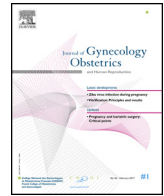




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Original Article

# Intended and actual use of self-medication and alternative products during pregnancy by French women

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## ABSTRACT

**Objectives.** – (i) To identify the proportion of non-pregnant women intending to use self-medication and self-administered alternative products (dietary supplements, essential oils and herbal teas) in the event of pregnancy, and the proportion of pregnant women using these products. (ii) To describe women's risk perception related to these products and the advice given by health professionals.

**Methods.** – A cross-sectional study was conducted. One hundred and twenty-eight women (60 non-pregnant and 68 pregnant women) responded to a self-administered questionnaire.

**Results.** – The proportion of pregnant women using self-medication was higher than the proportion of non-pregnant women intending to use self-medication (72% vs 48%,  $P = 0.01$ ) and lower for the use of herbal teas (29% vs 63%,  $P < 0.01$ ). There were no differences between the two groups for dietary supplements (25%) and essential oils (18%). Non-prescribed medications were perceived as a risk by 90% of all the women. Dietary supplements were considered as a medication by 68% of pregnant women and 48% of non-pregnant women ( $P = 0.04$ ). Health professionals provided advice for alternative products to 23% of the pregnant women, and 83% of the non-pregnant women expressed the wish to receive advice if they became pregnant.

**Conclusion.** – Health professionals should inform women, even before pregnancy, about the safe use of medications and alternative products during pregnancy.

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## Introduction

Self-medication, defined in France as the non-prescribed use of allopathic and homeopathic specialties granted marketing authorisation [1], is increasingly common. Self-medication may involve both over the counter drugs and drugs kept in the family medicine cabinet. The risks related to self-medication are well documented (drug interactions, overdose, use of expired medications and delayed medical management) particularly for pregnant women because of the effect of physiological changes on the pharmacokinetic properties of drugs, the transplacental passage of molecules

and the immature metabolism of the foetus. Beyond the risk of major teratogenicity that occurs with some drugs such as valproic acid [2], the main hazards of self-medication are minor malformations or other effects on foetal development. In addition, the safety and efficacy of the use during pregnancy of numerous drugs are still unproven [3].

In parallel, the use of dietary supplements, essential oils and herbal teas by pregnant women is on the increase [4–6]. These products fall within the scope of “complementary and alternative medicines”, defined by the World Health Organisation (WHO) as a “broad set of health care practices that are not part of that country's own tradition and are not integrated into the dominant health care system” [7]. Some of these alternative products are sold in pharmacies without a prescription and are also widely available in specialized outlets, supermarkets and on Internet. These products may appear to be harmless but inappropriate intake of certain molecules can have adverse effects on foetal development.

**Abbreviations:** NPW, non-pregnant women; PW, pregnant women; WHO, World Health Organisation.

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For example, excessive supplementation with vitamin E and retinol have been related to congenital heart defects in the offspring and to other teratogenic effects [8,9]. In France, specific health surveillance systems have recorded adverse effects due to dietary supplements (mainly hepatic, digestive and allergic) and to certain plants or plant-based preparations (such as acute and chronic toxicity and risk of interactions with other medications) [10]. In addition, the packaging of dietary supplements containing certain plants must carry a warning advising against their use during pregnancy [11]. For example, fenugreek (*Trigonella foenum-graecum*) is not recommended during pregnancy because of its abortifacient properties and the suspected risk of congenital malformations [12]. Finally, as for drugs, the harmlessness of most of these alternative products during pregnancy has yet to be demonstrated [4,6,13].

Given the risks posed by the inappropriate use of certain medications and alternative therapies, perinatal health professionals could be called upon to give advice about the taking of these products during pregnancy. It might also be useful, by appropriate information and guidance, to make non-pregnant women aware of the possible dangers at an early stage of pregnancy when the risk of malformation and miscarriage is high. To our knowledge, there is no study of women's (non-pregnant and pregnant) risk perception of medications and alternative products during pregnancy.

The main aim of this study is to identify the proportion of non-pregnant women intending to use self-medication and self-administered alternative products (dietary supplements, essential oils and herbal teas) in the event of pregnancy, and the proportion of pregnant women actually using these products. The secondary aims are to describe women's risk perception related to these products and the advice given to them by health professionals.

## Subjects and methods

### Subjects

The study population comprised pregnant women and women of childbearing age. The study was conducted in four pharmacies and a private gynaecology clinic located in two adjacent French administrative departments (Loire and Haute-Loire). To be eligible for inclusion the women had to be aged between 18 and 45 years ( $\geq 18$  years and  $< 45$  years), have a good command of French and give consent to take part. One hundred and twenty-eight women were included [60 non-pregnant women (NPW) and 68 pregnant women (PW)].

In accordance with French human research law, this study was exempt from Institutional Review approval because our database included no nominative data and it was not an interventional research study.

### Methods

A cross-sectional study was performed between 31 March 2015 and 1 July 2015 to assess self-medication and the use of alternative products and cosmetics during pregnancy. The results on cosmetics use have been published elsewhere [14]. This work concerns only data on self-medication and the use of alternative products. The women were orally informed of the aim and the modalities of the survey by a health professional taking part in the study, either a pharmacist or a gynaecologist. Data were collected by a standardized, anonymous, self-administered questionnaire consisting predominantly of closed questions with seven open questions. They comprised socio-demographic and obstetrical characteristics, details of self-medication [type of allopathic or homeopathic drugs taken, source of drugs, symptoms prompting

self-medication and request for advice from health professionals] and about the frequency of use of self-administered alternative products during pregnancy. The source of drugs and alternative products was not limited to those purchased in a pharmacy. They could be from a previous prescription for the same symptoms, from the family medicine cabinet, be given by a family member, purchased on Internet or in specialized outlets, etc. For NPW, the self-administered use of drugs and alternative products during pregnancy were assessed in terms of intention of use with questions beginning by "If you were pregnant...". Data on the perception of risk related to the taking of medications during pregnancy and the consideration of alternative products as medications (with all the associated risks such as adverse effects and foetotoxicity) were also collected. Finally, we recorded if the PW had been spontaneously advised and if the NPW wished to be advised by a health professional about the use of medications or alternative products during pregnancy.

All data studied (i.e., self-medication and self-administered alternative products, type of drugs taken, advice received by health professionals, etc.) were compared between PW and NPW in terms of the intention use (NPW) and use (PW).

### Statistical analysis

The qualitative variables were compared in the PW and NPW groups by Pearson's Chi-square or Fisher's exact test as appropriate. The quantitative variables were compared by Student's *t*-test or a Mann-Whitney test as appropriate. Significance was defined as  $P < 0.05$ . Statistical analyses were performed with R statistical software, version 2.15.2 (R Development Core Team, Vienna, Austria, 2012).

## Results

The mean age of the women in our sample was  $30.5 \pm 5.8$  years (from 20 to 44 years). More than half of them had (51.2%) already had one pregnancy. In both groups (NPW and PW), most women had attended university (74.8%) and were mainly working in the intermediate professions (35.9%) or as salaried employees (31.3%). Compared to NPW, the PW were more likely to live in a town of fewer than 5000 inhabitants ( $P < 0.01$ ) (Table 1). The intention of use (for NPW) and actual use (for PW) of tobacco (3.9%), alcohol (3.2%) and other drugs (0%) during pregnancy were not significantly different between the two groups (data not shown).

Among the PW group ( $n = 68$ ), the mean gestational age of the pregnancy was  $26.3 \pm 8.2$  weeks: 10.3% of the women were in the first trimester of pregnancy, 44.1% in the second and 45.6% in the third. Antenatal visits were performed in a hospital (60.3% of the women), in a private gynaecology clinic (25%) or in a combination of the two (14.7%).

Table 2 shows the proportion of NPW intending to use medications and alternative products during pregnancy without medical prescription and the proportion of PW doing so. Less than half of the NPW (48.3%) stated that they would use self-medication if they became pregnant whereas most of the PW (72.1%) were using them ( $P = 0.01$ ). Most self-medication drugs were bought in a pharmacy (96.6% for NPW and 62.3% for PW,  $P < 0.01$ ). Other sources of self-medication drugs were mentioned by women: from the family medicine cabinet (43.6%), previous prescription for the same symptoms (17.9%), from family members (3.8%). No woman in our study has reported buying drugs on Internet.

For alternative products, 63.3% of the NPW drank herbal teas against 29.2% of the PW ( $P < 0.01$ ). There were no significant differences between the NPW and PW in the use of dietary supplements (respectively, 28.3% and 22.7%) and essential oils (respectively, 23.3% and 13.9%) (Table 2). Among the users of these

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