Motherhood and Violence Against Women: A Longitudinal Study Using Population-Wide Administrative Data

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Motherhood is an important time to reach women

- **Most women become biological mothers:**
  - About 85% of women in Sweden have given birth at age 45 (Statistics Sweden, 2024)

- It is a time when women's lives and relationship dynamics change substantially - and a time with close contact to the health care system, often without the partner present
  $\Longrightarrow$ an important time to reach women in need!

- But in order to help women in need in the most efficient way we need to know more about violence around motherhood

▸ Violence numbers in Sweden & the EU

Previous findings on evolution of violence around birth of child

Most studies document increases in violence around pregnancy and motherhood

- Hospital- and clinic-based studies find pregnancy a time of increased risk. Larger-scale studies either find no change or increased risk during pregnancy (Jasinski, 2004; Bailey, 2010; Devries et al, 2010; Gelles 1998; Jasinski and Kantor 2001; Currie et al 2018)
- Children is often found to be a risk factor for violence: prevalence, duration and risk of post-separation violence (Brownridge 2006; Vatnar & Björkly 2010; Bowen et al. 2005; Charles & Perreira 2007; Cesur et al. 2023; Dechamps, 2024)
- Longitudinal crime data show that motherhood increases assaults by partner — reflecting both an increase in actual violence and women's propensity to report (Massenkoff and Rose (forthcoming); Britto et al. 2024).

What about misreporting and hidden statistics?

- **Incentives to report violence may change with motherhood**
  - Reporting might increase to protect the child
  - Reporting might decrease to avoid issues with social services

- **Types of violence may change differentially with motherhood**
  - We usually think most about intimate partner violence
  - But behavioural changes of the mother may also impact risk of other types of violence

This study: violence against women and motherhood

How does violence against women evolve around pregnancy and motherhood?

- We use longitudinal hospital records from 2001 to 2016 covering the medical history of the entire population of Sweden
- We estimate dynamic effects of pregnancy and motherhood on women's risk of experiencing violence
- Using detailed information on type of visit, diagnosis and medical action taken at the hospital we investigate how different types of violence change in different ways
- Identify divergent patterns in reporting

Data

- **Administrative data: Swedish Interdisciplinary Panel (SIP)**[1]
  - An annual multi-generational dataset covering the entire Swedish population born between 1930 and 1995, as well as their parents and children.
  - Merged registers on demographic information, income, family ties, hospital records

- **Sample:**
  - Mothers: women who gave birth to their first child between 2002–2015 (N=543,593)
  - Control group: mothers who were 4–12 quarters (1-3 years) older when they gave birth to their first child

[1] Administrated by the Centre for Economic Demography at Lund University.

Data: violence against women

Main outcome: binary indicator of whether the woman visited a hospital for injuries caused by assault (physical or sexual) in a given quarter

- Identified from individual hospital records (using information on external cause of injury)
- It is a proxy of violence against women & likely only tip of the iceberg

Data: identifying different types of violence

Type of violence

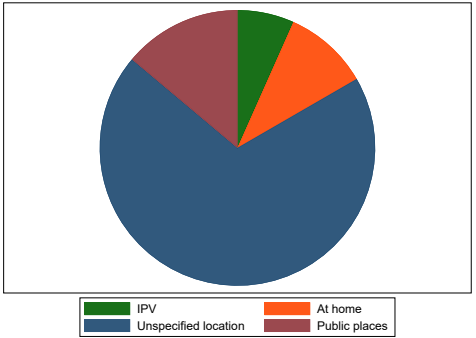
- Hospital records contain information on where the assault took place and, in some cases, who the perpetrator was.
- Categories: IPV, at home, in unspecified locations, in public places

- From those coded as unspecified locations we predict which are most likely to be IPV (using detailed information on demographic characteristics, partner characteristics, medical history, diagnosis, severity and medical action taken at the hospital)
  Confirmed IPV: combined IPV and at home, those who wish to report IPV
  Suspected IPV: those who don't wish to report IPV
  Low probability of IPV: unclear
  Public places: least likely to be IPV

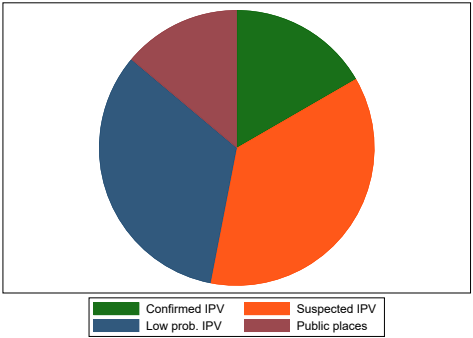
Different types of assault

Figure 1: Hospital visits for assault: types

(a) As divided by hospital records



(b) Divided by us



Data: identifying different types of violence

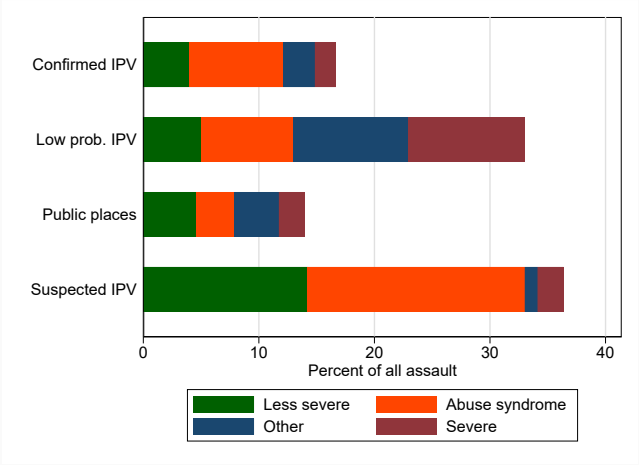
Type and severity of violence

- Hospital records contain information on factors surrounding the hospital visit for assault: diagnosis, external cause, and medical action taken

- We create four categories of severity and woman's discretion to seek care or not:
  - **Severe:** hospital visits undoubtedly in need of medical expertise, like bone fractures, traumatic amputations, wounds in need of stitches or severe head traumas
  - **Less severe:** more open to choice of seeking care, where medical action related to documentation, and/or superficial wound not in need of stitches
  - **Abuse syndrome:** probably more open to choice of seeking care, focus of visit is on the abuse as a whole and not a specific injury
  - **Other:** the rest

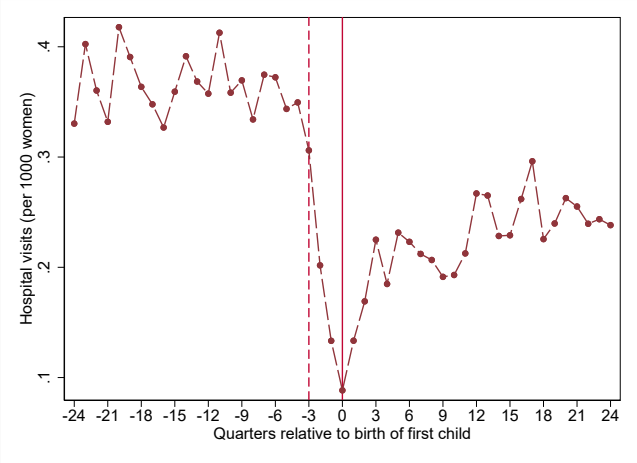
Types split by relative severity

Figure 3: Hospital visits for assault: types and severity



Raw averages relative to time of first birth

Figure 4: Raw average of all hospital visits for assault around birth



Empirical strategy: stacked difference-in-differences

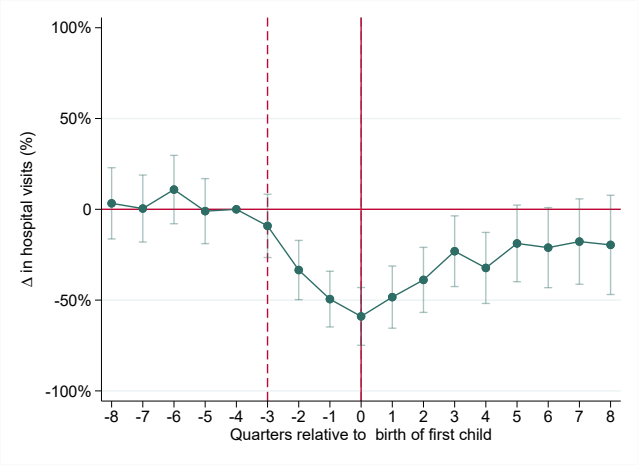
Motherhood is endogenous

- Motherhood is a choice, and it is likely that mothers and childless women may differ in many dimensions.
- Assault levels differs a lot by age at birth $\implies$ comparing mothers who give birth at very different ages may be problematic
- **Stacked difference-in-differences**: compares each age-at-birth cohort of mothers to a control group of women who gave birth 1-3 years later (weighting by cohort size)

▸ Equation

Stacked DiD: comparing mothers to future mothers

Figure 5: Stacked DiD: hospital visits for assault (%)



- **Hospital visits decline with pregnancy and motherhood**
  - Over 50% lower in quarter of birth compared to pre-pregnancy
  - Contrary to most previous research

Digging deeper with detailed data

- **How different types of violence change in different ways**
  - Temporary decline in assaults in public places, starting before pregnancy
  - Persistent decline in partner violence (confirmed and suspected), particularly among women with a history of alcohol abuse or those who separate from their partner after birth

- **Divergent patterns in reporting**
  - Spikes in confirmed IPV reporting around separation
    $\Longrightarrow$ less severe cases increase around separation but more severe cases decline persistently
  - Reduction in hospital visits for less severe suspected IPV cases
    $\Longrightarrow$ suggesting some women who do not wish to disclose perpetrator also avoid seeking care after birth

Digging deeper with detailed data: conclusions

Overall, motherhood reshapes women's exposure to violence.

- Short-term declines may reflect reduced non-partner assault risk due to behavioural changes
- Long-term reductions, particularly in confirmed and suspected IPV, are linked to past risk factors and partner separation.
- Changes in reporting incentives are important!

This analysis highlights how motherhood influences both the nature of violence and women's responses to it, all of which are important to consider when designing policies to reduce violence against women.

Thanks for listening!

What data would be useful to connect to this:

- **Importance of different types of data:**
  - Survey data, hospital data and police records all provide important and different perspectives
- **Police records: suspicions and convictions registers**
  - Would further allow us to investigate differential changes in reporting vs care-seeking
- **Survey data**
  - Would allow us to investigate less severe cases of violence
  - And cases not reported to medical or criminal authorities
- We are currently applying for these types of data!

Domestic violence is a major issue for public health and gender equality

- **Prevalence in EU-28 countries:**
  - Lifetime physical or sexual intimate partner violence: 22%
  - Lifetime physical or sexual intimate partner violence by current partner: 8%
  - Physical or sexual intimate partner violence in the last 12 months: 4%
- **Prevalence in Sweden**
  - Lifetime physical or sexual intimate partner violence: 28%
  - Lifetime physical or sexual intimate partner violence by current partner: 7%
  - Physical or sexual intimate partner violence in the last 12 months: 5%

Source: FRA (2014) - Violence against women: an EU wide survey

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Stacked difference-in-differences

$$Y_{iat} = \sum_{j=-4, j\neq -2}^{4} \beta_j^t \times 1(a - a_i^0 = j) \times 1(a_i^0 = t) + \gamma_{at} + \alpha_{it} + \epsilon_{iat} \quad (1)$$

Y_{iat} : indicator for hospital visits for assault of individual i who belongs to (age at birth) cohort t at age a

$1(a - a_i^0 = j)$: dummy equal to one if the difference between the age of a mother and the age when she had her first child a_i^0 is j quarters

$j = -4$ indicates 4 quarters before birth of first child, and is omitted as the baseline

$1(a_i^0 = t)$ identifies each cohort of mothers and their assigned control units

γ_{at}: age-by-cohort fixed effects, α_{it}: individual-by-cohort fixed effects

Standard errors are clustered at the individual level

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