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Research Article

PREVALENCE OF LOW BIRTH WEIGHT BABIES AND POSSIBLE DETERMENTS AMONG NEWBORN DELIVERED AT DISTRICT HEAD QUARTER HOSPITAL PAKPATTAN, PUNJAB 2019

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A B S T R A C T

Low birth weight is the leading cause of infant and child mortality and contributes to several poor health outcomes. Proper knowledge of risk factors of low birth weight is important for identifying those mothers at risk and thereby for planning and taking appropriate actions. The cross sectional study was designed to investigate the prevalence and possible determents for low birth weight neonate's delivered at District Head Quarter hospital of District Pakpattan. The overall prevalence of LBW was 8.2%. LBW was significantly associated with mother's gestational age, previous history of low birth weight, poor or no intake of nutrient dense diet during pregnancy, < 4 prenatal care visits and no education. Preterm birth (AOR = 2(1.4-10.4), history of any pregnancy complication (AOR = 3(0.3-7.09) and intake of additional diet (AOR=5(1.9-18.0) were predictors of low birth weight. Preterm birth, poor and no intake of nutrient dense diet, history of low birth weight were possible predictors of low birth weight. Improving maternal socio-demographic could mimic the low birth weight and its associated complications.

INTRODUCTION

Low birth weight is, at once, a public health problem of the first rank and a scientific problem of immense interest. Prematurity; the leading cause of death among children under five around the world, a leading cause of disability and ill health later in life. Preterm or babies born too early, less than 37 weeks gestation, are particularly at higher risk. Sub-Saharan Africa and south Asia account for over 60 percent of preterm births worldwide. Of the 15 million babies born too early each year, more than 1 million die due to complications related to preterm birth. In Pakistan rate of Preterm birth is 16%. Pre term or Low birth weight (newborns weighing less than 2,500 grams at birth), due to prematurity and/or restricted growth in utero, is also a major contributor of newborn and child deaths, as well as disability and non-communicable diseases globally.

Around 85% of preterm babies are born before the 37 weeks of gestation and could not revive due to lack of intensive care (drying, warming, immediate and exclusive breastfeeding, cord care and hygiene). More attention is require to identify women which are at higher risk of preterm birth and support them to give birth in a health facility where extra care could be provided when needed. To turn the tide on these preventable deaths, we need action across the spectrum of care from adolescence and preconception, pregnancy, the safe management of labor and delivery, and effective immediate and later postnatal care.

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METHODS

Study Area, Setting, and Period

Cross-sectional study was conducted at DHQ hospital Pakpattan from Jan 2019 to June 2019. In 1998 tagged as a district Hospital that provides free preventive, curative, promotive and rehabilitative facilities around 2 Million populations. Hospital comprise of emergency ward, Peads ward, obstetric and gynae, medical ward, surgical ward, dialysis ward, cardiac ward. Obstetric and gaynae ward having separate labor room, recovery room, operation theater and post natal care services along with high risk obstetric services,

antenatal care (ANC) and gynecological outpatient department (OPD).

Study design and population

An institutional based study was conducted among sample mother who delivered at DHQ hospital Pakpattan following the inclusion criteria during the study period.

Samples size and sample technique

A sample of 232 female was selected based on random sampling by single proportion formula similar to recent study performed at Gonder Referral Hospital, Northern Ethiopia by using CI 95% and 5% error. Study participants were selected by random sampling technique.

$$\{n = \frac{(Z_{\alpha}/2)\ 2p\ (1-p)\}}{d^2}$$

Data collection tools

A well-developed questionnaire was prepared to collect all the relevant information among the study participants. Before the data collection, training session was given to the supervisor and data collectors so that chances of error could be minimize Ethical approval by the institutional independent ethical board was permitted. Also patient written consent was obtained from each participant.

Data analysis

Descriptive stat was carried out to find out magnitude of low birth weight babies. Bi-variate analysis which includes multivariate logistic regression was done to check which variable have association. Variable having significant association were identified on the basis of P-value ≤0.05, 95%CI and AOR. Data were analyzed by using of SPSS version 22.0.

RESULTS

Demographics characteristics

Among 232 mothers, the mean age for respondents was 26.6 years. More than half of the female having monthly income of 30000Rs per month from all sources, 25(10.7%) were divorced, 167(71.9) were literate, 167(71.9) were housewife and majority of them belongs to urban area as mention in table 1

Table 1 Participant's demographics characteristics

Variables	Category	N (%)
Age (years)	15-25	82(35.3)
	26-36	99(42.6)
	37-47	33(14.22)
	>47	18(7.7)
Marital Status	Married	187(80.6)
	Divorced	25(10.7)
	Widowed	20(8.6)
Educational status	Literate	167(71.9)
	Illiterate	65(28.1)
Occupation	Housewife	167(71.9)
	Employed	65(28.1)
Socio economic status	<15000Rs	35(15.0)
	15000-30000Rs	69(29.7)
	>30000Rs	128(55.3)
Residence	Urban	131(56.4)
	Rural	101(43.6)
Gestational age	<37 weeks	52(22.4)
	37-42 weeks	141(60.7)
	>42 weeks	39(16.8)
Neonate Gender	Male	122(52.6)
	Female	110(47.4)
Child birth weight	≥2.5 kg	207(89.2)
	1.5-2.499kg	19(8.2)
	1-1.5kg	6(2.6)

Magnitude of low birth Weight babies delivered

Only 19 (8.2%) child's were low birth weight babies, majority of them were males 122(52.6%). Less than 25% neonates were delivered before 37 week while 58.6% delivered between 37-42 gestation weeks. 19% the respondents were reported previous abortion, 34(14%) of females having a low birth weight in the previous history of pregnancy. 185 out of 232 females were following complete ante natal care follow-up. Checking the gravidity status of the patients, 70 (30.1%), 72 (31.0%) and 90(38.9%) were gravida one, gravida two, gravida three, and more respectively. In view of nutrition status of pregnant women's majority of them (80%) were having nutrition counseling and 150+ had taken additional nutrient dense diet during pregnancy.

Possible determents for low birth weight babies

Variables having p-value <0.2 consider as significant associated in the in the bi-variate analysis along with no anti-natal care follow-up, history of low birth weight baby, poor or no intake of additional nutrient dense diet in the past pregnancy, suffered from the pregnancy complication in the past pregnancy, baby sex and gestational age.

By using multiple logistic regressions low birth weight of the previous pregnancy, gestational age <37 weeks, and poor or no intake of additional nutrient dense diet during pregnancy were independent predictors for low birth weight. Females having past history of low birth weight were having >3 /0 times higher odd ratio then the counterparts [AOR=3.1(1.6-14.5)]. Females having intake of additional nutrient dense diet during pregnancy were having 5.0 times less odds ration then that of those who didn't receive nutrient dense diet and give birth to low birth weight babies [AOR= 5(1.9-18.0)]. Babies birth done before 37th weeks of gestational age were 2 times higher than that of neonates delivered at right term [AOR=2(1.4-10.4)] as shown in table 2.

Table 2 Participants demographics association

Variable	value	P-value	AOR (95% C.I.)	COR (95%CI)
ANC follow-up	Yes No	0.06	11.2(0.6-29.0)	5.9(1.3-4.6)
Additional diet	Yes No	*0.002**	5(1.9-18.0)	3(5.1-6.3)
Previous history of LBW	Yes No	*0.001**	3.1(1.6-14.5)	1.7(1.6-3.1)
Pregnancy complication	Yes No	0.09	3(0.3-7.09)	2(3.3-6.5)
Gestational age	Yes No	*0.004**	2(1.4-10.4)	4.5(1.3-2.5)
Infant sex	Male Female	0.08	3.1(0.2-4.7)	1.9(4.5-5.0)

NB: *significant association, P <0.05.
AOR=adjusted odds ratio.

DISCUSSION

Cross-sectional study was designed to find out the magnitude of low birth weight neonates and possible determents for population of district Pakpattan. Study findings represents that 8.2% of the neonates were low birth weight babies similar to the results of retrospective studies conducted at korowai District Hospital Tanzaia and India that were 9.1% and 11.0% respectively[1] while less than the global survey of low birth weight babies[2] and study conducted at Gonder University Hospital, Northwest Ethiopia and south west Ethiopia was 17.0%,[3] 17.4%[4] and 22.5%[1] respectively. The great variation in results might be due to difference in study population, study setup, study time and study design.

Study result shows that low birth was significantly associated to the gestational age. There was higher of odd ratio in females who gave birth before 37 weeks of gestational age in their last pregnancy were having higher risk of low birth neonates as compared to mothers who delivered at right term pregnancy; similar to study conducted at Mekele, Gondar and Jimma of Ethiopia region having value of 0.0001,[5] p-value<0.005,[6] and p-value<0.005[7] respectively.

Study didn't find significant association between socio-demographic status and low birth weight neonates. Multiple studies shown that socio-demographic factors; mother age, marital status, residential status, family educational status, family economic status, ethnicity, race and religion could manipulate low birth weight either directly or indirectly.[8]

Summary

The prevalence of low birth weight neonates of District Pakpattan delivered at District Head Quarter Hospital Pakpattan was high. Multiple factors including gestational age <37 weeks, previous pregnancy, poor or no intake of nutrient dense diet during the current pregnancy showed significant association with low birth weight. Based on the results the following recommendations are forwarded;

To implement successful strategies and proper intervention to reduce low birth weight neonates. Health care providers need to work with tire efforts to early detect and manage risk factors that cause pre-term delivery of the newborn. As pregnancy supposed, it is good to early visit to health facility and get counseling about importance of nutrition and the factors that leads to pre-term birth.

The most important is improvement in the socio-economic status because 30% of the Pakistan population is living below the poverty line so optimal interventions are made. For that health care providers need to work in the community to aware to mothers about the importance of balanced diet during pregnancy, consequence of previous pregnancy on current pregnancy along with proper antenatal care follow-up for the prevention of low birth weight newborns.

While there also must be focus on the mother education, awareness about the family planning to maintain family size and sustain birth gap between successive births as acknowledged by this study to improve the child nutritional status. In this best regard there is direct need of government, social stakes holder, mass media, nonprofit organizations, and public sector school and joint effort to extend nutrition awareness for public or in the communities to mitigate the child malnutrition.

Conflicts of Interest: The authors declare that they have no conflicts of interest.

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