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Research report

A cross-cultural comparison of the phenotype of depression as measured by the Cornell Scale and the MADRS in two elderly outpatient populations

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ABSTRACT

Background: Different cutoff points for a depressive disorder on depression scales exist in different countries. The reasons could be that the presence or the intensity of the various symptoms on the scales differ. We wanted to explore differences in scores on depression scales among patients in Brazil and Norway.
Methods: The Cornell Scale for Depression in Dementia (CSDD) and the Montgomery–Aasberg Depression Rating Scale (MADRS) were completed independently among 211 elderly outpatients in Brazil and Norway. A psychiatrist, blind to the results, diagnosed depression using the ICD-10 and DSM-IV criteria.
Results: According to the ICD-10 criteria, 29 (33.7%) Brazilian and 51 (40.8%) Norwegian patients had depression ($p=0.3$). Mean CSDD score was 14.4 (SD 8.9) in Brazil and 6.8 (SD 4.9) in Norway ($p<0.001$). Mean MADRS score was 13.2 (SD 12.1) in Brazil and 8.4 (SD 6.8) in Norway ($p=0.02$). We analyzed the scores for the depressed and the non-depressed patients separately. In both groups the Brazilian patients had significantly higher scores on both scales compared to the Norwegian patients. In an adjusted linear regression analysis the variable "country" was associated with the CSDD score (beta $=-0.29$, $p=0.01$).
Limitations: The protocols in the two countries were not exactly the same. Only one psychiatrist evaluated the patients.
Conclusions: The scores on the MADRS and the CSDD were higher in patients in Brazil than in Norway. In an adjusted linear regression analysis, "country" was the only variable associated with the higher CSDD score.

1. Introduction

Depression is common in every stage of dementia (Ballard et al., 1996; Verkaik et al., 2007), and it may even be the first symptom of dementia (Lyketsos and Olin, 2002). It is believed that about 50% of all patients with dementia will suffer from depression to a greater or lesser extent during the course of the disorder (Ballard et al., 1996; Lyketsos and Olin, 2002; Olin et al., 2002; Starkstein et al., 2005). Depression has a great impact on the lives of both patients and caregivers and may cause a reduced quality of life, increased caregiver burden, increased referral to hospitals and nursing homes, disability in the activities of daily living, and higher morbidity and mortality rates (Barca et al., 2009; Starkstein et al., 2005, 2008; Ulstein et al., 2007).

Some studies show that depression in dementia is common not only in the developed countries but also in the low income countries and across different cultures (Chahine et al., 2007; Starkstein et al., 2005). In a comparative study performed in the United Kingdom and Korea, patients with dementia were examined using the Cornell Scale of Depression in Dementia (CSDD) in addition to other instruments. Even though the two populations differed in many ways, there was no significant difference in the CSDD score between the patients in the two countries (Shah et al., 2004). In another study among outpatients referred to a dementia clinic in Buenos Aires, Starkstein et al. found that about 50% had either minor or major depression according to the DSM-IV criteria judged by a psychiatrist (Starkstein et al., 2005). In a nursing home study in Lebanon, 41% of patients with dementia had depression according to the score on the Geriatric Depression Scale (GDS). However, about one in four patients with severe dementia did not understand the questions in GDS and were excluded, which casts some doubt on the results of this study (Chahine et al., 2007).

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Throughout the years, many studies have been performed to investigate the prevalence, severity, duration and consequences of depression in dementia. In many of these studies depression diagnoses were based upon the results of depression scales, and clinical diagnoses were seldom made. Even though many different scales have been used, the most frequently used scale in people with dementia is the CSDD (Alexopoulos et al., 1988). In the original study of Alexopoulos, the mean score of the CSDD in the patient group with mild depression was 8, and this value has since then often been used as a cutoff point to define depression. However, validity studies among patients with dementia have shown different cutoff points, the lowest being 4/5 among patients in Denmark (Korner et al., 2006) and Japan (Schreiner et al., 2003), and the highest 12/13 in a Chinese study (Lam et al., 2004). In a French study the cutoff was 9/10 (Camus et al., 1995). Two separate validity studies of the CSDD and the MADRS were conducted in Brazil and Norway, using the same methodology. Different cutoff points were found for a depressive disorder according to the ICD-10 criteria. For the best sensitivity and specificity, the cutoff for the CSDD was 12/13 in Brazil and 5/6 in Norway, respectively (Knapskog et al., 2011; Portugal et al., 2011).

The Montgomery–Aasberg Rating Scale (MADRS) is less used among patients with dementia, and few validity studies have been carried out among elderly patients. However, two validity studies performed among patients with Parkinson's disease, found an optimal cutoff score of 14/15 in the Netherlands and a cutoff score of 9/10 in Brazil (Leentjens et al., 2000; Silberman et al., 2006). To our knowledge, except for the Brazilian and the Norwegian studies, only two other studies have compared the CSDD and the MADRS among patients with dementia. Muller-Thomsen found both scales suitable as screening tools among memory clinic patients (Muller-Thomsen et al., 2005). Leontjevas applied the scales to younger patients with Alzheimer's disease using information from the same interview with a proxy informant and reported also that both scales were suitable (Leontjevas et al., 2009). In both the Brazilian and the Norwegian study, the MADRS and the CSDD were used as diagnostic tools among patients referred to a memory clinic for dementia assessment. The Brazilian study found that the best cutoff score for the MADRS was 9/10, whereas it was 6/7 in Norway (Knapskog et al., 2011; Portugal et al., 2011).

Why do cutoff scores differ in different validation studies? Could it be explained by the way the physicians judge the symptoms, or do patients and caregivers emphasize different signs that could indicate depression in different countries? We suggest that different cultural mindsets operating on how to understand and report symptoms of depression might be important reasons. Hendrie et al. compared symptoms of behavioral disturbances in patients with dementia living in different countries like Jamaica, Canada, U.S. and Nigeria, and found a great variability of reported prevalence of personality changes. In the U.S., the caregivers reported more personality changes than in the other countries, whereas in Nigeria and Jamaica very few caregivers reported depressive symptoms in the patients with dementia. Other than in the U.S., there was great tolerance for behavioral changes in the elderly, and symptoms of dementia were often misinterpreted. The differences found among the countries in this study appeared to be primarily due to psychosocial and demographic factors (Hendrie et al., 1996).

Older people from minority groups in the Western world receive fewer health care services, take less part in research, and often receive diagnoses of dementia at a later stage compared to the older patients from the majority groups (Hinton et al., 2000; Lampley-Dallas, 2002; Purandare et al., 2007). It is also suggested that because social and health care services are less available in the developing countries, the family may be more tolerant towards people with cognitive impairment and behavioral problems, including symptoms of depression, which could be considered as a sign of normal ageing in the family caregivers' opinion. As a consequence, the caregivers wait a long time before seeking help (Mangone, 1996; Shaji et al., 2002).

Because of different cutoff points being found in different cultural settings, we wanted to compare which symptoms of depression were reported most frequently and how intensely in a group of patients referred for assessment of dementia in Brazil and Norway. For that purpose we used the CSDD and the MADRS. The two scales were evaluated independently from each other in each interview and a psychiatrist diagnosed depression or not without knowledge of the results on the scales. In addition, we wanted to explore whether the variable "country" influenced the total scores of the two scales.

2. Methods

2.1. Design

This is a validity study of the Cornell Scale for Depression in Dementia and the Montgomery–Aasberg Depression Scale, using the design described by Sackett el al. for "critical appraisal" of diagnostic tests (Sackett et al., 2000). The cross-cultural comparison was planned ahead of the study, and the researchers working on the two study groups met before the start of the study and twice during the study to ensure that a common design and procedure were followed.

2.2. Participants

We included 86 patients from a psychogeriatric outpatient clinic in Rio de Janeiro in Brazil and 125 patients from two memory clinics in Norway (Oslo and Sanderud), who were referred for a dementia examination. The exclusion criteria were: not able to communicate in the official language of the country, a diagnosis of bipolar disorder, a history of alcohol abuse or neurological disorders, except for patients with dementia with Lewy bodies or Parkinson's disease.

3. Diagnostic procedures

3.1. Dementia diagnoses

Diagnoses of dementia were performed in Brazil according to the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders, text revision (DSM-IV-TR), and in Norway according to the International Classification of Diseases-10 (ICD-10). In both countries the Clinical Dementia Rating scale (CDR) was used to assess the degree of dementia (Hughes et al., 1982). In both countries the diagnosis of mild cognitive impairment (MCI) was performed using the Winblad criteria (Winblad et al., 2004), and the term subjective cognitive impairment (SCI) was used if the patients had complaints of a decline in memory but did not fulfill the criteria for dementia or MCI. All the diagnoses were based upon a comprehensive and standardized examination, including a history from the patients and a caregiver, a neuropsychological test battery, physical and psychiatric examination, blood tests and CT or MRI of the brain (Knapskog et al., 2011; Portugal et al., 2011).