



Short Communication

What is the impact of job precariousness on depression? Risk assessment and attributable fraction in Spain



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ABSTRACT

Objectives: The prevalence of depression related to precarious employment (PE) has become a significant public health concern, given the declining trend of the standard employment relationship. Research has focused on the mental health detrimental effects of employment conditions, whereas there is scarce evidence concerning the burden of depression that could be prevented by targeting precariousness. This paper estimates the impact of PE on the risk of depression and the attributable fraction within the active and working salaried population in Spain.

Study design: Observational cross-sectional on data drawn from the Spanish portion of European Health Survey 2020.

Methods: After applying selection criteria and descriptives, binary logistic regression models stratified by sex are used to examine the associations between a 9-categories combination of employment precariousness and occupational social class, and depressive symptoms.

Results: There is a higher risk of depression among individuals in PE and among those who are unemployed, with a notable gradient based on occupational social class for women. Adjusting by sex, age and foreign-born origin, we estimate that approximately 15.0% (95% confidence interval [CI]: 1.0%–26.2%) of depression cases among the working population and 33.3% (95% CI: 23.2%–43.2) among the active population can be attributed to PE.

Conclusions: These findings highlight the public health impact of PE on mental health, provide evidence to estimate the economic burden linked to employment-related mental health, and underscore the need for policy changes and interventions at the level of labour markets and workplaces to mitigate the detrimental effects of PE.

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Introduction

Mental health and specifically depressive symptoms are among the most susceptible and rapidly responsive outcomes affected by precarious employment (PE).¹ Given the declining trend of the standard employment relationship in high-income countries and the widespread prevalence of PE arrangements, depression cases attributable to these social determinant of health have become a significant public health concern.² While research has primarily

focussed on the depressive effects of employment conditions, there is scarce evidence concerning the burden of depression that could be prevented by targeting PE. Determining its population-attributable fraction (PAF) will make visible the magnitude of a problem, with a substantial impact on health and quality of life and has the potential to inform prevention and intervention strategies.¹

Spain has consistently ranked among the top European Union countries in the proportion of temporary employment (a widespread indicator of PE) in its labour market. For example, during the pandemic in 2020, Spain ranked first, with more than a quarter (27.4%) of its formally employed workforce under temporary contracts. PE is widespread in the country, with a particular impact on vulnerable groups. In March 2023, the Vice President with the Ministry of Labour and Social Economy of the Spanish Government

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released the ground-breaking report *Precarious Employment and Mental Health* (PRESME by its Spanish initials), the first of its kind globally, which examines the state-of-the-art understanding of the relationship between PE and mental health.³ The report's objectives encompassed understanding the current situation, evolution, and underlying causes of PE in Spain, assessing its impact on mental health, and proposing strategies to mitigate or eliminate precarious work and the associated mental health issues. This paper focusses on one of these objectives, specifically examining the impact of precarious work on depression. Our aims are two-fold: (1) to assess the association of depression with PE and (2) to estimate the attributable fraction within the working salaried population.

Methods

Design, data source, and sample selection

This is an observational cross-sectional design using data from the European Health Survey in Spain 2020 (EESA-2020, $n = 22,071$). The survey focuses on individuals aged >14 years who reside in family homes, aiming to collect comprehensive and comparable data on health status, healthcare utilisation, and determinants of health. A subset comprising 9782 salaried workers and unemployed individuals was selected by excluding those outside the age range of 15–65 years of age, those not in employment or unemployment ($n = 10,380$), those with unknown employment relationships ($n = 103$), first-time job-seekers ($n = 101$), and the self-employed ($n = 1549$). Furthermore, individuals with missing information on occupational class ($n = 97$) or unknown depression status ($n = 21$) were also excluded.

Operationalisation

The prevailing approach of using legally recognised forms of employment that are deemed more or less precarious as proxies have been adopted. Specifically, the contractual conditions have been categorised as follows: (a) civil servant; (b) permanent contract (including $n = 14$ cooperative shareholders); (c) full-time fixed-term contract; (d) part-time fixed-term contract; (e) informal employment arrangements, including unspecified situations and unpaid family workers; and (f) unemployed individuals with a previous occupation. These categories were later recoded into three groups: Permanent (a, b), Precarious (c, d, e), and Unemployed (f). To account for the influence of occupational class on the experience of PE conditions, the actual occupational class of the individuals (the last one in the case of unemployed) was obtained using the Occupational Class Categorization CSO-SEE12.⁴ The categories were further recoded into three groups: CSO I (directors, managers, and university professionals), CSO II (intermediate occupations), and CSO III (manual workers). The severity of depressive symptoms was measured using the Personal Health Questionnaire Depression Scale (PHQ-9).⁵ Those individuals with “moderate” or more severe levels of depression ($\text{PHQ-9} > 9$) were considered depressed. Age of the individual has been found to have a roughly linear relationship with the risk of depression during the working ages 15–65⁶ and has been included as a continuous adjusting covariate in the models, together with foreign-born origin (yes/no).

Statistical analysis

Descriptive statistics were computed for the main variables in the study (see [Table A1](#) in Supplementary Material). Binary logistic regression models stratified by sex were applied to examine the associations between PE and depression. The former was a combination of the three categories of ‘precariousness level’ and three

categories of ‘occupational class’. In the case of men, logistic regression with reduced-bias estimator was used due to the absence of events in two risk factor levels, which caused standard maximum likelihood estimation to fail.⁷

Furthermore, PAFs were calculated to determine the proportion of depression cases that can be attributed to (a) precarious work and (b) unemployment within (1) the salaried population and (2) the active population in Spain, respectively. These estimates were derived from a logistic regression model that was adjusted for age, sex, and foreign-born origin and calculated for a cross-sectional sampling design weighted by the EESA-2020 provided weights. The number of people with depression for whom one case can be attributed to the specific risk factor, known as the Cases Induced by the Risk Factor (CIN),⁸ was calculated as the reciprocal of the PAF. The estimates presented in the paper are based on weighted cases.

Software

Data selection and manipulation were conducted using the SPSS statistical software. Logistic regressions were performed within the R environment using the `glm` and `brglm2` packages. The `forestplot` package was utilised for creating [Fig. 1](#). Finally, the estimation of PAFs was carried out using the `graphPAF` package.

Results

Overall prevalence of depression in the sample is 2.75%, 3.92% for women and 1.62% for men. According to precariousness levels, prevalence of depression is 1.93% for permanent workers, 3.18% for precarious employees, and 5.42% for the unemployed. According to occupational class, the same magnitudes are 1.53% for CSO I, 2.39% for CSO II, and 3.34% for CSO III.

In the logistic regression, and compared to the reference category ‘Permanent contract—CSO I’ female workers, a significant increase in the odds of depression can be observed for ‘Permanent contract—CSO III’ (odds ratio [OR]: 3.23; 95% confidence interval [CI]: 1.77–6.39), ‘Precarious employment—CSO II’ (OR: 3.42; 95% CI: 1.03–9.66), ‘Precarious employment—CSO III’ (OR: 4.98; 95% CI: 2.62–10.14), ‘Unemployed—CSO II’ (OR: 5.44; 95% CI: 2.35–12.53) and ‘Unemployed—CSO III’ (OR: 5.50; 95% CI: 2.95–11.03) female workers ([Fig. 1](#)). Overall, results suggest a gradient in which worse occupational class and employment conditions combine to increase the odds of depression. As for males, results are not equally clear. Compared to the reference category ‘Permanent contract—CSO I’ male workers, only ‘Precarious employment - CSO III’ (OR: 3.60; 95% CI: 1.34–9.67), ‘Unemployed—CSO I’ (OR: 18.81; 95% CI: 6.18–57.20), and ‘Unemployed—CSO III’ (OR: 6.14; 95% CI: 2.41–15.63) present an increased odd ([Fig. 1](#)). Overall, it is the unemployed condition and precarious CSO III which are associated with depression.

Under the assumption of population-level elimination of a single binary-valued risk factor, the following proportions have been calculated. Among the population of salaried workers, after adjusting for sex, age, and foreign-born origin, 15.0% (95% CI: 1.0%–26.3%) of depression cases can be attributed to PE conditions ([Table 1](#)). This implies that if all precarious workers were to be employed under stable conditions, the prevalence of depression among the working population would be reduced by 15.0%. Among the active population, 33.3% (95% CI: 23.2%–43.2%) of depression cases can be attributed to unemployment or PE ([Table 1](#)).

Discussion

Studies in Spain have highlighted the disproportionate impact of PE on mental health, with the most vulnerable groups such as

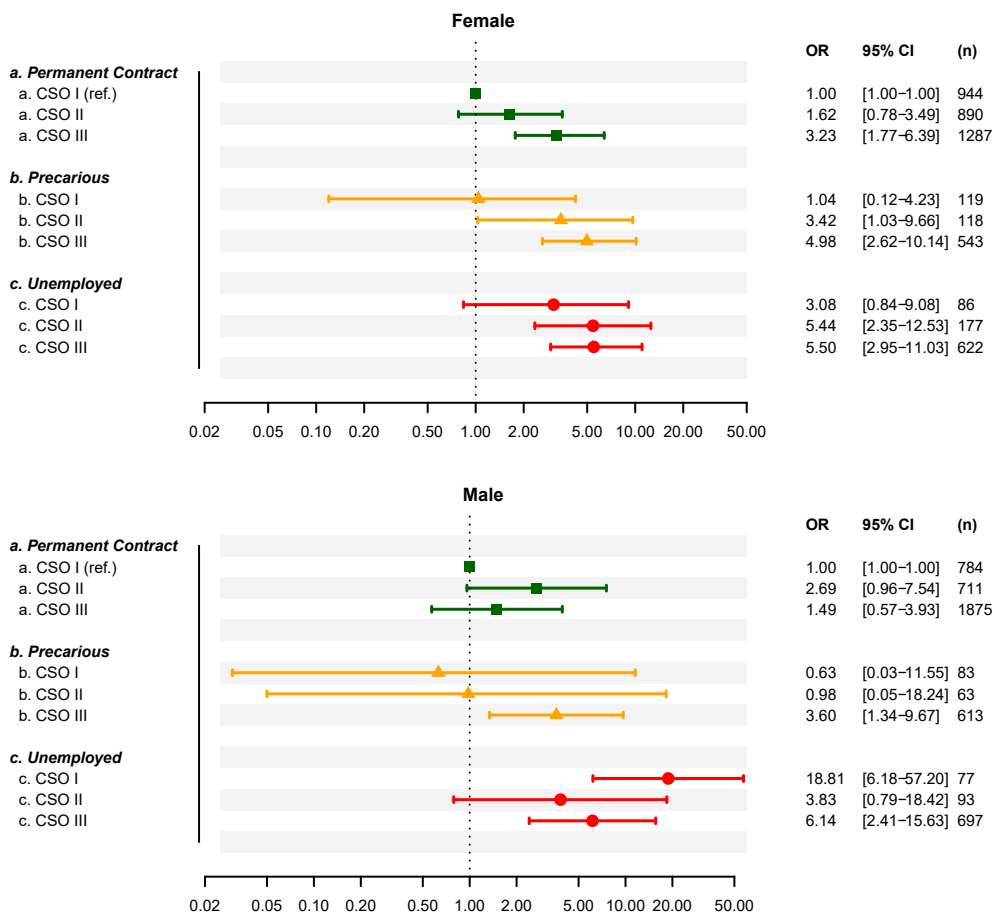


Fig. 1. Risk^a of moderate, moderately severe or severe depression (Personal Health Questionnaire Depression Scale [PHQ-9]^b > 9) depending on Job Precariousness and Occupational Social Class (CSO)^c. By sex. (^a Odds ratios estimated by age and foreign-born-origin-adjusted logistic regression. In the case of men, a reduced risk estimate was used due to the absence of cases in certain categories. ^b Patient Health Questionnaire Scale, nine items. ^c Occupational Class Categorization. CSO I: directors, managers, and university professionals; CSO II: intermediate occupations; CSO III: manual workers).

women, immigrants, workers, and young people facing extremely high levels of precariousness.³ The negative effects on mental health were found to be 2.5 times greater among individuals engaged in the most precarious forms of employment.² The concept of population attributable fraction (PAF) provides a valuable framework for evaluating the public health impact of an exposure–outcome

association at the population level, but despite the relevance of PE, scientific research on this topic has been limited. A previous study conducted in Spain estimated the unadjusted overall PAF for workers' poor mental health attributable to PE to be 23.1% (95% CI: 22.6–23.5) during the 2004–2005 period, with a significantly greater value for women.² More recently, it has been found that PAF

Table 1
Population Attributable Fraction for depression due to precarious employment, disease cases in the population, and prevented cases.

| Outcome: PHQ-9 > 9 | Pob. attrib. fraction (weight.) | | | Ref. population ^a (n) | Disease cases in Ref. Population ¹ | Prevented cases | | |
|---|---------------------------------|---------|---------|-------------------------------------|--|-----------------|---------|---------|
| | % | 95% LCL | 95% UCL | | | (n) | 95% LCL | 95% UCL |
| Ref. population: Salaried Employed | | | | | | | | |
| Risk factor | | | | | | | | |
| Precarious (vs. permanent) | | | | | | | | |
| Unad. | 15.5% | 1.3% | 26.6% | 16,221,309 | 326,888 | 50,668 | 4380 | 86,952 |
| Age + sex + foreign-born adjust. | 15.0% | 1.0% | 26.2% | | | | | |
| Ref. population: active population^b | | | | | | | | |
| Risk Factor | | | | | | | | |
| Unemployed (vs. salaried employed) | | | | | | | | |
| Unad. | 20.9% | 12.3% | 28.1% | 19,803,180 | 504,216 | 105,381 | 62,019 | 141,685 |
| Age + sex + foreign-born adjust. | 20.4% | 11.6% | 27.8% | | | | | |
| Salaried precarious or unemp. (vs. estable) | | | | | | | | |
| Unad. | 33.1% | 23.1% | 42.9% | 19,803,180 | 504,216 | 166,895 | 116,474 | 216,309 |
| Age + sex + foreign-born adjust. | 33.3% | 23.2% | 43.2% | | | | | |

Abbreviations: EESE-20 = European Health Survey in Spain 2020; PHQ-9 = Personal Health Questionnaire Depression Scale; LCL = Low Confidence Limit; UCL = Upper Confidence Limit

^a As estimated by applying EESE-20 elevation factor to the effective study sample.

^b Salaried employed and unemployed.

of depressive symptoms due to precarious work was 32% among German male workers, whereas no significant association was found for women.⁹ This could be due to the fact that in the case of Spanish women, family- and child-care-related indicators play a more significant role than socioeconomic indicators in explaining depression, whereas just the opposite is true for German women.¹⁰ Thus, a stronger conflict in the work–life balance could be affecting Spanish women. Certainly, differences in study design may also have influenced these results.

This study has several limitations. First, it is based on cross-sectional data, so at least part of the observed association may be non-causal or due to reverse causality. The diagnosis of depression is based in a self-reported measure, while the low number of events of depression in certain categories of the risk factor imposes limitations on adjusting for confounding. The operationalisation of PE based on employment arrangements (which are quite heterogeneous and only partially capture the multidimensional nature of precariousness) is not optimal. Finally, a smaller portion of the EESE-2020 fieldwork was conducted under the state of alarm due to COVID-19, which perhaps may have influenced the results. Nevertheless, our epidemiological approach reveals some concerning results. These should serve as a catalyst for policymakers, unions, and governments to advocate for improved labour regulations and policies that prioritise the mental well-being of workers. By quantifying the impact of precarious work on mental health, researchers provide valuable evidence to support policy changes, develop targeted interventions, and estimate the economic burden linked to employment-related mental health challenges. The ultimate goal is to enhance mental health outcomes for individuals navigating PE arrangements.

Author statements

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Ethical approval

Not applicable. This research is based on publicly available anonymized survey data.

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Competing interests

The authors declare no competing interests.

Informed consent statement

Not applicable.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.puhe.2024.03.019>.

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