pISSN 2394-6032 | eISSN 2394-6040

Research Article

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20160924

Basic human needs and child mortality, in Wad-Madani paediatric teaching hospital, Gezira, Sudan

Osama B. Albasheer*

Family and community medicine department, College of medicine, Jazan University, KSA

Received: 01 February 2016 **Accepted:** 03 March 2016

*Correspondence: Dr. Osama B. Albasheer

Email: drosama802@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Children in developing countries are ten times more likely to die before the age of five when compared with children in developed countries. Sudan is one of the countries were children are at greater risk of dying. The aim of this study was to determine the association between the basic human needs like; water supply, sanitation, poor household, and distance of living, and child mortality.

Methods: A cross sectional, descriptive, hospital based study. Structured questionnaire were used for data collection. The data were analyzed descriptively and then by statistical test based on chi- squire conducted to determine the relationship between death of children and basic human needs.

Results: Children who lived in households that have adequate rooms, clear access to clean water and toilet facilities, experienced relatively lower mortality levels compared to children who did not have access to these facilities.

Conclusions: Poor families and unhygienic and unsafe environments place children at more risk of death. Political awareness and leadership are needed to ensure equal distribution of health services between urban and rural areas, to enhance child survival.

Keywords: Child mortality, Water supply, Sanitation, Under- five deaths, Wad-Madani, Sudan

INTRODUCTION

Child mortality can be defined as the death of infants and children under the age of five or death between the age of one month to four years. Children in developing countries are ten times more likely to die before the age of five when compared with children in developed countries. Mosley and Chen, in their work stated that; at least 97% of new born infant should be expected to survive the first five years of live, and any reduction of this survival probability could be caused by environmental factors and socioeconomic differences.

They tested a set of 14 intermediate variables grouped into five factors, maternal factors, such as age of the mother at birth, birth survival and parity environmental factors, nutrient availability factor, personal illness control factors, and injury factors.²

Differences in infant and child mortality rates can be used as indicators of the socioeconomic development of a country.³

The main causes of death in under-five children are diarrhoea; pneumonia, malaria, measles, HIV/AIDS, and health problems during the neonatal periods.³ Around 70% of these causes could be prevented or treated with access to simple, low- cost interventions. Achievement of the fourth Millennium Development Goal (MDG 4),⁴ which is reducing the mortality rate among under-five children by two thirds between 1990 and 2015, can be done mainly by addressing these causes. Great reductions in child mortality occurred in low-income and middle-income countries in the last two decades, but still more than 10 million children younger than 5 years die every year.⁵⁻⁷ In Sudan, infant and child mortality rates are still among the highest in the world. Approximately one child

out of every six dies before reaching the age of five, compared with other developing countries.⁸ Study done in Wad-madani, to determine the causes of infant and child mortality in Sudan revealed that immunization, child order, child birth weight, birth interval and mother education had significant influence on under five mortality.⁹ Ingestion of unsafe water, inadequate availability of water for hygiene, and lack of access to sanitation contribute to about 1-5 million child deaths and around 88% of deaths from diarrhoea.⁷

METHODS

Study area

Wad-Madani town, the second largest town in Sudan, lies on the bank of the Blue Nile. It is the capital of the Gezira State and has population of 430,487 (214,670 males and 215,817 females), According to the fourth national census. Wad-madani Pediatrics' Teaching Hospital is one of the leading pediatrics' hospitals in the Sudan. It is selected for the study as it is a referral hospital, receiving cases from outreaches with different socio- economic and demographic factors.

Study design

A cross sectional, descriptive, hospital based study. Structured questionnaire were used for data collection. A number of 96 of children under-five died at the hospital in the period (March- August 2007), were selected randomly for study. Any child death beyond five year was excluded from the study. Pre-test of the questionnaire was done for 10 women. The interview was conducted by medical staff, working in the hospital in the study period. The data were analyzed descriptively by using statistical package for social science (SPSS) and then by statistical test based on chi- squire conducted to determine the relationship between death of children and basic human needs, like water supply, sanitation, poor household, and distance of living.

RESULTS

Background characteristics of participants

Table 1 showed the distribution of under-five mortality according to the birth age, place of residence, place of delivery, gender, duration of pregnancy, and birth weight. The mortality was higher in the first year of life (82.5%) and rural areas exhibited higher mortality levels (68%) than urban areas (32%). It is also noticed that mortality was higher in male (51.5%) than in female (48.5%). Place of delivery obviously appeared to affect the mortality with (62.9%) mortality for home delivery compared to (37.1%) of hospital delivery. Birth weight of more than 3.5 kg appeared to be associated with less mortality levels (only 8%).

Table 1: Background characteristics of participants.

Characteristics	No. (%)		
Age at death:			
Less than year	80 (82.5%)		
More than year	17 (17.5%)		
Place of residence:			
Urban	31 (32%)		
Rural	66 (68%)		
Place of Delivery:			
Home	61(62.9%)		
Hospital	36 (37.1%)		
Birth weight:			
Small (<2.5)	29 (29.9%)		
Average (2.5-3.5)	60 (61.9%)		
Big (>3.5)	8 (8.2%)		
Gender:			
Male	50 (51.5%)		
Female	47 (48.5%)		
Duration of pregnancy:			
Full term	82 (84.5%)		
Pre-term	15 (15.5%)		
Total	97(100%)		

Housing condition, sanitation, water and electricity supply, family income, and under-five mortality

Table (2) showed the distribution of under-five mortality according to the basic human needs (number of rooms, water supply, electricity supply, sanitation, and family income. Child mortality appeared to decrease with increased number of rooms (78.3% when number of rooms 1-2, 2.1% when number of rooms more than 4).

Table2: Distribution of under-five mortality according to the basic human needs.

Housing condition	No. (%)			
Number of rooms:				
1-2	76 (78.3%)			
3-4	19 (19.6%)			
>4	2 (2.1%)			
Water supply:				
Taped water	69 (71.1%)			
Piped water	28 (28.9%)			
Latrine:				
Pit	85 (87.6%)			
Toilet	12 (12.4%)			
Electricity supply:				
Yes	61 (62.9%)			
No	36 (37.1%)			
Income(Sudanese pound)				
<300	58 (80.9%)			
300-500	30 (59.8%)			
>500	9 (9.3%)			
Total	97 (100%)			

High levels of child mortality were noticed with the use of taped water (71.1%), compared to the use of piped water (28.9%). Also the mortality was high with poor sanitation and pit latrine (67%), rather than with the use of toilets (33%). Also noticed that the less the monthly income, the more increase in under- five mortality (59.8% mortality when monthly income less than 300 Sudanese pounds, 30.9% mortality with monthly income (300-500) Sudanese pounds, and 9.3% mortality with monthly income more than 500 Sudanese pounds.

The association of child mortality and distance of living and low monthly income

Chi squire-test was used to determine the relationship between death of children and selected basic human needs, like distance of living and low monthly income.

Table 3: The association of child mortality and distance of living and low monthly income

Selected variables	Far distance to health facility		low monthly income	
	X value	P Value	X value	P value
Delivery	0.454	0.3	2.299	0.3
Birth weight	3.923	0.8	1.845	0.8
Breast feeding	0.482	0.5	3.585	0.5
Vaccination	1.618	0.2	6.613	0.2
Development	2.029	0.08	4.942	0.08
Ante-natal care	6.782	0.001	12.74	0.001

Table 3 showed that living too far from the health services have significant impacts (P value 0.001) on antenatal attendance and child's development. Having low monthly income also noticed to have same significant impacts on antenatal attendance and child's development (P value 0.001).

DISCUSSION

Poor families are frequently unable to obtain even the most basic health care for their children. Poor or delayed care-seeking put up to 70% of all under-five child deaths.³

In our study we found that infant mortality was higher than child mortality. Same result was reported in demographic health survey in Pakistan. ¹⁰This may reflect that, the chance of survival is better if the child passed first year of life.

The mortality was higher in rural than in urban areas, and same was found in Sudan Demographic and Health Survey,(SDHS, 1989-90). Those in Rural areas faces many problems that may contribute to child mortality. They have shortage in health services, poor sanitation, unhygienic environment, and lack of clean water. They also have less chance of mother education, poor antenatal care, and poor access to family planning services. 11-14

Children who lived in households that have adequate rooms, access to clean water supply and toilet facility, and have elasticity supply, experienced relatively lower mortality levels compared to children who did not have access to these facilities, this was similar to what was noticed by others. Access to clean water and good sanitation will reduce the incidence of infectious and diarrheal diseases, while less crowded households will reduce the spread of infectious diseases.

Family income is among the most important determinants of under-five mortality. ^{17,11} In our study we noticed that 59.8% of the mortality was found in families with low monthly income. Low income appeared to have significant impact on ante-natal care, birth weight, and child's development. Again low family income can contribute in delay in care seeking and management in diseased states.

CONCLUSION

Poor families and unhygienic and unsafe environments place children at more risk of death. Political awareness and leadership are needed to ensure equal distribution of health services between urban and rural areas, to enhance child survival.

ACKNOWLEDGEMENTS

I would like to say thanks to the parents who accept to participate in this study. My thanks will be extended to any one shared in the process of writing and reviewing this article.

Funding: Not required

Conflict of interest: No conflict of interest

Ethical approval: The research is approved by the ethical committee of the Sudanese medical specialization for publication.

REFERENCES

- 1. Youa D, Wardlawa T, Peter Salamaa GJ. Levels and trends in under-5 mortality, 1990-2008. The Lancet. 2010;375(9709):100-3.
- 2. Mosely WH, Chen LC. An analytical framework for the study on child survival in developing countries.1984. Bull World Heal Organ. 2003;81(2):140-5.
- 3. Jones G, Steketee RW, Black RE, Bhutta ZA, Morris SS BCSSG. How many child deaths can we prevent this year. Lancet. 2003;362(9377):65-71.
- 4. Black RE, Morris SS BJ. Where and why are 10 million children dying every year. The Lancet. 2003;361(9376):2226-34.
- 5. Ahmad OB, Lopez AD. The decline in child mortality a reappraisal. Bull World Heal Organ. 2000;78:1175-91.

- Mutangadura GB. World Health Report 2002: Reducing Risks, Promoting Healthy Life: Geneva; 2002
- 7. Ezzati M, Lopez AD, Rodgers A, Vander Hoorn S MC. Selected major risk factors and global and regional burden of disease. The Lancet. 2002;360(9343):1347-60.
- 8. Sudan. Maktab Ta'dād al-Sukkān. Population census of Sudan 1993: provisional results. The Office. 1993;5 p.
- 9. Huda M. Haroun, Mohmamed S. Mahfouz khi. Level and determinants of infant and under-five mortality in wad-medani town, sudan. J Fam Community Med. 2007;14(2):65-9.
- Bicego G AO. Infant and Child Mortality. Nationat Institute of Population Studies, editor. Pakistan Demographic and Health Survey 1990/1991; 1992. 111 p.
- 11. Farah AA PS. Child mortality differentials in Sudan. Popul Dev Rev. 1982;365-83.
- 12. A. T. Flegg. Inequality of income, illiteracy, and medical care as determinant of infant mortality in

- underdeveloped countries. Popul Stud A J Demogr. 1982;36(3):441-58.
- 13. Roth EA, Kurup KB. Child mortality levels and survival patterns from southern Sudan. Pub Med. 1990;22(3):365-72.
- 14. Zabin LS. The Health Consequences of Adolescent Sexual and Fertility Behavior in Sub-Saharan Africa. Stud Fam Plann. 1998;8(2):210-32.
- 15. Victora CG, Smith PG, Vaughan JP, Nobre LC, Lombard C, Teixeira AM. Water supply, sanitation and housing in relation to the risk of infant mortality from diarrhoea. Int J Epidemiol. 1988;17(3):651-4.
- 16. Bartram JCS. Hygiene, sanitation, and water: forgotten foundations of health. PLoS Med. 2010;7(11):e1000367.
- 17. Davis Kean PE. The influence of parent education and family income on child achievement: the indirect role of parental expectations and the home environment. J Fam Psychol. 2005;19(2):294.

Cite this article as: Osama BA. Basic human needs and child mortality in Wad-Madani paediatric teaching hospital, Gezira, Sudan. Int J Community Med Public Health 2016;3:893-6.