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Depressive symptoms in people with disabilities; secondary analysis of cross-sectional data from the United Kingdom and Greece

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ABSTRACT

Background: Evidence suggests there is an association between depressive symptoms and disability.
Objective/Hypothesis: The objective of this study was to examine whether people with disabilities in the United Kingdom and Greece face more depressive symptoms than people without disabilities. The hypothesis was that people with disabilities in both countries are more likely to experience depressive symptoms.
Methods: We used data from the 2014 European Health Interview Survey (wave 2). After performing principal-component factor analysis, we carried out logistic regressions, in order to investigate differences in depressive symptoms between people with and without disabilities, and examine the factors affecting depressive symptoms for people with disabilities.
Results: People with disabilities in the UK were 2.8 times more likely to experience depressive symptoms compared to people without disabilities (95% C.I.: 2.51–3.05, $p < .001$), while in Greece, they were 2.2 times more likely to do so (95% C.I.: 1.90–2.64, $p < .001$). Our findings regarding people with disabilities showed that women, older people (in Greece), unemployed and inactive people (in Greece), and better-educated people (in the UK) were more likely to experience depressive symptoms. Married people, older people (in the UK), people living in densely-populated areas (in Greece), people who assessed their health as 'average' or 'good', and people who enjoyed social support (in Greece) were less likely to face depressive symptoms.
Conclusions: Due to population-ageing and higher incidence of depressive symptoms in disabled people, it is important that policies are put in place to address the mental health needs of this population.

Introduction

In 2015, 300 million people across the world lived with a depressive disorder.[1] Many more people are somewhere along on a continuum extending between living with some depressive symptoms to having a depressive episode.[2] Depression is the second leading cause of disability worldwide and can have a severe impact on many aspects of a person's life.[3] According to the World Health Organisation, "*globally depressive disorders are ranked as the single largest contributor to non-fatal health loss*", and number two in high-income countries[1] (p.13). Furthermore, results from the World Health Surveys show that depression can lead to the greatest decrement in health compared to several chronic diseases, including arthritis and diabetes.[4]

People with disabilities, estimated at 15% of the world's population,[5] are often not explicitly included in mental health research, with the exception of studies on specific impairments or the older population. This is despite the fact that disability has been found to be strongly associated with depression,[6] on account of several factors, including loss of independence, diminishing social support, and biological mechanisms.[7–10]

Various types of disabilities, such as learning,[11] sensory,[12] and neurodegenerative,[13] have been associated with a higher prevalence of depression or depressive symptoms, compared to the general population. There are indications of a complex bidirectional causal pathway, especially between physical disability and depressive symptoms: depressive symptoms can lead to functional limitations, with people with depression reporting greater problems in carrying out activities of daily living. Physical disability can

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also lead to the emergence or increase of depressive symptoms.[6,14–16] A similar birectional relationship exists between depressive symptoms and pain in people with physical disabilities[17]: increased levels of depressive symptoms can lead to worse pain, and worse pain can lead to more severe depressive symptoms.

Yang[18] analysed longitudinal data from the US and found that functional disability is strongly associated with increased depressive symptoms in older people. A small part of these effects could be mediated by the existence of social support but disability still exerts a strong effect on depressive symptoms. Barry et al.[19] also found a positive association between disability severity and depressive symptoms in older people. Gunn et al.[20] found a positive association between comorbidity and depressive symptoms, so that people with more co-existing chronic conditions have higher probability of experiencing depressive symptoms.

Depressive symptoms range in a continuum; depending on the amount, severity, and frequency of the symptoms, their manifestation ranges from subthreshold depressive disorder to a full-blown depressive episode; in other words, depression will always include depressive symptoms, but depressive symptoms will not always lead to depression.[1,21,22] In this article, we use the term *depressive symptoms* to refer to any point in this continuum, inclusive of both subclinical and clinical depression. With increased interest in preventive approaches to depression,[1,4] it is important to know who is at more risk of experiencing depressive symptoms in order to target that population in prevention strategies.

Most of the research on depressive symptoms and disability to date has focused on older adults[6,10,18,19] and people with physical disabilities.[7,8,14,16,17] While this research offers valuable information on the relationship between specific impairments or conditions and depressive symptoms, the generalisability of the findings is limited to specific subgroups of disabled people. In this article, we investigate depressive symptoms and disability for adults (people aged 15 and over for Greece-, and 16 and over for the UK) who have disabilities of any nature in Greece and the UK. Our research adds to existing literature by providing evidence into whether people with a disability of any kind are more likely to experience depressive symptoms; it also investigates the factors affecting depressive symptoms for people with disabilities.

Our main aim was to investigate whether people with disabilities in the UK and Greece are more likely to face depressive symptoms compared to people without disabilities. We also looked into the demographic and socioeconomic factors that may affect the expression of depressive symptoms in people with disabilities. Based on previous research,[7–17] the hypothesis of the study was that people with disabilities in Greece and the UK would be more likely to experience depressive symptoms than people without disabilities.

Methodology

Design

We performed secondary analysis of cross-sectional data from the European Health Interview Survey (EHIS) for the UK and Greece. Since the UK opted out from the first EHIS wave (2006–2009), the analysis for both countries relied on the 2014 EHIS, Wave 2. The EHIS is conducted in various European Union countries every five years, with the aim of collecting statistics on health status, access and use of health care, and health determinants of the population, and thus, achieving "*a high level of harmonisation of the survey results across countries*"[23] (p. 6). The target population is adults (defined, depending on the country, as people aged 15 or 16 and over) who live in private households; people living in residential care or who are hospitalised are excluded. The EHIS covers four modules: a) demographic and socioeconomic variables, such as sex, age, household type, etc.; b) health status, for example self-perceived health, chronic illnesses, daily activities limitations, etc.; c) health care use, for instance unmet needs, preventive actions, hospitalisation, etc.; and d) health determinants, such as smoking, alcohol consumption, exercise, etc.[24]

EHIS-UK

Access to the data set was granted by the UK Data Service.[25] The EHIS for the UK targeted individuals aged 16 and over, and included a total of 20,161 observations. Data were collected between April 2013 and September 2014. Households were stratified by a) country (England, Wales, Scotland, and Northern Ireland), b) mode (face-to-face interviews, accounting for 20% of all interviews, and telephone interviews), and c) final wave of the Labour Force Survey (LFS) contact.[25]

The EHIS was administered as a follow-up to the LFS. In England, Wales, and Scotland, people that did not object in their final wave of contact completed the survey. In Northern Ireland, a simple random sample of households on the Land and Property Services Agency property gazetteer, which lists private households, was used.[25]

EHIS-Greece

Access to anonymised microdata was granted by the Department of Statistical Information Provision.[26] The EHIS for Greece targeted individuals aged 15 and over, and included a total of 8223 observations. Data were collected between October and December 2014, across Greece, through face-to-face interviews administered by trained researchers.[27] The survey utilised multistage and layered sampling. Sampling was performed according to division of surface units, based at the final stage on the number of households according to the 2011 Census.[26]

Variables and data analysis

In this article we use the terms *people with disabilities* and *disabled people* to refer to people who have a long-standing (more than 6 months) health condition or impairment, of any nature, and experience activity limitations. Since the EHIS does not include a variable on *disability*, two variables from the data set were merged into a new variable, guided by previous research using the same database.[28,29] The first variable (HS2) was "Long-standing health problem: Suffer from any illness or health problem of a duration of at least six months", with answers no/yes. The second variable (HS3) was "General activity limitation: Limitation in activities people usually do because of health problems for at least the past six months", with the possible answers being 'severely limited', 'limited but not severely', and 'not limited at all'. Thus, the new, binary variable 'disability' included two answers: 'no disability', and 'with disability' (people who answered 'yes' to HS2, and 'limited but not severely' and 'severely limited' to HS3). According to this categorisation, the total number of observations for the variable 'disability' for the UK is 15,508, while for Greece is 6385.

Due to case-deletion (default in STATA), our observations in the logistic regression for the UK are 13,183, and for Greece 6074. We did not impute the missing values, since our sample was still large enough, so that statistical power was considered sufficiently high. Case-deletion also did not introduce bias either, since in our case the missing values occurred only in the outcome variables.[30]

Regarding depressive symptoms, the EHIS survey includes eight questions, which correspond to the three main symptoms (1, 2, and

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