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Research Paper

Analysis of disability using WHODAS 2.0 among the middle-aged and elderly in Cinco Villas, Spain

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Abstract

Background: The prevalence of disability, as defined by the International Classification of Functioning, Disability and Health (ICF), among the middle-aged and elderly population is poorly known.

Objective: To determine disability prevalence in a resident population sample aged ⩾50 years, in the Cinco Villas district, Spain, from June 2008 through June 2009.

Methods: We used the WHODAS 2.0 36-item questionnaire to quantify the prevalence of disability, globally and by domain, together with a 13-item combined measure of three domains, *Getting around*, *Self-care* and *Life activities,* claimed to reflect the need of integrated services. In addition, we performed exploratory analyses of the relationship between disability and different variables using ordinal logistic regression.

Results: Disability was detected by global WHODAS score in 604 of a total of 1214 persons, i.e., a prevalence of 49.8% 95% CI (46.9–52.5), with the corresponding figures for mild, moderate, severe, and extreme disability being 26.8%, 16.0%, 7.6% and 0.1%, respectively. Disability increased with age, was higher among women, and for specific domains. Prevalence of severe/extreme disability among women vs. men was as follows: *Getting around*, 26.8% vs. 12.1%; *Life activities*, 25.2% vs. 6.8%; and *Self-care*, 9.5% vs. 6.0%. Disability was more frequent among subjects diagnosed with dementia, chronic liver disease, severe mental disease, and stroke. The abovementioned 13-item measure yielded prevalence figures for disability levels quite similar to those obtained using 36-item scores.

Conclusions: For the first time, this study furnishes detailed disability prevalence figures and data on associated variables in a middle-aged and elderly Western population.

Keywords: Disability; ICF; Prevalence; Functional dependence; WHODAS 2.0; Social services; Public health services

The International Classification of Functioning, Disability and Health (ICF) model constitutes an extensive and universally accepted taxonomic classification of disability, which enables clinicians and field workers to describe comprehensively and categorize patients' functioning and disability in a systematic and standardized manner.[1,2] The ICF disability instrument designed for population studies is the *World Health Organization* (WHO) *Disability Assessment Schedule-2.0* (WHODAS 2.0), used for screening (12 items) (WHODAS-12) and assessment (36 items) (WHODAS-36). The WHODAS-36 is expressly recommended by the WHO to estimate the burden of mental and physical disorders across different populations.[3] The questions used to explore disability by each of the 36 items over six domains, along with the ICF codes covered by

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Conflicts of interest: The authors declare that they have no conflicts of interest associated with the publication of this paper.

Results have, in part, been presented at annual meetings of the National Associations of Epidemiology and Neurology.

A previous data set was presented in an annual meeting of Spanish Epidemiolgic Association.

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the instrument, are described online in Supplementary Table A. The WHODAS 2.0 has displayed good metric properties in clinical and rehabilitation samples, thereby supporting its use as an international instrument for measuring disability based on the ICF model.[4,5] Logistics and lack of resources mean that disability screening and assessment is best conducted in small populations by door-to-door surveys, with the result that there are very few direct field studies.

The WHODAS-36 has been used to conduct population disability surveys of the elderly in Turkey, Iran and Spain.[6–8] The last of these, a study on a Spanish population aged ⩾75 years, identified key determinants of disability interacting with residence in rural areas with difficult access to services.[9] In line with the notion of a potential urban–rural gradient of lower use of social services, the current survey was conducted on subjects aged ⩾50 years residing in a coterminous rural and semi-rural area in northern Spain, known as the Cinco Villas district.[10]

The goal of this study was to determine and characterize the prevalence of disability among the middle-aged and elderly, rural–semirural population of Spain's Cinco Villas district.

Methods

The disability survey formed part of a wider population study, which also sought to identify risk factors for prevalent disability, and describe both the use of medical and social support services and specific healthy habits mainly of relevance to the middle-aged. A detailed description of the study population, health and social services, and survey methods is provided elsewhere.[10]

Study population

Cinco Villas (population approximately 33,000 in 2008) is a district made up of 48 municipalities located in the Province of Zaragoza (northeast Spain). This area was selected due to the logistic support provided by local authorities and non-governmental organizations, and because it constitutes the administrative unit for provision of social services. In 2008, the total population aged 50 years or over was 13,315 (Spanish National Statistics Institute). Care is provided cost-free by five publicly-run primary care centers and by a university teaching hospital 85 km away in the city of Zaragoza, and recently by a specialist center located in Ejea de los Caballeros, the district's main town. Sheltered accommodation is available at several homes for the elderly, which are either privately owned or operated by charities, and offered by a few municipalities on the basis of different, individually-adjusted rate tables.

Sample screening and disability study

A probabilistic sample, comprising 1360 *de facto* residents of the Cinco Villas district drawn from a population of 12,784 social security card holders (age ⩾50 years), was invited to undergo cognitive and disability screening. Reported participation was 91% overall, and lower in some large-sized municipalities; incomplete data were obtained from 34 participants and, complete data, initially valid for analysis were collected from 1216 persons.[10] Field work was conducted across the period, June 2008–June 2009. The screening instruments used were the validated Spanish version of the Mini Mental State Examination (MMSE) denoted as Mini-Examen Cognoscitivo[11] and the WHODAS-12. Assessment was sequentially arranged and consisted of two steps, with screening (phase 1) being followed by diagnosis and functional evaluation (phase 2). Participants who screened positive for disability (WHODAS-12 score of 1 or more) or cognition (MMSE score below 24 points), underwent an assessment protocol focusing on primary-care diagnoses, disability, lifestyle, and use of social and health resources.

Details of use of the WHODAS 2.0

The WHODAS 2.0 comes in the form of a 12- or 36-item questionnaire covering six disability domains in the 30-day period preceding assessment. These domains are *Understanding and communication* (UAC), *Getting around* (GAR), *Self-care* (SCA), *Getting along with people* (GAP), *Life activities* (LAC) and *Participation in society* (PSO) (see WHODAS-36, Supplementary Table A, online). Items are answered on a 5-point Likert scale, which ranges from no difficulty (0 points) to extreme self-reported difficulty (4 points) in performing a given activity. The 12-item version, aimed at screening, has recently been validated for the Spanish population.[12] The 12-item global score ranges from 0 to 48, with higher scores indicating greater disability. All participants scoring above 0 were administered the complete health and disability protocols (phase 2), including the 36-item version of this instrument, either directly or by proxy, as suggested by the MMSE score or primary care records.[13]

We used the scoring rules provided by the WHO Spanish Official Group[12] and obtained global and domain scores. Items D5.2–D5.5 (*Life activities*) were not applicable in the case of 132 men and 52 women to whom no household activities had been assigned. In addition, item D4.5 (*Sexual activities*) was also excluded from calculations, owing to a high proportion of missing values, 33.0%. In line with reported methods,[4] items with less than 30% of missing values were assigned the mean of the remaining domain values. Individuals who left more than one domain blank were excluded from the analysis. The WHODAS 2.0 proxy informant version was administered to participants who were unable to answer questions due to cognitive limitations or aphasia. WHODAS 2.0 domain-specific and global scores were categorized as: no problem (0%–4%); mild problem (5%–24%); moderate problem (25%–49%); severe problem (50%–95%); and extreme/complete problem (95%–100%).[8]