

BMJ Open Peripheral labour market position and risk of disability pension: a prospective population-based study

Klas Gustafsson,¹ Gunnar Aronsson,² Staffan Marklund,¹ Anders Wikman,¹ Birgitta Floderus¹

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¹Division of Insurance Medicine, Department of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden

²Department of Psychology, Stockholm University, Stockholm, Sweden

Correspondence to
Dr Klas Gustafsson;
klas.gustafsson@ki.se

ABSTRACT

Objective: To investigate what impact individuals' position in a labour market core–periphery structure may have on their risk of disability pension (DP) in general and specifically on their risk of DP based on mental or musculoskeletal diagnoses.

Methods: The study comprised 45 567 individuals who had been interviewed for the annual Swedish Surveys of Living Conditions (1992–2007). The medical DP diagnoses were obtained from the Swedish Social Insurance Agency (1993–2011). The assumed predictors were studied in relation to DP by Cox's proportional hazards regression. The analyses were stratified on sex and age, controlling for social background and self-reported long-standing illness at baseline.

Results: All three indicators underlying the categorisation of the core–periphery structure: employment income, work hours and unemployment, increased the risk of DP in all strata. The risk of DP tended to increase gradually the more peripheral the labour market position was. The risk estimates for DP in general and for DP based on mental diagnoses were particularly high among men aged 20–39 years.

Conclusions: The core–periphery position of individuals, representing their labour market attachment, was found to be a predictor of future DP. The association was most evident among individuals below 40 years of age with regard to DP based on mental diagnoses. This highlights the need for preventative measures that increase the participation of young people in working life.

INTRODUCTION

The sharp increase in unemployment in nearly all Western countries and the breakdown of traditional industrial structures and labour markets have led to a much more heterogeneous workforce over the past 20 years. Consequently, the traditional and simple dichotomy of the employed and unemployed has become too crude to reflect the complexity of labour markets and employment patterns in contemporary work life.

Strengths and limitations of this study

- The prospective design, number of interviews was large, and based on representative samples.
- The specific disability pension (DP)-related diagnoses were obtained from high-quality national registers.
- The follow-up period was relatively long for some individuals.
- A limitation is that the individuals' core–periphery work positions were measured at only one point in time.

Positioned in between full-time employment with a permanent work contract and long-term unemployment, there is a large group of workers in different types of precarious jobs with full-time or part-time temporary work contracts. According to some researchers, workers in these precarious types of employment comprise a new social class—the growing worldwide 'precarariat'.¹ In order to accommodate this complexity, recent studies on work and health have developed conceptual models that relate labour market attachment to a core–periphery structure.^{2–4} These studies indicate that there is a health gradient related to a peripheral position in this structure. These earlier core–periphery-health studies included self-employment, active in the labour market programme, other temporary employment contracts and some other forms of precarious employment. To describe the heterogeneous groups in a more comprehensive way, there are grounds for research that describe the core–periphery structure based on employment income, work hours and unemployment. An individual's place in the core–periphery structure can be seen as an alternative aspect to the traditional and often-used measure of an individual's position in the occupational hierarchy. Even among the employed, there can be large differences concerning the

physical and psychosocial working conditions, degree of monotony and autonomy, income and the job stability provided by an occupation.^{5–7} Studies have shown strong correlations between hierarchical occupational position and health, certain diseases and mortality.^{8–11} A number of studies from the Nordic countries have reported associations between hierarchical occupational position and the risk of disability pension (DP).^{12–18}

Individuals in the most peripheral position may end up exiting from working life by going on temporary or permanent DP because of low work capacity for health reasons. Several studies have shown that unemployment experience is associated with an increased probability of being granted a DP,^{19–22} but findings on the more intermediate positions are scarce.

In Sweden, a permanent or temporary DP could be granted to a person whose work capacity has been reduced due to medical reasons.²³ Mental illness diagnoses are among the most prevalent and are the basis for one-third of new DP cases in the Organisation for Economic Co-operation and Development (OECD) countries.²⁴ Depression-related illness contributes substantially to early exiting from the workforce.²⁵ Several studies have shown that mental diagnosis-based DP tends to be granted at a younger age than DP based on other diagnoses.^{24 26–28} A Norwegian study indicated that DP due to mental diagnoses was not only on average granted 9 years earlier than DP based on musculoskeletal diagnoses, but also it yielded the highest number of lost working years of any diagnostic group.²⁶

Although the general trend in Sweden has been a decrease in new DP cases over the past 10 years, there has been an upward trend among young people over this period.²³ In 2012, mental diagnoses accounted for more than 85% of all newly granted DPs among women and men aged 19–29 years.^{23 29}

The present study mainly focuses on the position of individuals in the core–periphery structure of work. The aim was to investigate the potential impact that this position may have on an individual's risk of being granted DP, especially among younger men and women. A further aim was to examine not only DP in general, but also the risk of DP based on mental and musculoskeletal diagnoses, respectively.

METHODS

Study group

The study comprised 45 567 men and women, 20–64 years of age at the time of follow-up and born between 1928 and 1987. They were all interviewed by Statistics Sweden sometime between 1992 and 2007 in the Swedish Surveys of Living Conditions (SSLC), covering a broad range of living conditions.^{30–32} These annual surveys were based on year-specific random samples of the population and conducted through face-to-face interviews between 1992 and 2005 and through telephone interviews in 2006 and 2007. The

annual response rates went down from 82% to 76% between the years of 1992 and 2007. If an individual happened to be included in more than 1 year's sample, only data from the earliest year were used. Additional data on the study group were gathered from the Longitudinal Integration Database for Health Insurance and Labor Market Studies (LISA; 1992–2011) and the Swedish Social Insurance Agency's database, Micro Data for Analysis of Social Insurance (MiDAS; 1993–2011).

The final cohort of 45 567 individuals was reached after first eliminating those from the SSLC who had obtained a DP prior to being interviewed (n=4128). During follow-up, 4376 (10.6%) were granted a DP. The follow-up of the subcohorts started at the beginning of the year following their SSLC interview. It ended on 30 November 2011 or the year they turned 64 (old-age pension), went on DP, emigrated or died, whichever came first. [Table 1](#) shows the characteristics of the study group, including age at interview, number of years of follow-up with SD and age when DP was granted.

Measurements

Outcome variables

Three categories of DP were used: all DP cases (information available for 1993–2011; n=4376), DP based on mental diagnoses (International Classification of Disease (ICD)-10, F00-F99; available for 1994–2011; n=1183) and DP based on musculoskeletal diagnoses (ICD-10, M00-M99; available for 1994–2011; n=1693³³; [table 1](#)). Even though DPs can be full time or part time (25%, 50% or 75%), this distinction was not taken into account in this study. The data were obtained from the MiDAS database.³⁴

The category of all DP cases included all diagnostic groups³³ (ICD-10: categories A to Z) as well as 70 cases with unspecified diagnoses. These unspecified cases received a DP in 1993 and were mainly a result of the fact that, before 1994, individuals over 60 years of age could receive a DP partly due to labour market reasons.

Exposure variable

The exposure variable was based on data relevant to the year of interview. They were obtained from the SSLC surveys³¹ and the LISA database.³⁵ The exposure variable concerned the individual's position in the core–periphery structure and was based on the following three variables:

- *Employment income.* Data on personal income for the year of the SSCL interview were used to determine whether a person was to be considered employed or not. Procedures developed by Statistics Sweden to attain a good match to other labour force statistics to assess the employment status of different groups of individuals were followed.³⁶ Three categories were defined: employed with income, not employed with some source of income (eg, sickness or unemployment benefits, but no wages from income source, one or more days) and not employed with no income.

Table 1 Description of the study group according to sex and age at interview (1992–2007), including person years at risk, with mean and SDs, and age at disability pension (1993–2011)

| | Total number of | | No disability pension | | Disability pension (n=4376) | | Disability pension (n=4376) | |
|----------------------------|-----------------|--------------|-----------------------|--------------|-----------------------------|--------------|-----------------------------|----------|
| | Men n* | Women n* | Men n* | Women n* | Men n* | Women n* | Men n† | Women n† |
| Total n=45 567 | | | | | | | | |
| Age (years) | | | | | | | | |
| 20–24 | 3490 | 3279 | 3418 | 3168 | 72 | 111 | 13 | 12 |
| 25–29 | 2821 | 2752 | 2744 | 2612 | 77 | 140 | 31 | 48 |
| 30–34 | 2913 | 2873 | 2797 | 2617 | 116 | 256 | 59 | 116 |
| 35–39 | 2716 | 2846 | 2562 | 2543 | 154 | 303 | 89 | 213 |
| 40–44 | 2691 | 2691 | 2483 | 2335 | 208 | 356 | 139 | 285 |
| 45–49 | 2725 | 2728 | 2365 | 2224 | 360 | 504 | 179 | 327 |
| 50–54 | 2460 | 2435 | 2051 | 1915 | 409 | 520 | 283 | 424 |
| 55–59 | 1824 | 1749 | 1524 | 1412 | 300 | 337 | 448 | 580 |
| 60–64 | 1295 | 1279 | 1221 | 1200 | 74 | 79 | 529 | 601 |
| Total | 22 935 | 22 632 | 21 165 | 20 026 | 1770 | 2606 | 1770 | 2606 |
| | Years | Years | Years | Years | Years | Years | | |
| Person years at risk | | | | | | | | |
| Total n=536 737 | 272 320 | 264 417 | 260 244 | 246 817 | 12 076 | 17 600 | | |
| Mean number of years | | | | | | | | |
| Total mean (SD) 11.8 (5.0) | 11.9 (5.0) | 11.7 (5.0) | 12.3 (4.8) | 12.3 (4.8) | 6.8 (4.1) | 6.8 (3.9) | | |

*Age at interview.

†Age at disability pension.

- ▶ *Work hours*: Individuals defined as employed may have limited work input due to having part-time employment, seasonal employment or employment only during a part of the year. Information about work hours was added to complement the employment income variable (because the income variable says nothing about working full time or part time). The variable was based on the interview data on whether the person engaged in full-time work, part-time work or had no work hours for the week preceding the SSLC interview.
- ▶ *Days of unemployment*: This was based on the number of registered days of unemployment benefits according to the LISA database for the year of the SSLC interview. The variable was dichotomised into no or some days (one or more days) of unemployment.

These three variables were partially different dimensions and were combined into an index measuring the individual's *core-periphery position* (see the classification below). These variables involve different conditions and catch up distinct conditions. Together these variables describe the employment situation in a more complete way.

1. Core: employed with income, with full-time work and no days of unemployment (reference group, prevalence 48.9%).
2. Close to core: employed with income, with part-time work or no work hours and no days of unemployment (prevalence 21.8%).
3. Partly core: employed with income, with full-time work and some days of unemployment (prevalence 4.7%).

4. Middle: employed with income, with part-time work or no work hours and some days of unemployment (prevalence 5.2%).
5. Partly peripheral: not employed with some income, with full-time work or part-time work or no work hours and no days of unemployment (prevalence 5.2%).
6. Close to peripheral: not employed with some income, with part-time work or no work hours and some days of unemployment (prevalence 5.7%).
7. Peripheral: not employed with no income, with full-time work or part-time work or no work hours and no days of unemployment or some days of unemployment (prevalence 8.7%).

Confounding factors

In addition to the age at interview and the year of interview, potential confounding by social background and health status at baseline was considered. Unemployment in Sweden decreased from 8% in 1993 to 4% in 2001 and increased to 6% in 2007. Unemployment among people aged 15–24 years increased from 15% in 1995 to 23% in 2012.³⁷ In Sweden, DP has fluctuated considerably between 1992 and 2007. Since 2004, the number of people who were granted DP has declined among people aged 30 years and older, but is still increasing among people younger than 30 years.²³ The eligibility criteria have changed over time and generally in a more restrictive direction, particularly in later years.³⁸ As a result, the year of interview was controlled for.

Two variables for social background were included:

- ▶ *Country of birth*: born in Sweden with Swedish-born parents (reference); born in Sweden with one or both parents foreign born; or foreign born. The data were obtained from the SSLC surveys.
- ▶ *Education*: primary education (≤ 9 years of education); some or all secondary education completed (10–12 years); or tertiary education (≥ 12 years; reference). The data were obtained from the LISA database.

Since poor health may have an effect on the exposure variables, and may independently contribute to the risk of DP, the health status of individuals at the start of follow-up was controlled for. The item measuring self-reported long-standing illness was obtained from the SSLC surveys.^{32 39}

- ▶ *Self-reported long-standing illness* was measured by the open-ended question: “Do you have any chronic or long-term illness or health problem?” This item has been further developed by Statistics Sweden by follow-up questions and classification according to the WHO ICD-8. In this study, the summary coding of yes and no (reference) was used. Data were obtained from the SSLC surveys.

Statistical analyses

Analyses were based on Cox’s proportional hazards regression and were stratified into four groups: young men (aged 20–39), young women (aged 20–39), older men (aged 40–64) and older women (aged 40–64).

First, the variables on social background conditions and self-reported long-standing illness at the time of the interview were studied in relation to the risk of DP, adjusting for age and year of interview. In this step, the three variables used as the basis for the core–periphery position were also studied.

Second, the exposure variable, core–periphery work position, was related to the risk of DP, adjusting for age at interview and year of interview, which was followed by an extended adjustment also including social background conditions and self-reported long-standing illness.

Third, two specific diagnostic groups of DP, DP based on mental and musculoskeletal diagnoses, were studied separately in accordance with the multivariate models used in the second step.

All statistical analyses were conducted with SAS, V.9.2., statistical software (SAS Institute, Inc, Cary, North

Table 2 Social background variables, health-related measures and the variables used to assess the core–periphery position (employment income, work hours, days of unemployment) in relation to risk of disability pension (DP)*

| | Ages 20–39 | | | | | | | | Ages 40–64 | | | | | | | |
|--|----------------|-------------|--------|------|------------------|-------------|--------|------|----------------|-------------|--------|------|------------------|-------------|--------|------|
| | Men (n=11 940) | | | | Women (n=11 750) | | | | Men (n=10 995) | | | | Women (n=10 882) | | | |
| | P† | HR‡ | 95% CI | | P† | HR‡ | 95% CI | | P† | HR‡ | 95% CI | | P† | HR‡ | 95% CI | |
| Country of birth | | | | | | | | | | | | | | | | |
| Born in Sweden with Swedish-born parents | 78 | 1 | | | 76 | 1 | | | 84 | 1 | | | 84 | 1 | | |
| Born in Sweden with one or both parents foreign born | 10 | 1.13 | 0.80 | 1.58 | 10 | 1.47 | 1.18 | 1.83 | 4 | 0.96 | 0.70 | 1.32 | 4 | 1.06 | 0.83 | 1.35 |
| Foreign born | 12 | 2.46 | 1.95 | 3.11 | 14 | 1.63 | 1.36 | 1.95 | 12 | 1.76 | 1.53 | 2.04 | 12 | 1.47 | 1.29 | 1.67 |
| Education | | | | | | | | | | | | | | | | |
| Tertiary education | 28 | 1 | | | 34 | 1 | | | 29 | 1 | | | 33 | 1 | | |
| Secondary education | 58 | 2.04 | 1.51 | 2.74 | 55 | 2.13 | 1.75 | 2.60 | 42 | 1.76 | 1.51 | 2.05 | 44 | 1.59 | 1.41 | 1.78 |
| Primary education | 13 | 4.18 | 3.04 | 5.76 | 12 | 4.79 | 3.85 | 5.96 | 29 | 2.31 | 1.98 | 2.71 | 23 | 1.67 | 1.46 | 1.91 |
| Long-standing illness | | | | | | | | | | | | | | | | |
| No | 72 | 1 | | | 69 | 1 | | | 60 | 1 | | | 56 | 1 | | |
| Yes | 28 | 3.52 | 2.90 | 4.28 | 31 | 3.75 | 3.26 | 4.31 | 41 | 3.37 | 3.01 | 3.77 | 44 | 3.30 | 2.99 | 3.64 |
| Employment income | | | | | | | | | | | | | | | | |
| Employed | 77 | 1 | | | 72 | 1 | | | 88 | 1 | | | 87 | 1 | | |
| Some income | 14 | 2.51 | 1.92 | 3.29 | 17 | 1.54 | 1.25 | 1.89 | 6 | 1.84 | 1.52 | 2.22 | 5 | 1.36 | 1.13 | 1.63 |
| No income | 9 | 4.92 | 3.90 | 6.20 | 11 | 3.42 | 2.91 | 4.03 | 7 | 2.33 | 1.98 | 2.74 | 8 | 1.62 | 1.39 | 1.88 |
| Work hours | | | | | | | | | | | | | | | | |
| Full time | 64 | 1 | | | 41 | 1 | | | 69 | 1 | | | 50 | 1 | | |
| Part time | 7 | 1.83 | 1.21 | 2.76 | 29 | 1.07 | 0.89 | 1.28 | 5 | 0.84 | 0.63 | 1.11 | 31 | 1.08 | 0.97 | 1.20 |
| No work hours | 30 | 2.34 | 1.91 | 2.86 | 30 | 2.06 | 1.75 | 2.42 | 26 | 1.29 | 1.15 | 1.45 | 18 | 1.21 | 1.07 | 1.37 |
| Unemployment | | | | | | | | | | | | | | | | |
| No days | 73 | 1 | | | 73 | 1 | | | 87 | 1 | | | 89 | 1 | | |
| 1–30 days | 3 | 1.51 | 0.82 | 2.77 | 3 | 1.34 | 0.89 | 2.02 | 1 | 2.27 | 1.54 | 3.35 | 1 | 1.58 | 1.10 | 2.27 |
| 31–180 days | 12 | 1.63 | 1.20 | 2.22 | 13 | 1.77 | 1.45 | 2.15 | 4 | 1.98 | 1.59 | 2.45 | 4 | 1.59 | 1.30 | 1.94 |
| 181– days | 12 | 2.86 | 2.28 | 3.58 | 10 | 2.36 | 1.97 | 2.82 | 8 | 2.08 | 1.78 | 2.43 | 6 | 1.96 | 1.68 | 2.27 |

*All incident cases of DP, including unspecified DP-diagnosis (n=4376).

†Prevalence (P) of the exposure categories (%).

‡HR and 95% CI adjusted for age at interview and year of interview.

Significant figures are shown in bold ($p < 0.05$).

Table 4 Core-periphery position related to risk of disability pension (DP) based on mental* and musculoskeletal diagnoses*

| | Ages 20–39 | | | | | | Ages 40–64 | | | | | |
|-------------------------------------|------------|-------------|------------|-------|-------------|-----------|------------|-------------|-----------|-------|-------------|-----------|
| | Men | | | Women | | | Men | | | Women | | |
| | n† | HR‡ | 95% CI | n† | HR‡ | 95% CI | n† | HR‡ | 95% CI | n† | HR‡ | 95% CI |
| Mental DP diagnoses | 199 | | | 348 | | | 240 | | | 396 | | |
| <i>Core-periphery position</i> | | | | | | | | | | | | |
| 1 Core | 46 | 1 | | 78 | 1 | | 106 | 1 | | 173 | 1 | |
| 2 Close to core | 18 | 2.02 | 1.17 3.49 | 74 | 1.12 | 0.81 1.55 | 29 | 1.06 | 0.70 1.60 | 107 | 0.88 | 0.69 1.12 |
| 3 Partly core | 16 | 2.23 | 1.24 4.01 | 8 | 0.80 | 0.39 1.66 | 18 | 2.37 | 1.43 3.92 | 11 | 1.18 | 0.64 2.17 |
| 4 Middle | 10 | 2.06 | 1.03 4.10 | 31 | 1.75 | 1.15 2.67 | 13 | 2.42 | 1.35 4.31 | 16 | 1.16 | 0.69 1.93 |
| 5 Partly peripheral | 8 | 2.71 | 1.25 5.85 | 17 | 1.29 | 0.75 2.23 | 10 | 2.87 | 1.48 5.55 | 5 | 0.53 | 0.20 1.44 |
| 6 Close to peripheral | 32 | 4.52 | 2.81 7.28 | 34 | 1.95 | 1.29 2.94 | 20 | 3.50 | 2.16 5.67 | 24 | 2.26 | 1.47 3.49 |
| 7 Peripheral | 69 | 8.88 | 5.95 13.26 | 106 | 4.03 | 2.94 5.51 | 44 | 4.08 | 2.80 5.94 | 60 | 2.34 | 1.71 3.21 |
| <i>Musculoskeletal DP diagnoses</i> | 94 | | | 271 | | | 489 | | | 839 | | |
| 1 Core | 36 | 1 | | 75 | 1 | | 279 | 1 | | 335 | 1 | |
| 2 Close to core | 14 | 2.11 | 1.14 3.91 | 67 | 1.02 | 0.73 1.42 | 61 | 0.71 | 0.53 0.93 | 298 | 1.07 | 0.91 1.25 |
| 3 Partly core | 9 | 1.88 | 0.90 3.94 | 10 | 1.09 | 0.56 2.13 | 31 | 1.43 | 0.98 2.07 | 21 | 0.94 | 0.60 1.46 |
| 4 Middle | 5 | 1.41 | 0.55 3.61 | 19 | 1.09 | 0.66 1.81 | 11 | 0.71 | 0.38 1.34 | 52 | 1.55 | 1.16 2.08 |
| 5 Partly peripheral | 3 | – | – | 8 | 0.83 | 0.40 1.74 | 15 | 1.02 | 0.59 1.76 | 20 | 0.90 | 0.57 1.42 |
| 6 Close to peripheral | 8 | 1.54 | 0.67 3.54 | 32 | 1.93 | 1.26 2.95 | 31 | 1.84 | 1.27 2.68 | 36 | 1.45 | 1.03 2.06 |
| 7 Peripheral | 19 | 3.44 | 1.87 6.34 | 60 | 2.08 | 1.44 3.01 | 61 | 1.82 | 1.37 2.43 | 77 | 0.99 | 0.76 1.28 |

Multivariate analyses.

*Mental and musculoskeletal DP diagnoses, granted 1994–2011.

†Number of cases (n).

‡HR and 95% CI, adjusted for country of birth, education, self-reported long-standing illness, age at interview and year of interview.

Significant figures are shown in bold ($p < 0.05$).

income, working hours and days of unemployment. These three variables were combined into an index that includes fundamental aspects of an individual's situation in working life.

The study showed that the more peripheral the work position an individual held, the higher his or her risk of DP was—with especially high HRs being found among younger individuals. After controlling for social background conditions and self-reported long-standing illness, the associations between work position and DP remained, as did the pattern of higher HRs among the younger groups as compared to the older age groups. This indicates that not only is the core-periphery structure relevant, but also it shows that other known risk factors for DP, such as immigrant status, low education and poor health, do not negate the associations. The results imply that the labour market has formed heterogeneous intermediate work positions that may increase the risk of DP, and that this pattern is especially pronounced among young people.

The results are partly in line with other recent studies examining a variety of indicators of labour market attachment and their relationship to health and disability. For example, a Finnish study found that unemployment, changes of workplace and negative factors related to the work environment were all strong risk factors for DP based on musculoskeletal diagnoses, even when social background factors were taken into account.²² Another Finnish study, which used a composite index for core-periphery position, based on work hours, employment permanency and unemployment income, found

associations with self-rated health, diagnosed diseases and depression, even among the less disadvantaged positions on the core-periphery scale.³ A Swedish study that primarily used employment contract permanency as the exposure variable similarly found that women and men in a peripheral position later reported elevated degrees of psychological distress and poor self-rated health.²

Apart from these general trends, there are also some differences between women and men that need to be further explored. The HRs for DP related to the peripheral labour market position were consistently higher for men than for women. From a gender perspective, the results indicate that a precarious labour market position seems to carry with it a higher risk of DP among men than among women and especially among younger men. Another interesting result regarding gender differences was that self-employment was a risk factor for DP among men but not among women (data not shown). This can be interpreted in several ways. First, it could be related to the fact that self-employed men and women are found in different types of businesses and also tend to have somewhat differing educational backgrounds and working conditions. Second, the labour market attachment in terms of level of income from work, working hours and unemployment is lower among men compared with women. In summary, this core-periphery perspective has been useful for obtaining a more differentiated knowledge of the working life conditions that predict DP, especially with regard to young women and men. Such knowledge is essential for developing labour market strategies for reducing the risk of DP among younger individuals.

The Nordic countries are relatively similar with respect to the share of population granted DP. Sweden and Norway have somewhat higher shares (average 2.75% and 2.35%, respectively, in 2000–2010) among the 16–39 age group than Denmark and Finland (1.83% and 1.78%, respectively), but Sweden has lower rates in older ages than the other Nordic countries.³⁷ The Nordic countries are similar with respect to social security coverage related to DP, and the results may for this reason be comparable in a Nordic context. It is not possible to know to what degree it is possible to generalise these conditions to countries with other labour market and social security conditions.

Strengths and limitations

The major strength of the present population-based study was the prospective design. The number of interviews was large and based on representative samples with satisfactory response rates. The specific DP-related diagnoses were obtained from high-quality national registers. This indicated few missing cases over the years, as well as extensive and well-documented baseline information. This study was able to control for a number of relevant confounding factors, such as social background conditions and self-reported long-standing illness at the time of the interview. A limitation is that the individuals' work and occupational positions were measured at only one point in time and that changes in their conditions subsequent to the interview could not be taken into account. Another limitation is that we did not examine the stability of the core–periphery structure over time.

The follow-up period was relatively long for some individuals, which meant that important changes may have taken place between the interview and being granted DP. To check the influence of the length of follow-up, we performed analyses with a follow-up period limited to 10 years. Individuals were followed to no longer than 10 years from the start of follow-up. The statistical precision was slightly lower, but the main results remained unchanged. In the current study, we had no data on the type of employment contracts or employment permanency. For further development of the core–periphery perspective, such data will be highly valuable.

CONCLUSIONS

The main finding was the tendency for more peripheral positions on the core–periphery continuum to be associated with higher risks of future DP. The association was most pronounced among young individuals and those with DP based on mental diagnoses. The results highlight the need for preventative actions that aim to expand educational opportunities and increase the participation of young men and women in working life.

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Patient consent Obtained.

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