

Type D personality is associated with impaired health-related quality of life 7 years following heart transplantation

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Abstract

Objective: Health-related quality of life (HRQoL) following transplantation is gaining importance as an endpoint, but little is known about the role of normal personality traits as a determinant of HRQoL in this patient group. We investigated whether Type D personality (tendency to experience increased negative emotions paired with the nonexpression of these emotions) was associated with impaired HRQoL in heart transplant recipients. **Methods:** Data were collected from all surviving heart transplant recipients ≥ 21 years of age ($n=186$) with a mean (S.D.) of 7 (5) years following transplantation. Patients completed the Short-Form Health Survey 36 (SF-36) and the Type D Scale (DS14). Clinical data were obtained from the medical records. **Results:** Of the 186 patients, 18% had a Type D personality. Type D patients had significantly worse scores on the Physical Component scale (PCS)

($P=.04$) and the Mental Component scale (MCS) ($P<.001$) of the SF-36 and all the SF-36 subdomains (all $P<.01$) compared with non-Type D patients, except for Bodily Pain. Type D personality remained an independent determinant of impaired PCS [odds ratio (OR), 3.62; 95% confidence interval (CI), 1.25–10.45] and MCS (OR, 6.13; 95% CI, 2.23–16.83) and six of the eight subscales of the SF-36, adjusting for demographic and clinical characteristics. **Conclusions:** Type D personality was associated with more than a three- to six-fold increased risk of impaired HRQoL in heart transplant recipients, showing that the Type D personality construct also has value in heart transplant recipients. The adoption of a personality approach may lead to improved risk stratification in research and clinical practice in this patient group.

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Introduction

Since the survival rate for heart transplant recipients has improved to 60% at 7 years, health-related quality of life (HRQoL) following transplantation has become an important endpoint [1]. The study of HRQoL in this patient group is not only important because it may lead to improved patient-centered care [2], HRQoL has also been associated with increased risk of mortality in patients with cardiovas-

cular disease (CVD) [3–5]. In order to identify subgroups of recipients at risk for impaired HRQoL and to enhance secondary prevention in these high-risk patients, knowledge of the determinants of HRQoL is important. Knowledge of these determinants may also close the gap between research and clinical practice [2].

In this context, a personality approach may provide a particularly valuable framework, as personality has much explanatory power of individual differences in psychological distress, HRQoL, and adverse health outcomes [6,7]. From a screening point of view, a personality approach is also advantageous, since personality traits exert stable effects on behaviour, whereas mood states (e.g., anxiety and depression) are transient and fluctuate over time. A

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personality approach has already been used in the field of heart transplantation, and personality factors have been associated with posttransplant compliance, morbidity, and mortality [8–10]. Emphasis, however, has primarily been on personality disorders or on single, normal, personality traits, rather than the interaction of traits. In addition, few studies have investigated the impact of personality on HRQoL.

The *distressed* (Type D) personality is an emerging risk factor for adverse health outcomes, impaired HRQoL, fatigue, and several forms of distress, including anxiety, depression, and posttraumatic stress, in patients with CVD [6,11–16]. Type D is based on two normal, broad, and stable personality traits (i.e. *negative affectivity* and *social inhibition*), and is defined as the tendency to experience increased negative distress paired with the nonexpression of these emotions in social interactions [17]. The impact of Type D personality has not yet been investigated in the context of heart transplantation, although a derivation from the Millon Health Behavioral Inventory (i.e. the “prototypic high-distress patient”) that resembles Type D has previously been associated with increased risk of mortality in heart transplant recipients [8].

The objective of the current study was to investigate whether Type D personality is an independent determinant of impaired HRQoL in this distinct patient group.

Methods

Population and procedure

In February 2003, all surviving heart transplant recipients ≥ 21 years of age ($n=211$) who had been transplanted in the Erasmus Medical Centre Rotterdam between 1985 and early 2003 were approached in writing and asked to complete a set of psychological questionnaires. A reminder was sent out in April 2003 to nonresponders. All patients provided written informed consent.

Measures

Demographic and clinical characteristics

Demographic factors (sex, age, marital status, education, and working status) were obtained through purpose-designed questions in the questionnaire. Clinical factors (time since transplantation, number of rejection episodes in the first year posttransplantation, the need for renal replacement therapy, the presence of malignancy, diabetes posttransplantation, and immunosuppressant medication) were obtained from the medical records.

Type D personality

Type D personality was assessed with the Type D Scale (DS14), a 14-item scale with 7 items measuring Negative Affectivity (NA) (e.g., “I often feel unhappy”) and 7 items

measuring Social Inhibition (SI) (e.g., “I am a closed kind of person”) [17]. Items are answered on a 5-point Likert scale ranging from 0 (*false*) to 4 (*true*). A standardised cutoff ≥ 10 on both subscales indicates Type D caseness [17]. The DS14 is a valid and reliable scale with Cronbach’s α of .88 and .86 for the NA and SI subscales, respectively [17]. The test–retest correlations over a 3-month period were .82 and .72 for the SI and NA scales, respectively [17]. It is important to note that Type D reflects a normal personality type rather than psychopathology, and that it is not merely a measure of negative affect, such as depression, as it also takes into account how patients deal with this affect [6,17].

Health-related quality of life

Perceived HRQoL was measured with the Short-Form Health Survey 36 (SF-36), a standardised instrument developed to measure functioning and well-being in primary care populations and in patients with chronic diseases [18]. The SF-36 comprises 36 items, divided into eight subscales: Physical Functioning, Role Physical Functioning, Social Functioning, Role Emotional Functioning, Mental Health, Vitality, Bodily Pain, and General Health. Scores on the subscales are linearly converted to a score between 0 and 100, with a higher score representing a better functioning, although for Bodily Pain a high score indicates less pain. The Dutch version of the SF-36 has been validated in the Dutch population and has a good internal consistency with a mean Cronbach’s α of .84 across all scales [19]. Using an algorithm, the eight subscales can be summarised into two component summary scores, the Physical Component summary score (PCS) and the Mental Component summary score (MCS) [20].

Table 1
Patient characteristics stratified by Type D personality

	Type D ($n=34$)	Non-Type D ($n=152$)	<i>P</i>
Males (%)	79	73	.58
Age (years), mean (S.D.)	48 (12)	50 (10)	.32
Time since transplant (years), mean (S.D.)	8 (4)	7 (5)	.41
No partner (%)	38	15	<.01*
Low education (%)	47	22	<.01*
Not working (%)	71	68	.91
2 or more rejection episodes in the first year posttransplantation (%)	35	45	.38
Need for renal replacement therapy (%)	18	8	.11
Presence of malignancy (%)	18	20	.96
Diabetes posttransplantation (%)	16	22	.57
Cyclosporine-based immunosuppressant therapy ^a (%)	71	58	.24

^a Versus tacrolimus-based immunosuppressant therapy.

* $P<.01$.

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