Cross-national comparisons of sickness absence systems and statistics: towards common indicators

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We aimed to identify common elements in work sickness absence (SA) in Spain, Sweden and The Netherlands. We estimated basic statistics on benefits eligibility, SA incidence and duration and distribution by major diagnostics. The three countries offer SA benefits for at least 12 months and wage replacement, differing in who and when the payer assumes responsibility; the national health systems provide health care with participation from occupational health services. Episodes per 1000 salaried workers and episode duration varied by country; their distribution by diagnostic was similar. Basic and useful SA indicators can be constructed to facilitate cross-country comparisons.

Introduction

The European Union (EU) encourages cross-national collaborative research (e.g. http://cordis.europa.eu/fp7/cooperation/health_en), whether it be data set harmonization (e.g. www.euro-ghd-se.eu) or survey research (e.g. www.europeansocialsurvey.org, www.eurofound.europa.eu/surveys). Absence from work is an obvious domain for such research. After excluding vacation time and holidays, the main reason for temporary work absences is ill-health (i.e., sickness absence, SA). In 2007, before the current financial crisis, 3% of the EU workforce was absent from work at any given time.¹ SA is costly to society,² and SA benefits, together with permanent disability, cost over 2% of the Organisation for Economic Cooperation and Development countries’ gross domestic product.³

Cross-national comparative SA research can help advance knowledge on rigorous methodologies and complex statistical analytic techniques, produce higher generalizability and collaborative expertise in a scarce resources environment and identify applicable return-to-work policies and practices. Cross-national differences in regulations, definitions and data availability and accuracy and representativeness of data created for purposes other than research pose challenges. Beyond the limited resources, an ageing workforce with increasing retirement age⁴ and a greater proportion of workers with chronic diseases who could remain productive at work, comparative research can foster mutual learning and cooperative problem-solving, identifying peculiarities, less important, and commonalities, more important, of SA patterns, management and policies.

SA determinants are numerous, and policies and practices may vary widely across countries.⁵ Greater cross-national information exchange could be beneficial (e.g. there may be good country-specific experiences on how to reduce time to return to work).³ However, differences exist in working population structure, SA definition, information sources, basic indicators and trends (www.eurofound.europa.eu/ewco/studies/tn0911039s/tn0911039s.htm). Comparisons based on non-comparable indicators lead to erroneous conclusions and should not deter the quest for identifying essential and useful commonalities. We identified common elements in SA benefits and measures in three EU countries to gauge the feasibility of eventually harmonizing and standardizing data and terminology for comparative research.

Methods

We used national registry data from each country. Spanish data sources were the Spanish National Institute of Social Security (www.aseguradasocial.es) or survey research (e.g. www.europeansocialsurvey.org, www.eurofound.europa.eu/surveys). Absence from work is an obvious domain for such research. After excluding vacation time and holidays, the main reason for temporary work absences is ill-health (i.e., sickness absence, SA). In 2007, before the current financial crisis, 3% of the EU workforce was absent from work at any given time.¹ SA is costly to society,² and SA benefits, together with permanent disability, cost over 2% of the Organisation for Economic Cooperation and Development countries’ gross domestic product.³

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Methods
### Table 1: Characteristics of the systems of SA from work in Spain, Sweden and The Netherlands

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Spain</th>
<th>Sweden</th>
<th>The Netherlands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Temporary sick leave to allow recovery while receiving health care from work-related and non-work-related disease or injury.</td>
<td>Sick leave when work incapacitated due to work-related or non-work-related disease or injury.</td>
<td>Sick leave to recover from work-related or non-work-related disease or injury.</td>
</tr>
<tr>
<td><strong>Sick leave certification</strong></td>
<td>For non-work-related SA, general practitioner (GP) certify beginning on the 4th day and confirm every week thereafter. The GP assesses patient recovery and certifies the end of the sick leave episode. For work-related SA, occupational physicians certify from the 1st day onwards.</td>
<td>A medical sickness certificate is required after 7 days, earlier if employer demands it. All physicians can issue sickness certificates. During the first 2 weeks, the employer assesses the right to sick pay, after that period it is the Sickness Insurance Agency that assess whether the person is entitled to sick-leave benefits.</td>
<td>For paid (salaried) employment: occupational physicians (OP) within 42 days after calling in sick. For self-employed: medical advisors of the insurance company that compensates work disability within the term that is specified by the insurer.</td>
</tr>
<tr>
<td><strong>Most recent relevant regulatory reform</strong></td>
<td>Since 1995, public insurance companies (mutuas) allowed to manage the worker's sick pay benefits and to offer complementary care from the 16th day onwards.</td>
<td>After 90 sick-leave days: if the workers can perform another work at same employer she must do that. After 180 sick-leave days: benefits only if cannot perform any work in the regular labour market.</td>
<td>Since 2004, employers or insurers must compensate sickness absence for a period of 24 months.</td>
</tr>
<tr>
<td><strong>Maximum duration</strong></td>
<td>12 months, with the possibility of an additional 6 months, following a review by the National Social Security Institute. Thereafter, assessment for disability pension.</td>
<td>A maximum of 364 days during a 15-month period, with some possibilities for prolongation up to 914 days. Thereafter, assessment if whether disability pension can be granted.</td>
<td>24 months, after which employees are assessed for a disability pension by the National Social Security Institute.</td>
</tr>
<tr>
<td><strong>Minimum sick pay</strong></td>
<td>For non-work-related, usually 60% of the worker's monthly base salary from the 4th day of sick leave to the 20th day, and 80% from the 21st day onwards. For work-related, usually 80% of the worker's monthly base salary from the first day onwards. Percentages may be higher according to collective labour agreements.</td>
<td>Usually, 80% of total salary up to a roof can be granted for part time. 25, 50, 75 or 100% of ordinary work hours.</td>
<td>At least 70% of last earned wages (in the first year at least minimal wages). Mostly 100% of the worker’s salary in the first year of sickness absence and 70% in the second year.</td>
</tr>
<tr>
<td><strong>Prerequisites for sick pay</strong></td>
<td>For non-work-related SA, being registered with the Social Security System for at least 180 days in the previous 5 years. For work-related SA, being registered with the Social Security System from the first day onwards.</td>
<td>Having at least some income from work or unemployment benefits and at least 25% reduction of ordinary working capacity due to disease or injury.</td>
<td>Working in paid (salaried) employment or insured self-employed.</td>
</tr>
<tr>
<td><strong>Waiting period (days)</strong></td>
<td>For non-work-related SA, the first three days are not covered. Exception: Some collective labour agreements may have earlier coverage. For work-related SA, from first day onwards.</td>
<td>The first day is a qualifying day. Exception: if having specific type of diseases, then no waiting day.</td>
<td>Usually no waiting days. Exemption: in some collective labour agreements, a maximum of 2 days.</td>
</tr>
<tr>
<td><strong>Insurance payer</strong></td>
<td>For non-work-related SA, employer pays from the 4th to the 15th day; thereafter, the National Social Security Institute pays. For work-related SA, the mutua or the National Social Security Institute pays from the 1st day.</td>
<td>Employer pays for day 2 to 14; thereafter, the Social Insurance Agency pays. For some recurring diseases, the Social Insurance Agency can pay for also shorter sick-leave spells.</td>
<td>Employer pays (self or insured with private insurance company) for 24 months.</td>
</tr>
<tr>
<td><strong>Care provider</strong></td>
<td>For non-work-related SA, the National Health System mutua can offer complementary care from the 16th day onwards (see ‘Most recent relevant regulatory reform’ row above). For work-related SA, the mutua.</td>
<td>Public health care. Sometimes also occupational health services are involved.</td>
<td>The national health care system for diagnosis and treatment of disease. Private occupational health services guide RTW and occupational rehabilitation.</td>
</tr>
<tr>
<td><strong>To return to work (RTW)</strong></td>
<td>Left to the discretion of the employer.</td>
<td>Employers and employees must plan for RTW after 4 weeks after reporting sick.</td>
<td>Employers and employees must plan for RTW within 8 weeks after reporting sick; plan is evaluated every 4 to 6 weeks.</td>
</tr>
<tr>
<td><strong>Part-time leave allowed</strong></td>
<td>No.</td>
<td>Yes; 25, 50, 75 or 100% of ordinary work hours.</td>
<td>Yes; often 67%, 33% and 18% (= 1 workday).</td>
</tr>
</tbody>
</table>

a: Spain has different schemes for work- and non-work-related SA. Differences noted where they exist.
b: These refer to salaried employees. Payment for self-employed workers is slightly different.
c: Absence days may include part-time return to work, so the number of absence days is divided by 1/reintegration percentage. For example, when the employee returns to work for 50%, the number of absence days is divided by 2.
To increase the comparability of the 12-month period results (Supplementary table S1), analyses for Sweden were restricted to SA among salaried workers (i.e. only employees and not all who are entitled to sick-leave benefits). In addition, for the same 12-month period data, given that the Swedish Social Insurance Agency only has data from day 15 and onwards, we restricted the Dutch data using a 14-day cutoff. Other official sources, such as Statistics Sweden, collect data on the shorter sick-leave spells from the National Insurance Agency, but these data lack information on diagnosis and duration of sick-leave spells.

**Results**

All three countries offer paid sick leave for salaried employees based on medical certification, although the certifying physician specialty and time window for the certification to be obtained varies (table 1). All countries offer benefits for at least 12 months (in The Netherlands, 24 months), with a possible extension if there is expectation of additional improvement (6 months in Spain and longer in Sweden). All offer wage replacement, but the percent of covered salary varies in amount and in the triggers determining the percentage. All countries initiate benefits payment by at least day 4 of the start of the sick leave, but they differ regarding who the payer is or when responsibility is assumed. In The Netherlands, employers (or their insurers) cover up to 24 months, whereas in Spain and Sweden, only the first 2 weeks are covered, after which the national social insurance system pays. The national health systems provide the needed health care, and occupational health services have a role in the return-to-work process with differences in employers’ participation: The Netherlands and Sweden mandate a return-to-work plan within 4 to 6 weeks of the onset of sick leave, whereas Spain has no such requirement. All countries cover salaried employees for both work- and non-work-related SA differences exist regarding coverage for self-employed and workers receiving unemployment-related benefits.

The number of episodes per 1000 salaried workers varied by country (Supplementary table S1); from 27.7 in Spain (non-work-related disorders) to 97 for The Netherlands (work- and non-work-related disorders), when a 1-month period was used. Great variation was also observed regarding the mean episode duration. Regarding the 12-month data, the number of episodes per 1000 salaried worker was higher in The Netherlands, but the mean duration was higher in Sweden. Distribution by diagnostic groups was similar across the countries, with musculoskeletal disorders being the most frequent.

**Discussion**

Despite differences in benefits system structure, there is enough ground on which a few basic, but useful, indicators of SA can be constructed to facilitate comparisons. At the very least, distribution by diagnosis and some measures of their duration are similar between countries. One approach to maximizing comparisons could be to use a ‘greatest common factor’ approach, whereby indicators are constructed, and uniformly presented, on the basis of those structural elements in the SA system that are common across the countries. Moreover, examining ready available national secondary data limits resource investment and helps identifying common indicators to be used in future specific individual-level comparative studies.

First, comparisons could initially be limited to eligible salaried workers, the largest proportion of the workforce. As regulations vary with respect to coverage eligibility for both self-employed workers and persons drawing unemployment, perhaps it is preferable to defer their inclusion in cross-country statistics. Second, the three countries cover both work- and non-work related SA, but Spain has separate regulations for each, so comparisons could be limited to the non-work-related SA, which represents the largest proportion of all episodes (e.g. in Spain, 90%). Third, some differences may be register-related. For instance, the higher number of episodes and the lower mean duration in The Netherlands may relate to the Dutch registry-included self-certified SA, which is recorded from the first day of sick leave onwards.

Fourth, SA duration is skewed and a disproportionate number of SA days and cost is borne by a minority of long-duration episodes (www.dwp.gov.uk/policy/welfare-reform/sickness-absence-review). Duration indicators could focus on long-term SA episodes (e.g. more than 30 days), a useful information for identifying interventions, return-to-work policies and cost control measures. The analysis could be truncated at 12 months because the three countries provide benefits for at least this length of time.

SA research has increased since the 1980s, mostly in northern Europe with comprehensive nationwide linkable data sets, but country comparisons are rare and frequently limited to specific cohorts or industry sectors. It is known that SA is shaped by socio-cultural, political and economic contexts concerning legislation, policies, procedures and practices. Despite larger samples, longer follow-ups and fancier statistical techniques, little may be accomplished by comparing the incomparable. While reproducibility is key in science, and obtaining similar results in different contexts implies robustness of the findings, multiplicity of ‘Me Too’ country-specific studies will not advance our comprehension of the underlying phenomena.

We propose a step in this direction, a somewhat conservative approach to harmonization, encouraging researchers to step back and establishing common terminology and comparison metrics. Differences between countries may reflect good practices that could be adopted by others. We aim to expand our approach to other EU countries, carefully examining each country’s benefits systems, defining variables and indicators on the basis of a ‘greatest common factor’ strategy to avoid the ‘garbage in, garbage out’ phenomenon, while providing useful information to improve the efficiency and protections of this very important social benefit in Europe.

**Supplementary data**

Supplementary data are available at EURPUB online.

**Acknowledgements**


**Conflicts of interest:** None declared.

**Key points**

- Cross-national comparative and collaborative research on sickness absence systems and statistics in Europe is desirable to advance knowledge and to enhance return-to-work policies and practices.
- Despite differences in benefits system structure, we propose a few basic, but useful to researchers and policymakers, indicators of sickness absence.

**References**

Unemployment and dispensed prescribed antidepressants in Stockholm County 1998–09

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The association between unemployment rates and population mental health has been studied with contradictory results. We examine the association between unemployment and antidepressants in Stockholm County. Age- and sex-specific monthly data on unemployment and dispensed prescribed antidepressants from January 1998 to January 2008 in Stockholm County were used. The association was studied with bivariate cointegration analysis with stationarity check of the residuals. We found that dispensing of antidepressants was inversely associated with unemployment. One interpretation is that antidepressants have not followed decreasing unemployment rates.

Introduction

Individual-level data consistently show worse mental health among the unemployed. The association between unemployment rates and population mental health, studied through suicide rates, mental health service utilization and aggregated symptoms, show inconsistent evidence.1 In this study, we examine unemployment rates and dispensing of antidepressants, as antidepressants should be a good proxy of depression, which is accurately registered and is known to correlate (inversely) with suicide rates.2–4 It is also, unlike suicide, common enough to study using monthly intervals, and this lower-level statistics reduce the risk that associations are lost due to aggregation bias. The aim of this study is to analyse the association between unemployment and the dispensing of prescribed antidepressants in Stockholm County, Sweden, from January 1998 to January 2008.

Methods

The study was performed on unemployment and dispensed antidepressants in Stockholm County (1.9 million inhabitants) using routinely monthly collected data on unemployment and dispensed antidepressants between January 1998 and January 2008. Data on unemployment were obtained from the Swedish Public Employment Service. Data for monthly dispensed prescribed antidepressants were obtained from Stockholm County Council. All rates were per 100 000. Before 2009, the sole and exclusive right to retail medicine was held by the state-owned National Corporation of Swedish Pharmacies. Data include information on all prescriptions dispensed at local pharmacies to individuals registered as residing in Stockholm County in aggregate form. Drugs are classified according to the Anatomical Therapeutic Chemical (ATC) system, and utilization is defined in defined daily doses (DDDs). A DDD is defined as the assumed average maintenance dose per day for a drug used for its main indication in adults—a World Health Organization (WHO) unit intended to enable comparisons across time and between countries.5 We extracted monthly data on dispensed DDDs of prescribed antidepressants, ATC code N06A. Recipes are valid for 12 months.

Statistical analysis

We studied the association between unemployment and antidepressants by testing the cointegration of the two monthly time series. In