

Influence of paid maternity leave on return to work after childbirth

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SUMMARY

Background: Paid maternity leave (ML) has been associated with better health outcomes in mothers and newborns. However, its protective role in mothers' employment after childbirth remains unclear. **Objective:** To assess the association between paid ML and being employed 1-year after childbirth. **Methods:** As part of the INfancia y Medio Ambiente (INMA) cohort study, 507 Spanish women employed at 12th week of pregnancy, were asked about their employment status and job characteristics at 32nd week of pregnancy. One year after childbirth, they were re-interviewed about their employment status and if they had taken paid ML. Incidence of maternal employment 1-year after childbirth was estimated. Crude and adjusted associations with paid ML were assessed by logistic regression, and characterized by odds ratios (ORs) with associated 95% CIs. **Results:** Information was obtained from 398 women. Of those, 290 (72.9%) were employed 1-year after childbirth. Incidence of maternal employment was lower for those who: i) didn't take paid ML, ii) were younger than 27 years; iii) had temporary contract, iv) had part-time jobs, v) reported less-favoured familiar social class, and vi) left the job before 32 weeks of pregnancy. Being employed 1-year after childbirth was more common in those who took paid ML (OR 2.7, 95%CI 1.6-4.5), also after adjusting for staying at work until advanced stages of pregnancy (OR 1.8, 95%CI 1.0-3.1). **Conclusions:** Taking paid ML seems to be associated with higher maternal employment rates 1-year after childbirth. Therefore, our findings suggest that protection of maternity might positively influence women's labour market participation after childbirth.

RIASSUNTO

«Influenza del congedo di maternità retribuito sul ritorno al lavoro dopo il parto». **Introduzione:** La garanzia di un compenso economico garantito durante il congedo di maternità (CdM) è stata associata a migliori condizioni di salute delle madri e dei neonati. Tuttavia, il suo ruolo protettivo rispetto all'occupazione delle madri dopo il parto rimane ancora poco studiato. **Obiettivi:** Valutare l'associazione tra il CdM retribuito e il mantenere il posto di lavoro

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*un anno dopo il parto. **Metodi:** Nell'ambito dello studio di coorte INfancia y Medio Ambiente (INMA), a 507 donne spagnole che risultavano occupate all'arruolamento (12a settimana di gravidanza) è stato chiesto di riferire sul loro stato occupazionale e sulle caratteristiche dell'impiego alla 37a settimana. A un anno dal parto sono state intervistate di nuovo sulla situazione lavorativa e, in particolare, se avevano usufruito di CdM retribuito, ed è stata calcolata l'incidenza di occupazione materna a un anno dal parto. Attraverso modelli di regressione logistica univariata e multipla (per tenere conto di possibili confondenti) è stata stimata l'associazione (Odds Ratio con relativo intervallo di confidenza) tra avere un usufruito di congedo retribuito e aver conservato il lavoro dopo un anno. **Risultati:** Sono state ottenute informazioni da 398 donne, di cui 290 (72,9%) erano occupate un anno dopo il parto. L'incidenza dell'occupazione materna era inferiore per le donne che: i) non hanno goduto del CdM retribuito; ii) avevano meno di 27 anni; iii) avevano un contratto temporaneo; iv) avevano un lavoro part-time; v) hanno riferito di appartenere a una classe socio-familiare meno favorita; e vi) hanno lasciato il lavoro prima della 32a settimana di gravidanza. L'aver un lavoro un anno dopo il parto è risultato più comune tra le donne che hanno usufruito del CdM pagato (OR 2,7, 95%CI 1,6–4,5), anche dopo aggiustamento dovuto al fatto dell'aver lavorato fino a gravidanza inoltrata (OR 2,7, 95%CI 1,6–4,5). **Conclusioni:** Il godimento di CdM retribuito sembra essere associato con maggiori garanzie di impiego un anno dopo il parto. Di conseguenza, i risultati del nostro studio suggeriscono che la protezione della maternità può influire positivamente sulla partecipazione femminile al mercato del lavoro dopo il parto.*

INTRODUCTION

Since the end of the 20th century, the proportion of women of reproductive age in the labour market has substantially increased. In Spain, the labour force participation rate in women aged 15 or more has risen 21.2% between 1980 and 2008 (17). Despite the increase in the participation rate, gender inequalities in employment accessibility and participation still persist, in particular between men and women who have children (23). It has been postulated that those gender inequalities are probably a consequence of a horizontal division of the labour market, where women are usually employed in less remunerated sectors of activity (4), and bear a higher burden of unpaid work, such as domestic and caregiving responsibilities (8).

In response to this, social security systems, mainly from industrialized countries, have introduced costly job-protective policies in order to balance mothers' occupational and family responsibilities that arise from the early care of children. For example, in Spain (2017), approximately 1.6 billion €/year has been allocated to paid maternity leave (ML) benefits (29). Spanish legislation defines paid ML as the legally established period of 16 uninterrupted weeks after childbirth, adoption, foster care and guardianship (30).

In spite of some variations between countries in the eligibility requirements for paid ML, length of leave and monetary value of wages replacements, less restrictive eligibility requirements to access paid ML and a longer duration of paid ML have been associated with lower rates of maternal depressive symptoms (5, 31) and higher levels of maternal overall self-reported health and well-being (2). Furthermore, it has been suggested that mothers who take maternity leave can improve perinatal and postnatal health outcomes for new-borns, such as reduced risk of low birth weight (33), lower post-neonatal mortality (16, 28), higher rates of immunizations (16) and longer breastfeeding duration (24).

Scientific evidence suggests that taking maternity leave improves maternal and newborn health outcomes. Nevertheless, only a few studies (14, 27) have analysed the job-protective effect of paid ML after childbirth. It has been estimated that 29% of working women in The Netherlands take sick leave for two weeks or more after ML ends, and in more than half of those periods of sickness absence, the duration of sick leave exceeded 1 year (34). Confirmation that paid ML also improves job retention will evince that motherhood is not an obstacle to the professional development of women. To explore this possibility, we examined the association of paid ML with maternal employment 1-year after childbirth.

METHODS

This investigation is part of the INfancia y Medio Ambiente (INMA)-Valencia Spanish cohort study (15). Between February 2004 and June 2005, women between 10 and 13 weeks of pregnancy were identified from the prenatal screening for Down's syndrome program at "Hospital la Fe" (Valencia-Spain), and invited to take part in the study. To be included in the cohort, participants had to be aged 16 years or more and had to confirm their intention to be monitored and to give birth in the hospital health service area. Women were excluded if they had impairments to communicate, chronic diseases or multiple pregnancy. Data were collected by face-to-face interviews with a structured questionnaire during two pre-natal (12th and 32nd week of pregnancy), and one post-natal (1-year after childbirth) periods of time. Eight hundred fifty-five women fulfilled the inclusion criteria and agreed to participate. Written informed consent was obtained from participants and the study was approved by the "Hospital La Fe" Ethics Committee. Women working at 12th week of pregnancy (first trimester) ($n=507$) were selected for this study. However, 109 were subsequently excluded because they had missing information related to paid ML and/or employment status 1-year after childbirth [women who left the study were younger ($p=0.032$) and less educated ($p<0.001$) compared to those who remained]. Our final sample comprised 398 (78.5%) pregnant women working at 12th week of pregnancy; information was collected about their age, country of birth (Spain or other) and full-time education (primary, secondary and post-secondary).

During the third trimester of pregnancy, at 32nd week, women were asked about their employment status (employed or not), employment characteristics such as contract of employment (permanent, temporary, self-employed and part-time training workers) and working time (part- or full-time), and about the presence at home of children less than 12 years old. In addition, occupation-based social class (11) was determined from the occupation of the participant at the time of the interview, or from the occupation of the newborn's father, if it was classed as more privileged. The occupation-based social class (11) was categorized in professional/manager-

ial-technical (Groups I-II), routine non-manual/skilled manual workers (III-IVa) and partly skilled/unskilled workers (IVb-V). At 1-year after childbirth, mothers were interviewed again about their employment status and were asked if they had taken paid ML (yes or no) after childbirth. Information was also collected about newborn's father employment status and if he took paid paternity leave, and whether the child attended to nursery or not. Statistical analysis was carried out using Stata Version 13 software (32). Mothers' employment status 1-year after childbirth was the outcome variable and paid ML the main explanatory variable. The rest of the sociodemographic and employment characteristics described above were considered as covariates for our analysis. Incidence of maternal employment 1-year after childbirth was estimated according to participants' characteristics. We used simple descriptive statistics to compare the characteristics of women who took paid ML and women who did not take paid ML. A bivariate analysis was performed, and p values were calculated using Chi-square test of independence. Logistic regression modelling was used to explore the association between paid ML and maternal employment 1-year after childbirth. In order to analyse all the covariates on which information was available and its effect as potential confounders, three types of model were fitted: 1) a model with only paid ML as independent variable, 2) different separate models including paid ML and each one of the covariates individually: maternal employment status at 32th week of pregnancy (advanced stages of pregnancy), age, country of birth, education, contract of employment, working time, familiar occupation-based social class, newborn's father employment status, children < 12 years-old at home and new-born attending nursery, and 3) a model with paid ML and all covariates together in a single model. The comparison of models 1 and 2 allowed to explore the confounding effect of each individual covariate in the estimate of the association between paid ML and mothers' employment status 1-year after childbirth, while the comparison of model 1 and 3 allowed to explore the confounding effect of all covariates together in the estimate of the association between paid ML and mothers' employment status 1-year after childbirth. Associa-

tions were summarised by odds ratios (ORs) with their 95% confidence intervals (95% CIs).

RESULTS

Table 1 summarises the demographic characteristics and employment conditions of women with and without access to paid ML. In our sample, the number of women who had access to paid ML was 4-fold higher in relation to women without access to paid ML. Those women without access to paid

ML were somewhat younger (26.6%, <27 years-old), their level of education was generally lower (39.2%, primary education) and with a higher proportion of migrants (15.2%); whereas, as expected, the majority of women with access to paid ML were permanent workers (65.2%) employed full-time (74.6%). Only a very small proportion (2.3%) of newborn's fathers took paid paternity leave, and no significant differences in the distribution of frequencies for this variable were observed between women who took paid maternity leave and women who did not.

Table 1 - Demographic and employment characteristics of pregnant women with and without access to paid maternity leave

	Women with access to paid maternity leave		Women without access to paid maternity leave		p value
	N	(%)	N	(%)	
Age (years)^a					
<27	41	(12.9)	21	(26.6)	0.028
27-30	106	(33.2)	23	(29.1)	
31-34	113	(35.4)	23	(29.1)	
>34	59	(18.5)	12	(15.2)	
Country of birth					
Spain	296	(92.8)	67	(84.8)	0.025
Other	23	(7.2)	12	(15.2)	
Full time education					
Primary education	70	(21.9)	31	(39.2)	0.006
Secondary education	143	(44.8)	29	(36.7)	
Post-secondary education	106	(33.2)	19	(24.1)	
Familiar occupational-based social class					
Groups I-II: Professional, managerial-technical	105	(32.9)	15	(19.0)	0.012
Groups III-IVa: Non-manual, skilled manual	95	(29.8)	21	(26.6)	
Groups IVb-V: Partly skilled, unskilled	119	(37.3)	43	(54.4)	
Contract of employment					
Permanent	208	(65.2)	9	(11.4)	<0.001
Temporary	43	(13.5)	26	(32.9)	
Self-employees	14	(4.4)	8	(10.1)	
Part-time training workers	54	(16.9)	36	(45.6)	
Working time					
Part-time	81	(25.4)	45	(57.0)	<0.001
Full-time	238	(74.6)	34	(43.0)	
Newborn's father paid paternity leave					
Yes	6	(1.9)	3	(3.8)	0.305
No	313	(98.1)	76	(96.2)	
Total	319	(100.0)	79	(100.0)	

^a Age in four bands, including in the youngest group (<27 years-old) those women with less restrictive requirements to access paid maternity leave

Incidence of maternal employment 1-year after childbirth by socio-demographic and mothers' employment characteristics are shown in table 2. A

total of 290 (72.9%) pregnant women working at 12th week were also working 1-year after childbirth. Overall, incidence of maternal employment 1-year

Table 2 - Incidence of maternal employment 1-year after childbirth by socio-demographic and employment characteristics in a cohort of women who were working at 12 weeks of pregnancy

	Women working during pregnancy		Women working at 1-year after birth		p value
	N ^b	(%) ^c	N ^d	I ^e	
Paid maternity leave					
No	79	(19.8)	44	55.7	<0.001
Yes	319	(80.2)	246	77.1	
Mothers' Age (years)^a					
<27	62	(15.6)	36	58.1	0.003
27-30	129	(32.4)	106	82.2	
31-34	136	(34.2)	94	69.1	
>34	71	(17.8)	54	76.1	
Mothers' country of birth					
Spain	363	(91.2)	265	73.0	0.841
Other	35	(8.8)	25	71.4	
Mothers' full-time education					
Primary education	101	(25.4)	68	67.3	0.119
Secondary education	172	(43.2)	123	71.5	
Post-secondary education	125	(31.4)	99	79.2	
Familiar occupational-based social class					
Groups I-II: Professional, managerial-technical	120	(30.2)	96	80.0	<0.001
Groups III-IVa: Non-manual, skilled manual	116	(29.1)	94	81.0	
Groups IVb-V: Partly skilled, unskilled	162	(40.7)	100	61.7	
Mothers' contract of employment					
Permanent	217	(54.5)	163	75.1	0.020
Temporary	69	(17.3)	44	63.8	
Self-employees	22	(5.5)	21	95.5	
Part-time training workers	90	(22.6)	62	68.9	
Mothers' working time					
Part-time	126	(31.7)	77	61.1	<0.001
Full-time	272	(68.3)	213	78.3	
Children < 12 years-old at home					
No	231	(58.0)	165	71.4	0.449
Yes	167	(42.0)	125	74.9	
Mothers working at 32 weeks of pregnancy (third trimester)					
No	162	(40.7)	83	51.2	<0.001
Yes	236	(59.3)	207	87.7	
Total	398	(100.0)	290	72.9	

^a Age in four bands, including in the youngest group (<27 years-old) those women with less restrictive requirements to access paid maternity leave; ^b Number of women working during pregnancy with exposure to the factor; ^c Percentage women working during pregnancy with exposure to the factor; ^d Number of women who returned-to-work 1-year after birth; ^e Incidence of women who returned-to-work 1-year after birth per 100 women

after childbirth was consistently greater than 65% (table 2), except for women aged less than 27 years (58.1%), those who had a temporary contract of employment (63.8%), those who worked part-time during pregnancy (61.1%) and those from less favoured familiar social class (61.7%). Moreover, incidence of maternal employment 1-year after childbirth was significantly lower in those women without access to paid ML (55.7%) and in those who left their job before 32 weeks of pregnancy (51.2%) respectively (table 2). Of the 290 women who were employed 1-year after childbirth, 277 (95.5%) reported that the father of the newborn was also employed 1-year after childbirth and 81 (27.9%) mentioned that the child attended nursery. No differences in the proportion of newborn's father employment 1-year after childbirth were observed between women who had access to paid ML and women without access to paid ML (data not shown in tables).

Table 3 presents the association of mothers' employment status 1-year after childbirth with paid ML. Being employed 1-year after childbirth was more common in those participants who had taken paid ML (OR 2.7, 95%CI 1.6-4.5, in comparison with those without access to paid ML). Nevertheless, this crude estimate showed a decrease in magnitude after adjustment for working at 32 weeks of pregnancy (OR 1.8, 95%CI 1.0-3.1), and the asso-

ciation was no longer significant at 5% level when all the characteristics of interest were included in a single regression model (OR 1.6, 95%CI 0.8-3.1).

DISCUSSION

In this cohort of Spanish women employed during pregnancy, those who had taken paid ML reported higher frequencies of employment 1-year after childbirth. Despite the absence of statistical significance at 5% level when all covariates were included in the analysis, taking paid ML seems to be associated with higher maternal employment rates 1-year after childbirth. Our results confirm the protective role of paid ML in maternal employment after childbirth. However, this association is strongly influenced by staying at work until the third trimester of pregnancy (32 weeks of pregnancy), and less by differences in socio-demographic and employment characteristics of the participants. Although our results are noteworthy, it is possible that other non-considered determinants, associated with staying at work until advanced stages of pregnancy, might explain, at least partially, the association between paid ML and maternal employment after childbirth.

In Europe, social security systems pursue equal opportunities for all individuals, and their aim is to guarantee protection against those situations where

Table 3 - Association of maternal employment 1-year after childbirth with taking paid maternity leave (reference category: no paid maternity leave) in a cohort of women who were working at 12 weeks of pregnancy

	OR (IC 95%)
Crude	2.7 (1.6-4.5)
Adjusted individually by:	
Mother working at 32 weeks of pregnancy	1.8 (1.0-3.1)
Mother's age at 12 weeks pregnancy	2.6 (1.6-4.4)
Mother's country of birth	2.7 (1.6-4.5)
Mother's full-time education	2.5 (1.5-4.3)
Familiar occupation-based social class	2.4 (1.4-4.1)
Mother's contract of employment	3.0 (1.7-5.3)
Mother's working time	2.2 (1.3-3.8)
Children < 12 years-old at home at 32 weeks pregnancy	2.8 (1.6-4.6)
Newborn's father employment status 1 year after birth	2.6 (1.6-4.5)
Newborn at nursery 1 year after birth	2.5 (1.5-4.2)
Adjusted by all variables presented in the table	1.6 (0.8-3.1)

workers are unable to work, such as ML, sick leave or unemployment. Nevertheless, due to the shift towards more flexible labour market arrangements (18) and the increase of precarious employment (7), access to those benefits is becoming much more difficult (21), in particular, for vulnerable workers, such as migrants (1), low-skilled (3), or younger workers (13). For this reason, our finding that incidence of maternal employment after childbirth were lower for women younger than 27 years-old, working part-time in less skilled jobs, with temporary contracts and who reported only primary education was not surprising.

It is plausible that a child's birth may produce an interruption in the professional development of the mother, by making it difficult to find a balance between her job demands and the care of her child. Returning to work after a long period of time always implies a stressful adaptation process. When new mothers go back to work, they need some time to in order to catch up with the regular job routine and, also, they will probably need to learn new work procedures despite their former work experience. This fact, together with mothers' socio-demographic characteristics, such as maternal age or the number of children at home, and employment conditions before childbirth might have a strong influence on mothers' expectations in relation to the process of returning to work after childbirth. In consequence, it is very likely that women with lower professional qualifications (12, 22), unstable or temporary employment, in particular in the private sector (12, 22), and without possibilities of professional promotion (12, 22) have lower expectations about the importance or meaningful role of their job and, therefore, are more prone to leave the labour market after childbirth.

In Spain, the eligibility requirements to access paid ML are: i) to be affiliated to the social security system and ii) to have worked at least 180 days within the previous 7 years before the date of the birth or 360 days in all the working life (30), and for women younger than 27 years-old, the eligibility requirements are less restrictive. Women under 21 years-old are not required to fulfil a minimum contribution period to the Spanish Social Security system and women between 21 and 26 years-old

need to work at least 90 days within the previous 7 years before the date of the birth or 180 days in all their working life (30). In spite of the less restrictive requirements to access paid ML for younger women, in our study we found that 27% from all women who did not take paid ML were less than 27 years-old. Moreover, in our sample, 20% of pregnant women did not have access to paid ML. Compared to those who had access to paid ML, this group showed higher proportions of migrants and reported lower educational levels and unskilled, temporary and part-time jobs (table 1). Considering those differences, it is plausible that women without access to paid ML had more precarious jobs during pregnancy, and this precarious situation might be relevant for younger women. In consequence, women without access to paid ML are more prone to experience low job-security (27), weak work commitment and attachment (25) and negative supportive relations at the workplace (19), which may lead them to leave their job at an early stage during pregnancy and delay their return to work after childbirth. Furthermore, it is also possible that those women without access to paid ML, who also left their job early during pregnancy, might have been exposed to hazardous jobs or had health-related complications during pregnancy; therefore, they tend not to return to work after childbirth.

Our finding that access to paid ML is associated with higher employment frequencies after childbirth accords with results from studies performed in Sweden and Norway (27) and Italy (9). However, most of the evidence concerning the influence of maternity benefits in maternal employment after childbirth comes from studies performed in North America. Those studies, focused mainly on leave duration, have indicated that longer periods of ML (paid or unpaid) are associated with a decrease in maternal employment after childbirth (6, 14). This is not surprising, considering that benefits of ML in the United States are scarce in terms of leave duration and availability of compensation wages. Many American women are covered by the Federal Medical Leave Act of 1993 which provides 12 weeks of unpaid job-protected ML (20). However, the access to those weeks of unpaid ML applies to women who have worked full-time for at least 12 months

in companies with 50 employees or more (20). In consequence, American women with lower wages do not have access to ML, and it has been estimated that 40% of mothers in the United States return to work within three months after giving birth (20). This issue contrasts with ML benefits in European industrialised countries, where ML is paid and job-protected, the access to those benefits is less restrictive and the duration of leave is much longer (20). For example, Germany offers mothers a job-protected period of more than 2 years (162 weeks), of which 42 weeks of leave are paid (24).

Our study has some strengths and limitations that need to be pointed out in order to interpret findings. As far as we know, this is the first study from a Southern European country that has prospectively assessed the influence of ML benefits in labour-force participation and job retention after childbirth. Against the strength of its longitudinal design, we did not have detailed information about women's employment status within the time period between childbirth and 1-year after childbirth. It is possible that some women, who were classed as not employed 1-year after childbirth, were employed for part of the time between childbirth and 1-year after childbirth. This may have somewhat obscured the association between paid ML with maternal employment 1-year after childbirth. Moreover, we did not consider in our analysis some determinants that might be also related to leaving the job at early stages of pregnancy, such as experiencing complications during pregnancy, impaired working conditions and poor health among women, which might make return to work after childbirth less likely. The INMA study (15) was originally planned to assess the influence of relevant environmental pollutants in the air, water and diet during pregnancy on the growth and development of children after birth. Therefore, detailed information about those determinants was not available and potential unmeasured confounding should not be ignored in order to interpret our findings. Finally, in our study, we have included only women employed at 12th week of pregnancy. Therefore, it is possible that women with poor health and who were unemployed due to their health condition at the beginning of pregnancy were underrepresented at baseline due to a healthy worker selection.

Our findings suggest that being employed during pregnancy and taking paid ML might positively influence labour-force participation and job-retention after childbirth for women who wish to continue developing their professional careers without disregarding their motherhood. Furthermore, employment during pregnancy has shown to be associated with better birth outcomes (10). Therefore, supporting women through maternity and stimulating their return to work might benefit women and children well-being, be a worthy investment for employers, and reduce employment-related gender inequalities.

Ethical statement

The research was conducted in accord with prevailing ethical principles and the rules of good scientific practice. The INMA-Valencia Spanish cohort study was reviewed by the "Hospital La Fe" Ethics Committee, in Valencia, Spain.

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Authors' contributions

FGB conceived the study. All authors jointly participated in the design of the study and data interpretation. SV-P and FGB wrote the first draft of the manuscript. FB, ME and the INMA-Valencia cohort team was responsible for data collection. SV-P was responsible for the statistical analysis. All authors discussed the results, commented on the manuscript and approved the final version of the manuscript.

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REFERENCES

1. Agudelo-Suárez A, Gil-González D, Ronda-Pérez E, et al: Discrimination, work and health in immigrant populations in Spain. *Soc Sci Med* 2009; 68: 1866-1874
2. Aitken Z, Garrett CC, Hewitt B, et al: The maternal health outcomes of paid maternity leave: a systematic review. *Soc Sci Med*. 2015;130 :32-41
3. Artazcoz L, Benach J, Borrell C, Cortès I: Social inequali-

- ties in the impact of flexible employment on different domains of psychosocial health. *J Epidemiol Community Health* 2005; 59: 761-767
4. Artazcoz L, Borrell C, Cortès I, et al: Occupational epidemiology and work related inequalities in health: a gender perspective for two complementary approaches to work and health research. *J Epidemiol Community Health* 2007; 61, ii39-ii45
 5. Avendano M, Berkman LF, Brugiavini A, Pasini G: The long-run effect of maternity leave benefits on mental health: evidence from European countries. *Soc Sci Med* 2015; 132: 45-53
 6. Baker M, Milligan K: Maternal employment, breastfeeding, and health: evidence from maternity leave mandates. *J Health Econ* 2008; 27: 871-887
 7. Benach J, Vives A, Amable M, et al: Precarious employment: understanding an emerging social determinant of health. *Annu Rev Public Health* 2014; 35: 229-253
 8. Borrell C, Palència L, Muntaner C, et al: Influence of macrosocial policies on women's health and gender inequalities in health. *Epidemiol Rev* 2014; 36: 31-48
 9. Brugiavini A, Pasini G, Trevisan E: The direct impact of maternity benefits on leave taking: Evidence from complete fertility histories. *Adv Life Course Res* 2013; 18: 46-67
 10. Casas M, Cordier S, Martínez D, et al: Maternal occupation during pregnancy, birth weight, and length of gestation: combined analysis of 13 European birth cohorts. *Scand J Work Environ Health* 2015; 41: 384-396
 11. Domingo-Salvany A, Regidor E, Alonso J, Alvarez-Dardet C: Proposal for a social class measure. Working Group of the Spanish Society of Epidemiology and the Spanish Society of Family and Community Medicine. *Aten Primaria* 2000; 25: 350-363
 12. Escribà Agüir V, Más Pons R, Saurel-Cubizolles MJ: The rejoining of the workforce of mothers during the first year of life of their child. *Gac Sanit* 1997; 11: 157-163
 13. European Foundation for the Improvement of Living and Working Conditions. (2013). Working conditions of young entrants to the labour market. Dublin: Eurofound. Available online at: http://www.eurofound.europa.eu/sites/default/files/ef_files/docs/ewco/tn1306013s/tn1306013s.pdf (last accessed 26-03-2018)
 14. Guendelman S, Goodman J, Kharrazi M, Lahiff M: Work-family balance after childbirth: the association between employer-offered leave characteristics and maternity leave duration. *Matern Child Health J* 2014; 18: 200-208
 15. Guxens M, Ballester F, Espada M, Fernández MF, et al: Cohort Profile: the INMA--INfancia y Medio Ambiente--(Environment and Childhood) Project. *Int J Epidemiol* 2012; 41: 930-940
 16. Heymann J, Sprague AR, Nandi A, et al: Paid parental leave and family wellbeing in the sustainable development era. *Public Health Rev* 2017; 38: 21
 17. International Labour Organization. (2010). Women in labour markets: measuring progress and identifying challenges. Geneva: International Labour Office. Available online at: http://www.ilo.org/wcmsp5/groups/public/--ed_emp/---emp_elm/---trends/documents/publication/wcms_123835.pdf (last accessed 26-03-2018)
 18. Kawachi I: Globalization and workers' health. *Ind Health* 2008; 46: 421-423
 19. Killien MG: The role of social support in facilitating postpartum women's return to employment. *J Obstet Gynecol Neonatal Nurs* 2005; 34: 639-646
 20. Kurtovich E, Guendelman S, Neuhauser L, et al: Development and First Phase Evaluation of a Maternity Leave Educational Tool for Pregnant, Working Women in California. *PLoS One* 2015; 10: e0129472
 21. Marmot M, Friel S, Bell R, et al: Closing the gap in a generation: health equity through action on the social determinants of health. *Lancet* 2008; 372: 1661-1669
 22. Mas Pons R, Escribà Agüir V, Colomer Revuelta C: The expectations of a woman's return to work after childbirth. *Gac Sanit* 1994; 8: 280-285
 23. Misra J, Budig M, Boeckmann I: Work-family policies and the effects of children on women's employment hours and wages. *Community Work Fam* 2011; 14: 139-157
 24. Ogbuanu C, Glover S, Probst J, et al: The effect of maternity leave length and time of return to work on breastfeeding. *Pediatrics* 2011; 127: e1414-e1427
 25. Ondrich J, Spiess CK, Yang Q: Barefoot and in a German kitchen: federal parental leave and benefit policy and the return to work after childbirth in Germany. *J Popul Econ* 1996; 9: 247-266
 26. Ray R, Gornick JC, Schmitt J: Who cares? Assessing generosity and gender equality in parental leave policy designs in 21 countries. *J Eur Soc. Policy* 2010; 20: 196-216
 27. Ronsen M, Sundstrom M: Maternal employment in Scandinavia: a comparison of the after-birth employment activity of Norwegian and Swedish women. *J Popul Econ* 1996; 9: 267-285
 28. Ruhm CJ: Parental leave and child health. *J Health Econ* 2000; 19: 931-960
 29. Secretaría de Estado de la Seguridad Social. (2016). Presupuestos. Ejercicio 2017. Ministerio de Empleo y Seguridad Social, Gobierno de España. Available online at: <http://www.seg-social.es/prdi00/groups/public/documents/binario/226964.pdf>. (last accessed 26-03-2018)
 30. Seguridad Social. Madrid: Ministerio de Empleo y Seguridad Social, Gobierno de España. Available online

- at: http://www.seg-social.es/Internet_1/Trabajadores/PrestacionesPension10935/Maternidad/index.htm (last accessed 26-03-2018)
31. Staehelin K, Berteaux PC, Stutz EZ: Length of maternity leave and health of mother and child—a review. *Int J Public Health* 2007; 52: 202-209
 32. StataCorp. 2013. *Stata Statistical Software: Release 13*. College Station, TX: StataCorp LP
 33. Stearns J: The effects of paid maternity leave: Evidence from Temporary Disability Insurance. *J Health Econ* 2015; 43:85-102
 34. Stomp-van den Berg SG, van Poppel MN, Hendriksen IJ, et al: Improving return-to-work after childbirth: design of the Mom@Work study, a randomised controlled trial and cohort study. *BMC Public Health*. 2007; 7: 43

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