

*Full Length Research Papers*

# Low birth weight knowledge among postnatal mothers in a resource restricted urban setting in Zimbabwe

Helen Vupenyu Gundani<sup>1\*</sup> and Jesca Mutowo<sup>2</sup>

<sup>1</sup>Department of Nursing Science, Faculty of Health Sciences, P. O. Box 178 A, Avondale, Harare, Zimbabwe.

<sup>2</sup>Zimbabwe Open University, Zimbabwe.

Accepted 29 February, 2012

**This study aimed to establish the knowledge of postnatal mothers about low birth weight (LBW) in a resource restricted urban setting. A non-experimental descriptive study was conducted using a systematic sampling method to select fifty mothers aged between 15 and 41 years with babies below five years born with LBW of below 2500 grams. The women were selected as they sought health care at Mabvuku Satellite Clinic in Harare, the capital city of Zimbabwe. Data were collected using an investigator-administered interview guide that also included three open-ended questions. Data were analyzed and presented using descriptive statistics in the form of frequencies, percentages and tables. The major finding was that all participants had inadequate knowledge about LBW. Their total score was below 50% with a mean of 1.56% which, on the scale of “adequate knowledge” score levels defined by Nachega et al. (2005) was well below the 75% plus accepted score for adequate knowledge. Additionally, findings showed that all the participants did not remember any information they received on LBW during pre/postnatal care. Eighty percent of the participants stated that nurses did not talk about LBW. To increase knowledge on LBW, we advocate that a manual on topics to be covered during pre/postnatal care be developed and that both young men and women, pregnant and not, be educated on factors associated with LBW by health care providers.**

**Key words:** Low birth weight, resource restricted setting, weight in grams, poor socio-economic factors, pre/postnatal.

## INTRODUCTION

Low birth weight (LBW) is babies born before 37 weeks weighing less than 2500 grams, (Fraser et al., 2003; McCormick, 1985). Infants weighing less than 2500 grams are more at risk of dying within their first 28 days of life than normal weight infants (Elliot et al., 2009; McCormick, 1985). In developed countries most LBW babies are premature compared to developing countries where most of them are under-grown term infants (Klaus and Fanroff, 2001). LBW is responsible for 70% peri-natal mortality and up to half of infant mortality (Piekala et al., 1986). Neonatal intensive care for these very LBW infants is ranked the most costly of all hospitalization costs (Richter and Strupp, 2007). LBW is associated with

poor nutrition, inadequate prenatal care, unemployment, overcrowding and poor housing (Gissler et al., 2009; Piekala et al., 1986; Magadi, 2006; Munjaja, 2007). Bad obstetric history, chronic existing systematic diseases, adolescent mothers, women of short stature below 145 cm, severe anaemia and drug/alcohol abuse are most of the identified pre-conception risk factors for LBW (Nkansah-Amankra, 2010; Magadi, 2006). According to Alexander and Slay (2002) LBW increased from 6.8% in 1980 to 7.6% in 2002 in the United States of America. The incidence of low birth weight can be as high as 30% in developing countries which becomes a public health challenge (Piekala et al., 1986).

According to Sanders et al. (1996) the highest incidence of LBW in resource restricted settings is quoted as 30% in India, and 18% in Nigeria. In Zimbabwe, neonatal morbidity was 24 per 1000 live births in 1999 and 24 per 1000 live births in 2005. Furthermore, an

---

\*Corresponding author. E-mail [helengundani@yahoo.com](mailto:helengundani@yahoo.com) or [helengundani@gmail.com](mailto:helengundani@gmail.com).

infant mortality of 53 per 1000 live births in 1999 and 60 per 1000 live births in 2005 (Zimbabwe Demographic and Health Survey 2005 - 2006 (ZDHS)). The Zimbabwe Multiple Indicator Monitoring Survey of 2009 reported an increase of under five mortality rate of 86 per 1000 live births compared to 82 per 1000 live births in 2005. Seventy eight percent of all peri-natal deaths can be attributed to low birth weight, intrapartum asphyxia, birth trauma and unexplained intrauterine deaths (Zimbabwe Ministry of Health and Child Welfare Health Profile, 2007). Harare City Council Health Department Annual Report (2002) LBW increased marginally from 9.4% in 2001 to 9.7% in 2002 and in Mabvuku suburb it was 10.4%, (City of Harare Annual Report, 2005). In Mabvuku suburb unemployed poor young mothers live in crowded accommodation where 2 to 3 families share two bed-roomed apartments with their LBW babies (Harare City Council Social Services Department Annual Report (2005). Because of the association between LBW and poor socio-economic conditions, the rise in low birth weight was of concern to the investigators as it posed a public health concern. The purpose of this study was to establish the knowledge of postnatal mothers on LBW at Mabvuku Satellite clinic.

## MATERIALS AND METHODS

### Setting and sample

Mabvuku Satellite Clinic is situated in the eastern district 16 kilometers from Harare the capital city of Zimbabwe. The catchment population of Mabvuku suburb according to the 2002 country census was 102430, the under one year population was 13653 and the under five population was 32006, respectively (Mabvuku Satellite Clinic Annual Report, 2005). A non experimental descriptive study design was used on fifty mothers with LBW babies who were selected randomly as they sought care at the clinic. Selection of participants was done using assigned numbers and every second person was eligible for inclusion in the study. The number 50 was arrived at from the 100 accessible target populations of postnatal mothers who visit the clinic monthly. Data were collected during the month of March, 2005 on week days from 10.00 hrs to 13.00 hrs. Postnatal mothers, resident of Mabvuku suburb, who consented and spoke English or Shona, the local vernacular, were included in the study.

### Data collection and analysis

Data were collected through an investigator- administered interview guide with 3 sections. The first section requested demographic information of participants such as age and level of education. The second section sought to establish knowledge of mothers about LBW and its causes such as mother's age, maternal malnutrition, smoking and alcohol consumption during pregnancy. The third section was made up of three open-ended questions on general and specific information received during pre/postnatal care and sources of this information. Knowledge scores of postnatal mothers about LBW were coded as 2 for a correct response and 0 for an incorrect or an unknown response. A participant who achieved a total score greater than 75% was defined as having "adequate knowledge." Nachega et al. (2005) used this technique in their

study to determine average knowledge scores of *human immunodeficiency virus* (HIV) infected adults in Soweto, South Africa.

Descriptive statistics were used to analyze the obtained data. Responses from questionnaires were manually done through the use of frequencies, percentages and tables. A pilot study on five respondents was conducted at another site and revealed that the instrument was valid and reliable and no modifications were done.

### Ethical considerations

Investigators obtained permission from the Zimbabwe Medical Research Council and from the Director of City of Harare Research Ethics Committee. Mabvuku Nurse- In- Charge and staff were informed about the study to secure their involvement and cooperation. Investigators sought written consent and reassured the participants of their confidentiality and anonymity. Privacy was ensured throughout the process by use of a private room. All the data obtained were treated with confidentiality and mothers had the freedom to withdraw at any stage without victimization. Questionnaires were coded and kept in a locked file cabinet and only the investigators had access to the data.

## RESULTS AND DISCUSSION

### Demographics

The sample comprised of fifty postnatal mothers whose chronological ages ranged from 15 to 41 years at the time of reporting. The majority, 76% were between 15 and 30 years which according to Magadi (2006) is an age group that is at risk of giving birth to LBW babies. Seventy- four percent of the participants had completed secondary education and the remainder had primary education. Secondary education enabled most participants to get information from different sources than relying on midwives. According to Fransen (2003) a woman's education level is an important independent determinant of whether she has access to and makes use of health care- services. Additionally, ninety six percent of these participants were unemployed and lived on an income of less than \$100 per month, which is, according to the Zimbabwe Consumer Council Report of 2010, were below the Poverty Datum Line of \$500 per month. Also, 41 (82%) of them lived in rented accommodation while 2(4%) were squatters. Most of the participants (82%) were in the low income bracket and could not afford nutritious food.

Under weight women, living in resource restricted environments have a high incidence of prematurity, low birth weight babies and increased neonatal morbidity and mortality (Ho, 2001); Wallis and Harvey, 1989) The incidence of LBW is considerably higher among low income groups than among professionals and salaried classes, partly due to poor nutrition, unemployment, overcrowding and poor housing (Elliot et al., 2009; Brown et al., 2011). LBW babies born by low income mothers have poor survival chances (Nkansah-Amankra et al., 2010; Magadi, 2006; Piekala et al., 1986). It is therefore,

**Table 1.** Knowledge of Mothers on LBW: (N=50).

Variable	Indicator	Frequency	Percentage
	Yes	8	16
	No	42	84
Type of information on LBW	Babies need special care	2	4
	LBW babies are born by HIV mothers	2	4
	LBW babies are born before term	4	8
	Did not know	42	84
Causes of LBW	Maternal malnutrition	11	22
	Multiple pregnancy	0	0
	Smoking	1	2
	Alcohol consumption	0	0
	Maternal age	1	2
	Did not know	37	74

**Table 2.** Open ended question: What general information did you receive during pre/ postnatal care?"

Response	Frequency	Percentage
Baby care, signs of labour, bed rest, immunizations, disease surveillance, nutrition	38	76
Did not remember anything	5	10
No response to question	7	14

**Table 3.** Open- ended- question: What specific information did you receive on LBW during pre/postnatal care?

Response	Frequency	Percentage
No response to question	6	12
Did not remember anything	4	8
Nurses did not talk about LBW	40	80

recommended that during times of food shortages and droughts in developing countries like Zimbabwe, there is need for governments and their partners to provide food to pregnant women to reduce chances of giving birth to LBW babies. Furthermore, micro- projects should be encouraged to empower women and ensure food provision and its sustainability (Nkansah- Amankra et al., 2010; Guayao et al., 2004).

### Knowledge of participants on LBW

Table 1 shows the responses of the participants to questions that sought to establish their knowledge on LBW and its causes. From this table it becomes evident that all the mothers had inadequate knowledge on LBW. The findings indicated that most of the participants 42(84%) had no knowledge on LBW while 16% had knowledge on some aspects and (74%) had no clue on its causes. It was sad that mothers who had attended

pre/postnatal care did not know that their babies were LBW. Other studies have also reported that mothers with inadequate knowledge do not even know that their babies are LBW babies and as a result may not feed their babies with nutritious food to avert the problem.

During pre/postnatal care nurses talked about other topics such as baby care, immunizations and nutrition except LBW (Table 2).

Also, results in Table 3 show that 40 (80%) of the participants reported that nurses did not talk about LBW, while the remainder did not remember anything or did not respond to the question. On common sources of LBW information, Table 4, none of the mothers mentioned nurses as sources of information. Eighty eight percent of the mothers obtained information on LBW from media, parents and teachers. It is therefore, important to utilize the media, parents and teachers as resource tools to enhance dissemination of information on LBW that nurses did not feature as sources of LBW information is a depressing revelation because it is expected that they

**Table 4.** Open-ended-question: What are the common sources of information on LBW?

Response	Frequency	Percentage
No response to question	6	12
Parents/Teachers	17	34
Media (news papers and radio)	27	54

**Table 5.** Knowledge scores of Mothers on LBW.

Scores out of 18	Frequency	Percentage
0	32	64
2	13	26
4	5	10

talk about nutrition and its link with LBW during pre/postnatal care. It is therefore, suggested that a manual consisting of topics to be covered by nurses and other health care providers during pre/postnatal care be produced and disseminated to health care centers. This could ensure that LBW is covered and appropriate information is given to mothers for their own welfare and that of their babies.

### Participants' knowledge scores on LBW

The knowledge scores for Table 1 are depicted in Table 5. The total achievable scores were 18 with 2 marks for a positive answer and a zero for a negative answer. From the results 32(64%) of the participants did not have any knowledge on LBW while in 18(36%) of the participants the knowledge level score was below 50% with a mean of 1.56%. The findings indicated that the participants' knowledge level scores were below 50% when according to Nachege et al. (2005) for a person to be considered as having "adequate knowledge" he /she must achieve a score of above 75%. Nachege et al. (2005) defined this adequate knowledge score level in their study that determine average knowledge score of HIV infected adults in Soweto, South Africa. However, in an epidemiological study on acquired immune deficiency syndrome (AIDS) knowledge, attitudes and misconceptions by Ayranci (2005) in a Turkish population, a proper level of general knowledge among their respondents was indicated by a total mean score of 46 and 5 out of 7 points, respectively. The knowledge deficit displayed by the participants on LBW clearly highlights the importance of information that midwives share with mothers on LBW during pre/postnatal care clinics. Despite improved health care services half of all peri-natal and a 1/3 of all infant deaths are directly linked or indirectly related to LBW (Hack et al., 1998); Fraser et al. (2003); McCormick (1985); Sanders et al. (1996) and therefore, upgrading the knowledge of mothers on LBW

might reduce the occurrence of the morbidity and mortality of under five year olds caused by LBW.

### Conclusion

According to our findings, majority of the mothers had no knowledge on LBW and its causes although it is one of the commonest causes of morbidity and mortality among under five year olds. Also, nurses did not talk about LBW during pre/ postnatal care. To reduce the LBW incidence, we advocate that LBW be specially taught to young women and men in Reproductive and Sexual Health programs. It is further suggested that nurses be trained on LBW and its consequences to equip them with adequate information to disseminate to mothers.

### Study limitations

The investigators because of work pressure engaged research assistants who got training on how to conduct interviews. Smoking and alcohol consumption among the participants, needed further probing; because of social and cultural connotations which despise women who smoke and drink alcohol. Also, the study was conducted in one small part of the country which makes the findings not generalizable to the whole country. Additionally, the investigators did not inquire from the nurses themselves on the topics that they covered when giving health education to postnatal mothers. The point of view discussed in this study is just from the participants. However, the findings can be taken as a basis for further reflection and research.

### ACKNOWLEDGEMENTS

The authors wish to thank the Mabvuku Satellite Clinic staff and the District Nurse Manager for the generous access to baby records and guidance during data collection. We extend our gratitude to Mrs Chitura for her

guidance during data collection and analysis. Our gratitude is also extended to participants for their willingness to participate in the study and for attending a feedback meeting in September 2005.

## REFERENCES

- Alexander RE, Slay M (2002). Linking Assessment and Intervention for Development Functional Outcomes of Premature Low Birth children. *Early Childhood Educ. J.*, 32(6): 383-389. DOI: 10.1007/s 106-43-005-00 8-4
- Ayranci U (2005). Aids knowledge and attitudes in a Turkish population an epidemiological study. *BMC Public Health*, 5: 95-104
- Brown SJ, Yelland JS, Sutherland G, Baghurst PA, Robinson JS (2011). Stressful life events, Social health issues and low birth weight in an Australian population-based birth cohort: Challenges and opportunities in antenatal care. *BMC Public Health*, 11: 196 doi: 10.1186/1471-2458-11-196
- City of Harare Council Health Department (2002): Annual Report of Harare City Council Health Department, Zimbabwe,
- City of Harare Council Social Services Department (2005). Harare, Zimbabwe (unpublished)
- Elliot P, Briggs D, Morris S, De Hoogh C, Hurt M, Richardson S (2009) Risk of adverse birth outcomes in populations living near landfill sites, *BMJ*323:363 doi 10.1136/bmj.323.7309.363.
- Fransen L (2003) The impact of inequality in the health of mothers. *Midwifery*, 19(2): 79-81
- Fraser DM, Cooper AG, Nolte AGW (2003). *Myles Textbook for Midwives African Edition* 2<sup>nd</sup> Churchill Livingstone Elsevier Edinburgh, pp. 814-816
- Gissler M, Rahkonen O, Orntza C, Nathingius S, Nypo AM (2009). Trends in social-economic differences in Finnish peri-natal care. *J Epidemiol. Community Health*, 63(6): 420-425 PubMed Abstract
- Guayao Wu, Fuller WB, Timothy A, Cudd C, Meininger J, Thomas ES (2004). Maternal Nutrition and Fetal Growth. *Am. Soc. Nutr. Sci. J. Nutr.*, 134: 2169-2172. [J.Nutrition.org/content/134/9/2/2169](http://J.Nutrition.org/content/134/9/2/2169).
- Hack M, Friedman H, Farnroff AA (1998). Outcomes of extremely low birth infants. *Pediatrics*, 98: 931-937
- Ho J (2001). Mortality and Morbidity of Small for Gestational Age (SGA) Very Low Birth Weight (VLBW) Malaysia Infant. *Singapore Med. J.*, 42(8): 355-359. [WWW.SMA.ORG.SG/SMJ/4208/4208A3PDF](http://WWW.SMA.ORG.SG/SMJ/4208/4208A3PDF).
- Magadi M (2006). Poor pregnancy outcome among adolescents in South Nyanza region Kenya. *Afr. J. Reprod. Health*, 10(1): 26-38.
- McCormick MC (1985). The contribution of Low Birth Weight to Infant and Childhood Morbidity, *N Engl J. Med.*, 312: 82-90.
- Munjanja SP (2007). Ministry of Health and Child Welfare Zimbabwe: Maternal and Peri-natal Mortality Study (MPMS), p. 1.
- Nachega E, Lehman DA, Hlatshwayo D (2005): HIV/AIDS and antiretroviral treatment knowledge ,attitudes, beliefs and practices in HIV infected adults in Soweto. *South Afr. J. Acquir. Defic. Syndr.*, 38(2): 196-201.
- Nkansah-Amankra S, Luchok KJ, Hussey JR, Watkins K, Lui X (2010), Effects of Maternal Stress on low birth weight and preterm birth outcomes across neighbourhoods in South Carolina 2000- 2003. *Mater. Child Health J.*, 14(2): 215-226 Public Med Abstract.
- Piekala P, Kero P, Erkkola R, Sullapa M (1986): Perinatal events and neonatal morbidity: An Analysis of 5380 cases: *Early Development*, 13(3): 249-268.
- Richter LM, Strupp B (2007). "Over two hundred million children fail to reach their development potential in the first five years in developing countries". *Lancet*, 369: 60-70.
- Sanders JA, Fawcus SR, Sanders DM, Foster G, Chinhara B (1996). "Low Birth Weight in Urban Harare". *Central Afri. J. Med.*, 42(1):323-325.
- Wallis S, Harvey D (1989) Pregnancy outcome at 24-31 weeks' gestation: neonatal survivors. *Arch. Dis. Child*, 64(5) [www.ncbi.nlm.gov](http://www.ncbi.nlm.gov).
- Zimbabwe Demographic and Health Survey (ZDHS) (2005/6). Health Statistics. Central Statistics Office Harare, Zimbabwe.
- Zimbabwe Ministry of Health and Child Welfare Health Profile (2007). Maternal and Child Health Statistics. Harare, Zimbabwe
- Zimbabwe Multiple Indicator Survey Ministry of Health Child and Welfare Report (2009). Harare.