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Strategies to Reduce High Perinatal Morbidity in the Selected Tertiary Hospitals of the Capricorn District in Limpopo Province, South Africa

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ABSTRACT

Perinatal morbidity is defined as presence of the disease which occurs as a result of side effect influences of treatment acting either on a fetus or neonate during the first week of life. In the developing countries, the risk of perinatal morbidity is 6 times greater than in the developed countries; in the least developed countries it is over 8 times higher. High perinatal morbidity rates cause sub-optimal outcomes, which are common, and may impair subsequent developmental milestones of children or sound function of families, and might increase health care cost. The study aimed at developing strategies to reduce high perinatal morbidity. The study was conducted at the two selected tertiary hospital. A quantitative, cross sectional and descriptive research design was used. The population comprised of eighty (80) midwives allocated in neonatal intensive care and labour units. Simple random sampling was used to select 66 respondents who participated in the study. Data were collected using a pre-tested and validated self-developed questionnaire. Descriptive and inferential statistics were used to analyse data. The study revealed that shortage of staff, overcrowding of patients, and work overload of staff, lack of equipment and supplies, absenteeism, resignation and prematurity were contributory factors. The strategies aimed at reducing high perinatal morbidity are a priority for public health policies around the world. The study recommends that all midwives working in maternity and neonatal units should be upgraded in terms of the management of pregnant woman and sick neonates.

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1. Introduction

The perinatal morbidity continue to increase despite the advancing maternal and neonatal care services [1]. Its reduction is determined by identification of factors in view of priority activities to achieve the third Sustainable Development Goal that is to ensure good health and well-being for all at all ages [2]. Furthermore, perinatal morbidity is a sensitive health indicator that help to understand the health care system, its prevention has major medical, social and economic costs [3]. The rates of perinatal morbidity in the United States for mothers in the ages of 15-17 years, 18-19 years, and 20-24 years are 51%, 32%, 7%, respectively, higher than those for women aged 25-29 years [4]. The other study concluded that in the developing countries, the risk of perinatal morbidity is 6 times greater than in the developed countries; in the least developed countries it is over 8 times higher [5]. In the early neonatal period, perinatal asphyxia,

neonatal infections and prematurity were the leading factors of neonatal morbidity [2]. One study pointed out that perinatal morbidities are problems of public health importance, and have been linked to the shortage of skilled registered midwives [6]. Another study found that morbidity associated with fetal membranes, through premature rupture of the membranes (60.58%) and neonatal morbidity through neonatal infections (26.32%) were the leading causes of morbidity.

Globally, studies have shown that prematurity was observed to be a challenge and contributes to 40–80% of perinatal morbidity. Another study maintains that perinatal morbidity has increased significantly in the developing countries [7]. The progressive increase in the number of elective caesarean-section deliveries in the past years has been accompanied by perinatal morbidity. In addition, one study commended that perinatal morbidity is a global problem and estimated that 98% of all adverse perinatal outcomes occur in countries of low income, and perinatal morbidity rate is roughly 5 times greater than that of wealthier states. Within Europe, the Netherlands has been reported to have one of the highest rates of perinatal morbidity [8].

The regional estimates suggest that countries in Sub-Saharan Africa have among the highest perinatal morbidity rates in the world [9]. There was severe shortage of essential categories of perinatal health care in all institutions in African states. Nigeria is one of the 57 countries experiencing shortage of human resources for health and one of the countries with severe shortage of registered midwives. Early recognition of these factors is very critical for the prevention of perinatal morbidity. Another study concludes that pre-eclampsia continues to be a problem, particularly in low-resource countries such as Pakistan, where it contributes significantly to high perinatal morbidity. [10] Infants with IUGR have been reported to feature 5-10 fold higher rates of morbidity, during the neonatal period and have a higher risk for neurological deficiencies. Moreover, they believed that identifying and correcting factors that contribute to perinatal health care are of utmost importance.

South Africa has more than one million births occurring annually in the public health sector [11]. Furthermore, perinatal health care is accessible in South Africa as part of the public sector and safer motherhood policy. In Limpopo Province, perinatal asphyxia, perinatal infections and prematurity were the leading causes of perinatal morbidity [12]. Prematurity accounts for 21% of perinatal morbidity worldwide and perinatal asphyxia is at 16%. The strategies aimed at reducing high perinatal morbidity are a priority for public health policies around the world [13].

2. Method

The study implemented a quantitative, cross-sectional and descriptive research design [14] to describe the factors contributing to high perinatal morbidity rates. Registered midwives were recruited from neonatal intensive care and labour units. The study was conducted at the two tertiary and transfer hospitals of the Capricorn district in Limpopo province, South Africa. These hospitals were chosen because they provided specialised perinatal health care and neonatal intensive care for both small and sick neonates at level II and III respectively. The patients receiving the health services in this hospitals are from low-income and middle income areas. The study population comprised of eighty (80) registered midwives allocated to Neonatal Intensive Care and labour unit of the selected tertiary hospitals. The inclusion criteria were that the respondents should be currently registered with the South African Nursing Council (SANC), have one or more years' experience working in NICU & labour unit and willing to participate in the study and also to sign the consent form. These registered midwives were eligible to take part in the study as they had appropriate knowledge and experience to inform the objectives of the study. Krejcie and Morgan's formula for determining the sample size was used to sample 66 registered midwives. Simple random sampling was used, and each respondent had an equal chance of being selected [15].

Data collection instrument comprised of three sections namely: socio-demographic data; staffing and workload and main causes for babies to become sick. The pilot study conducted helped the researcher to refine the questionnaire before being distributed for the major study. The hospitals lecture room was the venue where the questionnaires were completed. The venue was well ventilated with adequate light and free from noise and disturbances. Respondents who were willing to participate were

requested to sign the consent form. It took the respondents 35-45 minutes to complete the questionnaire. Data were collected over period of three months. Validity of the instrument was ensured by conducting intense literature review [14] on factors contributing to high perinatal morbidity and also by submitting the questionnaire to experts in the field of study. Reliability was ensured by pre-testing the questionnaire [15] on 10 respondents who did not form part of the actual study.

3. Analysis And Results

Pre-coded data was entered into an Excel spreadsheet. The data set was printed and checked against the original instruments. Detected outliers were corrected. Furthermore, consistency checks were done to clean the data. The numerical data were analysed using IBM SPSS version 22 software with the assistance of the statistician. Data was presented using descriptive statistics such as frequency tables, percentages and charts. The cross-tabulation was used to examine whether the variables related. Inferential statistics was used based on probability and judgement was made about the variables [15]. The findings revealed that the majority of the respondents in Hospital E were young, aged between 20-26 years 4(21.1%) versus 20-26 years old 6(13.6%) in Hospital G. The majority of the older ones were in the Hospital G, aged between 48-54 12(27.3%) as compared to Hospital E with 1(5.3%). Equal response rate for the respondents aged between 27-33 years and 34-40 representing 8(18.2%) in the Hospital G, while in the Hospital E those aged 41-47 year-old represented 6(31.6%), and 55-61 years in Hospital G represented 3(6.8%) and 3(15.8%) in Hospital E. Gender was studied to ensure that both males and females were included in the study, 18(94.7%) of the respondents were females in Hospital E and were 44(100%) of Hospital G. Only 1(5.3%) of the respondents in Hospital E was a male against 0(0%) in Hospital G.

Table 1.
Staffing and Workload of the Registered Midwives
Selected Tertiary Hospitals Registered Midwives

Item	n	S. Agree ∫(%)	Agree ∫(%)	Disagree ∫(%)	S. Disagree ∫(%)	No response	Total
1. Working conditions are good	63	4(6.3)%	16(25.4%)	19(30.2%)	23(36.5%)	1(1.6%)	100%
2. Doctors are enough	63	11(17.5%)	20(31.7%)	19(30.7%)	11(17.5%)	2(3.2%)	100%
3. Registered midwives are enough	63	4(6.3)%	9(14.3%)	20(31.7%)	28(44.4%)	2(3.2%)	100%
4. Workload is manageable	63	6(9.5)%	19(30.2%)	18(28.6%)	18(28.6%)	2(3.2%)	100%
5. Difficult to cope with workload	63	26(41.3%)	19(30.2%)	11(17.5%)	6(9.6%)	1(1.6%)	100%

Table 1 indicates that 66.7% of respondents disagreed that working conditions were good, and 31.7% agreed. Almost half the respondents 48.2% disagreed that doctors were enough, while 49.2% agreed. About 76.1% of the respondents disagreed that registered midwives were enough and 20.6% agreed. Of all the respondents, 57.2% disagreed that workload was manageable, whereas 39.7% agreed. The respondents (71.4%) agreed that it was difficult to cope with workload in the unit they were allocated in, while 27.1% disagreed.

Table 2.
Main causes for babies to become sick
Selected Tertiary Hospitals Registered Midwives

Item	n	Never ∫(%)	Hardly ever ∫(%)	Sometimes ∫(%)	Often ∫(%)	Always ∫(%)	No response	Total
1.Overcrowding of patients	63	2(3.2%)	3(4.8%)	19(30.2%)	11(17.5%)	26(41.4%)	2(3.2%)	100%

2.Lack of medication	63	11(17.5%)	7(11.1%)	26(41.3%)	10(15.9%)	7(11.1%)	2(3.2%)	100%
3.Lack of equipment and supplies	63	7(11.1%)	1(1.6%)	19(30.2%)	18(28.6%)	15(23.8%)	3(4.8%)	100%
4. Prematurity	63	1(1.6%)	3(4.8%)	12(19.0%)	21(33.3%)	25(39.7%)	1(1.6%)	100%
5. Shortage of staff high	63	1(1.6%)	3(4.8%)	7(11.1%)	12(19.0%)	37(58.7%)	3(4.8%)	100%
6. Absenteeism high	63	8(12.7%)	6(9.5%)	24(38.1%)	11(17.5%)	7(11.1%)	7(11.1%)	100%
7. Resignation high	63	8(12.7%)	5(7.9%)	11(17.5%)	17(27.0%)	17(27.0%)	5(7.9%)	100%
8. Staff-patient ratio good	63	35(55.6%)	6(9.5%)	10(15.9%)	3(4.8%)	3(4.8%)	6(9.5%)	100%

Table 2 reveals that 3.2% of the respondents indicated that overcrowding never contributed to high perinatal morbidity, 4.8% indicated that it hardly ever contributed, 30.2% responded that it sometimes contributed, 17.5% stated that it often contributed and 41.3% indicated it always contributed, while 3.2% ignored this item. Of the respondents, 17.5% indicated that lack of medication never contributed to high perinatal morbidity, 11.1% stated that it hardly ever contributed, 41.3% responded that contributed sometimes, about 15.9% indicated that it often contributed and 11.1% stated that it always contributed. According to 11.1% of the respondents, lack of equipment and supplies never contributed to high perinatal morbidity. Only 1.6% stated that it hardly ever contributed, 30.2% responded that it contributed sometimes, 28.6% indicated that it often contributed, 23.8% stated it contributed always. Only 1.6% of the respondents stated that prematurity never contributed to high perinatal morbidity, 4.8% indicated that it hardly ever contributed, 19.0% responded that it sometimes contributed, 28.6% stated that it often contributed, while 39.7% indicated that it always contributed.

Only 1.6% of the respondents indicated that shortage of staff was never a problem in their units, 4.8% indicated it was hardly ever a problem, 11.1% of the respondents stated that it was a problem sometimes, 19.0% responded that it was often a problem, whereas 58.7% indicated that it was always a problem. Of the respondents, 12.7% indicated that absenteeism in their units was never high, 7.9% responded that it hardly ever high, 17.5% indicated that it was high sometimes, and 11.1% indicated that it was always. The respondents 12.7% indicated that resignation was never high in their unit, 7.9% showed that it was hardly ever high, 17.5% indicated that it was high sometimes, and there was equal response for often and always which represented 27.0%. More than half of the respondents indicated that staff-patient ratio was never good, 9.5% stated that it was hardly ever good, 15.9% responded that it was good sometimes, and there was equal response for often and always which represented 4.8%.

Discussion

The study developed the strategies to reduce high perinatal morbidity in the tertiary hospitals of the public hospitals. The findings revealed that majority of the older registered midwives were in Hospital G, and had knowledge and skills but they were no longer physically active. This was supported by another study that indicated, older midwife had a wealth of experience, but they struggle with the late nights, long shifts and physical strain of delivering and providing care to the neonates [17]. Most of the registered midwives were not satisfied with the working conditions in their units. Almost half of the registered midwives indicated that doctors were not enough to cover the unit work. Respondents disagreed that the registered midwives were enough to cover the work on daily basis, very few agreed. Registered midwives 57.2% indicated that they were not capable of managing the workload; this means they were not satisfied with the given workload.

One study agrees that midwives endured increased workload, resulting in burnout and absenteeism. According to the results, midwives were not satisfied with the high rates of shortage in their units [11]. Nigeria is regarded as one of the 57 countries experiencing critical shortage of health workers and one of the 73 countries with severe shortage of midwives. This was supported by another study which found that there were an inadequate number of midwives to support the perinatal health, with 78% of the countries facing serious shortage in the midwifery workforce, which can result in avoidable

perinatal morbidity [9]. Registered midwives showed that it was difficult to cope with the workload in the units allocated in.

The findings showed that overcrowding of patients, shortage of medication, lack of equipment and supplies, and prematurity were the factors that contributes to high perinatal morbidity in selected hospitals of Limpopo province, South Africa. This indicates that registered midwives were not satisfied with overcrowding of patients, which overload them with work as well. The study found that staffing which included shortage of staff, absenteeism, resignation and bad staff-patient ratio also contributed to high perinatal morbidity. It also indicated that registered midwives were not satisfied with the high percentage of shortage in their units. Another study showed that in Tanzania, perinatal morbidities are problems of public health importance, and have been linked to the shortage of skilled staff [19]. More than half of the respondents indicated that absenteeism was never high in their units; nevertheless 28.6% of the negative responses could impact quality patient care, posing a challenge.

Absenteeism in nursing is a concern because it disorganises the work routine, overburden workers that are present, consistently lowering the quality of patient care [19]. Almost half of registered midwives indicated that there were not satisfied with resignation rates in their units, as it results in shortage of staff. Furthermore, it was noted that job satisfaction plays an important part in any decision to leave the job [19]. The affect should be considered before the action, during the action and after the action [18]. The provision of skilled birth attendants is another intervention that can reduce perinatal morbidities in the developing countries [19].

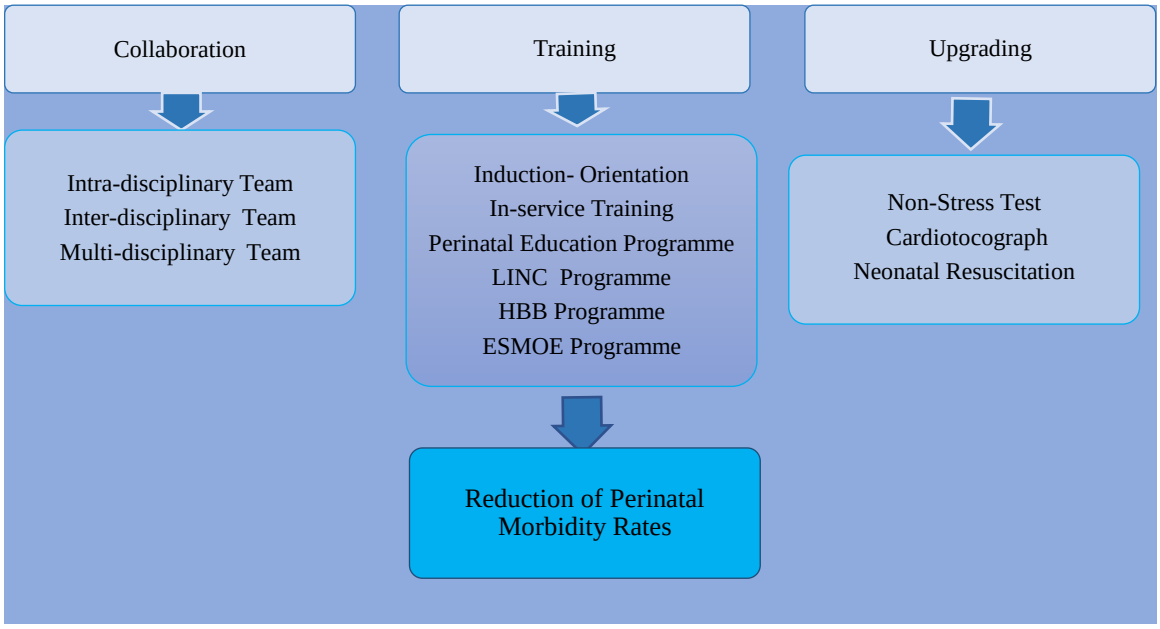

Figure 1. Strategies to reduce perinatal morbidity

There should be the collaboration of intra-disciplinary team, inter-disciplinary team and multidisciplinary team. High-quality obstetric and neonatal care is both needed to assure optimal outcomes. Nevertheless, obstetric and neonatal goals are not always in exact alignment [13].

Intra-disciplinary Team

- Advanced midwives, midwives and Neonatal ICU trained nurses should be able to work harmoniously and share information within their discipline.
- Consensus to be reached in the form of referral criteria to Neonatal ICU and maternity unit.

Inter-disciplinary Team

- Inter-disciplinary team integrate knowledge and skills from different disciplines. The team should work together to share expertise, knowledge and skills to impact on comprehensive neonatal care. Neonatologists, paediatricians and midwives should work together and share information from their different disciplines. Furthermore it was concluded that taking care of the woman in labour is an interdisciplinary experience involving obstetricians, nurses, midwives, paediatricians and anaesthesiologists [13].

Multi-disciplinary Team

- Multi-disciplinary team approach should be ensured in order for enhancement of quality neonatal and maternity care.
- Paediatricians, obstetricians, neonatologists, midwives and advanced midwives should share information and problem solved in a systematic manner among the members, during team meetings.

Training

- Induction of all the newly qualified midwives and professional nurses should be emphasised to keep them abreast.
- Opportunities should be given to all those who want to pursue advanced midwifery and Neonatal Intensive Care Nursing.

Perinatal Education Programme should be sustained for midwives to have confidence in utilising gained skills.

- Limpopo Initiative for Neonatal Care (LINC), Help Babies Breath (HBB) and Essential Skills in Managing Obstetric Emergency (ESMOE) programmes should be attended by all midwives, professional nurses, obstetricians, and neonatologists. Another study concluded that very few certification training programmes in obstetric emergencies document their impact on the improvement of skills and the improved outcomes from changes in the usual clinical practices in mother-new born care worldwide [13]. Furthermore health care providers at all levels should be effectively educated on essential newborn care.

Upgrading

- Non stress test and Cardiotocograph machine should be always available and in a good working condition for monitoring the fetal well-being.
- All midwives and obstetricians should be able to analyse and interpret the test strip for anticipating the outcome of labour.
- All midwives, obstetricians and neonatologist, including intern doctors and student midwives should be competent in resuscitation of the neonates. One study maintained that the development of educational strategies for a work team performing according to a protocol and in an organized manner whenever an obstetric emergency crisis occurs is highly recommended, this must be able to show an improvement in the reduction of perinatal morbidity [13]. Moreover, skilled care during delivery is universally acknowledged as a long-term priority for improving maternal and neonatal health care.

4. Conclusion

High perinatal morbidity remain and are still a burden to many countries. In this study, it was found that most of the registered midwives regarded shortage of staff, work overload, and prematurity as the leading causes of high perinatal morbidity. From the results of the analysis of collected data, outstanding variables are, namely: shortage of staff, workload, overcrowding of patients. Furthermore, lack of equipment and shortage of medication and material resources impacts on the quality of perinatal health

care. The strategies aimed at reducing high perinatal morbidity are a priority for public health policies around the world.

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