

Looking at Neonatal Sepsis with New Eyes: A Case Study of Kaoma District Hospital -Zambia.

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Abstract

Background: Neonatal sepsis is a huge threat to the survival of neonates. If not timely detected and treated, neonatal sepsis becomes the source of increased neonatal morbidity and mortality. Research shows that neonatal sepsis is a global problem. However, the burden weighs more heavily in sub-Saharan Africa. Zambia stands unspared by this problem because of home deliveries in rural communities.

Objective: The study objective was to investigate contributory factors responsible for neonatal sepsis at Kaoma District Hospital, Zambia.

Materials and Methods: The research used a cross-sectional study design. The sample size was 50 selected using convenient sampling. The study units consisted of 50 Post natal mothers. A self-administered questionnaire was used to collect data from the respondents. Statistical Package for Social Sciences (SPSS) version 22 was used to analyse data.

Results: The study found a triangulated relationship: maternal socio-cultural practices, place of delivery and shortage of midwives with emergence of neonatal sepsis.

Recommendations: The study recommends training of more midwives to handle an increased number of pregnant women seeking assisted skilled delivery. The study also recommends for expanded EmONC and neonatal care workshops for equipping midwives and nurses with knowledge and skills to handle neonatal sepsis.

Finally, the study recommends for community sensitization on socio-cultural endanger maternal and neonatal wellbeing.

Keywords: neonate, sepsis, midwives, nurses, morbidity, mortality.

Introduction

Neonatal sepsis is an infection occurring in the first 28 days of life. Worldwide, neonatal sepsis accounts for an estimated 26% of under five deaths, with sub-saharan Africa having the highest mortality rates (Adatara e tal., 2019). Neonatal sepsis contributes to more than 1.6 million deaths annually in the developing countries and is therefore an important cause of newborn mortality. The third Sustainable Development Goal (SDG) for child health aims to end preventable deaths of new borns and children under five years of age by 2030 (Ranjeva e tal., 2017). Multiple factors such as prematurity, invasive life-saving medical interventions, and immaturity of the innate immune system put these infants at greater risk of developing infection. In spite advanced neonatal care that facilitates saving even the most preterm neonates, the very interventions sustaining those who are hospitalized concurrently expose them to serious infections due to common nosocomial pathogens, particularly coagulase- negative staphylococci bacteria.

Despite different mitigation interventions over years, the new born mortality rate is high at 27/1,000 and new born sepsis contributes to 31% (Mukanga, 2013). The third SDG may not be attained without significant reduction of neonatal mortalities directly related to infection in developing countries (Ranjeva e tal., 2017). This study was carried out to determine factors contributing to neonatal sepsis at kaoma district hospital, west part of Zambia.

Statement of the problem

Neonatal sepsis is one of the major global health problems that need concerted efforts by care providers in order to reduce the burden. Every year an estimated 30 million newborns acquire infection and 1-2 million of these cases die. Neonatal sepsis has remained a major cause of infant morbidity and mortality despite the development of broad-spectrum anti-microbial agents and tremendous advances in technology (Lawn et al, 2005).

In Zambia and many other developing countries, neonatal sepsis still remains one of the leading causes of neonatal morbidity and mortality. It is estimated that 99% of neonatal deaths occur in developing countries (Adatara et al., 2019). According to WHO (2009), neonatal mortality for different African countries ranges from 11 / 1000 live births in South Africa to 68 / 1000 live births in Liberia. Anita et al. (2011) reported that Zambia recorded 41% of neonatal deaths due to different conditions of which 6% was from neonatal sepsis.

The problem did not spare rural Zambian hospitals like Kaoma district hospital that according to the HMIS report, the trends of the infections were as follows: 70% in 2016; 80% in 2017 and 71% in 2018 were reported by the fourth quarter. The above statistics for Kaoma district Hospital indicated that neonatal sepsis was a problem necessitating investigations. To this effect, the research was conducted to determine the factors contributing to neonatal sepsis at the health facility.

Materials and methods

A cross sectional study was conducted at Kaoma District Hospital of Zambia. Convenience sampling method was used to select participants. All postnatal mothers with their babies aged 0-28 days who came for postnatal care were included in the study. The sample size of 50 Post-natal mothers was used. A closed ended questionnaire was used to collect data.

Study setting

Kaoma is one of the 16 districts of Western part of Zambia. Kaoma district hospital was built in the 1950s as a health Centre. It is a 2nd level referral hospital with bed space of 120 beds. The hospital had a total number of 2 Doctors, 1 Nursing Officer (Acting), 8 Clinical Officers, 7 Registered Midwives, 5 Enrolled Midwives, 24 Registered Nurses, 37 Enrolled Nurses and 8 Laboratory Technicians. The remaining staff comprises of Administrative personnel, cleaners, security personnel, kitchen personnel and other support staff.

Data analysis

Bivariate analysis was used to examine the service related, Socio-cultural and Social –economic factors that were associated with neonatal sepsis.

All variables that were significant ($p < 0.05$) at bivariate level were then retained in the multifactorial logistic regression model. Data analysis of this study was done in STATA 13.1.

Results

Having a P-value of 0.001 clearly affirms that there is a relationship between social-economic status of postnatal mothers, cultural practices either during labour or application of traditional medicine of the baby's cord, service-related factors and the neonate developing sepsis.

Presentation of the research findings

The study solicited for information from the postnatal mothers on their socio- economic status
The results have been shown in figures and graphs as follows;

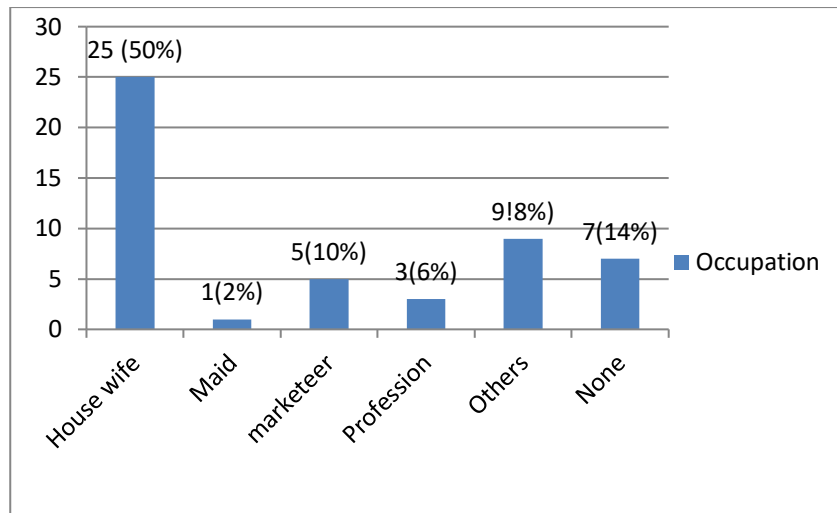


Figure 1. Respondent's occupation (N=50)

Figure 1 shows that most of the respondents 25(50%) were housewives, with the least 3(6%) in formal employment.

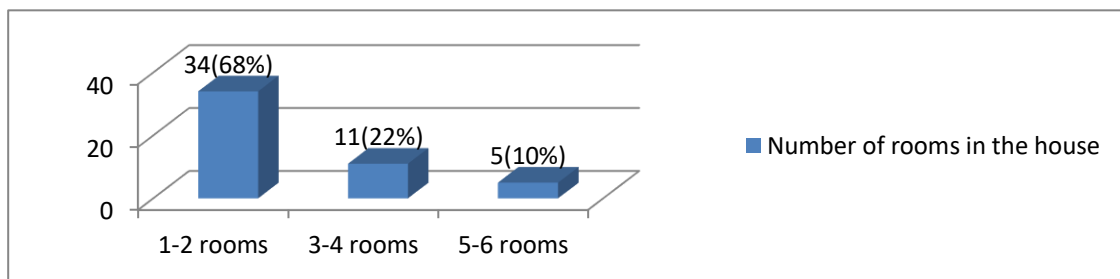


Figure 2. Housing (N= 50)

Figure 2 shows that the majority 34 (68%) of the respondents has houses with 1 to 2 rooms.

Section B. Cultural related factors

This section has responses on Cultural and traditional practices by postnatal mothers

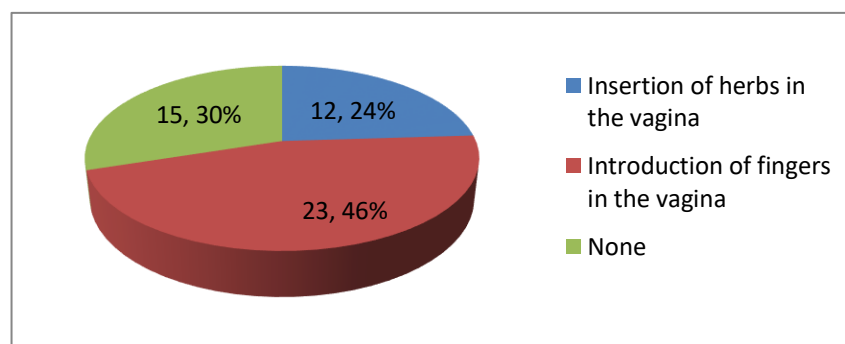


Figure 3. Cultural practices done to speed labour (N=50)

Figure 3 shows that the majority of respondents 23(46%) introduced fingers to enlarge the birth canal and to accelerate labour.

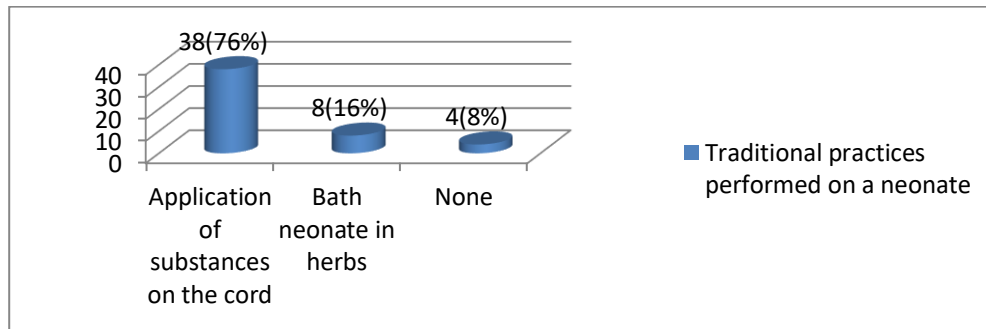


Figure 4. Traditional practices performed on a neonate? (n=50)

Figure 4 shows that the majority 38 (76%) of respondents practiced application of substances on the cord stump.

Section C: Service-related factors

This section contains responses on service-related factors.

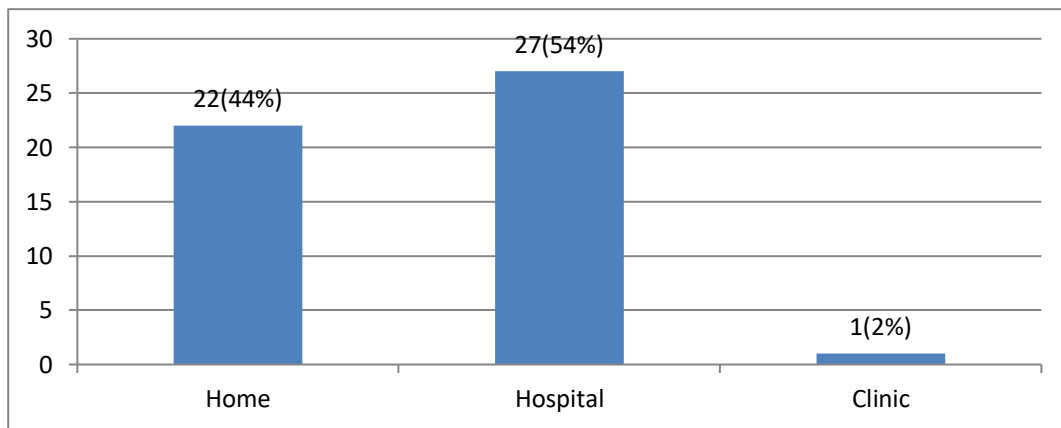


Figure 5. Place of delivery (N=50)

Figure 5 shows that majority of respondents 27(54%) delivered at the hospital.

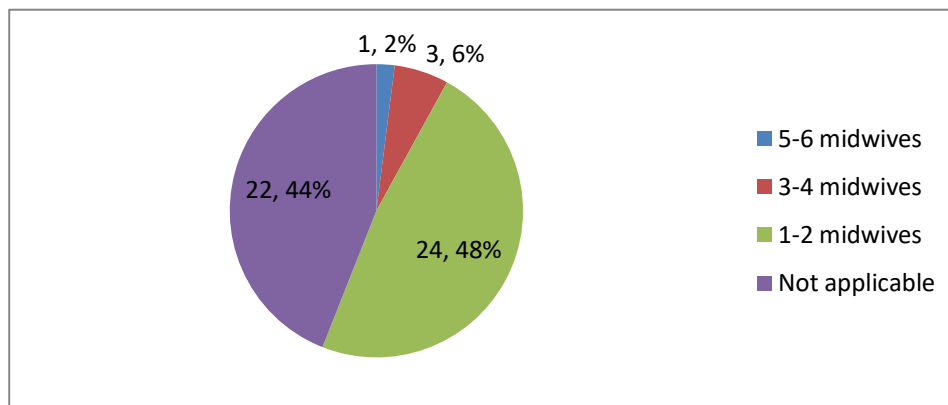


Figure 6. Number of midwives on duty (N =50)

Figure 6 shows that 22(44%) were not attended to by trained midwives.

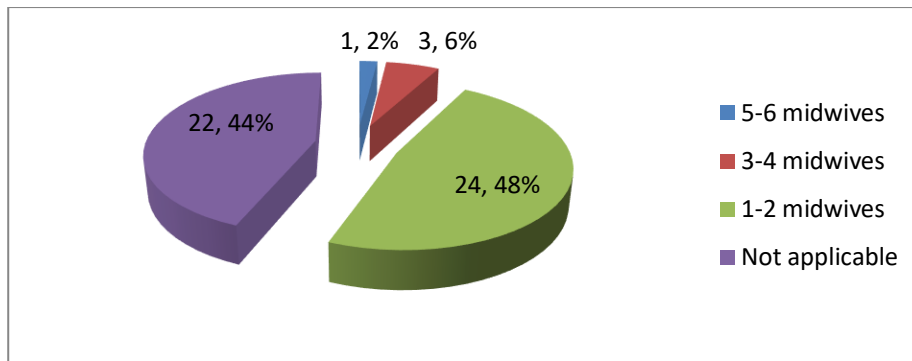


Figure 7. Midwives who attended to the baby (N=50)

Figure 7 shows that the majority of the respondents' babies 24 (48%) were attended to by 1-2 nurses per shift.

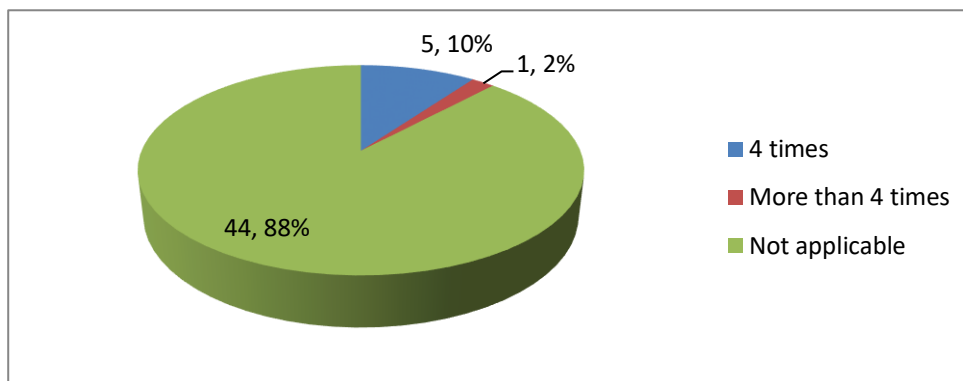


Figure 8. Number of vaginal examinations performed (N= 50)

Figure 8 shows that 1(2%) had more than 4 times vaginal examinations performed in labour.

Discussion

This study's first objective was to assess whether service-related factors contribute to neonatal sepsis. The findings of this study revealed that most respondents 25(50%) did not have a stable income as they were not in formal or informal employment. This is attributed to most women becoming pregnant either while at school or after dropping out from school thereby not finding employment for themselves. These findings are also supported by Javed & Memon (2009) whose study revealed that babies born from women of lower social economic status are predisposed to neonatal sepsis without unstable income. This is evidenced by the highest number of respondents

The majority of the respondents 34(68%) lived in one or two roomed houses as shown in figure 8. These findings are consistent with rural life situation where houses are consisting of 1 or 2 rooms and are made from poles and mud and are grass thatched. Concerning Antenatal attendance, figure 10 showed that 5(10%) of the respondent had only one antenatal attendance while 6(16%) and 16(32%) had two and three antenatal attendances respectively. This is consistent with the prevailing situations in the villages where women shun attending antenatal care. Others are kept busy with house chores while others feel it is not important unless they are ill.

These behaviours deprive women of the much-needed health care which helps to identify illness early and institute treatment which in turn prevents maternal infections. These findings are consistent with a study by Herbst 2003 whose study revealed that women who had no pre-natal care were more likely to have low birth weight or pre mature infants and were predisposed to neonatal sepsis because of lowered immunity.

The study went on to assess whether cultural and traditional practices contribute to neonatal sepsis. It was found that 15(30%) of respondents inserted herbs in the vagina to speed up labour. This is a common trend in the villages where pregnant women who are in labour insert herbs in the vagina so that they do not take in labour. Such practices are harmful as they lead to atonic uterine contractions

which do not correspond to the rate of cervical dilation. This can cause uterine rupture or death of the fetus. The foetus can also aspirate the herbs during labour thereby predisposing itself to neonatal infections. These findings are complemented by the study of Maimbolwa et al, (2003), which revealed that most people from resource challenged homes delivered in homes and were attended to by non-trained birth attendants who practice a lot of traditional practices of labour.

Looking at traditional practices, only 4(8%) of the respondents did not practice traditional practices on the newly born child as shown in figure 4. The majority 38(76%) did practice traditional practices of applying substances such as cow dung, chicken droppings or saliva on the umbilical stump to enhance healing. These practices are a hazard to the health of the neonate because they predispose the baby to infections such as tetanus and neonatal sepsis.

Service-related factors

Concerning deliveries, figure 5 shows that 22(44%) of the respondents delivered from their homes against 27(54%) and 1(2 %) who delivered from institution. These findings are still happening in many places Kaoma inclusive where pregnant women shun delivering from the health facilities. Some attribute this to long distances while others have a negative perception of institutional deliveries. More also because of attitudes of not wanting to be monitored by staff during labour. These women end up having unsafe deliveries which predisposes them and their babies to infections and complications.

Respondents 22(44%) were not monitored by trained staff during labour. This practise is not safe because labour can have complication which may need urgent medical or surgical attention. Furthermore, home deliveries are prone to traditional and cultural practices which can be harmful to both the woman and the foetus such as use herbs to accelerate labour. The women are also likely to be supervised by untrained birth attendants who cannot identify complications early.

Concerning care during labour, figure 8 showed that of those who had institutional deliveries 1(2%) had more than 4 vaginal examinations. These practices also predispose the woman to infections especially if done frequently and more especially if aseptic techniques are not followed. These findings are supported by an article by (MCHIP, 2010) which limits the number of vaginal examinations and only done at the appropriate times and whenever necessary.

Concerning neonatal admissions, 14(28%) of the respondents' babies were admitted once in the hospital. These findings reveal the health seeking behaviour of women when the children are sick. Some mothers only seek medication attention when the situation of the baby worsens. Some would prefer traditional medicine to conventional medicine.

Having a P-value of 0.001 clearly affirms that there is a relationship between social-economic status of postnatal mothers, cultural practices either during labour or application of traditional medicine of the baby's cord, service-related factors and the neonate developing sepsis is statistically significant.

Any serious intervention to reduce the mortalities should consider methods that will increase knowledge in this particular important dimension.

Conclusion and recommendations

This study revealed that the current rate of neonatal sepsis was still high and that there is a relationship between cultural, service and social economic factors with the development of neonatal sepsis.

It is therefore imperative to train more midwives in EmONC and Neonatal care to equip them with knowledge and skills to handle neonatal sepsis.

Finally, the study recommends for community sensitization on socio-cultural practices that endanger maternal and neonatal wellbeing.

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