IMPACT OF PHYSICAL HEALTH STATUS OF ANTENATAL MOTHERS ON THEIR NEONATES

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ABSTRACT

INTRODUCTION

Newborn health is closely related to that of their mothers. The simple indicators of the mother like haemoglobin level, height, weight, gestational age of the mother will give the first hand information of deviated health of the neonates.

MATERIAL AND METHODS

Descriptive correlation study was conducted to assess the impact of physical health status of antenatal mothers on their neonates, 170 antenatal mothers and their born neonates were selected by using purposive sampling. Semi-structured interview schedule, observation of record review and measurement of physical health parameters were used for data collection. A descriptive and inferential statistics were used to investigate the relationships between the variables of antenatal mothers with their neonates with SPSS software version 16.

RESULTS

The study findings revealed that the weight of the neonates has statistically significant correlation with the maternal weight, height, hemoglobin and maternal gestational weeks; length of the neonates has statistically significant correlation with the maternal height, maternal weight and maternal age; Gestational age (Ballard score) with the maternal gestational weeks and neonates birth weight; neonates head circumference has statistically significant with the maternal height, gestational weeks and maternal weight; chest circumference of the neonates has statistically significant with the maternal height and maternal weight.

CONCLUSION

The study concluded that there was a significant correlation between the selected maternal weight, height, hemoglobin and gestational weeks with neonatal weight; maternal height, weight, age with neonatal length, head circumference, chest circumference and maternal gestational weeks with neonate gestation age by Ballard score.

KEYWORDS Health status, antenatal mothers, neonates

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INTRODUCTION

Pregnancy is a physiological process which may pose a considerable risk both to mother and her newborn child. Adequate antenatal cares, maintenance of optimal nutrition by proper dietary advice are crucial for the favorable outcome of pregnancy. In order to conserve the energy expenditure, the mother should be advised adequate physical rest and relaxation during the last trimester of pregnancy, so that energy is spared for the growth of the fetus. Mothers with high risk factors should be detected early and given special care in the antenatal clinic. It is well accepted fact that only a healthy mother can give birth to a healthy baby, not only physical health but also psychological wellbeing.[1]

Though newborn health is closely related to that of their mothers, newborns have a unique need that must be addressed in the context of maternal and child health services. They further argued that millions of newborn deaths could be avoided if more resources were invested in proven low-cost interventions designed to address newborn needs.[2]

The top factors associated with LBW in Nepal are low maternal weight, low maternal height, low maternal body mass index, birth of previous infant and a birth interval of less than two years. Other factors are anemia, adolescence pregnancy, maternal illiteracy, rural residence and minimal antenatal care.[3] Health status of an antenatal mother is an important determinant of the child's survival and health. Good care, nutrition, physical exercise and mental makeup will result in a healthy baby. Most of the families in Nepal live in villages and many of them have lack of knowledge and awareness of the importance of antenatal care despite of availability of health facilities.

The simple indicators of the mother like hemoglobin level, height, weight, gestational age of the mother will give the first hand information of deviated health of the neonates. The correlation between birth weight with maternal age and parity with other anthropometric measures signifies the importance of the maternal health on neonatal outcome.

Objective of the study was to assess the physical health status of antenatal mothers, to identify the physical health status of neonates born to selected antenatal mothers and to find out the relationship between selected variables of antenatal mothers with the health of their neonates.

MATERIAL AND METHODS

Descriptive correlation study was conducted to assess the impact of physical health status of antenatal mothers on their neonates, 170 antenatal mothers and their born neonates were selected by using purposive sampling. The study was conducted in labor ward of Siddhartha Children and Women hospital (SCWH), Butwal-7, Rupandehi District.

Semi-structured interview schedule, observation of record review and measurement of physical health parameters were used for data collection. A descriptive and inferential statistics like the Karl Pearson's coefficient correlation was used to investigate the relationships between the variables of antenatal mothers with their neonates with SPSS software version 16. The researchers reached ward and obtained the written informed consent with each respondents for enrolment in this study. Data collection was done within 4 weeks (23rd Jan to 24th Feb. 2014). Administrative and ethical approval was obtained from the concerned authorities prior to data collection.

RESULTS

Most of (52.9%) mothers were in the age group of 21-25 years, 37.6% mothers had achieved secondary level of education, 54.1% were housewives, 80.6% were non-vegetarian, and 100% mothers had no any history of smoking and intake of alcohol. Most of mothers (65.9%) were primigravida, 28.8% were in 40 weeks of gestation, 90.6% had normal fetal heart sound during admission, 58.8% had spontaneous normal delivery and 41.2%, 7.6% had a history of pre-eclampsia. The majority of (94.7%) mothers had no history of disease present, 54.1% had normal systolic blood pressure and 0.6% had below normal systolic blood pressure. Majority (54.7%) mothers had normal blood pressure, 95.3% had normal hemoglobin level. Most of the mothers (58%) had between 50-60 kg weights during admission for delivery, 45.3% of mothers had 151-155 cm height.

Majority (87.6%) neonates had normal length, 85.2% of neonates had normal weight, 81.8% neonates had normal head circumference and 100% neonates had normal chest circumference. Maximum numbers 48.2% neonates were 38 weeks of gestational age by Ballard score.

Table 1. Correlation between maternal variables with neonatal weights n=170

Characteristics	Mean ± SD	Correlation	p-Value
Maternal weight during admission for delivery in kg	60.49± 7.65	0.525	<0.001*
Neonatal weight in kg	2.97± 0.54		
Maternal height in cm	155.46±5.21	0.306	<0.001*
Neonatal weight in kg	2.97± 0.54		
Maternal Hemoglobin (in gm %)	11.86 ± 1.21	0.191	0.013*
Neonatal weight in kg	2.97± 0.54		
Maternal Age	24.39 ± 4.53	0.043	0.574
Neonatal weight in kg	2.97± 0.54		
Maternal Gestational weeks	39 ± 1.58	0.273	<0.001*
Neonatal weight in kg	2.97± 0.54		

*Statistically significant at the level of (p=0.05)

Table 1 reveals the statistically significant correlation between the weights of the neonates with maternal weight (p<0.001), maternal height (p<0.001), maternal hemoglobin (p=0.013) and maternal gestational weeks (p<0.001). As weight, height and gestational weeks of the mother increases weight of the neonate also increases and there was no any correlation between the weights of neonates with maternal age.

Table 2. Correlation between maternal variables with neonatal lengths n=170

Characteristics	Mean ± SD	Correlation	P-Value
Maternal height in cm	155.46 ± 5.21	0.371	<0.001*
Neonatal length in cm	50.42± 2.13		
Maternal weight during admission for delivery in kg	60.49±7.65	0.191	0.012*
Neonatal length in cm	50.42± 2.13		
Maternal Age	24.39 ± 4.53	0.202	0.008*
Neonatal length in cm	50.42± 2.13		
Maternal Gestational weeks	39 ± 1.58	0.088	0.251
Neonatal length in cm	50.42± 2.13		

*Statistically significant at the level of (p=0.05)

Table 2 shows a statistically significant correlation between the lengths of the neonates with maternal height (<0.001), maternal weight gain during pregnancy (p=0.012), maternal age (p=0.008). As height, weight and age of the mothers increases the length of the neonate also increased and there was no any correlation between the lengths of the neonates with maternal gestational weeks.

Table 3. Correlation between maternal gestational weeks with gestational age (Ballard score) of the neonates n=170

Characteristics	Mean ± SD	Correlation	P-Value
Maternal Gestational Weeks	39 ± 1.58	0.490	<0.001*
Gestational age (Ballard Score) of the neonates	37.84 ± 1.43		

*Statistically significant at the level of (p=0.05)

Table 3 shows a statistically significant correlation between the gestational age (Ballard score) of the neonates with maternal gestational weeks (<0.001). As maternal gestational weeks increase, the gestational age of the neonates is also increased.

Table 4. Correlation between maternal variables with head circumference of the neonates n=170

Characteristics	Mean ± SD	Correlation	P-Value
Maternal Height in cm	155.46 ± 5.21	0.202	0.008*
Neonates Head Circumference	33.05 ± 0.72		
Maternal Gestational weeks	39 ± 1.58	0.179	0.020*
Neonates Head Circumference	33.05 ± 0.72		
Maternal Weight during admission for delivery in kg	60.49 ±7.65	0.355	<0.001*
Neonates Head Circumference	33.05 ± 0.72		

*Statistically significant at the level of (p=0.05)

Table 4 shows statistically significant correlation between the head circumference of the neonate with maternal height (p=0.008), maternal gestational weeks (p=0.020) and maternal weight gain during pregnancy (<0.001).

Table 5. Correlation between maternal variables with chest circumferences of the neonates n=170

Characteristics	Mean ± SD	Correlation	p-Value
Maternal Height in cm	155.46 ± 5.21	0.161	0.036*
Neonates Chest Circumference	30.75 ± 0.70		
Maternal Gestational weeks	39 ± 1.58	0.134	0.081
Neonates Chest Circumference	30.75 ±0.70		
Maternal Weight during admission for delivery in kg	60.49 ±7.65	0.327	<0.001*
Neonates Chest Circumference	30.75 ± 0.70		

*Statistically significant at the level of (p=0.05)

Table 5 shows there is statistically significant correlation between the chest circumferences of the neonate with maternal height (p=0.036) and maternal weight gain during pregnancy (<0.001). There is no significant correlation between the chest circumferences of the neonates with maternal gestational weeks.

DISCUSSION

About the correlation between neonatal weights with maternal variables, birth weight of the neonate is a primary indicator of neonate morbidity and mortality. The study found that there is a statistically significant correlation between the neonatal weight and maternal weight (p<0.001*), maternal height (p <0.001*), maternal gestational age (p<0.001*) and maternal hemoglobin (p=0.013*). There was no statistically significant between birth weight with maternal age (p=0.574). The finding of this study is consistent with the study of Hassan, Shalaan and Masry (2008) in Egypt which showed that, correlation tests between maternal and neonatal anthropometric measurements maternal weight as well as height had a significant correlation with the neonatal birth weight and but contradictory findings statistically negative correlations was found between maternal hemoglobin levels and birth weight.[4]

The findings of the study showed that there was a statistically significant between neonatal lengths with maternal height (p<0.001*), maternal weight (p=0.012*), and maternal age (p=0.008*). There is no statistically significant with gestational weeks. This study is consistent with the study of Hassan, Shalaan and Masry (2008) in Egypt which concluded that the maternal weight as well as height had a positive correlation with neonatal birth weight and length.[4]

The findings of the study showed that there was statistically significant correlation between gestational age (Ballard score)

of the neonates with birth weights of the neonates (p= <0.001*). This study is consistent with the study of Feleke&Enquoselassie (1999) Ethiopia, the study concluded that on the multivariate analysis, gestational age and sex of the newborn respectively had significant effects on birthweight, length and head circumference of the neonates.[4]

The findings of the study showed that there was a statistically significant correlation between the head circumference of the neonates with maternal weeks of gestation (p=0.020*), maternal weight gain during pregnancy (p= <0.001*) and the maternal height (p= 0.008*). This study is consistent with the study of Feleke and Enquoselassie (1999) Ethiopia. On the multivariate analysis, gestational age had significant effects on the birth weight, length and head circumference of the neonates.[5]

The findings of the study showed that there was a statistically significant correlation between the chest circumference of the neonates with maternal weight gain during pregnancy (p= <0.001*) and the maternal height (p= 0.036*) and there was no any significant correlation between the chest circumference of the neonates with maternal weeks of gestation (p=0.081).

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