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Author: Schat, A.

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Chapter 6

Concordance between self-reported and observer-rated anxiety severity in outpatients with anxiety disorders

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A. Schat, M.S. van Noorden, M.J. Noom, E.J. Giltay, N.J.A. van der Wee, R.R.J.M. Vermeiren, F.G. Zitman; Concordance between self-reported and observer-rated anxiety severity in outpatients with anxiety disorders.

Abstract

Anxiety severity measures can be self-report or observer-rated. Although mostly these measures concur, they can diverge markedly. We examined concordance between two anxiety scales: the observer-rated Brief Anxiety Scale (BAS) and the self-report Brief Symptom Inventory-12 item version (BSI-12), and described associations between patient characteristics and discordance. The study used an observational design, using prospective data from 2004 outpatients with DSM-IV-TR panic disorder with/without agoraphobia, agoraphobia without panic, social phobia and/or generalised anxiety disorder. Overall agreement was described using Pearson product-moment correlation coefficient. Associations between patient characteristics and discordance (defined as $|ZBAS-ZBSI-12| \geq 1$) were evaluated with univariable and multivariable multinomial logistic regression. Overall correlation between BAS and BSI-12 was positive and strong ($r=0.61$). Discordance occurred in 23.6% of patients ($[ZBAS \geq ZBSI-12+1]=12.4\%$; $[ZBAS \leq ZBSI-12-1]=11.2\%$). Patients with higher observed- than self-reported anxiety severity did not differ from concordant patients. Patients with lower observed- than self-reported anxiety severity more often had panic disorder, less often had social phobia, and had higher scores on cluster B and C personality characteristics than concordant patients. Lower observed- than self-reported anxiety severity was best predicted by panic disorder, social phobia, and affective lability. Results demonstrate that the use of a single source of information gives a one-sided view of pathology. A multi-method approach is highly preferable, as this allows for assessment across different domains and through multiple sources of information, and as such, provides clinicians with vital information.

6.1 Introduction

When quantifying the severity of psychiatric disorders, clinicians rely on psychiatric rating scales. These scales can be either observer-rated or self-report. Observer-rated instruments are often regarded as the primary source of information (Hamilton, 1976; Moller, 2000). Self-report measures on the other hand, are more efficient in terms of time and costs and are therefore increasing in popularity in clinical practice, where the need to quantify symptom severity competes with the need to economise. Interestingly, several studies have demonstrated that observer-rated severity does not necessarily correspond to patient-reported severity. Previous research on depression rating scales demonstrated that correlations between observer- and self-rated severity ranged from 0. (Dorz et al., 2004), 0.28 (Dunlop et al., 2011), 0.40 (Enns et al., 2000), 0.45 (Rane et al., 2010), and 0.46 (Dunlop et al., 2011), to 0.59 and 0.60 (Carter et al., 2010). Although repeated measures, even by the same rater, will always show some discrepancy due to random error, the discrepancy between observer- and self-reported severity seems to consist of more than random error, as it has been linked to several patient characteristics, such as age (Carter et al., 2010; Dorz et al., 2004; Enns et al., 2000), gender (Carter et al., 2010; Jolly et al., 1994), education level (Enns et al., 2000), marital status (Dorz et al., 2004), and psychiatric history (Dorz et al., 2004). In addition, the level of concordance between observer-rated and self-report instruments appears to be related to personality. Lower scores on observer-rated relative to self-report instruments were associated with more personality disorder in depression (Dorz et al., 2004; Rane et al., 2010), as well as high neuroticism, low extraversion, low agreeableness (Enns et al., 2000), high novelty seeking, and high reward dependence (Carter et al., 2010).

The majority of these previous studies has focussed on depression (Carter et al., 2010; Dorz et al., 2004; Dunlop et al., 2011; Enns et al., 2000; Rane et al., 2010), with only one study describing concordance in generalised anxiety disorder (Hopko et al., 2000), one study focussing on patients with symptoms of anxiety and depression in primary care (Lubaczewski et al., 2014), and one study of concordance in adolescent inpatients with a variety of diagnoses (Jolly et al., 1994). In addition, although associations between discordance and the presence of personality disorders as well as NEO five personality factors have been studied, no in depth exploration of personality and concordance exists. We therefore conducted a study of concordance between observer-rated and self-report instruments measuring anxiety severity in a large naturalistic sample of outpatients with commonly occurring anxiety disorders (panic disorder with or without agoraphobia, agoraphobia without panic, social phobia, and generalised anxiety disorder) with special focus on associations with personality traits. We set out to describe concordance between an observer-rated measure of anxiety severity, the Brief Anxiety Scale (BAS; Tyrer et al., 1984), and a self-report measure of anxiety severity (the Brief

Symptom Inventory-12 item version [BSI-12] (De Beurs & Zitman, 2006; Roy-Byrne et al., 2010), on group-level. Next, we examined associations between concordance and a set of patient characteristics that were previously associated with concordance in depression, as well as an extensive set of personality traits. Finally, we analysed which patient characteristics best predicted discordance. Results may help to weigh the benefits and costs of self-report and observer-rated measures in quantifying anxiety severity.

6.2 Methods

6.2.1 Participants

All subjects were outpatients at the department of psychiatry of the Leiden University Medical Centre or an affiliated regional mental healthcare provider. Within both centres, as part of routine clinical practice, all patients were administered an extensive battery of diagnostic and psychometric measures by trained research nurses and through supervised computerised self-report at baseline and approximately every three months of follow-up (although for the purpose of the present study we used only the baseline data). This procedure is known as routine outcome monitoring (ROM), and is described in more detail by De Beurs et al. (2011). Patients were aged 18 through 65 and had adequate command of the Dutch language. All patients had been referred by their general practitioner for treatment of mood, anxiety or somatoform disorders and met DSM-IV-TR diagnostic criteria for at least one or more of the following disorders: panic disorder with or without agoraphobia, agoraphobia without panic, social phobia, and generalised anxiety disorder (allowing for comorbid mood or somatoform disorders). Patients who had missing data, resulting either from the incidental failure to administer complete questionnaires or the incidental occurrence of a large time gap (more than 21 days) between the administration of questionnaires, were excluded from the analyses.

6.2.2 Measures

6.2.2.1 Anxiety severity

Observer-rated anxiety severity was assessed using the BAS (Tyrer et al., 1984). The BAS is a 10-item observer-rated scale derived from the abbreviated Comprehensive Psychopathological Rating Scale (CPRS; Åsberg et al., 1978; Goekoop et al., 1991). The total score equals the sum-score of all 10 items on a 7-point Likert scale (0-6) (range 0-60). It has adequate internal consistency with Cronbach's alpha of 0.65 in our cohort. Both scales assess the main components of all anxiety disorders, covering psychic and somatic components. Patient

reported severity of anxiety symptomatology was measured at intake with the Dutch version of the BSI-12 (De Beurs & Zitman, 2006; Roy-Byrne et al., 2010). The BSI-12 is a self-report measure comprising items of the anxiety and somatization subscales of the 18-item version of the BSI, which has in turn been derived from the BSI (Zabora et al., 2001). The total score equals the sum-score of 12 items on a 5-point Likert scale (0-4) (range 0-48). It has good internal consistency with Cronbach's alphas between 0.79 and 0.84 (Franke et al., 2011). Internal consistency (i.e., Cronbach's alpha) in our cohort was 0.90. On both scales a higher score corresponds to more severe anxiety. Figure 1 lists the items comprising both the BAS and the BSI-12.

Figure 6.1 Item content of the observer-rated Brief Anxiety Scale (BAS) and the self-report Brief Symptom Inventory-12 item version (BSI-12)

Items BAS (observer rated)	Items BSI-12 (self report)
Autonomic disturbances- reported	Nervousness
Aches and pains	Faintness
Inner tension	Pains in chest
Hypochondriasis	Suddenly scared
Worrying over trifles	Feeling fearful
Phobias	Nausea
Hostile feelings	Trouble getting breath
Reduced sleep	Numbness
Autonomic disturbances-observed	Feeling weak
Muscular tension	Feeling tense
	Spells of panic
	Feeling restless

6.2.2.2 Patient characteristics

At intake, age, gender, and education level (low: primary through lower secondary education/ high: higher secondary education through university) were assessed. The Dutch version of the MINI International Neuropsychiatric Interview-Plus (MINI-Plus; Sheehan et al., 1998; van Vliet et al., 2000) was used to collect DSM-IV-TR diagnostic information (type of anxiety disorder, number of simultaneously occurring anxiety disorders, presence of a comorbid mood disorder, presence of a comorbid somatoform disorder, comorbid alcohol- or substance abuse or -dependence). The MINI-Plus has good psychometric properties, with inter-rater reliability between 0.88 and 1.00 and test-retest reliability between 0.76 and 0.93 and adequate validity compared to the Composite International Diagnostic Interview-1 (Lecrubier et al., 1997).

Personality characteristics were assessed using the Dimensional Assessment of Personality Pathology short form (DAPP-SF; van Kampen et al., 2008), the abbreviated version of the DAPP-BQ (Livesley et al., 1998). The DAPP-SF consists of 136 items on a 5-point Likert scale (1-5), which can be converted into subscales by taking the average of the subscale items. 18 subscales exist (i.e., submissiveness, cognitive distortion, identity problems, affective lability, stimulus seeking, compulsiveness, restricted expression, callousness, oppositionality, intimacy problems, rejection, anxiousness, conduct problems, suspiciousness, social avoidance, narcissism, insecure attachment, and self-harm). Higher scores are associated with pathology, whereas lower scores indicate normality. The DAPP-SF has good internal consistency with Cronbach's alphas ranging from 0.78-0.89 across subscales (van Kampen et al., 2008).

6.2.3 Analyses

Sample categorical characteristics are presented as number (percentage), continuous variables are presented as mean (M) ($\pm$ standard deviation [SD]). To describe overall concordance, the Pearson product-moment correlation coefficient between the BAS and the BSI-12 was computed. To quantify discordance on individual patient level, Z-scores were computed. The minimal difference for the two discordant groups was set at 1 SD, i.e. a difference of more than 1 Z-score was categorised as discordant (Dorz et al., 2004). This resulted in three levels of concordance: observer-rated (BAS) = self-report (BSI-12), observer-rated (BAS) < self-report (BSI-12), and observer rated (BAS) > self-report (BSI-12). We compared the two discordant groups (observer-rated [BAS] < self-report [BSI-12], and observer rated [BAS] > self-report [BSI-12]) with the concordant group (observer-rated [BAS] = self-report [BSI-12], reference group) with regard to age, gender, education level, anxiety diagnosis, number of simultaneously occurring anxiety disorders, presence of comorbid mood-, somatoform- and alcohol- or substance abuse or -dependence disorders, and the subscales of the DAPP-SF using univariable multinomial logistic regression. Finally, in order to identify predictors of discordance, all variables that were significantly associated in univariable analyses were entered in a multivariable model. All analyses were two-tailed, significance was set at $p < 0.05$, and correction for multiple testing using Bonferroni was performed.

Although all patients in our sample were diagnosed with one or more anxiety disorders according to DSM-IV-TR criteria using a validated diagnostic instrument (MINI Plus (van Vliet et al., 2000)), we have no information regarding primary diagnosis or focus of treatment as patients in our cohort were referred by their general practitioner for treatment of mood-, anxiety-, or somatoform disorder. Therefore, some patients in our sample, while meeting diagnostic criteria for an anxiety disorder, might not have been seeking treatment primarily for an anxiety disorder (but instead for a mood- or somatoform disorder). Therefore,

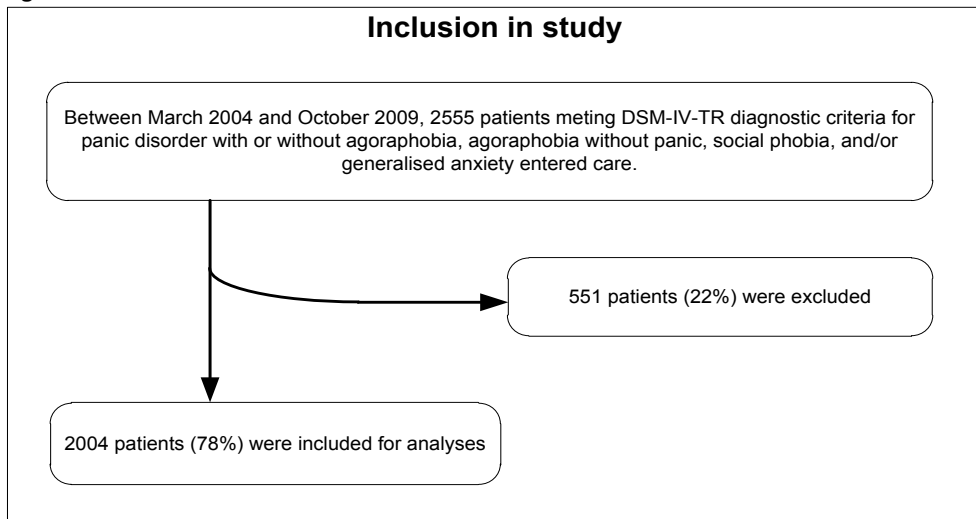
as a sensitivity analysis, we repeated analyses with only those subjects who met criteria for at least moderate severity on either the BAS or the BSI-12 so as to guarantee substantial anxiety severity. Moderate severity was defined as BAS ≥ 10.38 (Tyrer et al., 1984; Schat et al., 2013) and/or BSI-12 ≥ 6 (Roy-Byrne et al., 2010; Schat et al., 2013). We used SPSS version 20.0 (IBM Corp., Armonk, NY, USA).

6.3 Results

6.3.1 Sample characteristics

Between March 2004 and October 2009, a total of 2555 patients met DSM-IV-TR diagnostic criteria for panic disorder with or without agoraphobia, agoraphobia without panic, social phobia, and generalised anxiety disorder. 551 patients had to be excluded, as they had not completed all questionnaires or a large time gap (more than 21 days) existed between completion of distinct questionnaires. Therefore, 2004 patients were included for analyses. Figure 2 shows a flowchart of inclusion and exclusion. Although differences between included and excluded patients with regard to age, number of patients diagnosed with generalised anxiety disorder, comorbid depression and somatoform disorder, BAS score, BSI-12 score, DAPP-SF scores (subscales cognitive distortion, identity problems, affective lability, rejection, and self-harm) were significant at $p < 0.05$ (results not shown), these differences were very small, with eta squares ranging from .001 to .01 and Cramer's Phi's between .004 and .058. A total of 1275 (63.6%) patients were female and the mean age of the total sample was 36.1 years ($SD = 11.7$). Panic disorder with or without agoraphobia occurred in 778 (38.8%) patients, agoraphobia without panic occurred in 436 (21.8%) patients; 648 (32.3%) patients were diagnosed with social phobia, and 425 (21.2%) had generalised anxiety disorder. A total of 571 (28.5%) patients met diagnostic criteria for multiple simultaneously occurring anxiety disorders. Comorbid mood disorder occurred in 902 (45%) patients, while 234 (11.7%) patients met diagnostic criteria for comorbid somatoform disorder.

Figure 6.2 Flowchart of inclusion



DSM-IV-TR denotes Diagnostic Statistical Manual-fourth edition, text revision

6.3.2 Concordance

The relationship between observer-rated (BAS) and self-report (BSI-12) anxiety severity in the total sample was positive and strong; $r = 0.61$, $n = 2004$, $p < .001$. Based on their standardized difference score, patients were categorised in three groups: observer-rated (BAS) = self-report (BSI-12), where $Z\text{-BAS}$ was equal to $Z\text{-BSI-12} \pm 1$ ($n = 1531$; 76.4%); observer-rated (BAS) < self-report (BSI-12), where $Z\text{-BAS}$ was equal to $Z\text{-BSI-12}$ minus at least 1 ($n = 225$; 11.2%); and observer-rated (BAS) > self-report (BSI-12), where $Z\text{-BAS}$ was equal to $Z\text{-BSI-12}$ plus at least 1 ($n = 248$; 12.4%). Table 6.1 shows sample characteristics for these three groups of outpatients. Table 6.2 shows associations of patient characteristics with level of concordance (BAS > BSI-12 and BAS < BSI-12 compared to BAS $\approx$ BSI-12). Patients with higher observer-rated anxiety severity relative to self-report anxiety severity (BAS > BSI-12) did not differ from the concordant group (BAS $\approx$ BSI-12) with regard to any of the patient characteristics.

Compared to patients whose anxiety severity scores were concordant (BAS $\approx$ BSI-12), patients whose observed anxiety severity was lower than what they reported (BAS < BSI-12) more often had a diagnosis of panic disorder with or without agoraphobia (OR = 1.23; 95% CI = 1.68-2.96; $p < .001$), and were less often diagnosed with social phobia (OR = 0.53; 95% CI = 0.38-0.74; $p < .001$). In addition, patients with lower observed compared to self-rated anxiety severity had higher scores on DAPP-SF subscales cognitive distortion (OR = 1.52; 95% CI = 1.32-1.74; $p < .001$), identity problems (OR = 1.47; 95% CI = 1.26-1.70; $p < .001$), affective lability (OR = 1.67; 95% CI = 1.40-1.99; $p < .001$), oppositionality (OR = 1.32; 95% CI = 1.12-1.55; $p = 0.001$),

anxiousness (OR = 1.35; 95% CI = 1.15-1.59; $p < .001$), suspicion (OR = 1.29; 95% CI = 1.13-1.47; $p < .001$), and insecure attachment (OR = 1.31; 95% CI = 1.15-1.49; $p < .001$) (table 6.2). Figure 3 shows OR's and CI's for significant associations. When, after checking for collinearity, these variables were entered in multivariable logistic regression, panic disorder with or without agoraphobia (OR = 1.89; 95% CI = 1.39-2.58; $p < .001$), social phobia (OR = 0.61; 95% CI = 0.42-0.89; $p = 0.01$), and affective lability (OR = 1.41; 95% CI = 1.07-1.85; $p = 0.02$) best predicted lower observed compared to self-reported anxiety severity (table 6.3). When analyses were repeated with only those patients who met criteria for at least moderate severity (BAS ≥ 10.38 (Tyrer et al., 1984; Schat et al., 2013) and/or BSI-12 ≥ 6 (Roy-Byrne et al., 2010; Schat et al., 2013), ($n = 1852$) results did not change (results not shown).

6.4 Discussion

We set out to describe concordance between an observer rated (BAS) and self-report (BSI-12) measure of anxiety severity in a naturalistic sample of outpatients diagnosed with panic disorder with or without agoraphobia, agoraphobia without panic, social phobia, and/or generalised anxiety disorder. In addition to describing the level of concordance in our sample, we studied associations between patient characteristics and discordance, and examined which patient characteristics best predicted discordance.

The overall correlation between observer rated and self-report measures of anxiety severity in our sample was positive and strong. However, for a substantial group of patients, considerable discordance existed, with observer-rated anxiety severity exceeding self-reported anxiety severity in 12.4% of patients, and lower observer-rated than self-reported anxiety in 11.2% of patients. These percentages were comparable to results from a previous study applying the same methodology, with depressed patients and depression measures, in which these groups consisted of 17.7% and 15.5% of patients respectively (Dorz et al., 2004). Although a by definition unknown proportion of the discordance must be attributed to random measurement error, the discordance could be partially associated with patient characteristics.

The group of patients with higher observed anxiety relative to self-reported anxiety did not differ from the concordant group with regard to patient characteristics. The group of patients that had lower observed anxiety than what was reported, however, was more often diagnosed with panic disorder with or without agoraphobia compared to the concordant group, but less often had social phobia. Also, this group scored higher on personality aspects cognitive distortion, identity problems, affective lability, oppositionality, anxiousness, suspicion, and insecure attachment than the concordant group. Lower observed than self-reported anxiety severity was best predicted by panic disorder with or without agoraphobia, social phobia, and affective lability.

Table 6.1 Baseline characteristics of 2004 outpatients diagnosed with DSM-IV-TR anxiety disorders per level of concordance between observer-rated (BAS) and self-report (BSI-12) anxiety questionnaire.

	observer ≈ self n=1531	observer>self n=248	observer<self n= 225
Age	36.21 (11.66)	37.06 (11.65)	34.44 (11.71)
Gender			
-male	563 (36.8%)	85 (34.3%)	81 (36.0%)
-female	968 (63.2%)	163 (65.7%)	144 (64.0%)
Education level			
-high	918 (60.0%)	138 (55.6%)	124 (55.1%)
-low	613 (40.0%)	110 (44.4%)	101 (44.9%)
Panic disorder with/without agoraphobia	576 (37.6%)	73 (29.4%)	129 (57.3%)
Agoraphobia without panic	330 (21.6%)	55 (22.2%)	51 (22.7%)
Social phobia	501 (32.7%)	101 (40.7%)	46 (20.4%)
Generalised anxiety disorder	333 (21.8%)	60 (24.2%)	32 (14.2%)
Multiple anxiety disorders	409 (26.7%)	85 (34.3%)	77 (34.2%)
Comorbid mood	669 (43.7%)	130 (52.4%)	103 (45.8%)
Comorbid somatoform	165 (10.8%)	41 (16.5%)	28 (12.4%)
Comorbid alcohol	91 (5.9%)	13 (5.2%)	10 (4.4%)
Comorbid substance	72 (4.7%)	9 (3.6%)	10 (4.4%)
DAPP-SF subscales			
Submissiveness	3.05 (0.96)	3.05 (0.92)	3.10 (1.00)
Cognitive dist.	2.36 (0.98)	2.24 (0.92)	2.79 (1.04)
Identity problems	3.08 (1.03)	3.07 (0.94)	3.45 (0.99)
Affective lability	3.25 (0.89)	3.23 (0.76)	3.61 (0.85)
Stimulus seeking	2.07 (0.78)	2.01 (0.72)	2.16 (0.87)
Compulsiveness	2.93 (0.92)	2.91 (0.95)	3.09 (1.00)
Restricted expres.	3.26 (0.85)	3.32 (0.84)	3.31 (0.87)
Callousness	1.77 (0.59)	1.73 (0.56)	1.90 (0.64)
Oppositionality	2.79 (0.89)	2.76 (0.84)	3.00 (0.90)
Intimacy problems	2.34 (0.81)	2.45 (0.86)	2.45 (0.86)
Rejection	2.30 (0.82)	2.13 (0.82)	2.34 (0.87)
Anxiousness	3.45 (0.93)	3.52 (0.84)	3.69 (0.91)
Conduct problems	1.43 (0.58)	1.38 (0.53)	1.48 (0.66)
Suspicion	2.23 (1.02)	2.29 (0.98)	2.51 (1.08)
Social avoidance	3.16 (1.08)	3.24 (1.05)	3.29 (1.08)
Narcissism	2.41 (0.82)	2.30 (0.80)	2.54 (0.83)
Insecure att.	3.03 (1.12)	2.88 (1.04)	3.36 (1.16)
Self-harm	1.62 (0.89)	1.59 (0.79)	1.75 (0.94)

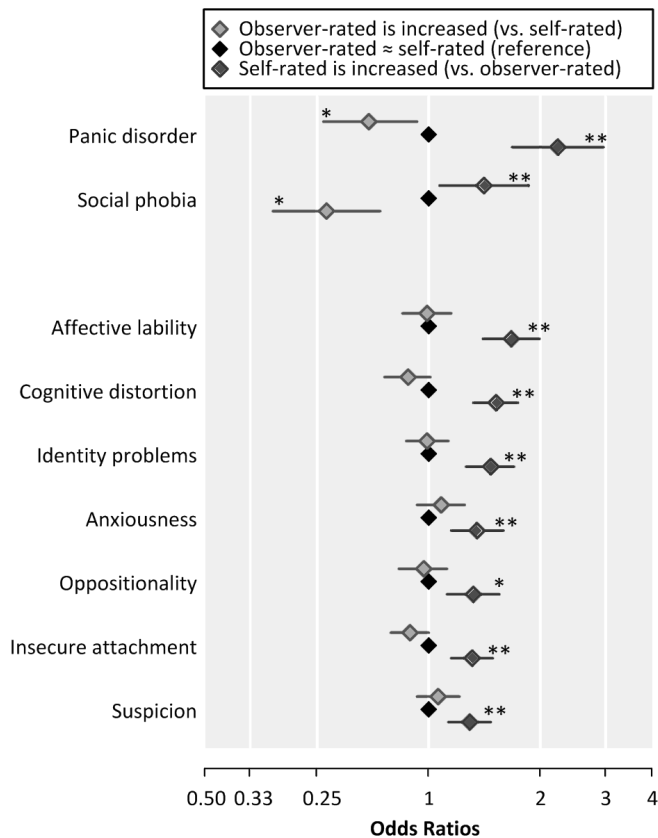
Data are mean (standard deviation) or number (percentage), when appropriate. The MINI International Neuropsychiatric Interview-Plus (MINI-Plus) was used to collect DSM-IV-TR diagnostic information (type of anxiety disorder, number of simultaneously occurring anxiety disorders, presence of a comorbid mood disorder, presence of a comorbid somatoform disorder, comorbid alcohol- or substance abuse or -dependence); DSM-IV-TR denotes Diagnostic Statistical Manual-fourth edition, text revision; BAS denotes Brief Anxiety Scale; BSI-12 denotes Brief Symptom Inventory-12 item version; DAPP-SF denotes Dimensional Assessment of Personality Pathology-short form; Cognitive dist. refers to the Cognitive distortion subscale of the DAPP-SF; Restricted expres. refers to the Restricted expression subscale of the DAPP-SF; Insecure att. refers to the Insecure attachment subscale of the DAPP-SF.

Table 6.2 Associations between patient characteristics and level of concordance between observer-rated (observer; BAS) and self-report (self; BSI-12) anxiety questionnaires in 2004 outpatients with DSM-IV-TR anxiety disorders.

Reference group: observer $\approx$ self (n=1531)	observer > self (n=248)		observer < self (n=224)	
	OR (95% CI)	p	OR (95% CI)	p
Age	1.01 (1.00-1.02)	0.29	0.99 (0.98-1.00)	0.03
Female gender (vs male)	1.12 (0.84-1.48)	0.45	1.03 (0.77-1.38)	0.82
Low education level (vs high)	0.84 (0.64-1.10)	0.20	0.82 (0.62-1.09)	0.17
Panic disorder	0.69 (0.52-0.93)	0.01	1.23 (1.68-2.96)	<.001
Agoraphobia without panic	1.04 (0.75-1.43)	0.83	1.07 (0.76-1.49)	0.71
Social phobia	1.41 (1.07-1.86)	0.01	0.53 (0.38-0.74)	<.001
Generalised anxiety disorder	1.15 (0.84-1.57)	0.39	0.60 (0.40-0.88)	0.01
Multiple anxiety disorders	0.70 (0.53-0.93)	0.01	0.70 (0.52-0.94)	0.02
Comorbid mood disorder	1.42 (1.09-1.86)	0.01	1.09 (0.82-1.44)	0.56
Comorbid somatoform disorder	1.64 (1.13-2.38)	.009	1.18 (0.77-1.80)	0.46
Comorbid alcohol abuse/dependence	0.88 (0.48-1.59)	0.66	0.74 (0.38-1.44)	0.37
Comorbid substance abuse/dependence	0.76 (0.38-1.55)	0.45	0.94 (0.48-1.85)	0.86
DAPP-SF subscales				
Submissiveness	0.99 (0.86-1.14)	0.90	1.05 (0.91-1.22)	0.52
Cognitive distortion	0.88 (0.76-1.01)	0.07	1.52 (1.32-1.74)	<.001
Identity problems	0.99 (0.87-1.12)	0.87	1.47 (1.26-1.70)	<.001
Affective lability	0.99 (0.85-1.15)	0.85	1.67 (1.40-1.99)	<.001
Stimulus seeking	0.90 (0.75-1.07)	0.23	1.15 (0.97-1.37)	0.11
Compulsiveness	0.73 (0.84-1.13)	0.73	1.20 (1.04-1.40)	0.02
Restricted expression	1.08 (0.93-1.27)	0.32	1.08 (0.91-1.27)	0.37
Callousness	0.88 (0.69-1.11)	0.27	1.39 (1.11-1.74)	.004
Oppositionality	0.97 (0.83-1.12)	0.65	1.32 (1.12-1.55)	.001
Intimacy problems	1.17 (0.99-1.37)	0.06	1.17 (0.99-1.38)	0.06
Rejection	0.78 (0.66-0.93)	0.005	1.06 (0.90-1.26)	0.48
Anxiousness	1.08 (0.93-1.25)	0.31	1.35 (1.15-1.59)	<.001
Conduct problems	0.86 (0.67-1.10)	0.24	1.14 (0.91-1.43)	0.25
Suspicion	1.06 (0.93-1.21)	0.37	1.29 (1.13-1.47)	<.001
Social avoidance	1.07 (0.95-1.22)	0.28	1.12 (0.98-1.28)	0.09
Narcissism	0.84 (0.71-1.00)	0.04	1.21 (1.02-1.43)	0.03
Insecure attachment	0.89 (0.79-1.00)	0.05	1.31 (1.15-1.49)	<.001
Self-harm	0.96 (0.82-1.13)	0.63	1.17 (1.01-1.35)	0.04

Data present Odds Ratios relative to the reference group 'no discordance' (Z-BAS $\approx$ (Z-BSI $\pm$ 1) n=1531) obtained in univariable multinomial logistic regression. Bonferroni correction for multiple testing was made. The MINI International Neuropsychiatric Interview-Plus (MINI-Plus) was used to collect DSM-IV-TR diagnostic information (type of anxiety disorder, number of simultaneously occurring anxiety disorders, presence of a comorbid mood disorder, presence of a comorbid somatoform disorder, comorbid alcohol- or substance abuse or -dependence); DSM-IV-TR denotes Diagnostic Statistical Manual-fourth edition, text revision; BAS denotes Brief Anxiety Scale; BSI-12 denotes Brief Symptom Inventory-12 item version; OR denotes odds ratio; 95% CI denotes 95% confidence interval; DAPP-SF denotes Dimensional Assessment of Personality Pathology-short form.

Figure 6.3 Significant associations of patient characteristics with discordance between observer-rated (BAS) and self-report (BSI-12) measures of anxiety severity, relative to concordant patients.



Odds ratios with error bars representing 95% confidence intervals are shown for significant associations of patient characteristics in the observer-rated (BAS) < self-report (BSI-12) group relative to concordant patients, results for the observer-rated (BAS) > self-report (BSI-12) group are also shown, none of these were significant after Bonferroni correction; data were analysed using univariable multinomial logistic regression analysis; The MINI International Neuropsychiatric Interview-Plus (MINI-Plus) was used to collect DSM-IV-TR diagnostic information; Affective lability, cognitive distortion, identity problems, anxiousness, oppositionality, insecure attachment and suspicion are all subscales of the Dimensional Assessment of Personality Pathology-short form; ** denotes significant at $p < 0.05$ after Bonferroni correction for multiple testing; BAS denotes Brief Anxiety Scale; BSI-12 denotes Brief Symptom Inventory-12 item version.

Table 6.3 Predictors of higher self-reported compared to observer rated anxiety severity in 2004 outpatients with DSM-IV-TR anxiety disorders.

reference group observer $\approx$ self (n=1531)	observer < self (n=224)	
	OR (95% CI)	p
Intercept -3.99		
Panic disorder with or without agoraphobia	1.89 (1.39-2.56)	<.001
Social phobia	0.61 (0.42-0.89)	0.01
DAPP-SF subscales		
Cognitive distortion	1.16 (0.96-1.52)	0.13
Identity problems	1.20 (0.96-1.52)	0.12
Affective lability	1.41 (1.07-1.85)	0.02
Oppositionality	0.99 (0.80-1.22)	0.91
Anxiousness	0.89 (0.69-1.15)	0.39
Suspicion	1.04 (0.87-1.24)	0.67
Insecure attachment	1.03 (0.88-1.20)	0.76

Data present Odds Ratios relative to the reference group 'no discordance' ($Z\text{-BAS} \approx (Z\text{-BSI} \pm 1)$ $n=1531$) obtained in multivariable logistic regression. The MINI International Neuropsychiatric Interview-Plus (MINI-Plus) was used to collect DSM-IV-TR diagnostic information (type of anxiety disorder, number of simultaneously occurring anxiety disorders, presence of a comorbid mood disorder, presence of a comorbid somatoform disorder, comorbid alcohol- or substance abuse or -dependence); DSM-IV-TR denotes Diagnostic Statistical Manual-fourth edition, text revision; BAS denotes Brief Anxiety Scale; BSI-12 denotes Brief Symptom Inventory-12 item version; OR denotes odds ratio; 95% CI denotes 95% confidence interval; DAPP-SF denotes Dimensional Assessment of Personality Pathology-short form.

Our finding of higher prevalence of panic disorder with or without agoraphobia, and lower presence of social phobia in the group with lower observed- relative to self-reported anxiety severity, may have several explanations. First, it may reflect a difference in response styles between patients in both diagnostic groups: panic disorder is characterised by intense panic experiences, which may lead to high self-ratings of anxiety severity, while social phobia often entails feelings of shame and self-effacing, which may in turn result in under reporting of anxiety severity. Alternatively, it may be explained in terms of item content. Possibly, the BAS contains more items on (excessive or unreasonable) fear of social situations, whereas the BSI-12 may put more emphasis on the (more physical) symptoms of panic disorder. Inspection of the items of both instruments (figure 1), as well as the presence of an opposite (although not significant after Bonferroni correction) association in the BAS > BSI-12 group support this thought.

The association between discordance and personality characteristics is in line with previous findings in depression. We found that patients whose observed anxiety severity was lower than their self-reported anxiety severity, scored higher on cognitive distortion, identity problems, affective lability, oppositionality, anxiousness, suspicion, and insecure attachment than concordant patients. As higher DAPP-SF scores indicate elevated chances of personality

pathology, these findings fit previous reports of higher prevalence of personality disorders in patients who reported higher depression severity relative to their observed depression severity (Dorz et al., 2004; Rane et al., 2010). Our findings are furthermore in agreement with previous more specific reports of high neuroticism, low extraversion, low agreeableness (Enns et al., 2000), novelty seeking, and reward dependence (Carter et al., 2010) in patients whose observed depression severity was lower than their self-reported depression severity. Lower observed anxiety severity compared to self-reported anxiety severity was best predicted by panic disorder with or without agoraphobia, social phobia, and affective lability. This finding indicates that especially in patients with positive scores on these characteristics, the use of both self-report and observer rated instruments is merited. Together, these findings may indicate that personality pathology, especially in clusters B and C, adds to the suffering experienced by patients in a manner that is not readily observed or recognised by research nurses or caregivers.

We did not replicate previous findings of associations between level of concordance and age (Carter et al., 2010; Dorz et al., 2004; Enns et al., 2000), gender (Carter et al., 2010; Jolly et al., 1994), education level (Enns et al., 2000) and marital status (Dorz et al., 2004). As these findings pertained largely to depression (Dorz et al., 2004; Enns et al., 2000), it is possible that they are specific to depression and depression instruments, and do not generalise to anxiety. This thought is supported by reports by Jolly et al., (Jolly et al., 1994), who found that for adolescent boys with various psychiatric diagnoses, discordance on depression instruments was higher than for girls, whereas no such difference existed for anxiety measures although no such findings have been reported for age, education level, and marital status.

As previous research on concordance has mainly focussed on depression and no comparison between the scores on questionnaires used in this study has been made before, our results are novel. Other strong points are our large sample size, the use of trained research nurses, our naturalistic sample and the thorough assessment of personality pathology. However, several potential limitations exist. First of all, we have no information on the order in which observer-rated and self-report instruments were administered, possibly, the order in which instruments were administered varied which in turn might have influenced the level of concordance (Jolly et al., 1994). Second, we had no information on primary diagnosis, which might have been associated with discordance. Third, although we excluded patients with large time gaps (more than 21 days) between the administration of the BAS and the BSI-12, smaller time gaps were allowed and incidentally occurred, which may have influenced results. However, although this might have influenced the number of cases in which discordance occurred, it is unlikely to have influenced the association between patient characteristics and discordance. Fourth, we used two different instruments to measure anxiety severity, a comparison between scores on an observer rated and self-report version of the same

instrument would have been preferable. Furthermore, it must be noted that the DAPP-SF, which was used to assess personality pathology, is a self-report instrument. Possibly, the use of an observer rated measure of personality characteristics would have yielded different results. In addition, we have no information on rater-characteristics, which might be associated with discordance as well (Carter et al., 2010; van Noorden et al., 2010). On a related topic, although we did not find associations between patient characteristics and higher observer-rated- compared to self-reported anxiety severity, this does not imply the discordance in this group necessarily resulted entirely from random measurement error. Possibly, this type of discordance is related to rater-characteristics or patient characteristics that were not measured in this study. Finally, as our data are cross-sectional, our findings do not allow for causal interpretation regarding contributions of personality characteristics to discordance.

Our results demonstrate that using a single instrument in the assessment of patients' anxiety severity, could give rise to a one-sided view of pathology. These findings have practical implications for research as well as practice. As in psychiatry, patients' subjective experiences are central, it is relevant to note that for a substantial group of patients, self-reported anxiety severity does not match observed anxiety severity. In clinical studies, observer-rated instruments, while generally regarded as the primary source of information, may not suffice when measuring anxiety severity and change in anxiety severity, as (changes in) subjectively experienced anxiety severity may go un noted. In clinical practice on the other hand, the growing reliance on cheaper self-report scales may obscure anxiety severity in a substantial group of patients for whom anxiety severity would be rated higher by a trained research nurse. Also, our results demonstrate that for those patients who rate their anxiety as more severe than a trained observer would, personality pathology might be a complicating factor. Possibly, patients who have high cognitive distortion, identity problems, affective lability, oppositionality, anxiousness, suspicion, and insecure attachment, are less willing or capable to express their symptom severity to an observer. Finally, the potential presence of personality pathology is highly relevant for treatment as personality pathology may require a different approach and special attention. Therefore, in conclusion, we argue that a multi-method approach to psychiatric assessment, consisting of self-report as well as observer-rated instruments, disorder specific- as well as generic instruments, and covering aspects of symptomatology, personality and psychosocial functioning, although more expensive, is highly preferable to the use of a single self-report instrument in baseline assessment of psychopathology (Enns et al., 2000; Moller, 2000).

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