

ORIGINAL RESEARCH

Assessment of association between maternal lifestyle factors and low birth weight in preterm and term births

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Revised date: 18 December, 2023

Acceptance date: 20 January, 2024

ABSTRACT

Background: The present study was conducted to assess the association between maternal lifestyle factors and low birth weight in preterm and term births. **Materials & Methods:** 90 singleton pregnancies were divided into 3 groups. Group I were normal birth weight, group II were preterm LBW and group III were term LBW. Parameters such as education, marital status, SES, smoking, drinking, physical activity etc. were recorded. **Results:** Marital status was married in 22, 20 and 17 and unmarried/divorced in 8, 10 and 13 in group I, II and III respectively. Education was illiterate in 5, 9 and 12 and high & above in 25, 21 and 18 in group I, II and III respectively. SES was upper in 20, 16 and 4, middle in 8, 5 and 12 and lower in 2, 9 and 14 in group I, II and III respectively. The difference was significant ($P < 0.05$). Habitual alcoholism was present in 6, 14 and 10. Coffee or tea was 1-2 cups per day in 25, 11 and 16, and >2 cups per day in 5, 19 and 14 subjects. The smoking habit was seen in 7, 13 and 11 subjects. Physical activity was nil in 4, 13 and 10 subjects in group I, II and III respectively. **Conclusion:** Authors found that expectant mothers ought to understand the harmful consequences of smoking and know how to shield themselves from passive smoke. There was an association between low physical activity, smoking alcoholism and low SES with low birth weight babies.

Keywords: child health, mother, Pregnancy

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INTRODUCTION

One of the biggest threats to mother and child health in both developed and developing nations is low birth weight. A significant factor in determining death, morbidity, and disability throughout early life, it also affects adult health outcomes in the long run.¹ It is a trustworthy metric for tracking and assessing the effectiveness of programs for mother and child health. Low birth weight is seen as a sensitive indicator of the health and development of a country. Small for gestational age refers to newborns weighing less than the 10th percentile or more than two standard deviations below the mean for their gestational age.² In developing nations like India, this group of newborns with inadequate intrauterine growth continues to be a matter for worry. In India, 25–30% of babies are born with low birth weights (LBW), with 60–65% of these cases being caused by intrauterine growth retardation (IUGR).³

Physical activity and inadequate gestational weight gain were linked to low birth weight in the preterm low birth weight group. Conversely, both excessive and insufficient gestational weight increase were substantially linked to low birth weight in the term low birth weight group. Moreover, mothers who were exposed to passive smoking in the term low birth weight group were more likely to give birth to low birth-weight children.⁴ The present study was conducted to assess the association between maternal lifestyle factors and low birth weight in preterm and term births.

MATERIALS & METHODS

The present study consisted of 90 singleton pregnancy. All gave their written consent to participate in the study.

Data such as name, age, etc. was recorded. Patients were divided into 3 groups. Group I were normal birth

weight, group II were preterm LBW and group III were term LBW. Group II were singleton births with a birth weight < 2500 g and gestational age < 37 weeks. The group III were singleton births with a birth weight < 2500 g and gestational age ≥ 37 weeks.

Parameters such as education, marital status, SES, smoking, drinking, physical activity etc. were recorded. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Socio-demographic variables

Parameters	Variables	Group I	Group II	Group III	P value
Marital status	Married	22	20	17	0.05
	Unmarried/divorced	8	10	13	
Education	Illiterate	5	9	12	0.03
	High & above	25	21	18	
SES	Upper	20	16	4	0.01
	Middle	8	5	12	
	Lower	2	9	14	

Table I shows that marital status was married in 22, 20 and 17 and unmarried/divorced in 8, 10 and 13 in group I, II and III respectively. Education was illiterate in 5, 9 and 12 and high& above in 25, 21 and

18 in group I, II and III respectively. SES was upper in 20, 16 and 4, middle in 8, 5 and 12 and lower in 2, 9 and 14 in group I, II and III respectively. The difference was significant (P< 0.05).

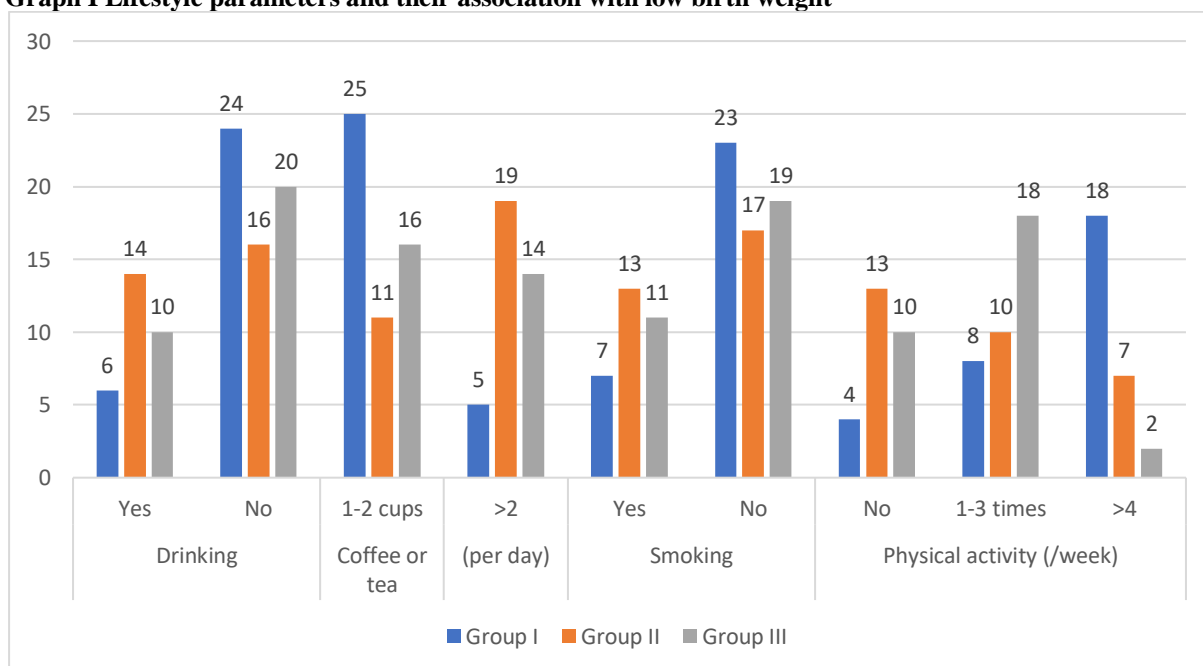
Table II Lifestyle parameters and their association with low birth weight

Parameters	Variables	Group I	Group II	Group III	P value
Drinking alcohol	Yes	6	14	10	0.04
	No	24	16	20	
Coffee or tea (per day)	1-2	25	11	16	0.05
	>2	5	19	14	
Smoking	Yes	7	13	11	0.03
	No	23	17	19	
Physical activity (/week)	No	4	13	10	0.02
	1-3	8	10	18	
	>4	18	7	2	

Table II, graph I show that habitual alcoholism was present in 6, 14 and 10. Coffee or tea was 1-2 cups per day in 25, 11 and 16, and >2 cups per day in 5, 19 and

14 subjects. The smoking habit was seen in 7, 13 and 11 subjects. Physical activity was nil in 4, 13 and 10 subjects in group I, II and III respectively.

Graph I Lifestyle parameters and their association with low birth weight



DISCUSSION

Birth weight has been linked to numerous lifestyle factors. Prior research has demonstrated that increased rates of LBW may result from drinking, smoking or being around second-hand smoke, engaging in physical activity, and consuming different amounts of calories. Nonetheless, inconsistent findings have been reported in certain research looking at the connection between LBW and lifestyle variables.^{5,6} Research has indicated that the majority of lifestyle factors affect the birth weight of preterm and term infants differently.^{7,8} The present study was conducted to assess the association between maternal lifestyle factors and low birth weight in preterm and term births.

We found that marital status was married in 22, 20 and 17 and unmarried/divorced in 8, 10 and 13 in group I, II and III respectively. Education was illiterate in 5, 9 and 12 and high & above in 25, 21 and 18 in group I, II and III respectively. SES was upper in 20, 16 and 4, middle in 8, 5 and 12 and lower in 2, 9 and 14 in group I, II and III respectively. Xi et al⁹ explored the effect of lifestyle on low birth weight in preterm and term births. Women who delivered preterm and were physically active (1–3 times per week and ≥ 4 times per week) had reduced odds of having low birth weight babies (aOR = 0.584, 95%CI = 0.394–0.867 and, aOR = 0.516, 95%CI = 0.355–0.752, respectively). Pregnant women who had insufficient gestational weight gain had increased odds of having low birth weight babies (aOR = 2.272, 95%CI = 1.626–3.176). Women exposed to passive smoking had an increased risk of delivering low birth weight infants (aOR = 1.404, 95%CI = 1.057–1.864). Insufficient gestational weight gain and excessive gestational weight gain were both significantly associated with low birth weight (aOR = 1.484, 95%CI = 1.103–1.998 and aOR = 0.369, 95%CI = 0.236–0.577, respectively) for term deliveries. In addition, parity, history of low birth weight, antenatal care and gestational hypertension were significantly associated with the likelihood of low birth weight.

We observed that habitual alcoholism was present in 6, 14 and 10 subjects respectively. Coffee or tea usage was 1–2 cups per day in 25, 11 and 16, and >2 cups per day in 5, 19 and 14 subjects. The smoking habit was seen in 7, 13 and 11 subjects. Physical activity was nil in 4, 13 and 10 subjects in group I, II and III respectively. Gulland et al¹⁰ calculated the adjusted odds ratio for babies being small for gestational age was 1.7 (95% confidence interval 0.9 to 3.1) for an alcohol intake of ≤ 2 units a week and 2.0 (1.2 to 3.4) for an intake of >2 units a week in the first trimester (P for trend = 0.03) in comparison with no drinking. These associations were attenuated in the second and third trimesters. Looking at prematurity, the authors said that in comparison with non-drinkers in the first trimester, the adjusted odds ratio for women having a preterm baby was 4.6 (1.4 to 14.7) for

alcohol consumption of ≤ 2 units a week and 3.5 (1.1 to 11.2) for consumption of >2 units a week. For consumption in the four weeks before pregnancy and in the second and third trimesters the association was not significant.

The limitation of the study is the small sample size.

CONCLUSION

Authors found that expectant mothers ought to understand the harmful consequences of smoking and know how to shield themselves from passive smoke. There was an association between low physical activity, smoking alcoholism and low SES with low birth weight babies.

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