INTRODUCTION: Preterm (PT) birth is associated to perinatal morbidity and mortality. Its prevalence is increasing in many countries and the complexity of factors associated has been investigated.

METHODS: To analyze the effects of observed variables and latent variables was used a conceptual framework via exploratory structural equations modeling and the confirmatory approaches in a case-control study in Londrina/PR, Brazil (Jun/06 to Mar/07). Continuous latent variables generated represent the constructs socioeconomic vulnerability (SEV), family structure pattern (FSP) and non-acceptance of pregnancy (NAP). The classification of prenatal care was defined according to the time of the 1st appointment and tests performed. PT births were evaluated through gestational age (GA) as a continuous variable. The latent variables involved and the full model generated were built and validated with the weighted least square estimator in the software MPlus.

RESULTS: SEV comprises number of residents per rooms (std.coef.: 0.66; \( P < 0.001 \)), income per capita (−0.87; \( P < 0.001 \)), maternal education (0.84; \( P < 0.001 \)), education of household head (0.73; \( P < 0.001 \)), place of residence (0.65; \( P < 0.001 \)). FSP was formed by family type (0.91; \( P < 0.001 \)), having a partner < 2 years (0.72; \( P < 0.001 \)), presence of elderly (0.76; \( P < 0.001 \)), mother relationship with household head (0.82; \( P < 0.001 \)). NAP considers negative reactions to the pregnancy of mother (0.81; \( P < 0.001 \)), father (0.84; \( P < 0.001 \)), family (0.83; \( P < 0.001 \)).

The effects on GA included direct effects of prenatal care (−0.32; \( P < 0.001 \)), pregnancy complications (−0.50; \( P < 0.001 \)); NAP (0.19; \( P < 0.03 \)), alcohol use (−0.11; \( P < 0.01 \)); multiparity (−0.25; \( P < 0.01 \)). There is also an indirect effect of NAP (0.20; \( P < 0.02 \) and multiparity (−0.28; \( P < 0.001 \)) was mediated through prenatal care. SEV (0.12; \( P < 0.05 \)) and FSP (0.17; \( P < 0.05 \)) showed only an indirect effect on GA mediated through prenatal care. It was found a direct effect of NAP (0.11; \( P < 0.05 \)) and SEV (0.20; \( P < 0.04 \)) on the prenatal care.

CONCLUSIONS: SEM allowed dealing with latent variables and also observed variables to understand the effects on the outcome. FSP and SEV only express its effect mediated by prenatal care.