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Predictive factors of postpartum fatigue: A prospective cohort study among working women

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ABSTRACT

Objectives: The aim of this study was to investigate which prepartum determinants contribute to the development of postpartum (PP) fatigue among working women in the Netherlands.
Methods: A prospective cohort study in 15 Dutch companies was conducted to measure different potential predictors using self-administrated questionnaires at baseline and at 30 weeks of pregnancy. Fatigue was measured at 12 (N = 523) and 52 weeks (N = 436) PP using the Checklist Individual Strength (CIS). A CIS score > 76 was defined as fatigue.
Results: The prevalence of fatigue at 12 and 52 weeks PP was 24.5% and 18.1%, respectively. Fourteen predictive factors were found for fatigue ($R^2 = 0.37$) at 12 weeks PP. Ten predictive factors were found for fatigue at 52 weeks PP ($R^2 = 0.36$). In general, less favourable work relationships and characteristics, poorer mental health, more passive coping styles, more sleeping problems, more fatigue during pregnancy, and beliefs about child care arrangements were related to PP fatigue. At 30 weeks of pregnancy, only more fatigue (OR = 3.69, $p < 0.001$; OR = 2.68, $p = 0.02$) and poorer mental health (OR = 0.50, $p = 0.02$; OR = 0.90, $p = 0.78$) predicted fatigue both at 12 and 52 weeks PP.
Conclusions: A large number of predictive factors for PP fatigue were found. These findings indicate that different aspects can contribute to being fatigued after pregnancy. Further research is needed to investigate the effect of possible interventions by employers and/or occupational physicians.

Introduction

An increasing number of women return to work after the birth of their first child, although they reduce the number of hours worked postpartum (PP) [1]. In 2010 about 69,000 working women became mothers for the first time in the Netherlands. Only 6% stopped working altogether, about 37% continued working less hours, and more than half returned to work working the same number of hours [1].

Women perceive returning to work more challenging than expected, indicated by the fact that 'the experience was viewed as being mostly negative' [2]. One of these challenges is fatigue, which is the most prevalent reported complaint at 12-month postpartum (PP) [3].

Different prevalences (15–76%) of PP fatigue were reported among women in the general population, depending on the moment of measuring [3–5]. Although in several studies prevalences were declining from one to two months up to 12 months after childbirth, still one fifth of the participating women reported to be fatigued at 12 months PP [3,4]. Among working women prevalences of 64% and 43% were found at 5 weeks and 11 weeks PP, respectively [6,7].

A multitude of factors, either physical, psychological or situational, can contribute to PP fatigue [8]. Possible predictors of fatigue reported in other research are primiparity, breastfeeding, being unmarried, factors associated with a complicated labour and birth, and having a 'difficult child' [9]. Other determinants associated with fatigue are, for example, having more children, maternal depression, stress, infection (symptoms) in mother and baby, disruption of sleep, lower educational background, lower social status, anaemia, and thyroid dysfunction [9,10]. Another study reported that experiencing chronic PP fatigue (≥18 months) was associated with poorer perceived maternal health and delayed infant development [11].

Recent research from Australia showed that work-related factors, such as less job control, less perceived job security, less flexible start and finishing times, and the provision of family-related leave, were associated with maternal PP mood, and might be considered in

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psychosocial risk assessments and interventions [12]. Many other work-related factors contributed to the physical and mental health of working women 18 months PP [13]. For example, poorer co-worker support, work hours, higher level of job spill-over into private life, lower level of job flexibility, total hours of work, and higher level of private life spill-over into work. PP return to work was mostly facilitated by supportive relationships in the workplace and satisfactory child care arrangements [14]. Also workplace support was related to work–family balance at 12 weeks PP.

In summary, it is clear that PP fatigue is a frequently occurring problem among women returning to work, and that many factors may contribute to this problem. However, at the moment it is not clear who is most at risk for PP fatigue. Before women go on pregnancy and maternity leave, the employer has the possibility to screen and target women at risk for developing fatigue, and intervene with applicable interventions. In order to do so, more knowledge is needed about prepartum factors that predict PP fatigue. Therefore, the aim of this study was to investigate which prepartum determinants contribute to the development of PP fatigue among working women in the Netherlands.

Methods

Study design

The Mom@Work study, a prospective cohort study, was given ethical approval by the Medical Ethics Committee of VU University Medical Centre, which is located in Amsterdam, the Netherlands. In short, the study was designed as a simultaneous randomised controlled trial (RCT), to assess effectiveness and cost-effectiveness of an intervention in reducing postpartum sick leave, and a cohort study, to assess incidence and determinants who contribute to postpartum return to work and to the development of postpartum health complaints. A more detailed description of the study design has been published in a previous article [15].

Study population

Fifteen of the 93 approached Dutch companies consented to participate in the study. The participating companies included university hospitals (n = 3), child care companies (n = 3), regional hospitals (n = 2), a health care group including a regional hospital, elderly care and home care (n = 1), a ministry of the Dutch government (n = 1), a chain of supermarkets (n = 1), a youth health care company (n = 1), an occupational health service provider (n = 1), a chain of travel shops (n = 1) and a chain of pharmacists (n = 1). All participants were pregnant female employees working at one of the participating companies between January 1, 2004 and March 31, 2006. All participants provided written informed consent.

The following inclusion criteria were established: between 18 and 45 years old, working >11 h per week, and intending to return to work after maternity leave. In addition to these criteria, the participants had to be adequately fluent in the Dutch language.

Women were excluded from this study if they were definitely not returning to work, had a miscarriage or delivery before 27 weeks, or submitted an application for or received a full work disability benefit through the Institute for Employee Benefit Schemes (UWV). Participants with data on fatigue at 12 and 52 weeks postpartum (PP) were included in the analysis of this study.

Procedure

After submitting a request for maternity leave, a human resource staff member of the company sent a short information letter about the study, after which women were asked to complete and return the 'Yes' response card to the research staff. Next, participants were asked to fill in questionnaires at baseline, 30 weeks pregnancy and at 6, 12, 24 and 52 weeks PP. Employers or human resource staff did not have access to any of the data provided by the women.

Dependent variable

Fatigue was the dependent variable. This variable was measured using the Checklist Individual Strength (CIS) questionnaire, which contained 20 statements scored on a 7-point Likert Scale [16]. This Dutch questionnaire was designed to measure several aspects of fatigue and has been validated in the working population [17]. In addition, a high CIS score was found to be a predictor for subsequent permanent work disability [18] and both short- and long-term sick leave [19]. Furthermore, employees with a high CIS score were reported to be at increased risk of being injured in an occupational accident [20].

In this study the total CIS score (0–140) was used as the dependent variable. This variable, which indicates the level of fatigue, was dichotomised using a cut-off point of >76 [21]. This cut-off point, which has been established for the use in working populations, puts employees "at risk" for subsequent sick leave or work disability [21].

Potential predictors

All potential predictors were assessed during pregnancy, since most employers lose sight of their employees during the period of pregnancy leave and maternity leave. These predictors were divided into five categories (demographic characteristics, pregnancy and child-related factors, work-related factors, health-related factors, and psychosocial factors), based on content. For a more detailed description of potential predictors see Table 1.

Statistical analyses

Two prediction models were separately investigated with the dependent variable measured at one of the two selected measurements (12 and 52 weeks PP). These time points were selected, since at 12 weeks PP maternity leave ends on average in the Netherlands, and women return to work if they do not take extra leave or holidays. The time point of 52 weeks PP was chosen, since we expected women to be in a more stable situation combining family with work at that point in time.

Participants were excluded from analysis if they were missing at the measurement at 30 weeks pregnancy, were missing regarding the dependent variable on 12 and 52 weeks PP, were pregnant again during the one-year follow-up period, or were lost to follow-up.

All continuous variables were checked for linearity regarding the correlation with the outcome variable. Continuous variables were dichotomised or divided into groups using a validated cut-off point/group division or split on the median, if no linear association was found.

Potential predictors with a category or group with less than 20 participants were not analysed.

Firstly, univariate logistic analyses were performed using the dichotomised total CIS score as dependent variable and the potential predictors as independent variables. A P-value of <0.10 was considered statistically significant.

Secondly, all statistically significant variables were then used to perform multivariate logistic analyses for each of the five categories using the forward selection procedure.

Finally, all statistically significant variables within the five categories were used to perform the final multivariate logistic analyses. These analyses were separately preformed with the outcome variable at the two outcome measurements (12 and 52 weeks PP). Again, a P-value of <0.10 was considered statistically significant. All analyses were conducted using SPSS 18.0 (SPSS Inc., Chicago, IL).