



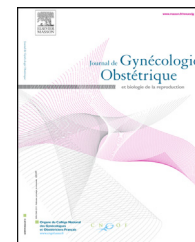
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ORIGINAL ARTICLE

# Risk factors of preterm birth in France in 2010 and changes since 1995: Results from the French National Perinatal Surveys

*Facteurs de risque de prématurité en France en 2010 et évolution depuis 1995 : résultats des enquêtes nationales périnatales*

C. Prunet<sup>a</sup>, M. Delnord<sup>a</sup>, M.-J. Saurel-Cubizolles<sup>a</sup>,  
F. Goffinet<sup>a,b</sup>, B. Blondel<sup>a,\*</sup>

<sup>a</sup> Inserm UMR 1153, Obstetrical, Perinatal and Pediatric Epidemiology Research Team (Epopé), Center for Epidemiology and Statistics, Sorbonne Paris Cité, DHU Risks in pregnancy, Paris Descartes University, 75014 Paris, France

<sup>b</sup> Maternité Port-Royal, Paris Descartes University, Cochin Broca Hôtel-Dieu Hospital, AP–HP, DHU Risks in pregnancy, 75014 Paris, France

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## KEYWORDS

Preterm birth;  
Risk factors;  
Delivery;  
France;  
National perinatal surveys

## Summary

**Objectives.** – To investigate risk factors of total, spontaneous and induced preterm birth in 2010 and differences between 1995 and 2010.

**Material and methods.** – The national perinatal surveys are based on a representative sample of births in France. We selected live-born singletons ( $n=14,326$  in 2010 and 12,885 in 1995) and used multiple regression analyses to calculate adjusted odds ratios (aOR) for maternal sociodemographic characteristics, obstetric history, prenatal care and smoking.

**Results.** – The main risk factors in 2010 were parity 1 compared to parity 2 (aOR=1.9 [95% CI 1.5–1.3]), previous preterm delivery (aOR=6.6 [5.0–8.7]), pre-pregnancy body mass index < 18.5 compared to 18.5–24.9 kg/m<sup>2</sup> (aOR=1.7 [1.4–2.2]), level of education completed: high school or less, inadequate prenatal care and cannabis use. Most risk factors of spontaneous and induced preterm births were similar. Compared to 1995, maternal age  $\geq 35$  years and previous induced abortion were no longer associated with preterm birth in 2010.

\* Corresponding author at: Inserm UMR 1153, maternité de Port-Royal, 53, avenue de l'Observatoire, 75014 Paris, France.  
E-mail address: [beatrice.blondel@inserm.fr](mailto:beatrice.blondel@inserm.fr) (B. Blondel).

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## MOTS CLÉS

Prématurité ;  
Facteurs de risque ;  
Accouchement ;  
France ;  
Enquête nationale  
périnatale

**Conclusion.** – Identified risk factors for preterm birth in France in 2010 agree with the literature. Increases in baseline rates for maternal age and medically induced abortions may explain changes in certain preterm birth risk factors.

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## Résumé

**But.** – Étudier les facteurs associés à la prématurité totale, spontanée et induite en 2010, et leurs évolutions depuis 1995.

**Matériel et méthodes.** – Les enquêtes nationales périnatales sont fondées sur des échantillons représentatifs des naissances en France. L'analyse a porté sur les singletons nés vivants ( $n = 14\,326$  en 2010 et  $12\,885$  en 1995). Des *odds ratios* ajustés (ORa) ont été estimés par des régressions logistiques pour les caractéristiques socio-démographiques, les antécédents obstétricaux, le suivi prénatal et les consommations de substances.

**Résultats.** – Les principaux facteurs associés à la prématurité en 2010 étaient la primiparité (ORa = 1,9 [1,5–1,3]) par rapport à une parité, les antécédents d'enfants nés prématurés (ORa = 6,6 [5,0–8,7]), un IMC < 18,5 kg/m<sup>2</sup> (ORa = 1,7 [1,4–2,2]), un niveau d'études inférieur ou égal au lycée, un suivi prénatal inadéquat et la consommation de cannabis. Les principaux facteurs liés à la prématurité spontanée et induite étaient semblables. Un âge de 35 ans ou plus et un ou plusieurs antécédents d'IVG étaient associés à la prématurité en 1995, mais pas en 2010.

**Conclusion.** – Les facteurs de risque de prématurité sont très souvent en accord avec la littérature internationale. L'augmentation de l'âge maternel et du recours aux IVG médicamenteuses pourraient expliquer les changements des facteurs de risque.

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## Introduction

The rate of preterm birth, defined as birth before 37 weeks of gestation, increased steadily in France between 1995 and 2010. The French national perinatal surveys showed an increase from 4.5% to 5.5% in singleton live births [1,2]. Spontaneous preterm births (preterm birth after spontaneous onset of labor) remained stable (3.0% in 1995 and 2.8% in 2010), but induced preterm births (after induction of labor or caesarean section before labor) almost doubled in 15 years, from 1.5% in 1995 to 2.7% in 2010 (unpublished data). In Europe, trends in singleton live preterm birth rates over this period have been heterogeneous [3]; in some countries rates increased but, in others, remained stable or decreased; in 2010, the rate of singleton live preterm births ranged from 4.1% to 7.6% in Europe [4].

Preterm birth risk factors have been extensively studied in France and abroad [5–10]. These factors stem from strong interactions between mothers' biological and social characteristics and also reflect medical practices [4,8]. Risk factors for preterm birth vary over time and by country [4,8] because of differences in maternal characteristics, medical care and preventive policies. However, the latest French national study was based on data from 1995 [11].

We aimed to assess current risk factors of preterm delivery for all births and by subtype (spontaneous and induced preterm births) in 2010 and to compare risk factors of preterm births between 1995 and 2010 by using data from the French national perinatal surveys.

## Population and methods

The French National perinatal surveys provide a population-based representative sample of births in France; they include all births in France during 1 week, that is, all children born alive or stillborn in all public and private maternity units at gestational age of at least 22 weeks' gestation or weighing at least 500 g at birth [1]. Data are from two sources: interviews with mothers in the postpartum ward to collect information on maternal characteristics and prenatal care, and from medical records for data on deliveries and newborn health status. We used data from Metropolitan France because one of the overseas territories (Martinique) did not participate in the survey in 2010. The analysis focused on live-born singletons ( $n = 14,326$  children in 2010 and  $12,885$  children in 1995). Twins were described in a previous study using the same data sources [12].

We first estimated the total preterm birth rates in 2010 by maternal characteristics (sociodemographic characteristics, adverse obstetric history, prenatal care and tobacco or substance use) and compared those rates using chi-square tests.

We used data on maternal age, parity, previous preterm birth, previous induced abortion, planning of the current pregnancy, fertility treatments and pre-pregnancy body mass index (BMI). We considered that the pregnancy was "planned" when women had stopped using family planning methods to become pregnant versus "unplanned" when women did not report use of family planning methods before the current pregnancy, if these methods were reported to

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