

The relationship between mother's lifestyle during pregnancy with the low birth weight

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Abstract

Introduction: Low birth weight (LBW) is one of the major health problems worldwide. Birth weight is one of the most important and reliable health indicators for evaluation of infant's health. The primary cause of low birth weight is premature birth (being born before 37 weeks gestation). Another cause of low birth weight is intrauterine growth restriction (IUGR). There are other factors that can also contribute to the risk of very low birth weight. These include: race, age, multiple birth, mother's health. On the other side, mother's lifestyle is an important determinant of general and reproductive health. Lifestyle consists of seven dimensions: nutrition, tobacco, alcohol and drug use, physical activity, occupational factors, social relations, self-care and stress.

Aim of the study: The purpose of this study is to provide an insight into the causal relationship between the major components of one of the most important social determinants, the mother's lifestyle (maternal age, mother's nutrition during pregnancy, alcohol use, cigarettes and drugs during pregnancy) and low birth weight as one of the most unfavorable outcomes. The results should serve to improve prevention and develop local programs and recommendations for promotion and highlighting how low birth weight is a significant problem in society, relying on accurate data.

Material and methods: As a material, the health documentation was explored (medical histories) of pregnant women admitted at the University Clinic of Gynecology and Obstetrics in Skopje. Statistically, there were processed 50 health documents randomly selected, in the period from July to September 2018.

Results: With the help of this study, it will be possible to identify the link between mother's lifestyle and low birth weight. In the group of 15 to 19 years, 60% had a newborn with low birth weight, in the group from 20 to 35 years 40% had a newborn with low birth weight and in the group over 35 years, 73% had a newborn with low birth weight. 68% of pregnant women who reported excessive weight gain during pregnancy had a newborn with low birth weight. In pregnant women where no overweight has been observed during the pregnancy, 41% of the newborns had low birth weight. In the group that used abusive substances only in part of the pregnancy, 60% had a newborn with low birth weight. In the group that used abusive substances during the whole pregnancy, 90 % had a newborn with low birth weight. In the group that didn't use any abusive substances during the pregnancy, 20% had a newborn with low birth weight.

Conclusion: This research of lifestyle dimensions showed the importance and the role of lifestyle as an important determinant affecting birth weight, attention, and training interventions are important to promote healthy lifestyles in pregnant women.

Keywords: mother, lifestyle, low birth weight, social determinants.

Introduction

Low birth weight (LBW) is one of the major health problems worldwide. Birth weight is one of the most important and reliable health indicator for evaluation of infant's health. (1) According to the World Health Organization low birth weight is a term used to describe babies who were born with less than 2,500 grams birth weight. (2) LBW infants are more prone to risks such as mental retardation, neurological disabilities, respiratory diseases, sudden death syndrome, and complications from being hospitalized in the intensive care. (3-8)

The primary cause of low birth weight is premature birth (being born before 37 weeks of gestational age). Being born early means a baby has less time in the mother's uterus to grow and gain weight. Much of the baby's weight is gained during the latter period of pregnancy. Another cause of low birth weight is intrauterine growth restriction (IUGR). This occurs when a baby does not grow well during pregnancy because of problems with the placenta, the mother's health, or the baby's condition. A baby can have IUGR and be born at full term (37 to 41 weeks). Babies with IUGR born at term may be physically mature, but may be weak. Premature babies that have IUGR are both very small and physically immature. Any baby born prematurely is more likely to be very small.

A low birth weight baby will fall into one of 3 categories:

- Low birth weight (LBW): a LBW baby weighs less than 2500 grams.
- Very low birth weight (VLBW): a VLBW baby weighs less than 1500 grams.
- Extremely low birth weight (ELBW): a ELBW baby weighs less than 1000 grams.

However, there are other factors that can also contribute to the risk of very low birth weight. These include:

- Race: African-American babies are two times more likely to have low birth weight than white babies.
- Age: Teen mothers (especially those younger than 15 years old) have a much higher risk of having a baby with low birth weight.
- Multiple birth: Multiple birth babies are at increased risk for low birth weight because they are often premature. Over half of twins and other multiples have low birth weight.
- Mother's health: Babies of mothers who are exposed to illicit drugs, alcohol, and cigarettes are more likely to have low birth weight. Mothers of lower socioeconomic status are also more likely to have poorer pregnancy nutrition, inadequate prenatal care, and pregnancy complications - all factors that can contribute to low birth weight.

A baby with low birth weight may be at increased risk for complications. The baby's tiny body is not as strong and he or she may have a harder time eating, gaining weight, and fighting infection. Because they have so little body fat, low birth weight babies often have difficulty staying warm in normal temperatures. Because many babies with low birth weight are also premature, it is can be difficult to separate the problems due to the prematurity from the problems of just being so tiny. In general, the lower the birth weight, the greater the risk for complications.

The following are some of the common problems of low birth weight babies:

- Low oxygen levels at birth
- Inability to maintain body temperature
- Difficulty feeding and gaining weight
- Infection

- Breathing problems, such as infant respiratory distress syndrome (a respiratory disease of prematurity caused by immature lungs)
- Neurologic problems, such as intraventricular hemorrhage (bleeding inside the brain)
- Gastrointestinal problems, such as necrotizing enterocolitis (a serious disease of the intestine common in premature babies)
- Sudden infant death syndrome (SIDS) (9)

On the other side, mother's lifestyle is an important determinant of general and reproductive health. Lifestyle consists of seven dimensions: nutrition, tobacco, alcohol and drug use, physical activity, occupational factors, social relations, self-care and stress. During pregnancy most women try to make conscious efforts to do everything they can to help them have a healthy baby. Pregnant women are very emotionally vulnerable and can feel like they are tiptoeing through a mine-field of potential dangers, needing to consider every step they take, for fear of placing a foot in the wrong place. Changing some lifestyle factors may help pregnant women slightly improve their chances of having a healthy baby, but there are no guarantees. In addition, not all aspects of the environment are within their control. Factors such as environmental pollutants, electronic communication waves, pesticides and food chemicals surround pregnant women every day and there is little they can do to try and avoid them. In the same sense, nature can seem like it has no justice. (10)

Material and methods

As a material, the health documentation (medical histories) of pregnant women who were admitted at the University Clinic of Gynecology and Obstetrics in Skopje. There were 50 patients included in the study, randomly selected, within the period July to September 2018. Selection criteria for pregnant women which were part of this research were the following:

- pregnant women of 15 to 45 years of age
- no drugs were used in pregnancy that would affect birth weight.

Results and discussion

Out of 50 processed health records, 40% are aged 15 to 19, 30% are aged 20 to 35 and 30% are over 35 years of age. In the group of 15 to 19 years, 60% had a newborn with low birth weight, in the group from 20 to 35 years 40% had a newborn with low birth weight and in the group over 35 years, 73% had a newborn with low birth weight. (Figure 1)

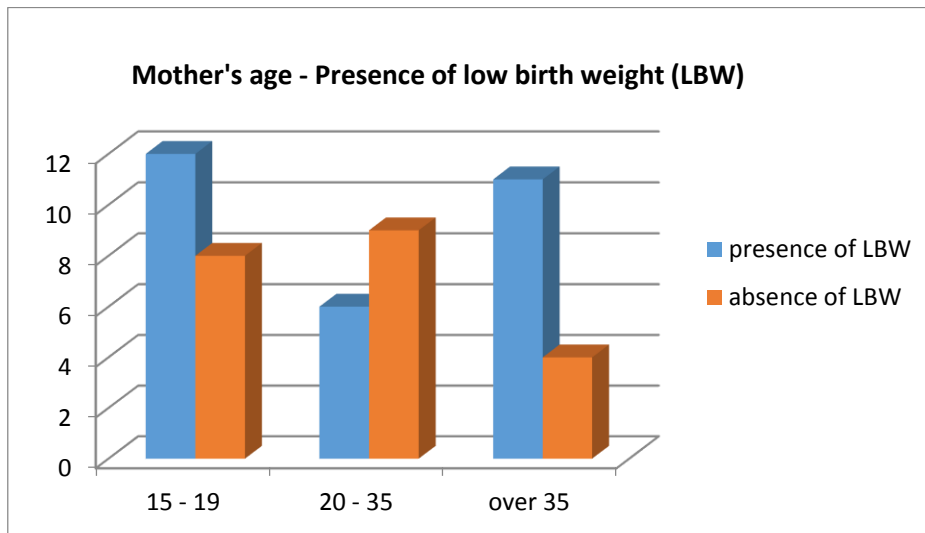


Figure 1: The connection between mother's age and low birth weight

The prevalence of LBW tended to be highest among adolescents and among mothers older than 34 years. This study has showed increased risks of low birth weight (LBW) among offspring of adolescent mothers defined as women <20 years). More recently, the concern about adverse perinatal outcomes has also shifted towards older mothers as the number of births to women over 35 years is increasing in both high-income countries and middle-income countries. Several mechanisms have been suggested to explain these associations. With respect to adolescent mothers, it has been suggested that they are still developing and growing, and therefore, mother and offspring may compete for the supply of nutrients. At older ages, women are more likely to have pre-existing, possibly undiagnosed diseases or poor health, including reduced cardiovascular reserve, which could result in poor placentation and LBW.

Furthermore, adverse perinatal outcomes in older mothers might be related to relative infertility, which could influence the likelihood of preterm births and LBW. At both ends of the age spectrum, the relationship between maternal age and adverse offspring outcomes may be strongly confounded by socio-economic status (SES). (11)

Out of the 50 medical documents processed, 56% pregnant women reported excessive weight gain during pregnancy. Of these, 68% had a newborn low birth weight. In pregnant women where no overweight has been observed during the pregnancy, 41% of the newborns had low birth weight. (Figure 2)

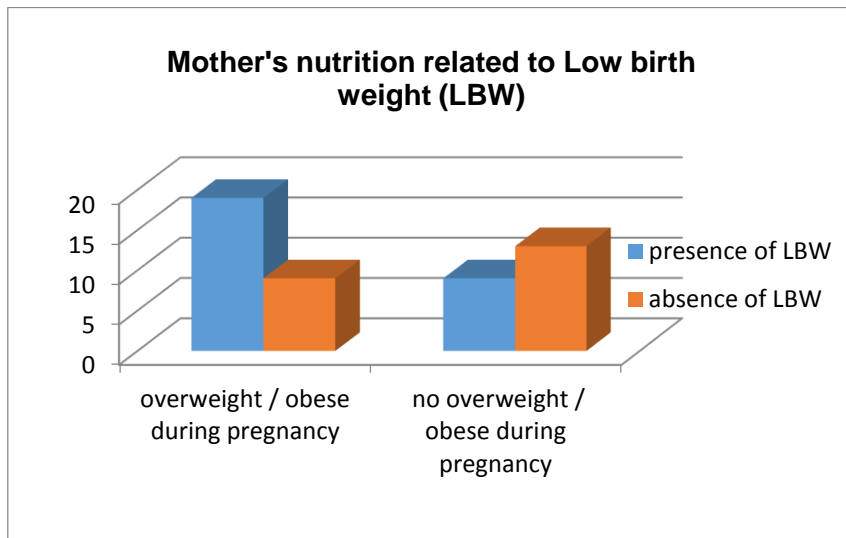


Figure 2: The connection between mother's nutrition during pregnancy and presence of low birth weight

Overweight and obese women had an increased risk of having an infant of very low birth weight (<1500 g) or extremely low birth weight (<1000 g). The heavier the woman, the higher the risk of having an extremely low birth weight infant, with relative risks in overweight. Inappropriate weight gain during pregnancy reflects the deficiency of nutrients essential for the fetus. Mothers are the only source of nutrition for a fetus, and if mothers do not have favorable nutrition for any reason, their fetus does not receive essential nutrients for their growth. Maternal nutrition, encompassing maternal dietary intake, circulating concentrations, uteroplacental blood flow, and nutrient transfer across the placenta, influences birth weight. Studies have shown that poor fetal growth can result from a deficiency of protein and energy as well as inadequate intake of micronutrients especially during the rapid growth stages of early pregnancy. (12)

Drinking of big amount of alcohol by pregnant women is associated with a range of adverse consequences to the developing fetus. The most studied adverse outcome is fetal alcohol syndrome (FAS). Heavy drinking by pregnant women is associated with adverse consequences particularly for the fetus. Prenatal alcohol exposure has been found to result in restricted growth of the fetus, prematurity, and LBW. While the exact effect of maternal drinking on LBW is not known, it is has been explained as a result of elevated levels of prostaglandins in the fetal tissues, which contribute to the initiation and progression of labor. (13) The results indicated that in all birth year groups, infants whose mothers smoked during pregnancy were more likely to be of low birth weight compared to infants with nonsmoking mothers. The higher the number of cigarettes the woman smoked during pregnancy, the lighter birth weight found. Cocaine use in pregnancy has been associated with low birth weight. (Figure 3).

Out of 50 medical documents processed, 30% of the women never used any abusive substances, 30% used only in part of the pregnancy and 40% have used some substance during the whole pregnancy. In the group that used abusive substances only in part of the pregnancy, 60% had a newborn with low birth weight. In the group that used abusive substances during the whole pregnancy, 90 % had a newborn with low birth weight. In the group that didn't use any abusive substances during the pregnancy, 20% had a newborn with low birth weight. (Figure 3)

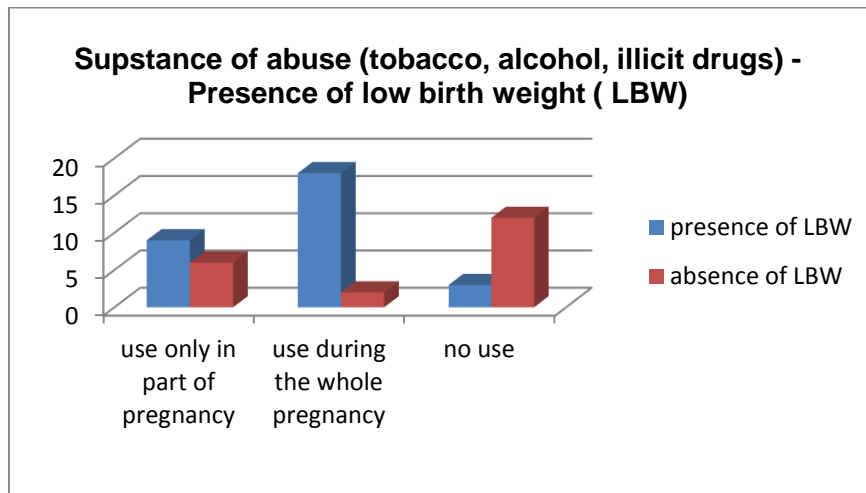


Figure 3: The relationship between substance of abuse and and Low birth weight

Conclusion

This research of lifestyle related to pregnancy outcome showed that all these three dimensions directly, indirectly, or both affected birth weight. Thus, given the importance and the role of lifestyle as an important determinant affecting birth weight, attention, and training interventions are important to promote healthy lifestyles in pregnant women. Mothers, by living a healthy lifestyle and thus creating a healthy 'environment' for their children, can help curb the risk of childhood obesity.

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