



Risk Factors of Subfecundity, Low Birth Weight and Premature Births with Special Emphasis on Occupational Exposures in Southern Thailand

Ph.D. thesis

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Abstract

The aim of this investigation was to study adverse reproductive outcomes, especially subfecundity, small-for-gestational-age and premature delivery related to occupational exposures and socioeconomic factors among pregnant women in southern Thailand.

To investigate subfecundity, a consecutive sample of 1496 pregnant women who received antenatal care at two public hospitals in Hatyai city from March to November 1995 was selected. Exposure data were obtained from a questionnaire developed by the European Study Group on Infertility and Subfecundity (ESIS). Consequently, the Thai data were compared with the ESIS data from 4035 pregnant women in 5 European countries. Subfecundity measured as time to pregnancy (TTP), showed no difference between the Thai and the European samples. However, Thai primigravida had statistically shorter TTPs than European women (p-value 0.021: logrank test) whereas TTP was longer, although not statistically significant, among Thai multigravida (p-value 0.067: logrank test).

Women or couples who reported working more than 60 hours/week were at increased risk of subfecundity compared to those with shorter working hours. Shift work was not associated with subfecundity for either men or women.

A study of pregnancy outcome such as low birth weight, small-for-gestational-age and premature delivery was conducted in a fixed cohort of 1797 pregnant women attending the antenatal care clinics at the same two hospitals. The pregnant women were interviewed at 17th and at 32nd week of gestation using two different questionnaires. Outcome data were obtained from the medical records and the gestational age of every newborn was estimated using Dubowitz's score. No association between birth weight and indicators of socioeconomic status (family socioeconomic status, maternal education, maternal occupation and work exposure characteristics) was seen, but birth weight was decreased in families with low income. None of the dichotomous outcomes (low birth weight, small-for-gestational-age and preterm delivery) was found to be associated with any of the socioeconomic indicators. The adverse influence of low socioeconomic status on pregnancy outcome was small in this population compared with that of biological factors such as maternal weight, height, age, obstetrical complications, gender of the newborn and use of antenatal care facilities.

Risk factors for small-for-gestational-age were; working more than 50 hours/week, working in squatting position, commuting more than 1 hour/day and high psychological job demand. The risk of low birth weight increased with working more than 50 hours per week, lifting at chest level and carrying loads of more than 12 kgs at work. The risk of preterm delivery increased with obstetrical complications and was weakly associated with long working hours and lifting lower than waist level. In this study the effect of long working hours on birth weight was apparently to be mediated rather through an effect on fetal growth than by shortening pregnancy duration. Women who were continually exposed throughout pregnancy to long working hours, commuting or high psychological job demand were at risk of having small-for-gestational-age infant, but not of preterm delivery.

Key words: subfecundity, long working hours, low birth-weight, small-for-gestational-age, premature delivery, fetal growth, socioeconomic indicators, physical workload.