8]

The quality of health services women receive during pregnancy, intranatal and postnatal periods are crucial for the survival and well-being of the mother and her new-born baby. In recent years, 60% mothers receive antenatal care from skilled care providers, a considerable progress from 24% in 1996. More than one-third births in the past five years have been assisted by skilled care providers. Nearly 45% of women received postnatal care for their last birth in the first two days after delivery. Abortion facility for unwanted pregnancy has been legalized since 2003; however, only around 38% women are aware of this service. These do not explain wholly declining maternal mortality between the years 1990 and 2011, in Nepal.[7-9] This article focuses on reviewing the results of different studies and drawing the conclusion from the findings of research.

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METHODS

We did a literature review for assessing the maternal mortality trend of Nepal. The literature search focused on the findings of the studies which were published in national and international levels. The method adopted for review was literature search from PubMed, Medline, Lancet, WHO and Google Scholar web pages published from 1990 to 2012. All the related references were cited and organized by using referencing software Zotero Standalone.

RESULTS

Causes of maternal mortality

Maternal death is defined as death occurring to woman, while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by pregnancy, but not from accidental or incidental causes.[10] Almost all maternal deaths occur between the third trimester to first week after termination of the pregnancy.[11] Forty percent of postpartum deaths occur within the first 24 hours and 66% occur during the first week.[12]

Out of the total maternal deaths direct causes comprise nearly 80%. The common direct causes are haemorrhage (25%), infection (15%), unsafe abortion (13%), hypertension and eclampsia (12%), obstructed and prolonged labor (8%), other causes (8%). The remaining 20% deaths occur by indirect causes. Malaria, severe anaemia, diabetes and hepatitis are the most common indirect causes particularly in least developed countries. Similarly, high parity, malnutrition, extremes of age, poor economic status of family are considered as underlying factors of maternal mortality.[13, 14]

In Nepal, postpartum haemorrhage, unsafe abortion, infection, pre-eclampsia, and long obstructive labor are the major causes of maternal death. Postpartum haemorrhage and long obstructive labor are reported at country-sites. Unsafe abortions, infection (particularly hepatitis E), hypertension with pre-eclampsia related deaths were recorded in higher proportion in urban areas. In Kathmandu valley, induced septic abortion was the most leading cause of maternal death before legalization of abortion in 2003.[15] According to hospital based studies, hepatitis E is recorded as a leading cause of maternal death in recent years.[16] Too early and too late maternal age, high parity, malnutrition and illness in early to mid-gestation period were other underlying causes of maternal deaths in rural Nepal.[17]

Maternal mortality trend in Nepal

Nepal is on track in achieving MDG target of reducing maternal mortality ratio, which has declined from 850/100,000 live births in 1990 to 415 in 2000 and further to 229 in 2011.[7, 8, 18] The target of MDG 5 is to reduce maternal mortality ratio up to 134/100,000 live births by 2015. The total fertility rate (TFR) also has decreased, from 5.2 in 1990 to 2.8 in 2009 and 2.6 in 2011.[8]

Table 1. Trends of millennium development goal 5 in Nepal 1990 to 2011[5, 7, 8, 19-21]

Indicators of millennium development goal 5	NFHS* 1991	NFHS 1996	NDHS† 2001	NDHS 2006	NDHS 2011	MDGs Target 2015
ANC‡ coverage at least one (%)	NA	NA	NA	43.7	58.3	NA
Delivery by SBAs§ (%)	7	9	11	10	36	60
Institutional delivery (%)	NA	NA	NA	17.7	35.3	NA
MMR¶ per 1,00,000 live births	830	539	415	281	229	134
Teenage pregnancy per thousand	NA	NA	84	106.3	81	NA
Contraceptive prevalence rate(%)	24	28.8	39.3	48	47.7	67

* Nepal Family Health Survey, † Nepal Demographic and Health Survey, ‡ ANC: antenatal care, § SBAs: skilled birth attendants, ¶ MMR: maternal mortality ratio

Based on the table 1, trend of maternal mortality ratio in Nepal furthermore has been analysed by using line-graph (Figure 1).

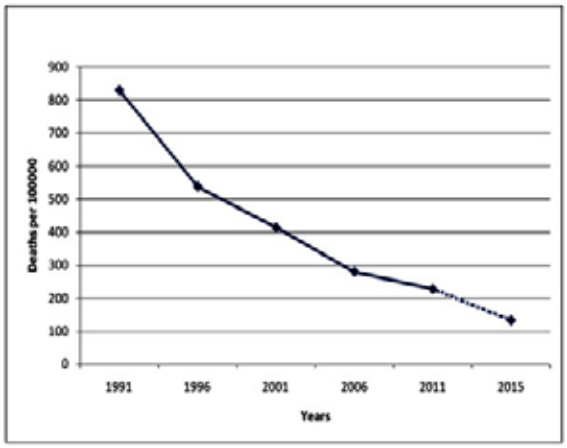

Figure 1. Trend of maternal mortality in Nepal

Efforts for reducing maternal mortality

During the period from 1960 to 1990 for 30 years, hospitals were established at district, zonal, regional and central level and many health centres and health posts were established at the local level. This increased the access to the health service and promoted care seeking behaviour of the people. However, the health status of the Nepalese people did not improve as desired. After restoration of the democratic system since 1990, Nepal initiated numerous efforts to enhance health status of the people in including maternal and child health.[22]

National health policy 1991

The national health policy 1991 was formulated to address the low level of health of the people which was the attributable to poor political commitment, inappropriate strategies and weakness in implementation of health pro-

grammes at the grassroots level during the past 30 years. The prime aim of the proposed health policy was to upgrade the health standards of the majority of the rural population by extending basic primary health services up to the village level, provide the opportunity to enable them to obtain the benefits of modern medical facilities by making the facilities accessible to all. Maternal and child health care including family planning services were introduced as a component of the national health policy separately.[22]

Second long term health plan, 1997 - 2017

In Nepal, 20-year second long-term health plan 1997-2017 has been formulated with an aim to guide health sector development for the improvement of health of the population, particularly of those whose health needs were not often met. The target of the plan was to reduce maternal mortality ratio up to 250 per hundred thousand live births including other crucial targets such as increased contraceptive prevalence rate, improved percentage of deliveries attended by trained personnel, better percentage of pregnant women attending antenatal visits and so on.[23]

Safe motherhood policy 1998

In 1998, government of Nepal formulated the national reproductive health strategy with safe motherhood programme to address reproductive health issues and developed national maternity care guidelines, standards of midwifery practice, safe motherhood clinical protocols and management guidelines, national information education and communication and training strategies, quality control strategy for maternal health care, national strategy for control of anaemia among women and children with the help of UNICEF, UNFPA, USAID, DFID, GTZ and WHO. Fifteen year safe motherhood plan of action was also developed in 2001. The long-term goal of the plan envisaged establishment of basic emergency obstetric care (BEOC) and comprehensive emergency obstetric care (CEOC) services in all 75 districts and skilled attendance at birth including increased access to emergency fund and transportation.[24]

National safe abortion policy 2003

In 2002, Nepal's parliament passed safe abortion law, after nearly three decades of reform efforts.[25] For the implementation of safe abortion law, ministry of health and population formulated national safe abortion policy in 2003. The policy document stated that the safe abortion practice should not be adopted as the alternative method of family planning and there should be increased the access to family planning methods to the potential reproductive age couples. It was expected that after the implementation of safe abortion law, it will successfully reduce illegal abortion as well as malpractices associated with abortion.[26]

Safe abortion is necessary for two reasons: first, women have the right to reproductive health choices. Secondly, it is necessary because 20% of pregnancies globally end in induced abortion; unsafe abortion accounts for 13% of all maternal deaths and the hospitalisation of a further five million women every year due to serious health complications.[27] Considering this fact, government of Nepal passed and implemented safe abortion law from 2003 to address the prevailing higher maternal mortality due to unsafe abortion.

Nepal health sector programme- implementation plan 2004

Nepal formulated Nepal health sector programme- implementation plan 2004 to achieve the health sector related millennium development goals with improved health outcomes for the poor and those living in remote areas. The strategy was to improve health status by delivering well managed health services throughout the country. There were fixed targets for assessing the progress of maternal health with different indicators. The common maternal health targets were: reduce maternal mortality ratio from 539 to 300 per hundred thousand live births in 2009, increase skilled attendance at birth from 13% to 35% by the year 2009 and increase the proportion of government budget allocation from 6.5% to 7% in 2009.[28]

Maternal incentive scheme 2005

Nepal started safe delivery incentive programme 2005 nationwide with the aim of increasing utilisation of professional care at childbirth and institutional deliveries. It provides cash incentive to women who give birth in health facilities and incentive to the health provider for each delivery attended, either at home or in the facility. It was expected that the cash incentive would reduce transportation barriers and delays in maternal care seeking.[29]

Safe motherhood and neonatal health long term plan, 2006–2017

The revised safe motherhood and neonatal health - long term plan was prepared in 2006 with aim to reduce maternal and child mortality for achieving the MDG 4 and 5.[30]

National policy on skilled birth attendants (SBAs) 2006

Nepal formulated national policy on skilled birth attendants 2006 to reduce maternal and neonatal morbidity and mortality by ensuring availability, access and utilisation of skilled care at every birth. Short-term and long-term strategies for ensuring skilled care at every birth, rapid expansion of accredited SBA training sites and capacity enhancement of trainers in order to make sure quality of training were envisaged. Deployment of SBAs at primary health care level to promote their availability and ensuring SBAs are supported and recognised by the communities.[31]

National free delivery policy 2009

Government of Nepal formulated national free delivery policy and launched Rastriya Aama Surakchhya Karayakram in 2009. This programme had two components: free childbirth and travel cost to women and reduction of first and second delays to avoid the maternal deaths. Early in 2009, the ministry of health and population began to pro-

vide free institutional delivery care (normal, complicated and caesarean section) for every woman at all facilities which are capable for providing the services. This led to a large increase in the reported number of facilities providing delivery services, even though it was influenced by a number of factors and processes such as technical, financial, political and so on.[5, 32]

Nepal health sector programme implementation plan II, 2010 – 2015

In 2010, government formulated Nepal health sector programme implementation plan II, 2010-2015 to promote the health status of the people by facilitating access and utilisation of essential health care and other health services, emphasising services to women, child and other deprived as well as excluded people. First priority was reproductive health including family planning, antenatal care, delivery and neo-natal care, institutional delivery, safe abortion and prevention of uterine prolapse. This plan targets to reduce maternal mortality up to 134 per hundred thousand live births which is directly corresponding to the target of Millennium Development Goal 5.[33]

Lessons Learnt

Nepal is focusing on cross-cutting issues like education, nutrition, gender empowerment, political commitments and women's rights and so on to reduce the maternal mortality. Sweden, Malaysia, Sri-Lanka, Thailand and some other countries have addressed the cross-cutting issues such as education, gender empowerment and political commitment towards women's rights strategically and become successful to reduce the maternal mortality. The decline in maternal deaths was associated with better education status of female, income, employment, access to health facilities, availability of trained birth attendants, controlled fertility rate, nutritional status and so on.[34,35] Unsafe abortion was one of the major causes of maternal deaths in Nepal. The unsafe abortion practice is higher when and where abortion was not legalized compared to where it is legalized. Realizing this fact Nepal legalized the safe abortion practice since 2003.[25]

Ways Forward

In Nepal, a decline in the maternal mortality has been observed from different studies between the years 1990 to 2011.[36] From the review of several studies, it can be concluded that maternal mortality ratio is declining in recent years in Nepal. However, some contradictory findings- such as rapid reduction of maternal mortality ratio along with poor improvement of the proportions of births attended by skilled persons and institutional delivery have been noticed.[37]

Reducing unwanted pregnancies through family planning

Nepal has only 49.7% contraceptive prevalence rate, which is proportion of women married or cohabiting who report use of at least one method of contraception with total women married or cohabiting women. This is below the regional average (57.5%) of the South East Asia. The availability of family planning services is limited in Nepal; therefore the unmet need for such services has increased from 24.6% to 27% in the period 2006 and 2011. For achieving the Millennium Development Goal 5, Nepal should concentrate on reducing unwanted pregnancies among married women by reducing the unmet need of family planning services.[7, 8, 38]

Preventing unsafe abortion by safe abortion

In spite of introduction of legal provision for safe abortion in 2003, unsafe abortion is still high and it is a cause of one-fourth of maternal deaths in Nepal.[39] Therefore, it is necessary to prevent unsafe abortion by extending the accessibility of safe abortion services.

Expansion of essential obstetric care

The lack of access to emergency obstetric care (EmOC) is one of the main causes of the maternal deaths in Nepal. EmOC can minimize the second and third delays for seeking in delivery care. Maternal mortality could be prevented if women could get timely access to emergency obstetric care. Basic EmOC includes antibiotics, oxytocics, anticonvulsants, manual removal of placenta, and instrumented vaginal delivery for improving the chance of survival. Unfortunately, the access to EmOC service is quite limited in Nepal which reflects a huge unmet need of emergency obstetric care. As there is real lack of information in this area, it is hard to estimate how many women are getting the EmOC at the moment. [40, 41]

Ensuring antenatal and postnatal care

Antenatal care is important to detect high risk pregnancy and in seeking timely care which can reduce the maternal mortality during pregnancy and delivery. Similarly, postnatal care is most essential to prevent the life-threatening complications in the postnatal period. Evidence has shown that the highest proportion of maternal and neo-natal deaths occur in this period. In Nepal, 58.3% women received at least once, and 50.1% four or more times antenatal care currently, which is lower than the average of South East Asia Region (76%). Forty five percent women receive postnatal care.[8, 38]

Investigations into maternal deaths

In Nepal, still nearly two-third of child births take place at home. Home deliveries are most common in rural and remote community as well as poor, illiterate and disadvantaged population.[8] Those women do not seek care to the health facility thereby resulting in death and women's death after home delivery or women dying on the way to hospital have not been counted because there is no linkage between vital registration system and health management information system. Literature showed that data keeping system in health facilities is often poor. In order to address this problem, an improved data recording and reporting system is necessary. For the accurate estimation of maternal mortality, further more collective efforts by the govern-

ment, civil society and mass media are warranted.
Apart from the above aforementioned efforts, it should be ensured that all women have professional assistance during delivery. The investigation should be focused to streamline provision of equipments and supplies, support medical officers and nurse-midwives to reside locally, increase their practical clinical skills through pre and in-service training, allow to use of life-saving drugs and procedures by nurse-midwives, monitoring of delivery performance, quality of the services and sustainable financing provision for four antenatal visits and free delivery care initiatives of the maternal health care.[35]

CONCLUSIONS

In the last two decades, Nepal's maternal mortality ratio has declined considerably from 850 to 229 deaths per hundred thousand live births. However, the proportion of birth attended by health worker and access to the safe emergency obstetric care facilities are not increasing as per the targets of MDG and different national health programs. Post-partum haemorrhage, unsafe abortion, infections, obstructed and prolonged labour and hypertension are still the major causes of maternal death in Nepal. The lack of sufficient evidence and contradictory findings of the maternal health related indicators suggest further investigation of maternal mortality ratio in Nepal.

ACKNOWLEDGEMENT

We acknowledge to all writers, editors and publishers of the reviewed literature. We express our gratitude to Prof. Dr. V. Raman Kutty and Prof. Dr. TK Sundari Ravindran, Achutha Menon Centre for Health Science Studies Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala India for providing their invaluable time and guidance in conception and editing of this paper.

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