



ORIGINAL ARTICLE

Psychometric properties of a new short version of the State-Trait Anxiety Inventory (STAI) for the assessment of anxiety in the elderly[☆]



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Abstract

Introduction: Anxiety has negative effects on the cognitive performance and psychosocial adjustment of elderly people. Given the high prevalence of anxiety symptoms in patients suffering from cognitive impairment, it has been suggested that these symptoms may be an early marker of dementia. The State-Trait Anxiety Inventory (STAI) is one of the widely-used scales for evaluating anxiety in elderly people. However, inasmuch as the STAI may be difficult to apply to older people, having a short form of it would be desirable.

Methods: The participants comprised 489 community-dwelling individuals aged 68 years and over. All of them were volunteers in a longitudinal study for early detection of Alzheimer's Disease (Proyecto Vallecas). The full sample was divided in two homogeneous subgroups: Group A, used to reduce the number of items and response options, and Group B, the group used to determine the psychometric properties of the new short form (STAIr).

Results: A dichotomous Rasch model was used to obtain the STAIr. No statistically significant differences for STAIr scores were found with respect to sociodemographic variables. Psychometric properties and normative data were obtained for the new short-version.

Conclusions: The STAIr is composed of 13 items and data fits the model well. Since it is short and easy to apply to elderly people, STAIr will be very useful in clinical and research settings.

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PALABRAS CLAVE

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ítem

Propiedades psicométricas de una nueva versión abreviada del *State-Trait Anxiety Inventory* (STAI) para valorar el nivel de ansiedad en personas mayores

Resumen

Introducción: La ansiedad tiene efectos negativos sobre el rendimiento cognitivo y el ajuste psicosocial de las personas mayores. Dada la elevada prevalencia de los síntomas de ansiedad en personas con deterioro cognitivo, se ha indicado que podrían ser un marcador precoz de demencia. Una de las pruebas más utilizadas para valorar el nivel de ansiedad en personas mayores es el Inventario de Ansiedad Estado-Rasgo (STAI). No obstante, en la medida en que puede resultar una escala larga para los mayores, sería deseable contar con una versión abreviada de la misma. **Métodos:** Se reclutó una muestra de 489 participantes mayores de 68 años cognitivamente sanos, todos ellos eran voluntarios en un proyecto de investigación longitudinal sobre la enfermedad de Alzheimer (Proyecto Vallecas). La muestra se subdividió en 2 grupos homogéneos: el grupo A se utilizó para reducir el número de ítems y de opciones de respuesta, y el grupo B para obtener las propiedades psicométricas de la nueva escala reducida (STAIr).

Resultados: Se empleó el modelo de Rasch dicotómico para obtener el STAIr. Las variables sociodemográficas no mostraron asociación con las puntuaciones de la nueva versión. Se estudiaron las propiedades psicométricas y se hallaron los datos normativos del STAIr.

Conclusiones: La nueva versión STAIr se compone de 13 ítems y presenta una adecuada bondad psicométrica. En la medida en que es una escala rápida y sencilla para las personas mayores, su aplicación resulta útil en los contextos clínico e investigador.

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Introduction

Anxiety is a feeling of agitation and restlessness in response to certain situations. It is a generally unpleasant emotional state manifesting, to a greater or lesser extent, with a triple cognitive, physiological, and behavioural response to stimuli that are perceived as dangerous or threatening. These stimuli are environmental or even psychological (thoughts, mental images, etc.).

Anxiety disorders constitute one of the most prevalent mental disorders worldwide. According to the European Study of the Epidemiology of Mental Disorders (ESEMeD), 13.6% of the population has experienced some type of anxiety disorder at one point in their lives, and 6.4% were affected in the past year.¹ Similarly, a systematic review of 27 epidemiological studies conducted in Europe reports a prevalence of 12% for anxiety disorders.² In Spain, lifetime prevalence of anxiety disorders is estimated at 9.4%, and the probability of having experienced an anxiety attack in the last year is 6.2%.³

Anxiety disorders are also some of the most frequently diagnosed psychiatric disorders among the elderly.⁴ Prevalence rates range from 15% to 52% for anxiety symptoms and 3% to 15% for clinical anxiety disorders that match diagnostic guidelines.⁵ According to several studies with clinical populations, anxiety symptoms present with a frequency of 24% in patients with mild cognitive impairment⁶ and 27% to 40% in patients with dementia.⁷

We must pay particular attention to presence of anxiety symptoms in elderly patients since these symptoms may have a negative impact on their psychosocial adjustment. Elderly patients with anxiety symptoms tend to show lower levels of autonomy, greater loss of visual and auditory acuity, neurotic traits, poor self-perceived health and quality

of life, greater use of healthcare services, and increased risk of mortality.^{8–12} Furthermore, anxiety and cognitive performance are closely linked in elderly subjects with normal cognitive function.¹³ There is an inversely proportional association between anxiety levels and performance in episodic memory tasks,^{14,15} processing speed,¹⁶ selective attention,¹⁷ and executive function.^{18,19} Likewise, there is a greater prevalence of anxiety symptoms in patients with cognitive impairment than in subjects with normal cognitive function.^{20–22} Some authors have highlighted the role of anxiety as an early predictor of cognitive impairment,²³ and as a marker of mild cognitive impairment conversion to dementia.^{22,24,25} Decreased cognitive function has been linked to poorer prognosis and resistance to anxiety treatment in elderly patients.²⁶

Some of the best-known questionnaires for assessing anxiety are the Beck Anxiety Inventory (BAI),²⁷ the Taylor Manifest Anxiety Scale (TMAS),²⁸ the Inventory of Situations and Responses of Anxiety (ISRA),²⁹ and the State-Trait Anxiety Inventory (STAI).³⁰ The latter has become the most widely-used anxiety questionnaire among Spanish psychologists.³¹ The STAI is based on a theoretical model that recognises 2 components of anxiety: *state anxiety* and *trait anxiety*. State anxiety is a temporary emotional state characterised by consciously perceived subjective feelings of tension and apprehension, and by autonomic nervous system hyperactivity. Trait anxiety is a relatively constant personal tendency to perceive situations as threatening, which in turn increases the individual's level of anxiety. Each of these 2 components is assessed with a 20-item self-reported subscale.

The STAI is one of the most preferred scales for assessing anxiety in the elderly for 2 main reasons. Firstly, it evaluates the cognitive component of anxiety almost exclusively, since

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