



ORIGINAL RESEARCH PAPER

Psychometric properties of the Catalan version of DS14 scale for assessing Type-D personality



Olga Malas^{a,b}, Ignacio Lucas^{a,b}, Jorge Lario^{a,b}, Anton Aluja^{a,b,*}

^a University of Lleida, Spain

^b Institute of Biomedical Research of Lleida, Spain

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KEYWORDS

Type D Personality;
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Abstract This study was designed to check the psychometric properties of an online Catalan version of the Type D Personality Scale-14 (DS14). Participants were 600 subjects including university professors, service and administrative personnel ($n=419$) and students ($n=181$); in total 196 men (32.7%) and 404 women (67.3%) with a mean age of 36.99 ($SD=12.76$). The sample was randomly split in two groups: calibration and validation. The structural validity was analyzed in the calibration group ($n=311$) using exploratory factor analysis with oblique and orthogonal rotation procedures, showing two robust factor structure, corresponding to Negative Affectivity (NA) and Social Inhibition (SI). No differences were found comparing the two rotation methods. Confirmatory factor analysis was performed in the validation group ($n=289$) and the two factor model was replicated, showing satisfactory goodness-of-fit indices as $\chi^2/df=2.40$, RMSEA = 0.07, SRMR = 0.06, GFI = 0.92, TLI = 0.93, CFI = 0.93 and IFI = 0.94. The re-specified model correlating the error terms of four pairs of items mildly improved goodness-of-fit indexes. The Catalan DS14 obtained a satisfactory internal consistency for its two subscales NA and SI (Cronbach's $\alpha=0.85/0.88$), and demonstrates good psychometric properties, being a suitable instrument for use in research in the Catalan population.

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PALABRAS CLAVE

Personalidad tipo D;
Enfermedad
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Validez;
Fiabilidad

Propiedades psicométricas de la versión catalana de la escala ds14 para evaluar la personalidad tipo d

Resumen El objetivo de este estudio fue explorar las propiedades psicométricas de la versión catalana de la Escala de Personalidad tipo D-14 (DS14) mediante una versión *on-line*. Los participantes fueron 600 sujetos incluyendo profesores, personal administrativo y de servicio ($n=419$) y estudiantes ($n=181$) de la universidad. En total 196 varones (32,7%) y 404 mujeres

* Corresponding author.

E-mail address: aluja@pip.udl.cat (A. Aluja).

(67,3%) con una edad media de 36,99 (DT = 12,76). La muestra se dividió aleatoriamente en 2 grupos: calibración y validación. La validez estructural se analizó en el grupo de calibración ($n = 311$) utilizando un análisis factorial exploratorio y rotación oblicua y ortogonal mostrando la estructura de 2 factores correspondiente a la afectividad negativa (NA) y a la inhibición social (SI). No se encontraron diferencias comparando los métodos de rotación. El análisis factorial confirmatorio se realizó en el grupo de validación ($n = 289$), y el modelo de 2 factores se replicó, mostrando valores satisfactorios usando diferentes índices de bondad de ajuste como $\chi^2/df = 2,40$; RMSEA = 0,07; SRMR = 0,06; GFI = 0,92; TLI = 0,93; CFI = 0,93 e IFI = 0,94. El modelo re-especificado que correlaciona los términos de error de 4 pares de ítems mejoró ligeramente los índices de bondad de ajuste. La versión catalana DS14 obtiene una consistencia interna satisfactoria para sus 2 subescalas NA y SI (alfa de Cronbach = 0,85/0,88). El DS14 catalán demuestra buenas propiedades psicométricas, siendo un instrumento adecuado para su uso en la investigación en la población catalana.

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Introduction

Cardiovascular diseases are the leading cause of death worldwide (Tunstall-Pedoe et al., 1994). Currently, the control of risk factors represents the main strategy to reduce cardiovascular events (Lobos et al., 2009). Psychological risk factors for cardiovascular risk include emotional aspects and personality traits (Krantz & McCeney, 2002). Type D personality (*distressed* personality type) is a psychological variable typically associated with cardiovascular risk (Pedersen & Denollet, 2006). Besides, Type D personality is a factor of vulnerability in patients with cancer (Batselée et al., 2016), diabetes (Conti, Carrozzino, Patierno, Vita-colonna, & Fulcheri, 2016; Nefs, Pouwer, Pop, & Denollet, 2012), psoriasis (Molina-Leyva, Caparros-Delmoral, Ruiz-Carrascosa, Naranjo-Sintes, & Jimenez-Moleon, 2015) and asthma (Kim et al., 2015). However, Type D personality has also been studied in healthy samples of the general population. (Beutel et al., 2012; Svansdottir et al., 2013).

The Type D personality construct consists of two primary traits: Negative Affectivity and Social Inhibition. Negative Affectivity is considered a tendency to experience negative emotions in everyday circumstances, while Social Inhibition is a tendency to inhibit one's own emotional and behavioral expression in social situations in order to avoid disapproval of others (Denollet, 2000). Pattern D is considered if both scores in Negative Affectivity and Social Inhibition are 10 points or higher. Notice that pattern D is considered a prognostic factor in coronary risk but not an etiologic factor.

Denollet et al. (1996) investigated the relationship between Type D personality with morbidity and mortality in patients with ischemic heart disease. Type D personality was associated with bad disease prognosis regardless of biomedical risks factors. In another study, Type D personality was related with peripheral artery disease, chronic heart failure and arrhythmia (Pedersen & Denollet, 2006). Type D personality has also been suggested as a predictor of clinical outcome and health status after coronary interventions (Denollet, Vaes, & Brutsaert, 2000). In fact, it has been considered as an independent predictor of cardiac events

following percutaneous coronary intervention (Pedersen et al., 2004). It is also a good predictor of early allograft rejection after heart transplantation (Denollet, Holmes, Vrints, & Conraads, 2007).

Denollet (1998) developed a Type D personality measure named DS16, also validated in Danish population (Pedersen & Denollet, 2004), and later this instrument was reduced to 14 items and named DS14 (Denollet, 2005). This version was developed and validated in the Dutch and Belgian general population and cardiac and primary health care patients, and showed improvements over its predecessor, such as its brevity and its greater facility to offer scores. Research on DS14 has shown that it is a suitable instrument for use in clinical and epidemiological research (Denollet, Pedersen, Vrints, & Conraads, 2006). DS14 is a rapid and effective screening instrument to optimize risk stratification in patients with cardiovascular disease (Albus, Jordan, & Herrmann-Lingen, 2004).

Since the publication of the original version, many authors have established the validity and reliability of DS14 in different countries and languages, such as Spanish (Montero, Bermúdez, & Rueda, 2017), French (Batselée et al., 2016), German (Grande, Romppel, Glaesmer, Petrowski, & Herrmann-Lingen, 2010), Greek (Christodoulou et al., 2013), Swedish (Conden, Rosenblad, Ekselius, & Aslund, 2014), Norwegian (Bergvik, Sørli, Wynn, & Sexton, 2010), Icelandic (Svansdottir et al., 2012), Lithuanian (Bunevicius et al., 2013), Slovak (Dúrka & Ruch, 2014), Chinese (Yu, Zhang, & Liu, 2008), Danish (Pedersen & Denollet, 2004), Polish (Ogińska-Bulik & Juczyński, 2009), Ukrainian (Pedersen et al., 2009), Chinese (Weng et al., 2013), Korean (Lim et al., 2011), Hebrew (Zohar, Denollet, Ari, & Cloninger, 2011) or Persian (Bagherian & Ehsan, 2011). Notice that the factorial structure in two factors was analyzed indistinctly with oblique or orthogonal rotations methods. All of them demonstrated similar psychometric properties to the original version, with a two factor-structure and good reliability. One study also compared the DS14 results from 21 countries, confirming the DS14 as a cross-culturally valid construct (Kupper et al., 2013).

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