

ABSTRACT

Introduction- Adverse pregnancy outcome may be classified as maternal and foetal outcomes. Adverse maternal outcome occurs in relation to maternal medical complications of which pregnancy induced hypertension, ante partum haemorrhage and gestational diabetes are considered as important conditions. Foetal outcome occurs in terms of spontaneous abortions, pre term birth, low birth weight and small for gestational age. There are several aetiological factors associated with both adverse maternal and foetal outcome and some of these factors are common to more than one condition and are well established as risk factors. However, the role of physical activity and psychosocial stress still remains controversial.

Objective- The objective of the study was to assess the effect of physical activities and psychosocial stress on pregnancy outcome.

Methodology- This was a prospective cohort study, which was carried at two MOH areas in the Gampaha district, Sri Lanka, during the period of May 2001 to April 2002. The sample size consisted of 820 pregnant mothers, who were recruited on or before 16 weeks of gestation and followed up until partus. Physical activity was assessed by two methods. First method was by assessing the duration of specific postures adopted per day by the mothers in each trimester. Second method was by calculating the energy expenditure in the second and third trimesters based on three-day activity record in which activities carried out on a given day was recorded every 15 minutes. Energy expenditure was calculated based on the activities carried out by using two methods. Method I was based on BMR and activity factor while method II was based on mean energy cost of each activity group. Psychosocial stress was assessed using the modified life event inventory and the general health questionnaire-30. Trimester specific exposure status along with potential confounding factors were gathered in each trimester. Ultrasound scan was performed to determine the gestational age based on foetal bi-parietal diameter. Pregnancy outcome was determined in terms of spontaneous abortions, pre-term birth, small for gestational age, low birth weight and adverse maternal outcome. Multivariate logistic regression analysis was applied in each trimester for controlling of confounding factors and the results were expressed in odds ratios and their 95% confidence intervals.

Results – Walking for > 2.5 hours/day was a protective factor for spontaneous abortions (OR = 0.31; 95%CI = 0.10 – 0.91). Standing for > 2.5 hours/day was a protective factor for PTB in the first (OR = 0.28; 95%CI = 0.12 – 0.64) second (OR = 0.40; 95%CI = 0.18 – 0.88) and third (OR = 0.32; 95%CI = 0.11 – 0.92) trimesters. Combined standing and walking for > 4 hours/day was a protective factor for LBW in the first trimester (OR = 0.42; 95%CI = 0.19 – 0.92). Sleeping for ≤ 8 hours/day was a risk factor for LBW in the third trimester (OR = 4.48; 95%CI = 1.69 – 11.8). Energy expenditure of > 2550 kcal/day was a risk factor for adverse maternal outcome in the second trimester (OR = 7.74; 95%CI = 1.74 – 34.3). However, it was a protective factor for SGA in the third trimester (OR = 0.40; 95%CI = 0.16 – 0.97). Work schedule and work exposure was a risk factor for PTB in the first trimester (OR = 2.30; 95%CI = 1.16 – 4.54) and SGA in the third trimester (OR = 3.36; 95%CI = 1.34 – 8.43).

Experience of ≥ 2 life events was a risk factor for adverse maternal outcome in the first (OR = 2.68; 95%CI = 1.05 – 6.88) and the second (OR = 3.59; 95%CI = 1.36 – 9.48) trimesters and for PTB in the second trimester (OR = 1.98; 95%CI = 1.00 – 3.91).

Conclusions – The risk factors identified were not the same for all the outcomes studied which also varied from trimester to trimester. In summary psychosocial stress has been observed to be a risk factor for adverse maternal outcome and PTB in the second trimester. Less active pregnant mothers are at a higher risk of having spontaneous abortions, PTB, SGA and LBW babies. However more active pregnant mothers are at a higher risk of having adverse maternal outcome. Therefore regular physical activities should be promoted for pregnant mothers who do not have medical or maternal complications. Pregnant mothers those who have psychosocial stress are more at risk of having adverse maternal outcome and PTB, therefore establishment of social support systems and counselling may be recommended.

Key words – physical activity, psychosocial stress, spontaneous abortions, adverse maternal outcome, pre term birth, small for gestational age, low birth weight.