

# Mental health of new parents: Does the first child change the mental health of mothers and fathers?

Dr Nataliya Ilyushina,  
School of Economics, Finance and Marketing,  
RMIT University

---

# Research Question



Does **mental health** of parents in the first year of having **their first child** differ from the mental health of childless couples?

# Motivation

- **Counteracting effects** of parenthood on mental health and other measures of wellbeing (Evenson and Simon, 2005; Mclanahan and Adams, 1985; Nomaguichie and Milkie, 2003);
- One of the explanations is that the link is different in **different types of parents** (Evenson and Simon 2005), e.g. empty nesters are better off and lone parents are worse off in terms of their mental wellbeing;
- Stresses and rewards of parenthood are different at different **life stages** of parenthood (Nomaguchie and Milkie 2005);
- Parents tend to be better off shortly after birth of a child, later in the life course of parenthood mental health deteriorates (Nelson et al., 2014; Leach, Olesen, Butterworth, & Poyser, 2014);
- Therefore, this research selected to look at one particular group of parents - **new first time parents**, to understand the effect of becoming a parent on mental health.

# Background

- Majority of the previous research on new parents was limited to postnatal depression (Cox *et al.* 1993, Dave *et al.* 2010) and was done primarily in psychology and medicine → lack of economics research;
- Postnatal depression research compared mothers' mental health after birth to the levels during pregnancy, rather than to baseline pre-pregnancy level or control group (missing counterfactual);
- Estimated 10-15% of new mothers and fathers experience postnatal depression (Robertson *et al.* 2004);
- This is not representative of what is happening with the mental health of **the remaining 85-90% of the new parents;**
- Research on first time parents has found an increased life satisfaction immediately after birth for mothers (Dyrdal and Lucas 2013); Other studies showed increase in happiness and wellbeing measures after arrival of the first child for both parents (Kohler *et al.* 2005, Clark *et al.* 2008);
- However, the positive effect dissipated in 1-4 years.

# Theoretical Background

- **Becker's fertility theory** (Becker, 1960) assumes that people derive utility from children. As utility (happiness) is correlated with mental health, this may explain why mothers show higher mental health;
- **Grossman's model** of health investment (Grossman, 1972) predicts that children would deteriorate mental health (for example via lack of sleep). However, the negative effect of lack of health investment might take time to accumulate, therefore the negative effect might not be sufficient in the first year of parenthood;
- Fulfilling the **social gender role** as a parent explains positive effect on mental health for mothers. Since motherhood is typically dominating social role for mothers that explains the gender differences in the results. No result for fathers might be explained by the fact that his gender role is fulfilled at a different point in time (conception) which is beyond the scope of this research.

# Data and Sample

- **Source:** Household, Income and Labour Dynamics in Australia (HILDA) Survey, waves 1-13;
- **Benefits:** Has information and variables on family characteristics, longitudinal nature allows to track family transitions → allows to identify first-time parents;
- **Treatment Group:** 485 first time couples (married or de facto), aged 18-45, who became parents of their own child in the past 12 months;
- **Control Group:** 2,591 couples with same characteristics as above but never had children.
- **Note:** Same sex couples and couples with stepchildren excluded;
- **Outcome Variable:** Mental health, measured by MHI-5 indicator (from SF-36);
- **Controls:** Fertility variables *lagged by one year* to reflect on the person's characteristics at the time of the fertility decision, broadly following Wilkins (2016). Robustness models also include fertility intentions and housing variables (Mitchell and Gray, 2007).

# Outcome Variable Measure

## Outcome Variable:

- ✓ Mental health, measured by MHI-5 indicator, continuous variable 0 to 100

## Benefits for this study:

- MHI-5 evaluates mental health issues such as anxiety, depression, behavioural control, positive affect and general distress (Ware et al., 1993) and mood disturbance (Scutella & Wooden, 2008).
- MHI-5 screens for the positive aspects of mental health, too (Leach et al., 2014).
- It is recommended in the medical literature as a way of screening mood disorders (Rumpf, Meyer, Hapke & John, 2001).
- MHI-5 does not have a cut-off point determining mental illness but employs a smooth scale from poor to good mental health (Hoeymans et al., 2004).
- MHI-5 in the estimation samples has a high value of Cronbach's alpha of approximately 0.8, which is higher than the benchmark value of 0.7 (Butterworth & Crosier, 2004),

# Methodology - Treatment Effect (ATET)

Average Treatment Effects on Treated (ATET)

$$\text{ATET} = E(y_1 - y_0 \mid D=1)$$

where

$y_1$  - outcome (mental health) in *treated* state

$y_0$  - outcome (mental health) in *untreated* state

D - treatment (D=1 became *a new parent* in the past 12 months, D=0 never parent)

TE models has been previously used to examine the impact of life events with potential endogeneity on mental health (Shiele and Schmitz 2016)

- Matching techniques: Nearest Neighbour and Propensity Score (Probit and Logit)
- Matching techniques needed to correct for the self-selection bias (probability of fertility)

# Results Treatment Effects

Matching Technique	Main Sample ( $N_T = 485, N_C = 2,591$ )		Sample controlling for intensions ( $N_T = 462, N_C = 2,447$ )		Sample controlling for intensions and homeownership ( $N_T = 450, N_C = 2,360$ )	
	Females	Males	Females	Males	Females	Males
Nearest Neighbour Matching	<b>3.887***</b>	0.612	2.606**	1.214	2.611**	0.296
Propensity Score matching (Logit)	<b>2.670***</b>	0.353	1.682*	1.366	3.447***	-8.238
Propensity Score matching (Probit)	<b>2.565***</b>	0.291	2.434***	0.536	2.354***	0.543

# Results Treatment Effects (Main Sample)

Main Sample ( $N_T = 485$ )

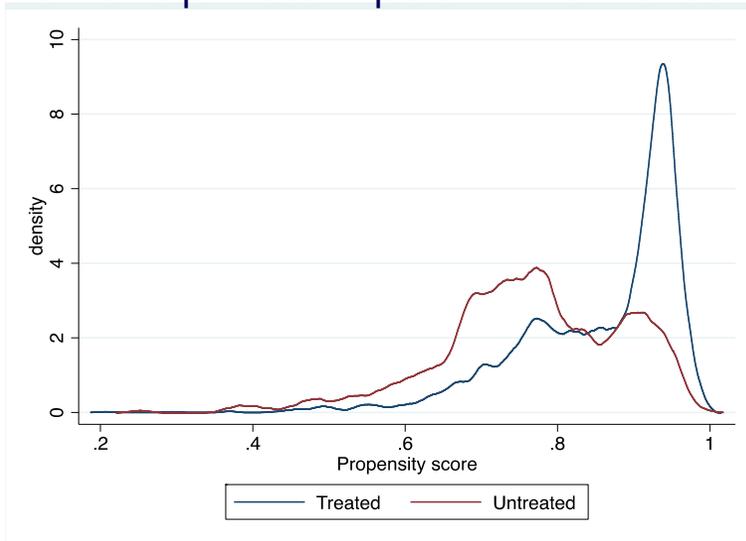
Matching Technique	Females	Males
Nearest Neighbour Matching	3.887***	0.612
Propensity Score matching (Logit)	2.670***	0.353
Propensity Score matching (Probit)	2.565***	0.291

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

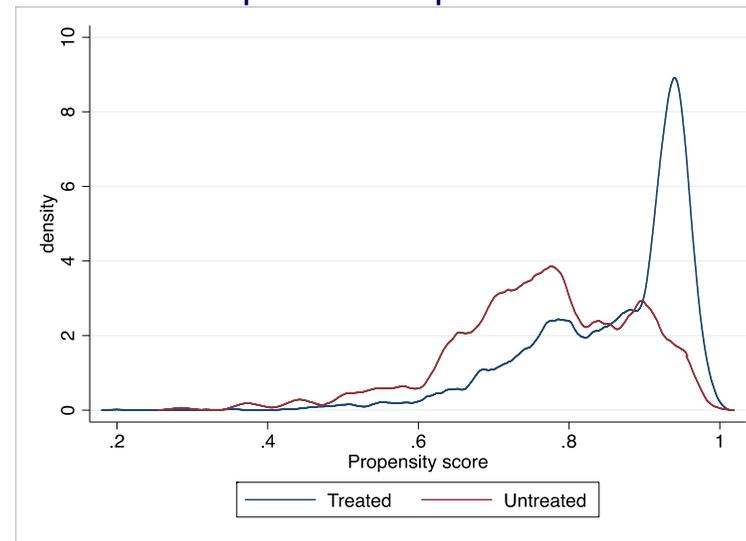
- A woman who had a first child within a year prior to the survey has higher levels of mental health than a childless woman conditional on the same probability of becoming a mother, regardless of the matching technique used
- Coefficient ranging from 1.682 to 3.698 depending on the specification used. Mental health (MHI-5) variable for the sample of females ranges from 12 to 100, mean value of 75. With 95% of the population having mental health score above 40 and 50 being a cut off for the clinical mental health illness.
- No significant effect for males. Some research found that father's mental health improves at the point when they find out about pregnancy, not when the child is born (Leach et al., 2014).

# Self-selection Bias and Overlap Assumption

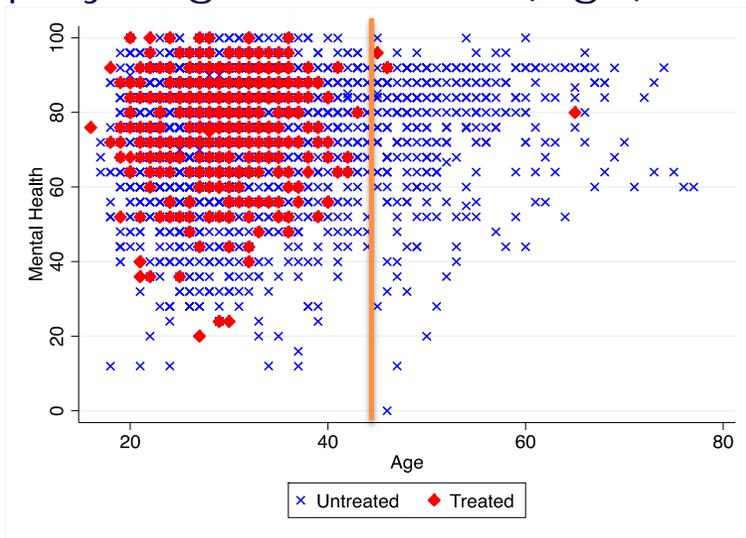
## Overlap Assumption - Females



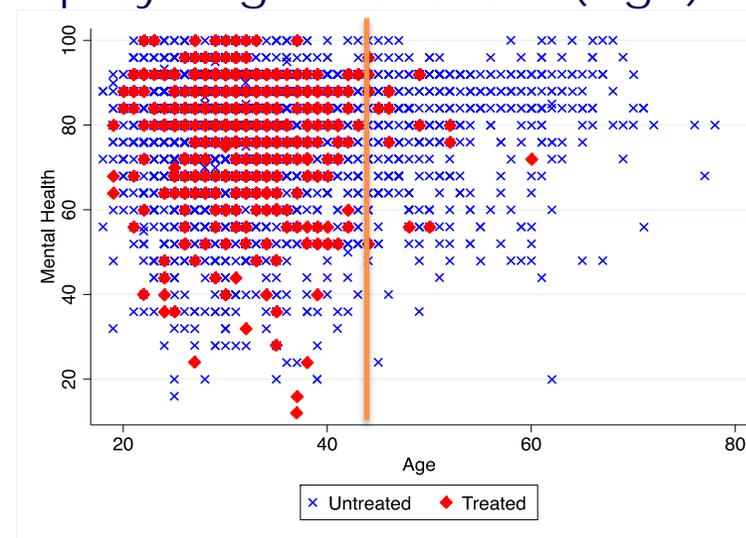
## Overlap Assumption - Males



## Overlap by Single Covariate (Age) - Females



## Overlap by Single Covariate (Age) - Males



# Research Highlights

- New mothers' mental health is significantly higher than control group regardless of the matching technique used.
- This compliments the literature on postnatal depression, as postnatal depression only affects 10-15% of parents and does not inform on mental health of the rest of the parents
- Therefore, **overall** becoming a mother is **positively associated** with mental health.
- **No effect for fathers** – consistent with findings in Leach *et al.* (2014) that found no effect on mental health (MHI-5) for new fathers using OLS.
- Contradicts Kohler *et al.* (2005), that found that first child brings happiness especially for fathers (note happiness is not the same as mental health).
- For fathers, the positive effect from greater utility maybe too small to be statistically identifiable. Alternatively, the birth of a child is not the timing when the role of father is fulfilled, rather the conception is.

# Contribution and Innovation

- Quasi-experimental methodology (treatment effects) applied to look at the effects of new first-time parenthood on mental health;
- Large data sample allowed to draw an estimation sample of the first-time new parents (485 mothers and fathers);
- Previous research in applied economics was unable to look specifically at new parents in Australia using a wide range of econometrics methods and controls because sufficient sample sizes were not available for Australia;
- Richness of the data allowed selecting variables to control for self-selection into parenthood using a range of socio-economic variables associated with fertility, fertility intentions and homeownership variables.

# Policy Implications

- Understanding whether it is parenthood by itself (namely raising children, fulfilling the social role of a parent, spending time with children) or the difficulties associated with it (e.g. financial stress, time pressures, lack of sleep) causes mental health issues in parents can provide the conceptual framework for designing policies in mental health.
- If the parenthood as such is positively correlated with mental health, but there are factors later in life that are associated with stress of parenthood that can be eliminated or outsourced, then the policy have to be aimed at helping parents to prevent the stresses and enjoy the parenthood
- This research shows that becoming a parent, apart from incidences of postnatal depression is an event that is positively associated with mothers' mental health.

---

**Thank you for your attention!**

Dr Nataliya Ilyushina  
[nataliya.ilyushina@rmit.edu.au](mailto:nataliya.ilyushina@rmit.edu.au)