Mental Health After Second Births in Sweden: The Role of First Birth Experiences, Birth Spacing, and Temporal Trends

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Short Abstract

Childbearing is a critical period for mental health, yet research has predominantly focused on first births. Considerably less is known about mental health following second births, despite the likelihood that earlier birth experiences, accumulated stressors, and family dynamics shape parental wellbeing across parities. This study examines mental health diagnoses after second births among mothers in Sweden between 2005 and 2020, with a particular focus on the role of mental health before and after the first birth, birth spacing, and temporal trends. We draw on REFU-GEN, a newly available population-based dataset linking Swedish administrative registers, including detailed information on dispensed prescriptions for anxiolytics, sedatives/hypnotics, and antidepressants. Using event history analysis, we follow mothers from the birth of their second child for up to two years, censoring at emigration, death, or subsequent childbirth. A piecewise exponential model estimates associations between timing and patterns of psychotropic drug use, controlling for pre-existing conditions and prescriptions between births. Preliminary findings indicate that women with prior mental health diagnoses, either before the first birth or in the postpartum period after the first birth, are at substantially elevated risk of receiving psychotropic prescriptions after their second birth. These results highlight the importance of continuity of mental health care across the reproductive life course, suggesting that postpartum mental health support should not be limited to first-time parents.

Keywords: *postpartum depression, second birth, mental health, transition to parenthood, Swedish registers, event history analysis*

Introduction

The arrival of a new child represents an important life transition that, while usually joyful, often brings considerable challenges including uncertainty, stress, and anxiety for parents. This complex period encompasses biological and hormonal shifts alongside diverse socio-emotional and psychosocial stressors that can significantly influence parental mental health (Refaeli et al., 2024). Postpartum mental disorders have become increasingly prevalent, with global estimates indicating that postpartum depression affects approximately 17% of mothers and 9% of fathers (Heshmati et al., 2023).

This transition impacts both parents in distinct yet interconnected ways. Mothers navigate the hormonal and physiological demands of pregnancy and childbirth, however, fathers also undergo hormonal adjustments during the perinatal period, experiencing reductions in cortisol and testosterone alongside elevations in estrogen and prolactin (Scarff, 2019). Both parents

encounter substantial socio-emotional and psychosocial challenges, including adapting to childcare responsibilities, navigating evolving couple dynamics, managing altered relationships with extended family and social networks, coping with employment disruptions, and making potential career modifications (Pearson et al., 2019). Economic constraints often intensify during this period due to parental leave, decreased earnings, and possible long-term income reduction if either parent modifies their work arrangements post-leave. These multifaceted stressors can precipitate or exacerbate mental health symptoms, particularly depression and anxiety during the postpartum period (Meltzer-Brody et al, 2018; Saxbe et al, 2018). While the WHO defines the postpartum period as the six weeks following childbirth, contemporary understanding recognizes a broader timeframe extending from three to twelve months post-delivery (WHO, 2010). Importantly, although research has predominantly examined mental health following first births, the postpartum period remains equally significant for subsequent births.

Our understanding of the factors that contribute to the poorer mental health of mothers during the postpartum period has grown considerably over the last few decades. Findings from a large multinational study highlight that first-time mothers reported higher rates of postpartum depressive symptoms (PDS) as compared to multiparous women, twin births were associated with higher risk compared to singleton births, and advanced maternal age was associated with decreased risk (Bradshaw et al., 2022) Other research has pointed to previous psychiatric illness and family histories of postpartum depression as being strong predictors of PDS (Guntivano et al., 2018). Environmental risk factors have also been shown to play a role including poor socioeconomic status, immigrant status, and lower educational attainment. Much less research has examined the effects of parity on postpartum depression and that which exists remains inconclusive. Some research has found no elevated risk of PDS across parity (Shorey et al., 2018), while others find decreasing risk in subsequent births (Iwata et al., 2016). Interestingly, the effect of parity on PDS seems to be context specific suggesting that different social settings may exacerbate or buffer the risks of PDS depending on, for example, childcare provisions or healthcare access. Overall, there remains a limited understanding as to how PDS develops across births and how risk factors may change across parity.

Objective: Given this gap in understanding mental health patterns across birth orders, our study examines whether mental health diagnoses after second births have increased over time among mothers in Sweden. Specifically, we investigate whether this increase reflects broader increases in mental health conditions among women generally, or whether these patterns are specifically linked to maternal mental health trajectories following first births and

their relationship to birth spacing. By focusing on second births, we aim to provide insights into an understudied yet critical aspect of maternal mental health.

Data and Methods: This study utilizes a newly available dataset, REFU-GEN, a comprehensive collection of Swedish population registers. We analysed women who had their second child in Sweden during 2005-2020. The population base is derived from the Historical Population Registers (*Historiska befolkningsregistret*), a longitudinal database encompassing all individuals who have ever been registered in Sweden. REFU-GEN integrates detailed data from multiple administrative registers including data from the Prescription Drug Register included all dispensed prescriptions for anxiolytics (N05B), sedatives/hypnotics (N05C), and antidepressants (N06A), categorized by timing: any prescription prior to first birth, between first and second births, and first prescription after second birth. We conducted Event History Analysis for the period 2005-2020, with baseline time since second childbirth. Censoring occurred at 2 years postpartum, emigration, death of mother or child, or third childbirth. A piecewise exponential model was employed with first prescription after second birth as the dependent variable, period as exposure and age of the first child, and controls for drug prescriptions before first birth and between children.

Preliminary results: Our preliminary results indicate that both pre-existing condition and post-partum depression are positively associated with PDS after the second birth. These findings highlight the importance of continuous mental health support throughout the reproductive period, particularly for women with previous diagnoses.

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