

SOCIOECONOMIC INEQUALITY IN NEONATAL MORTALITY IN A COUNTY REFERRAL HOSPITAL IN KENYA

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Abstract**Background**

Childhood mortality rates are among health indices that represent the performance of social health systems in a society. The mortality rates have been used to show the persistent challenge of socioeconomic inequalities in health between and within nations.

Objective

The purpose of this study was to investigate the socioeconomic factors that are associated with neonatal mortality in Migori County, Kenya.

Methods

A quantitative, descriptive, cross-sectional, non-experimental research design was used. A systematic sampling technique was employed to draw a sample of 201 archived neonatal cases out of 420 neonatal mortality medical records, which constituted the study population. Data were collected by means of a developed questionnaire. The Statistical Package for Social Sciences (SPSS) Version 21 was used to analyse data.

Results

The main findings revealed that of the deceased neonates' mothers 62.2% lived in rural settlements, that 58.2% had attained primary education and 57.7% were in informal employment.

Conclusions

Empowerment of mothers socio-economically in Migori County is highly needed; this will have a positive impact on neonatal mortality.

Key terms

Kenya, Migori County, neonatal mortality, neonates, socioeconomic inequalities

1.0 Introduction

It is increasingly being recognized that health outcomes are a result not only of biological and individual risk factors but also of other factors like wealth, ethnic background, gender, education and so on (WHO, 2018). Social determinants of maternal, newborn and child health are the conditions in which people are born, grow, live, work and age, including the health system (WHO, 2010). The social determinants of health are mostly responsible for health inequities, the unfair and avoidable differences in health status seen within and between countries (WHO, 2010).

The chance of dying in childhood is strongly determined by the living conditions into which the child is born and the systems in place to deal with illness (Mugo, Agho, Zwi, Damundu, & Dibley, 2018). For example, the probability of dying in childhood is strongly related to remoteness, rural dwelling and the socioeconomic position of the parents or household (Mugo et al., 2018). Poverty and inequity are underlying contributors to many maternal, newborn and child deaths, and evidence shows that poor households have more than twice the risk of mortality of wealthy households (WHO, 2010). Poverty and the ill health and deaths of newborns are intimately linked (J. Lawn, Mongi, & Cousens, 2010). Mothers and newborns in poor families are at increased risk of illness and face more challenges in accessing timely, high quality care compared to wealthier families (J. Lawn et al., 2010).

The benefits of education extend throughout the life-cycle (J. E. Lawn, Kerber, Enweronu-laryea, & Cousens, 2010). The founder of Salt Lake City and the first governor of Utah, Brigham Young, famously said “You educate a man, you educate a man; you educate a woman, you educate a generation” (Shetty & Shetty, 2014). Educated women are more likely to seek skilled medical care during pregnancy and childbirth, and societies with more educated girls have lower neonatal mortality rates (J. E. Lawn et al., 2010).

The traditional distinction between urban and rural areas within a country has been based on the assumption that urban areas, no matter how they are defined, provide a different way of life and usually a higher standard of living than rural areas (United Nations, 2018). Infants born to families living in rural areas have poorer access to services and are at greater risk of death than babies born to families living in urban areas (Ettarh & Kimani, 2012). The purpose of this study was to investigate the socioeconomic factors that are associated with neonatal mortality in Migori County, Kenya.

2 Methods

2.1 Design and setting

This study utilised a hospital based descriptive, cross-sectional, non-experimental research design. The study was conducted at Migori County Referral Hospital in Kenya. Migori County is located in the Western part of Kenya in the former Nyanza Province.

2.3 Subjects

Approximately 420 neonatal mortality cases formed the total population size.

2.4 Sampling and sample size

A sample size of 201 cases was determined using Cochran's (Cochrane, 1977) formula using 420 cases as the study population. A systematic sampling technique was used to select a sample of neonatal cases from the neonatal mortality register at the Migori County Referral Hospital's health records department on 21 November 2018.

2.5 Inclusion

The inclusion criteria for this study were: The neonates should have been born in the hospital or admitted in the institution while alive; The neonates should have died within 28 days of life in the hospital and death of the neonate should have occurred in the 3 years preceding the year of the study, that is, between 1 January 2015 and 31 December 2017.

2.6 Exclusion criteria

The exclusion criteria in this study were: Babies dying 29 days after delivery; neonatal deaths occurring at home or on the way to the hospital, neonatal deaths (2 days) after hospital discharge and files on deceased neonates before 1 January 2015 or after 31 December 2017 were excluded.

2.7 Independent and dependent variable

The study's dependent variable was neonatal death as noted on the case file, while the independent variables were deceased neonates' maternal characteristics: maternal age, education, employment, residence and religion.

2.8 Data tool and Data collection

Data were collected from 21 November 2018 to 26 December 2018 with the use of a questionnaire. This study adopted data collection tool of a previous Nigerian study, the tool was developed in English (Ezeh, Agho, Dibley, Hall, & Page, 2014). The mortality register in the hospital record department was reviewed first to establish a list of all neonatal deaths during the period 1 January 2015 to 31 December 2017 as this formed the study population. This was found to be 420 neonatal cases. The researcher administered the data collection tool to collect the necessary information from the identified files in the hospital records department.

2.9 Data analysis

Data were coded, and entered into the Statistical Package for Social Sciences (SPSS) Version 21, from 20 to 31 January 2019. Descriptive statistics analysis in the form of percentage distribution tables were used to describe and summarise data.

2.10 Ethical Approval

The study was approved by UNISA Health Studies Research and Ethics Committee, Migori County Referral Hospital and the Ministry of Health Migori County.

3.0 Results

In this section, the social determinants of neonatal mortality rates, such as maternal employment status, residence, mother's educational level, neonates' place of delivery, are discussed in reference to Table 1. Neonates from rural residences were found to be more at risk of neonatal death than those from urban residences. Neonates with informally employed mothers were also at increased risk of dying compared to those with formally employed mothers. Lastly, neonates with lowly educated mothers were more likely to die compared to those with highly educated mothers.

Table 1: Social determinants of neonatal mortality n=201

Maternal Social factors		%
Maternal Religion		
	Christian	90
	Muslim	2.5
	Not recorded	7.5
Educational Level		
	Primary	58.2
	Secondary	21.4
	Tertiary	10.4
	No education	3.5
	Not recorded	6.5
Employment		
	Formal	24.9
	Informal	57.7
	Not working	12.9
	Not recorded	4.5
Residence		
	Urban	30.3
	Rural	62.2
	Informal Settlement	5
	Not recorded	2.5
Maternal Age (years)		
	21-29	33.3
	30-39	35.3
	40-49	3.0
	Below 20	20.9
	Not recorded	7.5

4.0 Discussion

The purpose of this study was to investigate the socioeconomic factors that are associated with neonatal mortality in Migori County, Kenya. In this study, the majority (62.2%) of the deceased neonates' mothers lived in rural settlements and only 30.3% lived in urban centres. This suggests that more deceased neonates were from rural settlements compared to urban centres. In rural India, the states characterised by comparatively poor socioeconomic and demographic indicators and dysfunctional government healthcare systems showed higher odds of neonatal death compared to those with higher socioeconomic indicators (Singh, Kumar, & Kumar, 2013). The place of residence of the parents affects both the survival status and nutritional status of the living children in developing countries (Mahmood, 2014). The urban areas are mostly equipped with better infrastructure for health services than rural areas (Mahmood, 2014).

Most deceased neonates' mothers (58.2%) had attained primary education, 21.4% had attained secondary level education, while only 10.4% had attained tertiary level education. This corroborates with some previous studies that low literacy among women and its association is linked to worse neonatal outcomes. One such study conducted in Nepal found that the likelihood of neonatal death was 2 times higher where mothers had no schooling compared to the neonates born to mothers with primary or higher education (Shah et al., 2015). It is commonly assumed that greater empowerment and autonomy are inevitable consequences of schooling and that these are the main pathways that link education to better child survival (Mahmood, 2014).

A study in Nigeria found that educated mothers may likely have improved income, better health education and make healthier choices for their health and that of children; educational level therefore plays a role in reducing neonatal deaths (Morakinyo & Fagbamigbe, 2017). In Brazil, for instance, neonates of mothers with less than four years of education presented a greater risk of neonatal death when compared to children of mothers with at least four years of education (Fonseca, Flores, Camargo, Pinheiro, & Coeli, 2017). Reducing childhood mortality and narrowing the gaps between social groups in India can be realised by improving female education (Lutz, Bora, & Raushan, 2018).

This study showed that the majority (57.7%) of the deceased neonates' mothers were in informal employment and 24.9% were in formal employment. This implies that more neonatal mortalities occurred among the informally employed mothers. In Nigeria, infant mortality was higher among children of unemployed women, and the difference was greater during 12-59 months of life (Akinyemi, Solanke, & Odimegwu, 2018). The weaker relationship in the first 11 months of life suggested that socioeconomic variables exert greater influence on a child's survival from one year onward (Akinyemi et al., 2018). In Italy, a study on the association between unemployment and infant mortality reported that unemployed people have less money and a lack of money tend to worsen the conditions for good health (Dallolio et al., 2012). A potential solution to the problem: by giving the unemployed support for subsistence, the most deleterious effects of unemployment could be alleviated (Dallolio et al., 2012).

The shortcomings of this study were that it's retrospective nature and the gathering of data from a single county hospital. The findings of the study may not be applicable to other hospitals in Kenya but generalised only to one tertiary institution in Migori County.

5.0 Conclusion

This study noted that there exists socio-inequality even in a rural setting of Migori County. The study revealed rural residence, lowly educated and informally employed mothers were associated with neonatal mortalities.

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