Journal of Affective Disorders 148 (2013) 310–315

Contents lists available at SciVerse ScienceDirect

Journal of Affective Disorders

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

Research report

Could the lower prevalence of affective disorder in older people be due to measurement error? Reliability of the Revised Clinical Interview Schedule in younger and older adults

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ARTICLE INFO

Article history:
Received 18 August 2012
Received in revised form
22 November 2012
Accepted 18 December 2012
Available online 11 January 2013

Keywords:
Diagnostic interview
Depression
Anxiety
Older age

ABSTRACT

Background: Population surveys report that anxiety and depressive disorders are less common in older people. It has been suggested this may be accounted for by measurement errors. We analysed 2007 English Psychiatric Morbidity Survey data to explore whether the reduced prevalences of anxiety and depression in older people might be explained by the Revised Clinical Interview Schedule (CIS-R) items functioning differently across age groups.

Methods: 7403 people, 57% of those approached, took part. A multiple indicators multiple causes ('MIMIC') model explored the factor structure of the CIS-R and the relationship between covariates (age, sex and IQ) and the factor structure.

Results: A model with one latent factor "neuroticism", measured by 14 dichotomised individual symptom scores, was the most parsimonious (factor loadings 0.57–0.92). Younger respondents (<65 years), women and those with lower IQs, had significantly higher neuroticism factor scores. Older respondents (>65 years) were less likely than younger adults to experience irritability, phobia, and worry, but more likely to experience fatigue, worry specifically about physical health and sleep difficulties. Model factor loadings remained strong and statistically significant (0.53–0.92) after including age, sex and IQ as covariates.

Limitations: We analysed age dichotomously, defining older as aged 65 or above. We could not identify which of the participants had dementia, a potentially important covariate.

Conclusions: This study indicates that the CIS-R can reliably identify people with anxiety and depressive symptoms across the population, suggesting that specialist instruments may not always be required to accurately measure anxiety and depressive symptoms in older people.

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1. Introduction

Common mental disorders in older people seriously impair quality of life (Cooper et al., 2009; Wetherell et al., 2004), and are associated with worse physical health (Beekman et al., 1998; Han, 2002), obesity (Kivimaki et al., 2009) and attempted and completed suicide (NHS, 2009). Studies of older populations report a high annual incidence of depressive symptoms(between 7% and 24.5% annually) and indicate that the old and physically frail are particularly at risk (Dozeman et al., 2010). While these levels of depressive symptoms may at first appear similar to those reported by younger adults (Eaton and Kessler, 1981), studies which have used the same case-finding instruments across the age range, consistently report that older people have relatively low rates of common mental disorders. Thus Bromet et al. (2011) summarised data from the World Mental Health Surveys, most of which sampled entire populations: in the ten developed countries surveyed, the prevalence of depression was consistently lower in late middle age or early old age. Similarly, McEvoy et al. (2011) found that older people had a lower odds of having an anxiety disorder, compared with younger adults. Why the paradox? One possible explanation is that older people may report psychological symptoms of depression and anxiety less readily than younger adults, due to a greater social desirability bias, and be more likely to report somatic symptoms (Bogner et al., 2009; Mohlman et al., 2012; Sheehan and Banerjee, 1999).There have been concerns that mental health measures which include somatic items may be less reliable in people with concomitant physical health problems, for example in the Beck Anxiety Inventory, it has been suggested that somatic items may "tap into medical illnesses rather than anxiety" (Wetherell and Gatz, 2005), although this would not explain the lower prevalence of anxiety in older people

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0165-0327/$ - see front matter © 2013 Elsevier B.V. All rights reserved.
http://dx.doi.org/10.1016/j.jad.2012.12.016

who tend to have more physical complaints, since correcting for it would tend to lower it further.

It is certainly possible that some instruments perform differently in younger and older age groups, and that this might account for an apparent decline in prevalence in older people. If so, this must be taken seriously as it would indicate that prevalence values had different implications in the elderly. It has led some to suggest that specially adapted instruments should be used to measure anxiety and depressive symptoms in older adults (Mohlman et al., 2012), but this would prevent comparison of prevalence rates in different age groups. It is after all crucial, for health and social policy makers and service managers alike, to have reliable information about differences in mental symptoms across all age groups. This requires valid and reliable instruments that can be used equally in older and younger adults.

The Revised Clinical Interview Schedule(CIS-R) is commonly used to assess the mental state of individuals with non-psychotic psychiatric disorders (Lewis et al., 1992). It is relatively brief, and suitable for use by lay interviewers, but covers a sufficient range of the constituent symptoms of common mental disorder to permit factor analysis. It has been used in all three British national psychiatric morbidity surveys. We used data from the 2007 English Adult Psychiatric Morbidity Survey (APMS) (McManus et al., 2009) which had no upper age limit, rendering it suitable for age-related analyses. We explored whether the items in the CIS-R function differently across age groups in a manner that might account for the often reduced prevalence in the latter. Younger age, female sex and lower IQ score have consistently been associated with higher levels of anxiety and depression (Bromet et al., 2011; Hassiotis et al., 2011; McManus et al., 2009; McEvoy et al., 2011), so could potentially moderate the factor loadings of our confirmatory factor analytic model.

2. Method

2.1. Survey

The 2007 APMS was a nationally representative survey of people aged 16 years and older living in private households in England (McManus et al., 2009). Interviews were conducted between October 2006 and December 2007 by interviewers from the National Centre for Social Research.

A stratified multi-stage random probability sample was selected in two stages: (1) the sampling of the primary sampling units (PSUs); and (2) the sampling of addresses within the selected PSUs. The sampling frame was derived from the Post Office's small user Postcode Address File, which includes approximately 99% of private households. The PSUs were individual or groups of postcode sectors. Postcode sectors cover, on average, 2550 households. Postcode sectors were divided into regions based on Strategic Health Authorities and then stratified on the basis of two 2001 Census indicators of socio-economic status: (1) the proportion of people in non-manual social classes (professional, managerial and technical and non-manual, skilled occupations) and (2) the proportion of households without access to a car. Postcode sectors were sampled from each stratum with a probability proportional to their size. Standard multi-household procedures were used to ensure that all households had a known and non-zero probability of selection. From 14,532 selected delivery points, 13,171 (90.6%) eligible households were identified. One person per household was selected at random to participate in the survey. The response rate was 57% (70% of those successfully contacted), giving a final sample of 7403.

2.2. Interview schedule

The Clinical Interview Schedule Revised (CIS-R) (Lewis et al., 1992) assesses the presence of non-psychotic symptoms in the week prior to the interview. It is an interviewer administered structured interview. Six common mental disorders, based on ICD-10 criteria can be identified by the application of a computer algorithm. Prevalences of these disorders in this sample are reported elsewhere (McManus et al., 2009). However, in this paper, we use the CIS-R symptom scores as we wanted to explore the factor structure of the instrument. It comprises 14 symptoms: somatic symptoms, fatigue, concentration and forgetfulness, sleep problems, irritability, concerns about physical health, depression, depressive ideas, worry, anxiety, phobias, panic, compulsions, and obsessions. Each section starts with two filter questions to establish the presence of the particular symptom in the past month. A positive response leads to further questions about the symptom in the past week including frequency, duration, severity, and time since onset. Answers determine the scores for each symptom. Scores range from zero to four, except for depressive ideas, which has a maximum score of five. We dichotomised the scores for each section, with a threshold of 2 or more indicating that the symptom is present (versus absent).

2.3. Covariates

Three covariates were included in the model: age category (binary coded as 65 years and older versus 64 years and younger), sex, and IQ (a continuous score on National Adult Reading Test (NART), ranging from 0 to 50, with higher scores indicative of higher IQ) (Nelson and O'Connell, 1978). The NART is a widely used and validated brief measure of intelligence for English speakers.

2.4. Analytic plan

Analyses were conducted using Mplus version 6.11 (Muthén and Muthén, 1998–2010). The default estimator was a robust, weighted least-squares estimator. Sampling weights and other variables that account for the complex survey design of 2007 APMS were used to enhance the reliability and validity of the parameter estimates, standard errors, and model fit calculations. The likelihood of a household responding to the survey was not associated with the following area-level variables: Index of Multiple Deprivation quintiles, population density (number of persons per hectare), percentage of persons of non-white ethnic background, and the percentage of adults in a non-manual occupation. Response rate did vary by region, with a lower propensity for a household to respond in the West Midlands, East of England, London, South East and the SouthWest (relative to the NorthEast), and was higher in areas where a relatively high percentage of households were owner-occupied; and in households with no physical barriers to entry to the property (as observed by interviewers). These variables were included in a logistic regression model, from which a household level weight was calculated for responding and non-responding households.

We estimated a series of confirmatory factor models to determine the factor structure of the CIS-R in the APMS 2007. We tested a number of models based on both the continuous and dichotomised symptom scores. This analysis aimed to discover how best to conceptualise the conditions measured by the CIS-R.

First, we used confirmatory factor analysis (CFA) to develop the measurement model linking the CIS-R items with the latent factor(s). One previous study found that the CIS-R measured a single general 'neuroticism' factor rather than two highly-related 'anxiety' and 'depression' factors (Jacob et al., 1998). Four alternative factor models

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