

Gender Inequality in Sleep Following Parenthood: Does Being Married or Cohabiting Matter?

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ABSTRACT

Parenthood changes many aspects of people's lives, including their sleep. Women are often primary responsible for childrearing. Their sleep may deteriorate more than men's after parenthood. Therefore, sleep is described as the fourth shift. However, as couples are increasingly likely to have a first birth in cohabitation instead of marriage, the question arises whether sleep changes, as well as the gender gap in sleep, differently by partnership status. Married people differ from cohabitators in gender role attitudes, socioeconomic conditions, and the division of labour, which might contribute to their difference in the change in sleep between mothers and fathers. This study investigates how sleep changes following the first birth, how this differs by gender, and whether this gender gap differs by partnership status. We use change models in OLS and employ the UK Household Longitudinal Study Wave 1, 4 and 7. Sleep is measured as the quantity (self-reported hours) and quality (self-rated quality). Preliminary results show that women experience a larger decline in sleep quantity and quality following the first birth than men. Cohabiting men (but not women) experience a larger decline in sleep quantity and quality than married men. Cohabitators have a smaller gender gap in the change of sleep hours and quality than their married counterparts. There is thus gender inequality in sleep following parenthood, but the size of this inequality differs between cohabiting and married couples. In further analyses, we investigate the mechanisms that may explain these differences.

Key words: Life course, partnership status, fertility, sleep, gender equality

Introduction

Sleep is not only an indicator of physical and psychological wellbeing, it can also reflect social roles embedded in individuals' social contexts (Hislop and Arber 2003). Daytime work duties and family responsibilities continue to influence individuals' sleep into the night. Since social roles are attached to gender expectations, sleep is a life sphere in which gender inequalities can emerge. Sleep has been described as women's 'fourth shift', when physical and emotional caring continue into the night after performing paid work, housework, and emotional care in the daytime (Venn et al 2008).

Entry into parenthood is another area that highlights gender roles and expectations. Becoming a parent is known to bring about or exacerbate gender inequalities in household arrangements such as housework (Baxter et al. 2008; Bianchi et al. 2000; Sayer 2016). And parenthood is associated with less sleep hours and quality (Elek et al. 2002; Hagen et al. 2013; Medina et al. 2009). Prior research has shown that mothers sleep less and worse than fathers (Burgard and Ailshire 2013; Meadows and Arber 2012). However, few studies have taken a longitudinal approach to examine how sleep patterns change directly after entry into parenthood and whether gender differences in sleep change after entry into parenthood.

Moreover, no previous studies have examined whether the change in sleep hours and quality differs by partnership status. Today, around half of births occur outside of marriage in the UK, and one third of births are within cohabitation (ONS 2014). Consequently, 15% of UK families with dependent children are cohabiting couple families (ONS 2015). Cohabitors may experience more stress after the entry into parenthood as a result of temporary or uncertain work conditions (Schneider et al 2019, Garriga and Perelli-Harris 2019), or on the other hand, cohabitors may have greater gender equality attitudes, which may mean fathers help out more with caring for the child. The diversity in family structure impacts gender equality in household arrangements and may spill over into sleep. Prior research has found that cohabiting couples have a smaller housework gender gap than married couples (Bianchi et al. 2014; South and Spitze 1994). The 'fourth shift' may differ between cohabiting and married individuals. This study, therefore, investigates the following research questions:

RQ 1) Do changes in sleep hours and quality following childbirth differ by gender?

RQ 2) Does partnership status moderate this gender difference?

Theory

Differences in gender role attitudes, socioeconomic conditions, and the division of labour could all be explanations for why the gender gap in sleep hours and quality varies for parents in different partnership status. First, cohabiting persons often have more liberal gender role attitudes than married couples. Marriage tends to be a more traditional institution, with cohabitation oriented towards freedom and autonomy (Perelli-Harris et al 2014). Research from the US finds that although women can suggest cohabitation, men continue to be expected to propose marriage (Sassler and Miller 2011) and husbands are still expected to be breadwinners (Killewald 2016; Smock, Manning, and Porter 2005). Cohabitation is less socially institutionalized than marriage (Nock 1995), suggesting less clear cultural scripts concerning gender roles during parenthood among cohabitors than married couples (Cherlin 1978; Hofferth and Anderson 2003; Lundberg and Pollak 2015). Prior studies in the US and Australia showed cohabitors who plan to get married are more likely to rely on conventional gender specialization in household work (Baxter et al. 2010; Ciabattari 2004; Miller and Sassler 2010). Cohabiting men in the US are involved in childrearing than married men (Hohmann-Marriott 2011). Therefore, gender inequality in the fourth shift may be smaller among cohabitors.

Second, the disparity in socioeconomic circumstances for couples in different partnership status might influence the gender gap in sleep. Low income is associated with a higher chance of becoming a cohabiting parent (Bumpass and Lu 2000; Kennedy and Bumpass 2007; Edin and Nelson 2013; Ermisch 1991; Rowlingson and McKay 2005; Harkness et al. 2012; Perelli-Harris et al. 2010). Fewer socioeconomic resources lead to stress, and thus to lower quality sleep in the US (Patel et al. 2010), but it must be noted that this link is less clear in the UK (Adams 2006). Because fathers are (perceived to be) more responsible for the financial wellbeing of the family than mothers (Scott & Clery 2013; Townsend 2002), cohabiting couples may

experience a larger decline sleep than more affluent, married fathers, possibly leading to a smaller gender gap among cohabiting than married couples.

Third, the division of paid and unpaid labour between partners differs between married and cohabiting couples. Due to poorer socioeconomic conditions, cohabiting mothers more often need to work for pay to support family, possibly even working a night shift (Presser 2003; Stanczyk et al. 2017). Cohabiting fathers have lower fatherhood wage premiums and fewer work hours, compared to married fathers (Killewald 2013; Percheski and Wildeman 2008). Therefore, because of lower socioeconomic conditions, cohabiting mothers may have lower energy and fewer hours for the fourth shift while cohabiting fathers may take more family responsibilities, leading to a more equal sleep hours for cohabiting parents. Additionally, married mothers who usually have higher socioeconomic status are more likely to withdraw from the labour market to care for young children (Blair-Loy 2003; Stone 2007) and be involved in “intensive motherhood” (Hays 1998; Lareau 2003), while married fathers have higher work hours and wage premium than unmarried fathers (Edin and Nelson 2013; Glauber 2008; Hodges and Budig 2010). We can expect that married mothers are more likely to pick up childcare for a newborn baby or responsibilities at night, resulting in a larger gender gap in sleep.

This study, to our knowledge, is the first research to observe the change in parents’ sleep quantity and quality in different partnership status by using longitudinal data. Our research contributes to the literature by 1) expanding the discussion of gender inequality to sleep, 2) understanding whether the notion that becoming a parent is associated with shifts toward more traditional viewpoints apply for various kinds of partnership status, 3) aiming to explain gender differences in sleep following first birth by partnership status, and 4) minimizing the selection issue by using longitudinal panel data.

Data and Methods

This study draws on data from the UK Understanding Society which is a nationally representative longitudinal household survey. We use wave 1 (2009-2010), 4 (2012-2013), and 7 (2015-2016) which include questions about sleep quantity and quality. Our sample consists of all men and women who experienced a first birth either between wave 1 and 4 or between wave 4 and 7. We combine these two periods to have a larger sample; 1,123 and 1,144 individuals for models of sleep quantity and sleep quality, respectively.

We use a change model in OLS where we compare the sleep before and after birth. The dependent variables are the change in sleep hours and quality before and after birth, using sleep hours and quality before birth minus those after birth taken as continuous variables in the models. All time-varying variables in the models are also captured similarly by change. We investigate the initial change in sleep following the parenthood, the gender gap in the change, and whether the change in gender gap differs by partnership status.

The two dependent variables are sleep quantity and sleep quality, which capture different dimensions of sleep. The measurement for sleep quantity is “how many hours of actual sleep did you usually get at night during the last month?”. For sleep quality, we employ “during the past month, how would you rate your sleep quality overall?” which is measured on a scale of 1-5, with the higher score representing better sleep quality.

The main independent variables include gender (0=fathers, 1=mothers) and the change in partnership status between the waves (1=remain married, 2=remain cohabiting, 3=remain single, 4= cohabiting → married, 5= single → married, 6= single → cohabiting, 7= dissolution → single or new one). We also include covariates, including weekly work hours, monthly household income, the number of own household children, age of the youngest child, and period (samples from wave 1-4 or 4-7).

Preliminary Results

The descriptive analyses (Table 1) shows that sleep hours and quality reduce significantly following parenthood both men and women. The changes are larger for mothers than for fathers, thus women seem to experience a greater decline in sleep after first birth than men. The results are consistent with prior research (Elek et al. 2002; Hagen et al. 2013; Medina et al. 2009). Interestingly, the change in sleep hours is largest for fathers who remain cohabiting after birth, followed by those who transition into a union. Those who remain in marriage have a smallest change. For mothers, the largest change happens to those who transition into union,

followed by married mothers. Cohabiting mothers have the smallest change. The same pattern can be found in sleep quality although some changes are not statistically significant.

Table 2 further examines whether the change in sleep hours and quality differs by gender and partnership status. First, Model 1 shows that the transition into parenthood exacerbates mothers' sleep hours and quality more than fathers'. Second, Model 2 shows how partnership status influences changes in sleep different for men than for women. Fathers who remain in cohabitation following parenthood have fewer sleep hours and worse sleep quality compared to their married counterparts. The change in cohabiting mothers, compared to married mothers, is smaller. Therefore, being a parent increases the conformity to conventional gender roles since mothers are more likely to take care of the fourth shift, while the magnitude of conformity is weak for cohabiting parents.

We ran several robustness tests. First, we use a combined indicator for sleep quality, including sleep quality overall, cannot get to sleep within 30 mins, and wake up in the middle of the night. Since the scale of each question is different, we summed up them after standardization. Secondly, we substitute personal income for household income. Third, we substitute employment status for work hours. Fourth, we include whether mothers are pregnant as a control variable. Lastly, we add age group in the Models because people in different partnership status may have children at different ages. Since variables in our change models are the difference between after and before a first birth, we to some extent control age effect. These robustness analyses led to the same conclusions.

Preliminary Conclusions

As the proportion of cohabitation increases, scholars have discussed whether cohabitation is different from marriage. The results of this study shed light on this issue by examining gender inequality during the night. The results show that the change in gender inequality in sleep is less severe among cohabiting than married parents. This is consistent with findings of housework studies. Particularly, our sample focuses on parents who are most likely to comply with conventional gender roles. Marriage and cohabitation may be different in terms of gender performance. Additionally, gender inequality in sleep for those who transition into marriage regardless of being single or cohabiting is similar to married people. This may suggest that marriage as a "gender factory" still reproduces conventional gender roles, persisting gender inequality (Berk 1985). Sleep, as the fourth shift, is highly associated with other life aspects such as work and health, which contribute to gender inequality. Our results indicate that gender inequality is smaller among cohabitators than married couples. In further analyses, we would like to investigate the mechanisms that may explain differences in gender inequality in sleep after parenthood by partnership status.

Table 1. The difference in sleep hours and quality before and after first birth by gender and partnership status.

| | Sleep Hours | | | | | |
|---------------------------------|---------------|-------------|---------|--------------|-------------|---------|
| | Men | | | Women | | |
| | Before birth | After birth | Diff | Before birth | After birth | Diff |
| All | 7.044 | 6.601 | 0.443** | 7.434 | 6.594 | 0.840** |
| Partnership Status | | | | | | |
| Remain married | 7.023 | 6.645 | 0.378** | 7.411 | 6.643 | 0.768** |
| Remain cohabiting | 7.076 | 6.354 | 0.722** | 7.210 | 6.552 | 0.658** |
| Remain single | 7.107 | 6.929 | 0.178 | 7.532 | 6.620 | 0.912** |
| Cohabiting → married | 7.072 | 6.604 | 0.468** | 7.440 | 6.530 | 0.910** |
| Single → married | 7.200 | 6.764 | 0.436** | 7.367 | 6.292 | 1.075** |
| Single → cohabiting | 7.028 | 6.557 | 0.471+ | 7.769 | 6.537 | 1.232** |
| Dissolution → single or new one | 6.867 | 6.633 | 0.234 | 7.096 | 6.750 | 0.346 |
| N | | 561 | | | 745 | |
| | Sleep Quality | | | | | |
| | Men | | | Women | | |
| | Before birth | After birth | Diff | Before birth | After birth | Diff |
| All | 3.133 | 2.981 | 0.152** | 3.048 | 2.809 | 0.239** |
| Partnership Status | | | | | | |
| Remain married | 3.171 | 3.017 | 0.154** | 3.140 | 2.842 | 0.298** |
| Remain cohabiting | 3.064 | 2.846 | 0.218* | 3.030 | 2.930 | 0.100 |
| Remain single | 3.000 | 2.714 | 0.286 | 2.802 | 2.733 | 0.069 |
| Cohabiting → married | 3.145 | 2.976 | 0.169* | 3.078 | 2.667 | 0.411** |
| Single → married | 3.100 | 3.125 | -0.025 | 2.955 | 2.682 | 0.273+ |
| Single → cohabiting | 3.022 | 2.848 | 0.174 | 2.972 | 2.847 | 0.125 |
| Dissolution → single or new one | 3.267 | 3.133 | 0.134 | 2.962 | 2.769 | 0.193 |
| N | | 570 | | | 764 | |

Significant difference before and after the first birth in sleep hours and quality ** p<0.01, * p<0.05, + p<0.1

Table 2. Decline in sleep hours and quality before and after first birth, change models in OLS

| | Sleep Hours | | | Sleep Quality | | |
|---|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | (1) | (2) | (3) | (1) | (2) | (3) |
| Mothers | 0.319** (0.082) | 0.370** (0.103) | 0.390** (0.119) | 0.138** (0.051) | 0.198** (0.068) | 0.142+ (0.073) |
| Partnership status, change (rf. remain married) | | | | | | |
| Remain cohabiting | 0.151 (0.135) | 0.507* (0.206) | 0.510* (0.206) | -0.055 (0.082) | 0.170 (0.113) | 0.167 (0.115) |
| Remain single | 0.174 (0.250) | 0.407 (0.819) | 0.364 (0.829) | -0.195 (0.124) | 0.369 (0.346) | 0.482 (0.357) |
| Cohabiting → married | 0.032 (0.141) | 0.018 (0.147) | 0.018 (0.147) | 0.024 (0.083) | -0.003 (0.104) | -0.005 (0.105) |
| Single → married | 0.164 (0.179) | -0.061 (0.220) | -0.063 (0.220) | -0.109 (0.116) | -0.242 (0.150) | -0.239 (0.149) |
| Single → cohabiting | 0.062 (0.202) | -0.008 (0.321) | -0.017 (0.319) | -0.126 (0.104) | -0.012 (0.175) | 0.007 (0.175) |
| Dissolution → single or new one | -0.486+ (0.280) | -0.534 (0.388) | -0.544 (0.389) | -0.069 (0.188) | 0.019 (0.320) | 0.037 (0.316) |
| Mothers # Remain cohabiting | | -0.597* (0.279) | -0.600* (0.280) | | -0.375** (0.143) | -0.366* (0.144) |
| Mothers # Remain single | | -0.262 (0.860) | -0.223 (0.868) | | -0.611+ (0.370) | -0.698+ (0.379) |
| Mothers # Cohabiting → married | | 0.025 (0.208) | 0.030 (0.208) | | 0.042 (0.145) | 0.035 (0.144) |
| Mothers # Single → married | | 0.387 (0.337) | 0.389 (0.337) | | 0.229 (0.224) | 0.227 (0.223) |
| Mothers # Single → cohabiting | | 0.101 (0.408) | 0.106 (0.408) | | -0.185 (0.216) | -0.190 (0.216) |
| Mothers # Dissolution → single or new one | | 0.060 (0.521) | 0.067 (0.521) | | -0.137 (0.382) | -0.146 (0.382) |
| Change in work hours | | | -0.001 (0.003) | | | 0.004* (0.002) |
| Change in HH income | | | -0.000 (0.000) | | | -0.000** (0.000) |
| The age of the youngest child (rf. <12months) | | | | | | |
| 12-23 months | -0.531** (0.119) | -0.534** (0.120) | -0.537** (0.121) | -0.196** (0.067) | -0.203** (0.067) | -0.191** (0.067) |
| 24-35 months | -0.491** (0.129) | -0.497** (0.129) | -0.504** (0.131) | -0.238** (0.073) | -0.248** (0.073) | -0.230** (0.073) |
| 36 months | -0.165 (0.334) | -0.162 (0.351) | -0.170 (0.350) | -0.349+ (0.204) | -0.345 (0.211) | -0.322 (0.217) |
| Change in number of own children in HH | -0.365** (0.118) | -0.382** (0.119) | -0.384** (0.120) | -0.120+ (0.065) | -0.128* (0.065) | -0.126+ (0.065) |
| Sample Wave 4-7 (rf. wave1-4) | -0.194* (0.092) | -0.194* (0.092) | -0.194* (0.092) | 0.118* (0.055) | 0.117* (0.055) | 0.119* (0.055) |
| Constant | 0.608* (0.251) | 0.562* (0.247) | 0.561* (0.248) | -0.020 (0.137) | -0.056 (0.138) | -0.063 (0.138) |
| Observations | | 1,123 | | 1,144 | | |

Note. 1.All variables are difference between after and before the first birth (before - after). 2. All models are clustered by couples.
 ** p<0.01, * p<0.05, + p<0.1