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Sick leave among native and immigrant workers in Spain—a 6-month follow-up study
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Key terms: absenteeism; follow-up study; immigrant worker; immigration; job satisfaction; migrant worker; native worker; occupational health; population dynamics; sick leave; sickness absence; socioeconomic inequality; Spain

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Objectives  The incidence and duration of sick leave were studied among immigrants and the native-born population in Spain.

Methods  This observational follow-up study included 1427 immigrants and 2793 Spanish natives treated at five primary care centers in Lleida in 2005 and followed for 6 months. The sick leave causes were coded according to the International Classification of Diseases (10th revision). Multivariate Poisson regressions estimated the rate ratio (RR) for sick leave adjusted for age, and linear regressions evaluated the effect of age, gender, and region of origin on the total number of sick-leave days.

Results  Altogether 19.5% of the natives and 12.7% of the immigrants had at least one sick-leave episode. The incidence of new episodes per 100 person-years was lower for the immigrants than for the natives (32.5 versus 43.3 for the men and 18.6 versus 35.6 for the women, respectively). The mean duration of sick leave in the 6-month period was 19.4 (SD 29.4) days for the immigrants and 33.5 (SD 39.2) days for the natives. For the men, the risk of sick leave was greater for the natives than for the immigrants (adjusted RR 1.70, 95% confidence interval 1.43–2.02). After adjustment for age, the duration of sick leave for the native workers was 1.5 times greater than for the immigrants.

Conclusions  Even though sick leave was less frequent among the immigrants than among the natives and the immigrant sick-leave periods were of shorter duration, the two study populations did not show differences in the causes of disability.

Key terms  absenteeism; immigration; job satisfaction; migrant worker; occupational health; population dynamics; sickness absence; socioeconomic inequality.
However, their level of job security is likely to be low and their work conditions poor (6).

Studies in Spain have highlighted differences in the health care services provided to immigrants and to the native-born population with regard to pharmaceutical consumption and the use of emergency hospital services (7, 8). However, no studies to date have analyzed sick leave among immigrants living in Spain, and only a few have concerned sick leave among immigrants in Europe (9–12).

This study was designed to identify possible differences in the incidence and duration of sick leave in immigrant and native-born populations.

**Study population and methods**

The study was designed as an observational follow-up study using an immigrant population and a random sample of the native-born population of Spain. Participants were included in the study sample between 1 March and 31 August 2005. All of them were followed for a period of 6 months.

Patients treated by 15 primary care physicians at five primary care centers in the city of Lleida (Spain), part of the Catalan Health Institute (ICS), took part in the study. The centers were located in the districts with the largest immigrant population, according to the municipal census. All of the immigrant patients seen by the participating physicians during the study period were included (a total of 1630 persons). To obtain the sample of the native-born population for the study, we selected 300 patients randomly from each of the 15 participating primary care centers. A total of 4500 persons were thus recruited. Of these, 346 were excluded after an individual review by the participating physicians, or due to recording errors. The final native-born sample comprised 4154 patients. From the total sample of 5784 patients, a subsample was selected of patients of working age, between 16 and 64 years. This subsample was comprised of 4220 persons (1427 immigrants and 2793 natives).

The participants’ countries of origin were grouped into the following regions: Spain (native-born), Maghreb, Eastern Europe, Latin America, sub-Saharan Africa, other low-income countries (including Asian countries) and other high-income countries (13, 14). High-income countries were excluded from the study because there were very few persons from these countries in the sample. In this study, the natives were all patients born in Spain, and the immigrants were those from low- and middle-income countries. The immigrant samples were grouped together so that the statistical power of the study would be increased and more stable estimations would be obtained in the regression models.

**Variables**

We studied age, gender, country of origin, presence or absence of a new episode of sick leave due to common illness, total duration of sick leave in the 6-month follow-up period, and cause of sick leave coded using the International Classification of Diseases, 10th revision. These variables were obtained from the computerized database E-Cap V.10 of the Catalan Health Institute.

**Statistical analysis**

The incidence of a new episode of sick leave per 100 person-years and the total days of sick leave during the study period were estimated according to age, gender, and region of origin. The health problems that caused the sick leave were analyzed according to the assumption that the episode was the unit of analysis. A multivariate Poisson regression was used to estimate the age-adjusted rate ratio (RR) and 95% confidence interval (95% CI) for requiring sick leave with respect to the Spanish-born population while taking into account the age and gender distribution of each region of origin. A linear regression was used to evaluate the effect of the variables age, gender, and region of origin on the total number of days of sick leave. Given the asymmetric distribution of the variable total number of days of sick leave, a logarithmic transformation was applied. In both the Poisson and linear regressions, age was included in the models grouped into 10-year categories. Age-adjusted models were also obtained for each gender.

**Results**

Table 1 presents the demographic characteristics of the study population. The percentage of women and the mean age were slightly higher for the native-born group. The immigrants in the study sample were mainly from Latin America, Maghreb, and sub-Saharan Africa.

The percentage of persons requiring at least one period of sick leave during the study was greater for the natives (19.5%) than for the immigrants (12.7%). Table 2 presents the number of persons at risk and the incidence of sick leave. The incidence of, at least, a new episode of sick leave per 100 person-years was lower for the immigrants than for the natives (32.5 versus 43.3 for the men and 18.6 versus 35.6 for the women, respectively). For the age groups, differences were also observed between the immigrants and natives. The immigrants had less sick leave than the natives, and, in addition, their periods off work were shorter.

Table 3 presents the descriptive measures of sick leave duration, the higher means and medians being found for the native population than for the immigrants.
Sick leave among native and immigrant workers in Spain

Among the men, the mean duration of sick leave was greater for the natives, with the exception of the 25- to 34-year age group. Among the women, work-related disabilities were always greater, on the average, for the natives, and the median duration of all the age groups was also consistently higher.

The age-adjusted rate ratio for having at least one period of sick leave was greater for the native-born population (table 4). The adjusted overall rate ratio for the sick leaves of the natives, compared with those of the immigrants, was 1.7 (1.4 for the men and 2.1 for the women). The risk of sick leave among the native-born men was therefore around 40% greater than for the male immigrants, and, for the women, it was twice as high.

When the data were analyzed without stratification by gender (table 4), we estimated a greater rate of sick leave (RR 1.3) for the men than for the women.

When adjusted for age, the estimated linear regression model for duration showed that the periods of sick leave averaged 1.5 times longer for the native workers than for the immigrant workers. The duration of sick leave was 1.3 times greater for the women than for the men.

The most frequent cause of sick leave among the immigrants was upper-back pain (21.8%), followed by acute rhinopharyngitis (9.3%) and gastroenteritis (5.1%). Among the natives, the most frequent cause of sick leave was also upper-back pain (14.6%), followed by anxiety disorders (6.9%) and convalescence after surgical procedures (5.7%).

Discussion

Principal findings
In this study, the immigrant patients took sick leave less frequently than their native-born counterparts.

Table 1. Characteristics of the study population and the incidence of a new episode of sick leave per 100 person-years, by group of origin.

| Characteristic         | Immigrants (N=1427) | Natives (N=2793) |
|------------------------|---------------------|-----------------|
|                        | N       | %    | N       | %    |
| Gender                 |         |     |         |     |
| Male                   | 694     | 48.6| 1246    | 44.6|
| Female                 | 733     | 51.4| 1547    | 55.4|
| Age                    |         |     |         |     |
| Men (a)                |         |     |         |     |
| 16–24 years            | 110     | 15.9| 203     | 16.3|
| 25–34 years            | 279     | 40.2| 300     | 24.1|
| 35–44 years            | 213     | 30.7| 297     | 23.8|
| 45–54 years            | 73      | 10.5| 226     | 18.1|
| 55–64 years            | 19      | 2.7 | 220     | 17.7|
| Women (b)              |         |     |         |     |
| 16–24 years            | 187     | 25.5| 252     | 16.3|
| 25–34 years            | 270     | 36.8| 373     | 24.1|
| 35–44 years            | 175     | 23.9| 336     | 21.7|
| 45–54 years            | 82      | 11.2| 277     | 17.9|
| 55–64 years            | 19      | 2.6 | 309     | 20.0|
| Region of origin       |         |     |         |     |
| Latin America          | 448     | 31.4| -       | -   |
| Eastern Europe         | 263     | 18.4| -       | -   |
| Maghreb                | 406     | 28.5| -       | -   |
| Sub-Saharan Africa     | 283     | 19.8| -       | -   |
| Other                  | 27      | 1.9 | -       | -   |

(a) Mean 33.92 (SD 9.6) for the immigrants and mean 39.41 (SD 13.3) for the natives.

(b) Mean 32.39 (SD 10.1) for the immigrants and mean 39.80 (SD 13.8) for the natives.

Table 2. Incidence of sick leave by gender and group of origin.

| Age (a) | Immigrants (N=1427) | Natives (N=2793) |
|---------|---------------------|-----------------|
|         | Sick leaves (N) New sick leaves/100 person-years | Sick leaves (N) New sick leaves/100 person-years |
| Men     |         |     |         |     |
| 16–24 years | 16   | 29.2 | 44   | 43.4 |
| 25–34 years | 39   | 28.0 | 76   | 50.6 |
| 35–44 years | 41   | 38.6 | 70   | 47.2 |
| 45–54 years | 16   | 43.8 | 52   | 46.0 |
| 55–64 years | 1   | 10.6 | 28   | 25.4 |
| 16–64 years | 113 | 32.5 | 270  | 43.3 |
| Women   |         |     |         |     |
| 16–24 years | 7   | 7.4  | 37   | 29.4 |
| 25–34 years | 28   | 20.8 | 88   | 47.2 |
| 35–44 years | 22   | 25.2 | 74   | 44.0 |
| 45–54 years | 11   | 26.8 | 41   | 29.6 |
| 55–64 years | -   | 0.0  | 35   | 22.6 |
| 16–64 years | 68  | 18.6 | 275  | 35.6 |

Among the men, the mean duration of sick leave was greater for the natives, with the exception of the 25- to 34-year age group. Among the women, work-related disabilities were always greater, on the average, for the

Table 3. Duration of sick leave by gender and group of origin.

| Gender | Immigrants (N=1427) | Native-born (N=2793) |
|--------|---------------------|---------------------|
|        | N  Mean  SD Median  | N  Mean  SD Median  |
| Male   | 113 17.4 28.1 8   | 273 29.7 36.8 13    |
| Female | 68   22.8 31.2 10.5 | 277 37.3 41.1 20    |

Table 4. Age-adjusted rate ratios (RR) for sick leave among the participants. (95% CI = 95% confidence interval)

| Model | All patients | Men | Women |
|-------|--------------|-----|-------|
| RR    | 95% CI       |     |       |
| Men versus women | 1.31 1.13-1.52 | -   | -     |
| Natives versus immigrants | 1.70 1.43-2.02 | 1.43 1.14-1.79 | 2.09 1.59-2.74 |

Discussion

Principal findings
In this study, the immigrant patients took sick leave less frequently than their native-born counterparts.
Furthermore, the mean duration of sick leave was shorter for the immigrants. However, there were no significant differences regarding the diseases causing sick leave among the native and immigrant groups.

Our research was carried out between March and August 2005. This timespan included the summer months when the inflow of immigrants was at its peak, but it also included a period of colder weather so that the differences in sick leave incidence due to seasonal influence could be examined. Some studies indicate that it is during the summer that the longest sick leaves occur (15, 16).

Our results are difficult to compare with those obtained in other studies due to differences in the analyses performed and the outcomes studied. However, a Spanish study carried out in Navarra by Parra et al (2) reported similar results, with 23% of the foreign-born workers and 30% of the native-born workers having some type of work disability during the study period (2). In our study, the duration of the sick leave was greater for the women than for the men. The results in the literature are inconclusive, since some studies report a shorter sick leave duration for women (16, 17), while others have reported a longer duration (18), and still others have reported no difference between the genders (19). A Spanish study (20) concluded that work absence does not depend on gender, but instead is related to personal characteristics and work conditions (flexibility of workhours, job status, type of contract, income, job prospects, etc). These features are particularly relevant in the case of the immigrant population. Several reports have found that the health of immigrant groups is perceived as a secondary issue. If workers are valued for their productivity, illness is obviously the worst possible scenario, both for the employer, who fears that production will slow down, and for the workers with precarious contracts, who may fear dismissal. Indeed, the situation of immigrant workers in a new environment may explain the principal differences found in the study (21).

The causes of sick leave among our patients were similar to those found in other studies (22, 23). Nevertheless, the use of different disease classification systems in these studies means that it is difficult to compare the results. As workers who seek medical consultation in primary care settings may have different characteristics than workers who do not go for consultation, the interpretation of the results of our study must be limited to similar populations.

It is well known that sick-leave duration depends on multiple factors, for instance, the specific health problem, workers’ social and demographic characteristics, work conditions, and the activity performed. These factors may all contribute to explaining the differences found in our two groups. Benavides et al (24) stressed the importance of the type of work performed when the degree of sick leave is analyzed. Both in that study and the one by Artieda et al (25), workers in less-skilled jobs had longer mean disabilities per event and worker, in both the native and immigrant groups. Immigrant workers are more likely to be in good physical condition because of their lower mean age; in addition, people who decide to emigrate usually have acceptable health. Another explanation for the lower degree of sick leave among the immigrants may be their lack of job security and the adverse socioeconomic situations that motivate people to work while sick. This effect is called “presenteeism”. It is well known that occupational category is an important predictor of sickness absence certified as attributable to common disease (26) and also that injuries and illnesses in vulnerable populations are probably underreported and health problems are more likely to be ignored (26–28). As immigrant workers tend to have poorer contracts, they are at a high risk of occupational injury and illness and are often discouraged from requesting better work conditions or reporting injury and illness due to their fear of reprisal (29).

Limitations of our study

Among the principal limitations of our study, the most important is the lack of work-related information in the clinical history register (numbers of persons in employment, type of work, type of contract, etc). Therefore, we could not analyze the extent to which differences in unemployment rates or job security might have explained the differences in the frequencies of sick leave between the two groups. Furthermore, our study was not based on an analysis of workers in the general population, but on patients consulting for primary care treatment. Finally, when sick-leave behavior is compared, only workers enrolled in the Spanish social security program were included; workers without full social security entitlement (that is, undocumented workers) were not included. The recent regularization program for undocumented immigrants may have increased the percentage of persons who work legally.

Significance of the study and proposals for future research

The reasons why immigrants require less sick leave than native workers and why their periods off-work tend to be of shorter duration should be analyzed in detail. Is it possible that immigrants, due to the precariousness of their situation, feel the need to work when ill? Or could immigrants be healthier than native workers? Immigration is a recent phenomenon in Spain, and most immigrants have arrived in the country recently. In the future, there will be greater differences among the immigrant population in terms of time spent in Spain. It will then be possible
to examine whether time of residence is a factor that influences immigrants’ attitudes towards work. Future research should explore whether the pattern identified in this study is reproduced in other areas of Spain and whether sick leave is attributable to different health needs or job characteristics.

Concluding remarks

In summary, these results suggest that sick leave was less frequent among immigrants than among natives in this study in Lleida (Spain) and that immigrant disabilities were of shorter duration. Nevertheless, no differences were detected between the causes of disability in the two study populations. This study adds to the body of empirical information on immigrant sick leave, and this information is of vital importance in the framing of public perception, debate, and policy.

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