ELSEVIER

Journal of Psychosomatic Research 57 (2004) 265–272

Journal of Psychosomatic Research

Validity of the Type D personality construct in Danish post-MI patients and healthy controls

Susanne S. Pedersen*, Johan Denollet

Medical Psychology, Department of Psychology and Health, Tilburg University, Warandelaan 2, PO Box 90153, 5000 LE Tilburg, The Netherlands

Received 29 April 2003; accepted 23 September 2003

Abstract

Objective: Type D personality has been associated with increased risk of depression, vital exhaustion, social alienation, a higher number of reinfarctions, and higher mortality rates in patients with established coronary artery disease (CAD) independent of traditional biomedical risk factors. The construct was developed in Belgian cardiac patients, but little is known about its applicability in other nationalities. The objectives of the present article were to cross-validate the Type D Personality Scale-16 (DS16) in a Danish sample of patients with a first myocardial infarction and a random sample of healthy controls, and to investigate whether Type D is associated with posttraumatic stress disorder (PTSD). **Methods:** A questionnaire was given to 112 consecutive patients with a first myocardial infarction 4 to 6 weeks post infarction, and to 115 healthy controls selected randomly from the general population. **Results:** The two-factor structure of the DS16 and the internal consistency of the Negative Affectivity ($\alpha = .83$) and Social Inhibition ($\alpha = .76$) subscales were confirmed. The construct validity of the DS16 was confirmed against scales that measure similar constructs, and the discriminant validity of the DS16 against measures of psychopathology. In a pooled sample of patients and healthy controls, comparison of both groups confirmed that Type D may be conceptualised as a marker of general emotional distress, with Type D persons scoring higher on depression, anxiety, and the PTSD symptom clusters arousal and avoidance compared with non-Type D persons. A regression analysis run in two steps showed that the inclusion of Type D in the model lead to an improvement in the level of prediction of PTSD above and beyond a model that included gender, age, MI, neuroticism, and extroversion. Type D (OR = 4.46; 95% CI: 1.36 to 14.64), diagnosis of MI (OR = 4.03; 95% CI: 1.43 to 11.35), and neuroticism (OR=1.32; 95% CI: 1.13 to 1.53) were independently associated with PTSD, adjusting for all other variables. **Conclusion:** These findings indicate that the Type D construct is equally applicable in Danish patients with CAD, and that Type D is associated with PTSD.

Keywords: Coronary artery disease; Cross-validation; Myocardial infarction; Personality; Posttraumatic stress disorder; Type D Scale-16 (DS16)

Introduction

Studies have shown that approximately 20% of cardiac patients suffer from psychological sequelae following a cardiac event, including poor perceived health, anxiety, depression, and posttraumatic stress disorder (PTSD) [1–5]. In turn, these sequelae have been shown to have negative prognostic impact independent of disease severity [3,6,7]. However, the role of individual differences in risk has to a great extent been overlooked, in particular since the controversy surrounding the TYPE A BEHAVIOUR PATTERN emerged [8,9]. Personality traits may be able to explain individual differences in distress, morbidity, and mortality in cardiac patients. Personality traits or the interaction of traits may also exert a more stable influence on outcome in cardiac patients than other individual difference variables, e.g., gender, routinely included in cardiovascular research [10,11]. In addition, traits may impede the development of social contacts and, hence, the availability of social support [12,13]. Lack of social support has been related to increased morbidity and mortality [14,6], and increased cardiac symptoms [15,16].

With the introduction of ‘‘the distressed personality’’ (Type D) and the development of the Type D Personality Scale-16 (DS16) to measure this construct, focus is again being directed at the role of individual differences in coronary artery disease (CAD) [17]. The Type D construct was delineated according to existing personality theory and the notion that the interaction of specific traits may have

* Corresponding author. Tel.: +31-13-466-2503; fax: +31-13-466-2370.
E-mail address: s.s.pedersen@uvt.nl (S.S. Pedersen).

0022-3999/04/$ – see front matter © 2004 Elsevier Inc. All rights reserved.
doi:10.1016/S0022-3999(03)00614-7

deleterious effects on health [18,19]. Type D is defined as the interaction of negative affectivity (the tendency to experience negative emotions) and social inhibition (the tendency to inhibit the expression of these emotions in social interaction) [17,20]. The inhibition of expression of emotions is conscious in order to avoid the disapproval of others. Social inhibition is a moderator, such that prevalence of cardiac events for individuals high in negative affectivity but low in social inhibition is less than for individuals high in both components [17,21].

It is important to note that Type D is an attempt to emphasise the role of normal personality characteristics in CAD rather than psychopathology [17]. Therefore, the prevalence of Type D is expected to be similar in healthy individuals and in individuals with established CAD. Furthermore, Type D is not considered an etiological risk factor for CAD, but a prognostic factor in patients with confirmed CAD. Type D has been associated with increased risk of depression, social alienation, a higher number of reinfarctions, and higher mortality rates independent of established biomedical risk factors [18–21]. Type D also seems to moderate the effects of medical treatment [20]. A recent Dutch study found that Type D patients were at a six-fold risk (OR = 6.35; 95% CI: 3.01–9.69) of suffering from vital exhaustion at baseline, and at more than a four-fold risk (OR = 4.74; 95% CI: 0.73–8.75) of suffering from vital exhaustion following percutaneous coronary intervention or pharmacological treatment compared with non-Type D patients [11]. In other words, despite appropriate medical treatment patients with the Type D personality remained at an increased risk of vital exhaustion, which is a risk factor for recurrent cardiac events in angioplasty patients [22]. Little is known, however, about the applicability of the Type D construct in other nationalities.

No studies have looked at the relationship between PTSD and Type D, and whether Type D may be a marker of PTSD. PTSD is characterised by the presence of intrusive symptoms occurring against symptoms of avoidance and hyperarousal. Symptoms have to be present for at least 1 month and lead to impairment in functioning [23]. The gateway to a diagnosis of PTSD is the stressor criterion, i.e., a life-threatening event, including fear and helplessness at the time of the event. As indicated in a recent review, evidence suggests that survivors of MI with PTSD may be at increased risk of recurrent cardiac events [24]. Although no study to date has focused explicitly on the long-term consequences of PTSD in survivors of MI, a recent study found that PTSD was associated with nonadherence to medication and adverse medical outcome [25]. Since Type D has been related to depression and vital exhaustion, it is conceivable that Type D is also a marker of PTSD.

The objective of the present study was two-fold: (1) to cross-validate the DS16 in a population of Danish consecutive patients with a first MI and a random sample of healthy controls and (2) to test the hypothesis that Type D is a marker of PTSD.

Method

Sample

Consecutive patients with a first MI were recruited from August 1999 to January 2001 from Aarhus University Hospital and Horsens Hospital, Denmark. Patients were assessed 4 to 6 weeks post-MI. A diagnosis of MI was based on increased levels of troponin T (>0.10 μg/l) and ECG changes, according to the most recent guidelines [26]. Patients were excluded if they suffered from other life-threatening diseases and cognitive impairments, had a history of psychiatric disorders, or were unable to understand and read Danish. One hundred and sixty-four patients were screened for inclusion in the study. Three patients were excluded due to previous psychiatric history and other life-threatening diseases, and 12 patients were not approached due to personnel error. Of the remaining 149 patients, 37 (25%) refused to participate. The patient sample thus consisted of 112 patients. No statistically significant differences were found between patient responders and nonresponders on gender, age, left ventricular function (assessed by means of echocardiography), and symptoms of angina pectoris (results not shown).

We also included 115 healthy controls drawn from a national register[1]. Controls were excluded if they suffered from CAD or other life-threatening diseases and cognitive impairments, had a history of psychiatric disorders, or were unable to understand and read Danish. Ethical approval was obtained from the ethical committees in Aarhus and Vejle Municipalities, and the study was carried out in accordance with the Helsinki Declaration.

Measures

Personality Type D was assessed with the 16-item DS16, which was developed in Belgian cardiac patients [17]. The scale measures negative affectivity (the tendency to experience negative emotions) and social inhibition (the tendency to inhibit self-expression in social interaction). Each item is rated according to a 5-point Likert scale from 0 (*false*) to 4 (*true*). Patients who score high on both negative affectivity and social inhibition, as determined by a median split, are classified as Type D. The psychometric qualities and prognostic power of the scale have proven satisfactory in Belgian cardiac patients with Cronbach's alpha of .89 and .82 and test–retest reliability of .78 and .87 for the Negative Affectivity and Social Inhibition subscales, respectively [17,20].

Neuroticism and extroversion were assessed with the 24-item short version of the Eysenck Personality Questionnaire

[1] The national register contains the names and addresses of all residents and citizens of Denmark. At the time of birth or immigration, every citizen/resident is given a personal ID number that consists of the birth date and a four-digit number. The last digit of the four-digit number reveals the gender of the person.