Journal of Affective Disorders 221 (2017) 123–131

Contents lists available at ScienceDirect

Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Research paper

Prevalence of depression: Comparisons of different depression definitions in population-based samples of older adults

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ARTICLE INFO

Keywords:
Depression
Psychiatry
Epidemiology
Definitions
Geriatrics

ABSTRACT

Background: Depression prevalence in older adults varies largely across studies, which probably reflects methodological rather than true differences. This study aims to explore whether and to what extent the prevalence of depression varies when using different diagnostic criteria and rating scales, and various samples of older adults.
Methods: A population-based sample of 3353 individuals aged 60–104 years from the Swedish National Study on Aging and Care in Kungsholmen (SNAC-K) were examined in 2001–2004. Point prevalence of depression was estimated by: 1) diagnostic criteria, ICD-10 and DSM-IV-TR/DSM-5; 2) rating scales, MADRS and GDS-15; and 3) self-report. Depression prevalence in sub-samples by dementia status, living place, and socio-demographics were compared.
Results: The prevalence of any depression (including all severity grades) was 4.2% (moderate/severe: 1.6%) for ICD-10 and 9.3% (major: 2.1%) for DSM-IV-TR; 10.6% for MADRS and 9.2% for GDS-15; and 9.1% for self-report. Depression prevalence was lower in the dementia-free sample as compared to the total population. Furthermore, having poor physical function, or not having a partner were independently associated with higher depression prevalence, across most of the depression definitions.
Limitations: The response rate was 73.3% and this may have resulted in an underestimation of depression.
Conclusion: Depression prevalence was similar across all depression definitions except for ICD-10, showing much lower figures. However, independent of the definition used, depression prevalence varies greatly by dementia status, physical functioning, and marital status. These findings may be useful for clinicians when assessing depression in older adults and for researchers when exploring and comparing depression prevalence across studies.

1. Introduction

Depression is one of the most prevalent mental disorders and a common cause of disability and reduced life-satisfaction in old age (Skoog, 2011). Along with the worldwide increase in the number of older adults (Christensen et al., 2009), a better understanding of depression in old age is highly valuable from clinical and public health perspectives.

Several studies have examined the prevalence of depression in older adults. However, prevalence estimates from previous studies are inconsistent and range between 1% and 16% for major depression, 2–19% for minor depression, and 7.2–49% for depressive symptoms in older adults living in the community or in nursing homes (Djernes, 2006). It is likely that the differences in depression prevalence may be due to methodological discrepancies, e.g. different definitions used to identify depression and differences in the populations studied (Luppa et al., 2012; Beekman et al., 1999). Yet, a scarce number of population-based studies have simultaneously used different depression definitions (diagnostic criteria, rating scales, and self-report), and sub-samples of the study population (e.g., by dementia status, living place, and socio-demographics) to verify to what extent depression prevalence may differ (Luppa et al., 2012).

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http://dx.doi.org/10.1016/j.jad.2017.06.011
Received 1 February 2017; Received in revised form 21 April 2017; Accepted 11 June 2017
Available online 13 June 2017
0165-0327/

This study aims to explore whether and to what extent the point prevalence of depression varies in older adults aged 60–104 years when using different diagnostic criteria (ICD-10 and DSM-IV-TR/DSM-5), rating scales (MADRS and GDS-15), and self-report, and in sub-samples by dementia status, living place, and socio-demographics.

2. Methods

2.1. Study population

This study used data from the population-based Swedish National Study on Aging and Care in Kungsholmen (SNAC-K) (Lagergren et al., 2004). The representative sample was randomly selected from 11 age-cohorts (60, 66, 72, 78, 81, 84, 87, 90, 93, 96, and 99+ years) of residents in the district of Kungsholmen in Stockholm, Sweden. The eligible sample included 4590 individuals (Santoni et al., 2015). Of these, 3363 participated (73.3%) in the baseline examination in 2001–2004. Informed and written consent have been collected directly from each participant or, in the case of cognitive impairment, from a proxy (e.g. a close family member). The Regional Ethics Review Board in Stockholm has approved all phases of the SNAC-K study.

Of the 3363 participants, 10 did not undergo physical examination, leaving 3353 individuals in the analyses. To examine depression in a dementia-free sample an additional 311 individuals were excluded. To examine a community-dwelling sample, 191 individuals who lived in an institution were excluded. Therefore, the prevalence of depression was presented for the total population (N = 3353, including those with dementia and living in institutions), and in two sub-samples: a dementia-free sample (N = 3042, excluding those with dementia), and community-dwelling sample (N = 3162, excluding those living in institutions).

2.2. Data collection

During the baseline examinations comprehensive information were collected through clinical examinations, interviews, self-administered questionnaires, and cognitive tests administered by nurses, physicians, and psychologists.

2.3. Assesment of depression

2.3.1. Assessment of depressive symptoms

Experienced physicians carried out a general medical examination where the Comprehensive Psychopathological Rating Scale (CPRS) was used to assess the point prevalence of depression at the time of the examination. The CPRS is a semi-structured instrument used to assess current psychiatric signs and symptoms (Åsberg et al., 1978) and includes ratings of each sign or symptom based on its intensity, frequency, and duration. Each item of the CPRS is rated from 0 to 6, with a rating of 2 indicating the presence of a symptom, and higher ratings indicating more severe symptoms. The CPRS has been proven to have good applicability and reliability in older adults (van der Laan et al., 2005).

2.3.2. Diagnosis of depression

Specific items from the CPRS were selected to represent depressive symptoms according to an experienced psychiatrist and researcher, and cut-off levels for when a symptom was considered as present varied between 2 and 4 (see Appendix A). This algorithm was done in accordance with a previous study (Skoog et al., 1993). The assessment was further supported by the examining physician's clinical judgment and by information from the self-reported questionnaires on depressive symptoms. A physician reviewed and independently diagnosed depression according to the International Classification of Diseases, Tenth Revision (ICD-10) classification of mental and behavioural disorders: diagnostic criteria for research (World Health Organization (WHO), 1993) and the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition Text Revision (DSM-IV-TR) (American Psychiatric Association (APA), 2000), and 5th Edition (DSM-5) (American Psychiatric Association (APA), 2013) (see Appendix B). The ICD-10 diagnostic criteria for research requires the presence of 4 out of 10 specified symptoms of which at least 2 of the 3 following core symptoms have to be present for a mild depression: low mood, loss of interest, and decreased energy. A moderate depression requires a total of 6 symptoms, in which 2 of the 3 core symptoms have to be present. A severe depression requires a total of 8 symptoms, in which all of the 3 core symptoms have to be present. Minor depression was diagnosed with DSM-IV-TR requiring 2–4 symptoms, with at least 1 of the 2 core symptoms of low mood and loss of interest present. Major depression diagnosed with DSM-IV-TR and DSM-5 requires a total of 5 out of the 9 specified symptoms, and the presence of at least 1 of the 2 core symptoms (Karlsson et al., 2016) (see Appendix B).

2.3.3. Depressive symptoms by rating scales

Depressive symptoms were also rated according to the following rating scales: the Montgomery-Åsberg Depression Rating Scale (MADRS) and the Geriatric Depression Scale (GDS-15 short form). MADRS is a subscale of CPRS that includes 10 items for the rating of depressive symptoms (see Appendix B) (Montgomery and Asberg, 1979). The MADRS-score ranges from 0 to 60 and the cut-off for depression was categorized as > 9 (Zimmerman et al., 2004). MADRS has been validated among older adults and showed no difference in sensitivity and specificity across the different age groups (< 80 or > 80 years old) (Mottram et al., 2000). MADRS has also been shown to have high inter-rater reliability (ranging from 0.89 to 0.97) (Montgomery and Asberg, 1979), and a sensitivity of 0.79 and specificity of 0.81 when compared to diagnostic criteria in a sample of cognitively impaired individuals using the cut-off > 9 (Knapskog et al., 2011). GDS-15 consists of 15 items with a yes/no answer (see Appendix B). The GDS is specifically designed to rate depressive symptoms in adults aged 65 years and older (Sheikh and Yesavage, 1986). The inter-rater reliability for GDS-15 has been found to be high (0.94). The accuracy of the scale has also been shown not to differ across sociodemographic characteristics, health status or cognitive functioning (Marc et al., 2008). In the current study, 10 of the items included in GDS-15 were assessed from the self-reported questionnaires and 5 from the CPRS. Each answer indicating depression was given a score of 1. The overall score ranges from 0 to 15 and the cut-off used for depression was ≥5, since this cut-off has previously been shown to have the highest sensitivity (0.96) and specificity (0.95), as well as the best trade-off between them when compared to diagnostic criteria according to DSM-IV (Marc et al., 2008; Nyunt et al., 2009).

2.3.4. Self-reported depression

Self-reported depression was assessed by the examining physicians asking whether the participants were currently suffering from depression. The answers were categorized as yes/no.

In this study, any depression refers to individuals fulfilling the criteria for minor or major depression according to DSM-IV-TR/DSM-5; mild, moderate, or severe depression according to ICD-10; a cut-off score of > 9 on MADRS; ≥5 on GDS-15; or answering yes to the question on self-reported depression.

2.4. Diagnosis of dementia

The clinical diagnosis of dementia was made according to the DSM-IV criteria following a 3-step procedure. First, preliminary diagnoses were made independently by the examining physician, followed by second diagnoses by a reviewing physician. In case of disagreement between the first and the second diagnoses a third opinion was requested (Fratiglioni et al., 1992). Dementia cases were defined as having definite or questionable dementia.