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## Assessment and care for non-medical risk factors in current antenatal health care

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## ABSTRACT

**Objective:** this study aims to identify current practice in risk assessment, current antenatal policy and referral possibilities for non-medical risk factors (lifestyle and social risk factors), and to explore the satisfaction among obstetric caregivers in their collaboration with non-obstetrical caregivers.

**Design:** cross-sectional study

**Setting:** Dutch antenatal care system

**Participants:** community midwives from 139 midwifery practices and gynaecologists, hospital-based midwives, and trainees in obstetrics from 38 hospitals.

**Measurements and findings:** results were analysed with  $\chi^2$  tests and unpaired *t*-tests. Caregivers universally screened upon lifestyle risk factors (e.g. smoking or drug use), whereas the screening for social risk factors (e.g. social support) was highly variable. As national guidelines are absent, local protocols were reported to be used for screening on non-medical risk factors in more than 40%. Caregivers stated multidisciplinary protocols to be a prerequisite for assessment of non-medical risk factors. Only 22% of the caregivers used predefined criteria to define when patients should be discussed multidisciplinary.

**Conclusion:** despite their relevance, non-medical risk factors remain an underexposed topic in antenatal risk factor screening in both the community and hospital-based care setting. **Implications for practice** Structural antenatal risk assessment for non-medical risk factors with subsequent consultation opportunities is advocated, preferably based on a multidisciplinary guideline.

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## Introduction

Poor social and economic circumstances affect health throughout life. Even in the most developed countries, less affluent individuals have substantially shorter life expectancies and higher prevalence of disease (Marmot et al., 2012). Scientific research has led to a growing understanding of the influence of social environment on health outcomes. Barker et al. showed that the foundation of some adult

disease lies in the (pre)conception and early pregnancy periods (Barker, 1991). Suboptimal circumstances during pregnancy, other than medical risk factors, may lead to impaired fetal development. Such circumstances include maternal stress due to for example lack of social support, nutrient deficiencies, or maternal intoxication (Barker, 1991). Furthermore, recent evidence from large cohort studies showed that these so-called non-medical risk factors (lifestyle and social risk factors) play an independent, risk-enhancing role in perinatal and maternal outcomes (Rogers et al., 1998; Agyemang et al., 2009; de Graaf et al., 2013). The impact of non-medical risk factors is visible through their prevalence, their independent relative risk or both (Kleijer et al., 2005; Matijasevich et al., 2012). Moreover, it was shown that an accumulation of these risk factors can further

Abbreviations: GP, general practitioner; O&G, obstetrics and gynaecology

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harm the chances of a good pregnancy outcome (Goedhart et al., 2008; Timmermans et al., 2011).

Early identification and management of risk factors is therefore seen as a promising intervention to prevent or limit fetal exposure to these risk factors. Several preconception and early antenatal intervention programs showed promising results in reducing risky health behaviours, such as smoking, alcohol consumption, and unhealthy diet (Caine et al., 2012; Williams et al., 2012). However, in most countries preconception care is often – when available – only offered to women with predefined medical risk factors such as chronic diseases (Temel et al., 2014), and much less frequently offered to women in the general population (Denktas et al., 2014). The practice of visiting a health care professional for preconception care is not common in many countries, including the Netherlands (van der Zee et al., 2013). Therefore, the first antenatal visit is often the first opportunity to identify these risk factors.

In the Dutch obstetric care system, community midwives and gynaecologists work autonomously in a 3-tier system, and generally play a complementary role (Bais, 2007). The national guideline for referral to a gynaecologist is restricted solely to medical and obstetrical risk factors (Verloskundige Indicatielijst, 2003). Depending on the risk factor, this guideline appoints the midwife or the gynaecologist to be the primary indicated caregiver. Non-medical risk assessment in antenatal health care lacks however a comprehensive tool as the available routine antenatal screening instruments focus mainly on medical factors (van Veen et al., 2015; Vos et al., 2015a). Practitioners usually do not use a template for the intake consult. Some caregivers use a template which is often offered by the software system they use, however, these are almost always limited to on medical risk factors only.

If non-medical risk factors are not routinely addressed in antenatal health care systems, surveillance of these exposed pregnancies is at stake. More specifically, risk factors are likely to be detected too late or at a point at which the pregnancy has already been negatively affected. This is the case in particular for modifiable risk factors, such as smoking during pregnancy, lack of social support, domestic violence, or inadequate housing. Early identification of pregnancies with a high risk profile can lead to prevention and intervention – not necessarily restricted to that by professionals in the curative sector – which in turn can contribute to the improvement of perinatal outcomes. It was recently demonstrated that timely detection of growth restriction maximises the potential benefit of clinical management of such cases (Gardosi et al., 2013).

Several community-based projects with a focus on non-medical risk factors in pregnancy reported successful results (Gueorguieva et al., 2003; Cooper et al., 2013; Rossin-Slater 2013). However, little information is known on the performance of systematic screening for non-medical risk factors in routine antenatal health care. Published studies indicate that the number of available instruments for antenatal screening is scarce. Experience with these tools is limited to implementation in research settings, which is essentially different from real time situations (Chard et al., 1992; Jesse et al., 2003; Honest et al., 2004; Haws et al., 2009; Davey et al., 2011). Therefore, the present study aims (1) to identify current manners of assessment, current antenatal policy and referral possibilities for non-medical risk factors (lifestyle and social risk factors), and (2) to explore the level of satisfaction of obstetrical caregivers in their collaboration with non-obstetrical caregivers.

## Materials and methods

### Study design

This cross-sectional study was conducted in 39 municipalities in the Netherlands amongst community midwives working in a

primary care setting, and amongst gynaecologists, hospital-based midwives and trainees in obstetrics and gynaecology (O&G) working in a hospital setting.

Municipalities were extracted after a municipal selection process which was performed for the Healthy Pregnancy 4 All study (Denktas et al., 2014). This national project, supported by the Dutch Ministry of Health, Welfare and Sport, aims to improve perinatal health by offering and amending preconception care and providing timely risk assessment for both medical and non-medical risk factors in pregnancy. In a thorough analysis, 50 geographical areas were identified in which adverse perinatal outcomes were high. The list was obtained by combining epidemiological evidence on adverse outcomes from the national perinatal registries of midwives, gynaecologist and paediatricians (Meray et al., 2007; Tromp et al., 2008). The Healthy Pregnancy 4 All study takes place in 10 out of the 50 selected geographical areas (14 municipalities) in the Netherlands. For this study, areas showing the highest perinatal morbidity and mortality rates were selected for both interventions (Denktas et al., 2014). In order to optimally assess the current manner of risk selection in the Netherlands, we did not conduct our study in the areas in which the Healthy Pregnancy 4 All study was implemented. All community midwives and hospital caregivers in the remaining municipalities were approached. These municipalities do not participate in the Healthy Pregnancy 4 All study, but remain representative of all areas of the Netherlands based on their coverage level (approaching 50% of the country) and population size. One municipality was excluded because it was already participating in a concurrent perinatal municipal programme.

Since the working area of midwives can be defined by zip codes, we identified all midwifery practices covering a working area corresponding to the selected zip codes of one of our selected municipalities. Through the website 'www.knov.nl', areas in which midwifery practices were located were identified. Gynaecologists were selected based on hospital location, and all gynaecologists working in a hospital situated in – or adjacent to – one of the 39 municipalities were approached. Contact information for these gynaecologists was found on the websites of the hospitals. Hospital-based midwives and trainees in O&G were also approached to cover the full spectrum of hospital-based obstetric caregivers.

Community midwives' practices were contacted by telephone and during this calls introduction to the study and verification of the working area took place. From all participating midwives, e-mail addresses were obtained in order to send the web-based questionnaire. If the working area did not correspond to the area codes of one of the 39 selected municipalities, practices were excluded. Gynaecologists, hospital-based midwives and trainees in O&G were directly contacted by e-mail. E-mail addresses were obtained from an up-to-date address file. If an e-mail address was not available, administrative staff of the department of O&G distributed the study information and questionnaire.

### Development of the questionnaire

The questionnaire was developed as part of the Healthy Pregnancy 4 All programme (available upon request) (Denktas et al., 2014; Vos et al., 2015b). The questionnaire was piloted among practices of municipalities that participated in the Healthy Pregnancy 4 All study ( $n=36$ ). After this, the questionnaire was distributed to individual caregivers (rather than practices) in order to appreciate personal opinions, gain more knowledge on antenatal screening policy, and measure the level of satisfaction among caregivers on collaboration with other caregivers. The questionnaire assessed baseline characteristics of caregivers, current practice in risk screening (e.g. with or without non-medical factors),

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