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Use of benefits during pregnancy: a cohort study in four organisations in Spain

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ABSTRACT

Objectives To analyse the use of either sick leave (SL) benefit and/or pregnancy-related occupational risk (POR) benefit by workers taking work absence during pregnancy.

Methods Retrospective cohorts of working women from the beginning to the end of pregnancy in three public hospitals and one pharmaceutical company, between 2015 and 2019. We measured the frequency and duration of absences, by age and occupational variables, and cumulative absence days, classifying work status as at work, on SL and on POR absence. Differences between groups for each variable were analysed through the Kruskal-Wallis rank test followed by Dunn's Pairwise Comparisons. Sequence analysis was used to identify pregnancy trajectories.

Results Among 1116 pregnant workers, absence days due to SL ranged from 9.9% to 28.6% of total possible working days, from 9.2% to 38.4% due to POR, while only 3.9% did not take any absence. Nurse aides and nurses used benefits most often and for the longest duration with respect to other occupational categories (p value<0.001). Age had no statistically significant difference (p value=0.245). Three pregnancy trajectories were identified, characterised by mostly active work, active work combined with POR and active work with SL, with differences by workplace, occupation and work area (p value<0.001). The total time in days during which pregnant women were actively working ranged between 56% and 64% depending on the organisation.

Conclusions This study in four organisations shows a very similar pattern regarding total time absent from work during pregnancy. Women were actively working for two-thirds of their pregnancy. Of the remaining time, while in two organisations, absences were mainly due to SL, in other two were due to POR. Organisational variations in the management of pregnant women could be an explanation. We need further investigation on this topic.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Previous studies carried out in Sweden, Norway and Spain suggest that absences from work during pregnancy are frequent. The welfare state has several benefits options when these absences are certified for health or preventive reasons. However, little is known about how pregnant workers are driving this situation.

WHAT THIS STUDY ADDS

⇒ Our study confirms that in our sample, pregnant women work approximately as much as 6 months during their pregnancy. Absences from work are accumulated mostly in the last 3 months. The proportion of days of absence covered by sickness absence or pregnancy occupational risk benefits varies among companies probably because of pregnancy management.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ These results could stimulate research in other countries on this relevant topic. It is urgent to compare the results from other countries with different social security systems to advance in the understanding of the intersection among social security, health system and work. Also, there is an urgent need to develop appropriate occupational medicine protocols to help pregnant women.

INTRODUCTION

A pregnant working woman may be exposed in her workplace to risk factors for the foetus and her own health.[1 2] Scientific evidence shows that exposure to certain biological,[3] chemical,[4–6] physical,[7–9] ergonomic[10–12] and/or psychosocial[9–13] risk factors may damage foetal or maternal health resulting in spontaneous abortion, foetal death, premature birth, low birth weight, congenital malformations or neurobehavioural disorders.[14–16]

Likewise, during pregnancy, the woman may suffer from disorders attributable to the pregnancy itself (low back pain, asthenia, insomnia, pelvic and lumbosacral pain, nausea and vomiting), in addition to other possible pregnancy complications[17] which lead to work absence for health reasons especially among younger women.[18]

To protect maternity, in Spain as in other European countries with strong welfare state,[19] women are eligible for two benefits if they are absent from work for health reasons during pregnancy: sick leave (SL) and pregnancy occupational risk (POR) benefits. Any worker can access SL benefits in the event of a health problem that requires absence from work and during which he or she receives treatment. It is certified by a doctor from the National Health System, requires affiliation to the Social Security system and a prior contribution period of 180 days in the previous 5 years, and generates 60%–75% of the base salary,[20] though this may be increased to 100% in the case of collective agreement in the company.

POR has a preventive purpose and is used when there is exposure to occupational risk factors that could cause harm to the mother and/or the foetus, which the employer cannot eliminate or control. Access to the POR benefit requires affiliation to the Social Security system but does not require a prior contribution period and covers 100% of the pregnant worker's salary. A doctor from a Social Security mutual insurance company (Mutua) must assess the appropriateness of the POR benefit, at the request of the employing organisation which certifies the existence of risks and the impossibility of eliminating them or relocating the worker.[21]

After childbirth, maternity leave is a benefit that mothers, and recently fathers too, of a newborn can take. The duration of the leave is 16 weeks at the longest: six have to be taken just after childbirth, and for the remaining ten weeks, parents can choose different time periods. The starting date of the leave may correspond with the delivery date.[22] Scientific evidence on the use of these social benefits by pregnant workers is very scarce, and it is not easy to compare results between different countries and regulatory frameworks. According to various reviews of the literature, there are individual, sociodemographic, work-related and structural factors that have an influence on absence during pregnancy, such as handling of loads, high demand and low control of work tasks, but also difficulties of reconciling family and work life, or commuting more than 50 minutes a day.[23–25] Work adjustments or temporary relocations of pregnant workers, together with attitudes of occupational health services (OHSs) and companies' management, also play an important role.[26]

In a previous study unique to date, carried out at Hospital del Mar in Barcelona in 2017, analysis of the use of social benefits in a cohort of pregnant workers revealed that women remained active at work during two-thirds of their pregnancy. For their absences during the remaining third, they used SL most frequently (68%) and POR only 33% of the time.[27 28] Scientific evidence on work absence during pregnancy is still scarce.[29 30] The objective of the present study was to analyse the use of SL and POR benefits by pregnant workers according to job characteristics in four different organisations.

METHODS

The study was based on retrospective cohorts of pregnant workers from four workplaces, who were followed up from baseline (either date of last menstrual period (LMP) or, when this was not available, estimated retrospectively from date of delivery) until the end of pregnancy (date of delivery or start of maternity leave).

Three public hospitals participated in the study: Hospital del Mar (HMAR) in Barcelona with 4800 workers, Consorci Corporació Sanitària Parc Taulí (CSPT) in Sabadell (Barcelona province) with 4800 and Hospital Universitari San Joan de Reus (HSJR) in Reus (Tarragona province) with 2750. All three hospitals provide acute, chronic and primary care services, HMAR and CSPT also provide mental healthcare. A private pharmaceutical company B. Braun (BBRAUN), located in Rubí (Barcelona province), also participated. The four organisations were included in the study because they had their own in-house OHS with a specific pregnancy/breastfeeding protection programme, as well as a monitoring registry of pregnant workers from the declaration of pregnancy until the end of it. All pregnancies beginning between 2015 and 2019 were included if the pregnancy had been communicated to the OHS, had been follow-up by an occupational physician from this service and the woman had maintained their employment contract with the organisation throughout the pregnancy.

For each pregnancy notified to the OHS, we used the organisation's human resources database to record days of absence from work due to SL and/or POR together with age and job information.

The duration of each episode of absence was calculated from the recorded start and end dates of the episode. The total number of days of absence for each type of benefit was also recorded. These days were subtracted from the total days of pregnancy. Since the date of LMP was not available at HSJR, the total pregnancy days were estimated retrospectively from the start date of maternity leave, assuming a 40-week pregnancy.

In addition, the age of workers at the time of pregnancy (24–30, 31–35, 36–45 years) and the job variables for the three hospitals were collected: professional category (physicians, nurses, healthcare assistants, laboratory, radiology, pathological anatomy, pharmacy technicians and administrative staff) and work area (in-patients, surgical area, emergencies, outpatients, central services, and administration and support services). For BBRAUN, occupation and area of work overlapped and were merged into a single variable, work area (production, laboratories, warehouses, commercial, healthcare and administrative). There were no women under age 24 in any of the included cohorts.

For each company, a descriptive analysis of the absolute frequency and proportion of cases with and without episodes of absences due to SL or POR was carried out according to age, occupation (except BBRAUN) and work area.

Table 1 Total pregnancies records according to age and job characteristics.

	HMAR	CSPT	HUSJR	BBRAUN
	n (%)	n (%)	n (%)	n (%)
Age				
24–30	78 (19.5)	83 (25.3)	54 (29.8)	41 (19.8)
31–35	191 (47.7)	145 (44.2)	86 (47.5)	104 (50.2)
36–45	131 (32.8)	100 (30.5)	41 (22.7)	62 (30.0)
Professional categories*				
Administrative	19 (4.8)	17 (5.2)	12 (6.6)	– –
Nurse aides	94 (23.5)	65 (19.9)	34 (18.8)	– –
Nurses	166 (41.4)	105 (32.2)	72 (39.8)	– –
Doctors	112 (28.0)	114 (35.0)	44 (24.3)	– –
Technicians	9 (2.3)	25 (7.7)	19 (10.5)	– –
Work area				
Adm/services	15 (3.8)	19 (5.8)	9 (5.0)	86 (41.6)
Outpatient area (Production†)	49 (12.2)	131 (39.9)	18 (9.9)	58 (28.0)
Surgical area (Laboratories†)	81 (20.2)	38 (11.6)	43 (23.8)	39 (18.8)
Inpatient (Commercial†)	193 (48.3)	88 (26.8)	84 (46.4)	13 (6.3)
Central services (Healthcare†)	26 (6.5)	14 (4.3)	4 (2.2)	9 (4.3)
Emergencies (Warehouse†)	36 (9.0)	38 (11.6)	20 (11.0)	2 (1.0)
Total	400 (100.0)	328 (100.0)	181 (100.0)	207 (100.0)

Cohorts of pregnant workers: Hospital del Mar (HMAR), Consorci Corporació Sanitària Parc Taulí (CSPT), Hospital Universitari San Joan de Reus (HSJR) and Company B. Braun (BBRAUN), 2015–2019.
*Not available for the company BBRAUN, and overlaps to some extent with work area.
†Work areas into brackets are those specific for the company B. Braun (BBRAUN).

The number of days pregnant workers had been at work, or absent from work with either POR or SL, was calculated. Three possible types of absence records were identified for each pregnancy: (a) absence only due to episodes of SL, (b) absence only due to episodes of POR and (c) absences due to episodes of both SL and POR. The total duration (accumulated days) and median of the SL and POR episodes (and their interquartile intervals) were then calculated for each organisation, and each of the three possible scenarios represented graphically using boxplots. For each worker, the accumulated time (days) in each status during their pregnancy was calculated.

The analyses were carried out separately for each organisation, and the results were also combined in a pooled analysis, based on age, occupation and work area for the three hospitals, and on age and work area for BBRAUN.

Differences between groups for each variable were analysed through the Kruskal-Wallis rank test followed by Dunn's Pairwise Comparisons (Šidák-Holm adjustment). A sequence analysis was carried out to identify working pregnancy trajectories, based on the daily pregnant worker's employment status (active work, absence from work due to SL benefit or absence due to POR). Excel was used for the databases and Stata for the statistical analysis.

Data used in this research were available in the data file from the OHS and Human Resource Department, and pregnant healthcare workers were not involved directly. Informed consent from participants could not be obtained because the study was based on record linkage between administrative databases on sociodemographic and absences from work from the Human Resource Department for each hospital/company and the OHS database of pregnant women. The linkage was carried out using a confidential identification unique study number for each woman.

Ethics approval statement

The Medical Research Ethics Committee of Parc de Salut Mar certifies that, in accordance with Law 14/2007 on Biomedical Research, Principles ethics of the Declaration of Helsinki, and other applicable ethical principles, has evaluated positively the proposal to carry out research project no. 2019/8646/I.

RESULTS

In total, 1116 pregnancies were included, of which 400 corresponded to workers from HMAR, 328 from CSPT, 181 from HSJR and 207 from BBRAUN. In the four organisations, pregnancies occurred mostly in women in the 31–35 years age group. In the three hospitals, pregnancies were mostly in nurses (HMAR 41.4%; CSPT 32.2%; HSJR 39.8%) and doctors (HMAR 28.0%; CSPT

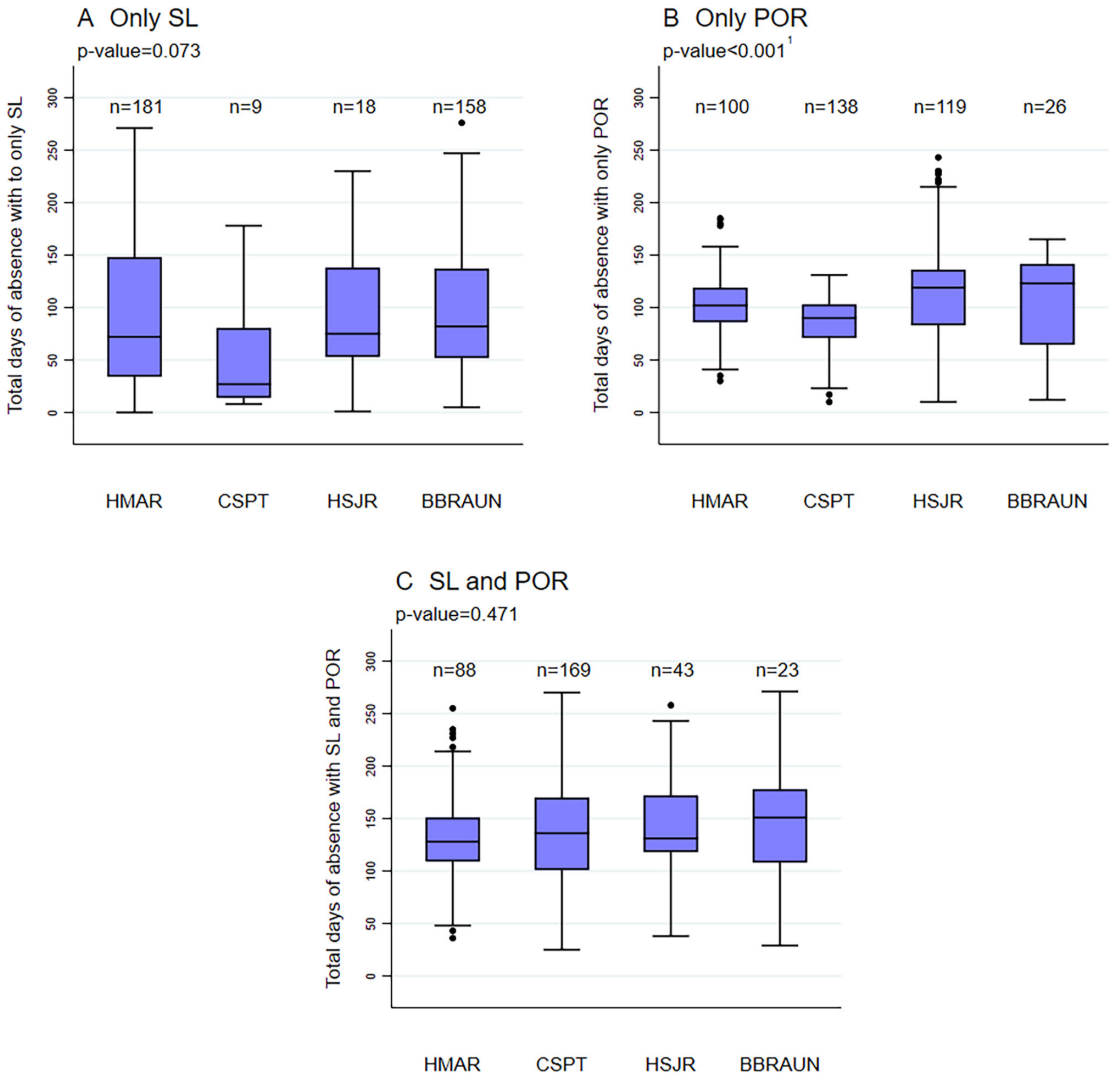

Figure 1 Box plots of the duration of absences during pregnancy with sick leave (SL) and/or pregnancy occupational risk (POR), in each of the four companies, Hospital del Mar (HMAR), Consorci Corporació Sanitària Parc Taulí (CSPT), Hospital Universitari San Joan de Reus (HSJR) and Company BBRAUN (BBRAUN), according to the three types of trajectories: (**A**) episodes only of SL, (**B**) episodes only of POR, and (**C**) episodes of SL and POR. Period 2015–2019.

34.9%; HSJR 24.3%), and those who worked in in-patient services (HMAR 48.3%; CSPT 26.8%; HSJR 46.4%). In BBRAUN, most pregnant workers were women who worked in administration and services (41.6%) and in production (28.0%) (table 1). No absences occurred in 44 (3.9%) pregnancies: 31 (7.7%) in HMAR, 12 (3.7%) in CSPT and 1 (0.5%) in HSJR. In BBRAUN, all pregnant women had at least one absence.

When comparing the use of possible benefits for absences during pregnancy, in HMAR, 181 (45.2%) pregnant workers used only SL benefit, 100 (25.0%) only sought POR benefit, and 88 (22.0%) received both benefits. In CSPT, the frequency of benefits use was 9 (2.7%), 138 (42.0%) and 169 (51.5%) for SL only, for POR only and for both benefits, respectively; in HSJR, it was 18 (9.9%), 119 (65.7%) and 43 (23.8%); and in BBRAUN 158 (76.3%), 26 (12.6%) and 23 (11.1%), respectively.

In all organisations, statistically significant differences were found for the median duration of episodes, being higher for those pregnancies in which both benefits were used as compared with episodes covered only by POR and only due to SL. Median duration was shorter at CSPT, although the interquartile ranges overlapped, except for the group with episodes of both SL and POR, which was similar in the four organisations (online supplemental table 1 and figure 1).

For all absences (SL and/or POR), statistically significant differences were found in absences due to only POR (p value<0.001), but not in absences covered by only SL (p value=0.073) and covered by SL and POR (p value=0.471) (figure 1). Also, we found statistically significant differences in the median duration of absence by occupation and work area (p value<0.001) in the hospitals and by work area in BBRAUN (p<0.001). Nurses, nurse aides and technicians had a longer median duration of absence than administrative and medical staff. A gradient was also observed between those working in administrative areas and central care services, with higher

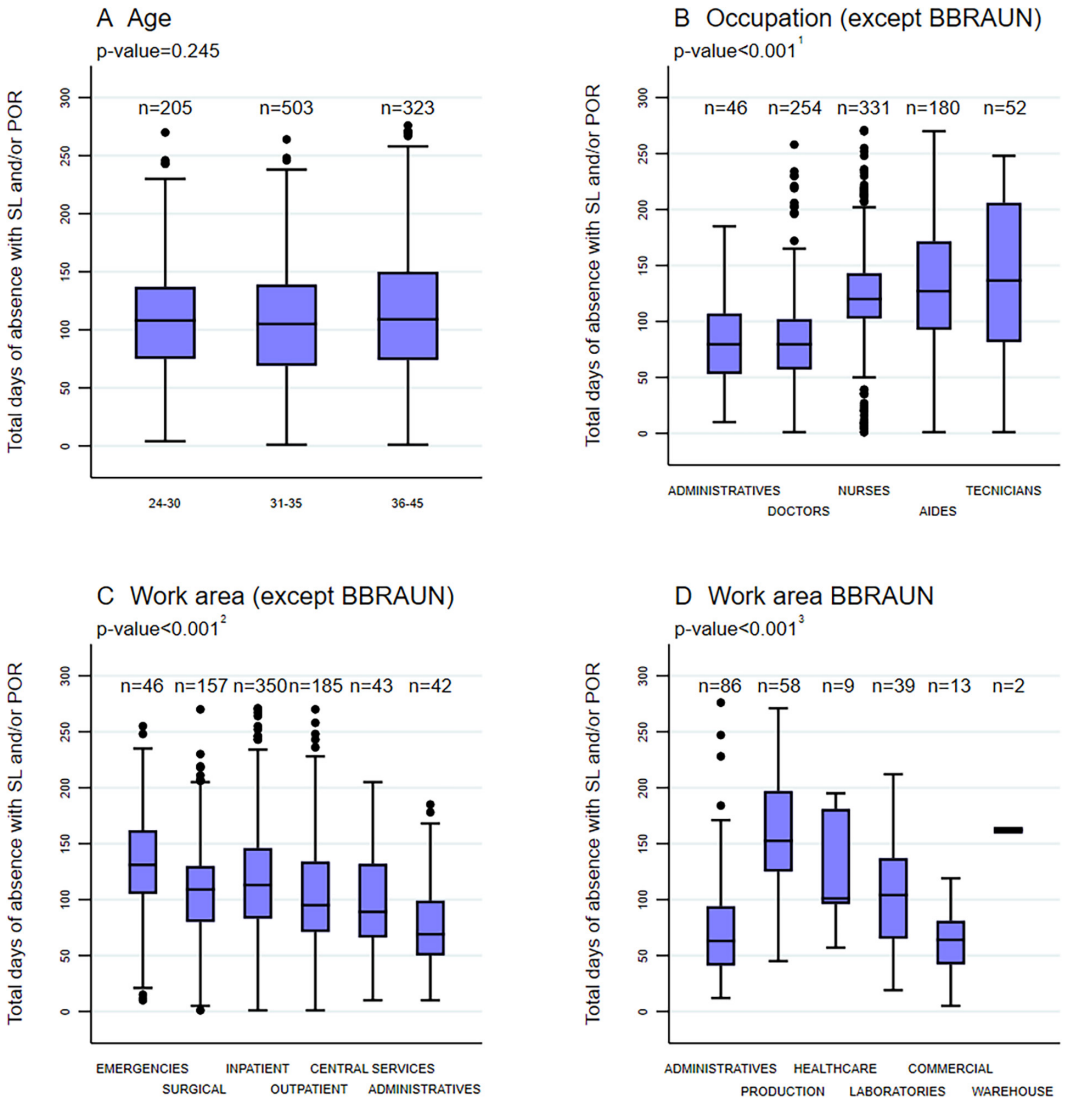

Figure 2 Box plots of the duration of absences during pregnancy with sick leave (SL) and/or pregnancy occupational risk (POR), in four companies—(Hospital del Mar (HMAR), Consorci Corporació Sanitària Parc Taulí (CSPT), Hospital Universitari San Joan de Reus (HSJR) and Company B. Braun (BBRAUN)—by (**A**) age; (**B**) occupation (except BBRAUN); work area, (**C**) except BBRAUN; and (**D**) work area, only BBRAUN. Period 2015–2019.

medians occurring in those working in care areas and in direct contact with patients (out-patients, surgery, in-patients and emergency services) (figure 2). No statistically significant differences were found in median duration of absence by age (p value=0.245).

Sequence analysis identified three trajectories of pregnancies with statistically significant differences by workplace, occupation and work area (p values<0.001). The first trajectory was characterised mostly by active work, the second by active work combined with POR, and the third trajectory by active work and SL. The first trajectory (n=316 pregnant workers) included mainly workers from HMAR (n=152, 48.1%) and CSPT (n=122, 38.6%), doctors (n=162, 51.4%) and nurses (n=19.7%), from inpatients wards (n=111, 35.2%) and outpatient departments (n=89, 28.3%). The second trajectory (n=465) included mainly workers from CSPT (n=198, 42.6%) and HMAR (n=141, 30.3%), nurses (n=247, 53.2%) and nurse aides (n=109, 23.5%), from inpatients wards (n=191, 41.3%), surgical (n=90, 19.4%) and outpatient departments (n=89, 19.2%). And the third trajectory (n=128) includes mainly workers from HMAR (n=107, 83.6%), doctors (n=42, 32.8%) and nurses (n=34, 26.6%), from inpatients wards (n=63, 49.2%) and outpatient departments (n=20, 15.6%) (online supplemental table 2 and figure 3). Age did not show any statistically significant differences between groups (p value=0.248).

Finally, the follow-up of days absent accumulated during pregnancy for all pregnant women showed that women were in work at HMAR and BBRAUN for around two-thirds of their pregnancy (64% and 62%, respectively), with a slightly lower proportion at CSPT and HSJR (60% and 56%, respectively). For the rest of the pregnancy period, a similar proportion of days absent due to SL (18.5%) and POR (17.2%) was observed in HMAR; in BBRAUN, more days of absence were due to SL (28.6%)

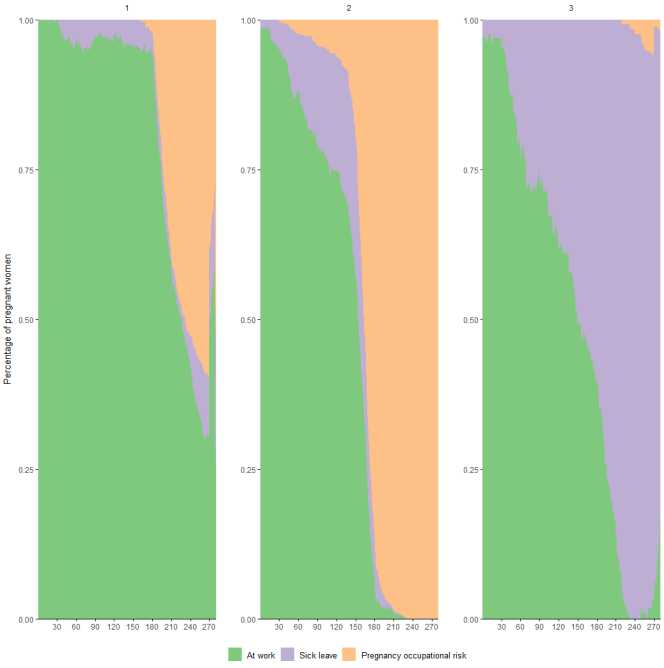

Figure 3 Work and absences trajectories in pregnant workers. Follow-up of accumulated days of absence. Days at work in green; days of absence with sick leave (SL) in lilac; days of absence with pregnancy benefit (POR) in orange, for pooled data of the three hospitals: Hospital del Mar, Consorci Corporació Sanitària Parc Taulí and Hospital Universitari San Joan de Reus. Period 2015–2019.

than to POR (9.2%); absence was due to POR most of the time absent in CSPT and HSJR (30.4% and 38.4%, respectively), compared with 9.9% and 5.9% for SL, respectively (figure 4).

DISCUSSION

Around two-thirds of women in our study were active at work during pregnancy, a proportion that was similar in the four workplaces and confirms previous findings.[27 28] There were, however, few differences between organisations in the type of benefit used by women to cover their absences—either SL or POR benefits—and the median duration of episodes covered by each benefit also differed by organisation. Three pregnancy trajectories were identified with differences across occupations and area of work. No differences were observed by age and days absent, which may be explained by the fact that around 50% of pregnancies occurred between 30 and 35 years.

The scientific literature on this topic is scarce, and international comparisons are difficult because of the lack of homogeneity on terminology and available benefits across countries (SL and/or POR).[30] It can be assumed, however, that differences in the use of benefits found in our study may have been due to differences between organisations in ways of managing pregnancies in workers. Adaptation and readjustment of both workplace and work tasks have been shown to be effective in keeping pregnant women at work and reducing the number of SL episodes,[31 32] but organisations often prefer workers to be absent rather than adapt tasks to reduce their risks.[23 33 34]

The most common use of a particular benefit in some organisations may be explained by understanding the organisations that grant these benefits: that is, the Mutua in the case of the POR, and the primary care service of the National Health System in the case of the SL in Spain. It is possible that the Mutua has more strict and specific requirements before granting risk-benefit during pregnancy, since it is the Mutua that must pay up to 100% of the salary of the pregnant woman during their absences. This is not the case for SL, since the first 15 days salary are paid by the employer, but by Social Security the following days. Another hypothetical explanation relates to the fact that POR is granted by the Mutua based on occupational risks and sometimes starts late in pregnancy—in keeping with protocols that have changed over time.[35] This may mean that women prefer to use SL granted by their primary care doctor to cover short-term health problems—whether pregnancy-related or not—or when they personally feel that a risk has not been entirely eliminated.

Furthermore, although POR benefit guarantees 100% of the applicant's salary, there are groups within the study population (eg, doctors) who perform services (on-call) that are not fully covered by POR.

Comparing our current findings to previous analyses from our own research at HMAR for the period 2010–2014, an increase in the use of POR is observed, from 15.9% of the pregnancy time to 25.0% in the current analysis (period 2015–2019). This increase could be explained by the progressive use of POR after it was first introduced in Spain in 2009, together with further published guidelines, such as those by the Spanish Society of Gynecology and Obstetrics, and the American College of Obstetricians and Gynecologists. These guidelines have widely been used by OHS in companies and hospitals to elaborate their own internal protocols.[35 36] Improvements in the information provided to workers about this benefit and its administrative process could well have contributed too to an increase in the use of POR benefit by pregnant workers.[37] Also, companies and women prefer to use POR for its better economic benefits in comparison with SL, as companies do not have to pay for any absence day.

Median duration of total absence was influenced and tended to be higher in occupations related to nursing or in work areas with greater direct patient contact. Longer episodes were observed in nurses and nurse aides, especially in surgical, in-patient and emergency areas. This longer duration of episodes for these groups could be due to risks present in the workplace. In a study carried out in Denmark, as the number of occupational risks to which pregnant workers were exposed increased, especially workers in areas with possibly greater physical demand, the number of work absence episodes also increased.[38] The sequence analysis is consistent with those findings. The trajectory with most days of active

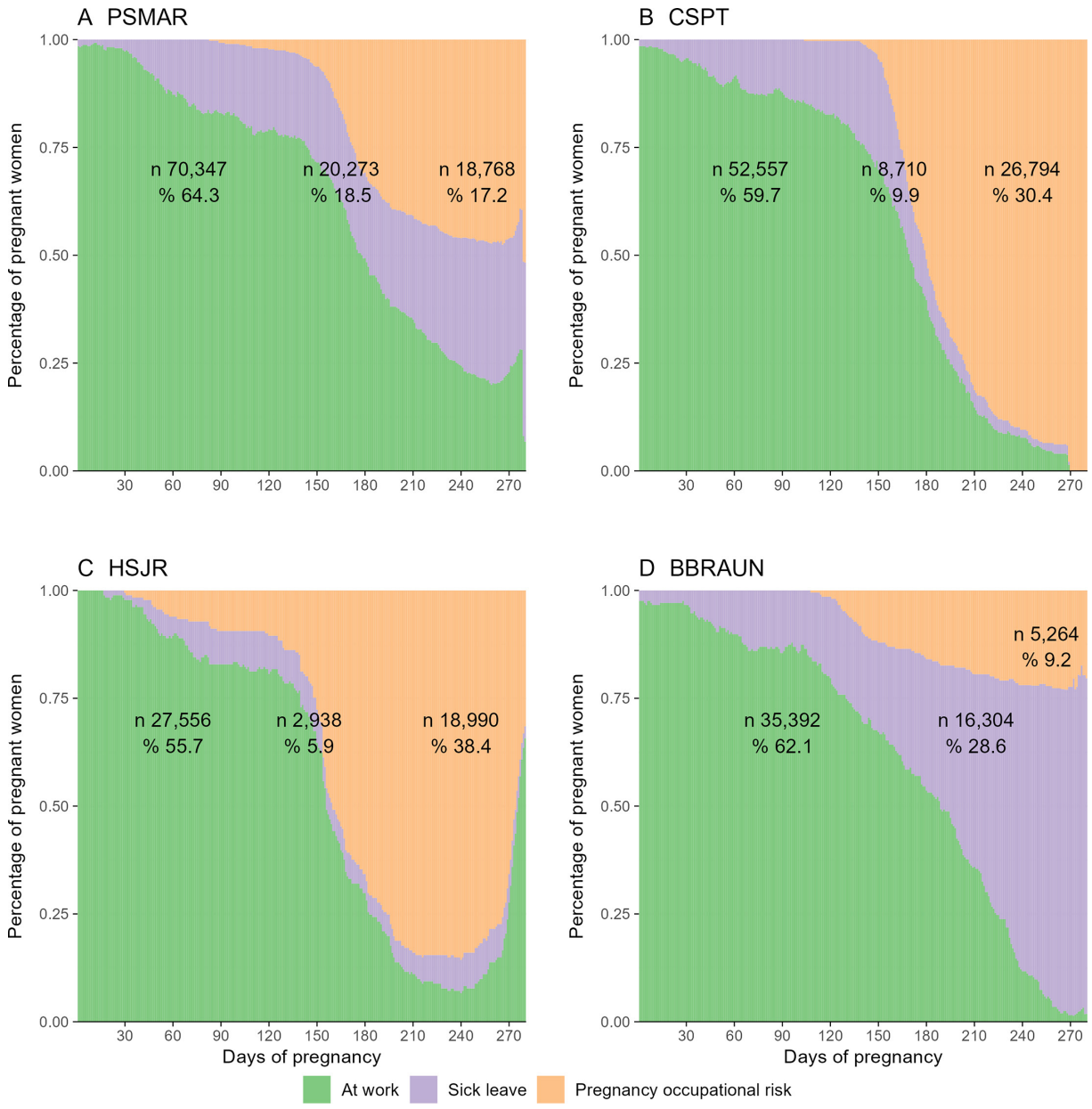

Figure 4 Follow-up of accumulated days of absence. Days at work in green; days of absence with sick leave (SL) in lilac; days of absence with pregnancy benefit (POR) in orange, for each of the four companies: (A) Hospital del Mar (HMAR), (B) Consorci Corporació Sanitària Parc Taulí (CSPT), (C) Hospital Universitari San Joan de Reus (HSJR) and (D) Company B. Braun (BBRAUN). Period 2015–2019.

work includes a higher proportion of doctors and those who work in outpatients, whereas nurses, nurse aides and those in inpatients areas have mostly a combination of days of active work and POR.

We suggest that some, if not all, of these absences could be reduced through improvements in working conditions and/or more management effort to adapt the workplace.[31 32] Such initiatives might reduce both economic and career disadvantages that derive from these absences.[29] As initiatives to improve work outcomes, we could suggest improving occupational risk assessment and increasing workplace adaptations, such as switching to teleworking and other forms of smart working when possible, task changes, use of aids for loading weights and patients, which should be incorporated into updated guidelines. Future research might evaluate the effectiveness of interventions to reduce absences during pregnancy.

This study has strengths and limitations. Regarding strengths, the four workplaces had an OHS with protocols for the management of pregnant workers and the prevention of risks during pregnancy. They also had reliable data on each pregnancy collected over a recent, extended period that allowed us to obtain a good sample. This introduces a weakness, however, since it is possible that in organisations where these resources are not available, the use of benefits may be different from that observed in our study. Therefore further research is required.

Regarding limitations, the four organisations had different ways of recording data, and in spite of our efforts to homogenise the records, this was not always possible. For example, in one of the hospitals, lack of information on the date of the last menstrual period meant that we had to estimate the beginning of pregnancy based on the date of delivery.

The sample studied in each hospital may be biased to some extent towards those pregnancies of workers with stable contracts. Women with temporary contracts were probably left out of the study, though a proportion with a long enough temporary contract was included. Also, to be included in the study, the institutions and companies had to have an in-house OHS to provide the required data for the study. This could mean that pregnant women in these companies are working in better conditions. Equally, important job variables such as shift work, type of contract and adaptations or changes made on the job were not available in all organisations and could not be included in the analysis. We also did not have information on other non-work factors that may affect the work-life balance, such as having small children or taking care of older dependent people.

It was not possible to study the effect of different approaches to the management of pregnant women in these organisations as these largely depend on existing guidelines. Although institutions and/or scientific societies have created reference guidelines to help OHSs design specific protocols for the protection of pregnancy and breastfeeding, these guidelines have not been evaluated. In order to improve the management of pregnant workers, it is important to verify that an appropriate methodology was used to create guidelines and that their recommendations are sound.[39] So, systematic evaluations of guidelines are needed. Finally, with regard to external validity, our results could be extrapolated to public hospitals with similar characteristics, and possibly to large private companies within the industrial sector, but not to small companies and/or where OHSs are outsourced. Furthermore, we must be cautious in generalising these results to countries with other health systems and legislation frames.

In conclusion, this study provides useful information to improve the use of social benefits for absence during pregnancy. In view of the wide use of SL alone and in combination with the POR, it is necessary to know in more detail the reasons why workers use each of these benefits when there is exposure to occupational risks. More research on this topic is needed if we want to increase fertility rates in countries with welfare states. Qualitative studies with direct participation of pregnant women, managers and others may improve understanding of the facilitators and barriers to the use of benefits and duration of absence during pregnancy and help create active and safe workplaces for pregnant women.

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Contributors FGB and CS conceived and conceptualised the study. CS is responsible for funding acquisition. ML and FGB developed the study protocol and codebook for data collection. RMSF, JI, PP, JP and PPL provided the anonymised data to construct the cohorts. ML collected all provided information by hospitals and the company and homogenised and pooled the four cohorts' data, with support from CS and FGB. XD performed the statistical analyses and created the figures included in the manuscript. ML wrote the first draft, and CS, FGB, RMSF, JI, PP, JP, XD and PPL edited following drafts. CS and FGB performed a critical review of the manuscript with important contributions to the design and methodology. All authors have read and approved the final manuscript. ML is the guarantor and accepts full responsibility for the finished work and the conduct of the study; had access to the data; controlled the decision to publish; and, on behalf of the rest of authors, guarantees the accuracy, transparency and honesty of the data and information contained in the study that no relevant information has been omitted and that all discrepancies between authors have been adequately resolved and described.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, conduct, reporting or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

Ethics approval This study involved human participants and was approved by the Medical Research Ethics Committee of Parc de Salut Mar certifies that, in accordance with Law 14/2007 on Biomedical Research, Principles ethics of the Declaration of Helsinki and other applicable ethical principles, has evaluated positively the proposal to carry out research project no. 2019/8646/I. Informed consent from participants could not be obtained because the study was based on record linkage between administrative databases on sociodemographic and absences from work from the Human Resource Department for each hospital/company and the OHS database of pregnant women. The linkage was carried out using a confidential identification unique study number for each woman.

Provenance and peer review Not commissioned; externally peer-reviewed.

Data availability statement Data may be obtained from a third party and are not publicly available.

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