Personality functioning in anxiety disorders

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INTRODUCTION

The publication of the most recent diagnostic system for mental disorders DSM-5 \cite{1} has renewed interest in personality functioning, disorders of the self and the quality of interpersonal relationships. In the Alternative Model for Personality Disorders (AMPD) in section III of the DSM-5, disturbances in self and interpersonal functioning along with pathological personality traits are considered to be the core elements of personality disorder \cite{1}. Similarly, the 11th edition of the \textit{International Classification of Diseases} (ICD-11) \cite{2} has adopted a dimensional approach to the classification of personality disorders that focuses on the global level of severity and five trait qualifiers. For the diagnosis of personality disorders, an impaired functioning of aspects of the self (e.g. identity, self-worth, accuracy of self-view, self-direction), and/or of interpersonal relations (e.g. ability to develop and maintain close and mutually satisfying relationships, ability to understand others' perspectives and to manage conflict in relationships) is required \cite{2}.

Historically, these considerations converge with long standing psychoanalytic conceptualizations of personality structure or organization, respectively. Sigmund Freud was concerned with the fundamental organization of psychic functioning conceptualized in the topographical and later the structural model of the mind by separating the ego, the id and the super-ego as psychic structures. One influential contemporary model to conceptualize personality structure from a psychoanalytic viewpoint was developed by Otto Kernberg \cite{3,4}. Kernberg’s approach integrates elements of modern object relations theory with traditional ego psychology in his model of personality organization \cite{4,5}. Three basic levels of personality structure were proposed in this comprehensive theory of personality: neurotic, borderline, and psychotic personality organization \cite{4,6}. These levels of personality organization are distinguished by differences in

\begin{itemize}
  \item \textbf{Keywords}
  
  anxiety disorders, interpersonal, personality functioning, personality structure, self
\end{itemize}
KEY POINTS

- Anxiety disorders were predominantly associated with a significant impairment of personality functioning.
- Anxiety disorders can occur at all levels of personality organization.
- Personality structure affects therapy outcome.
- The evaluation of personality functioning should be a central part of a comprehensive diagnostic process in patients with anxiety disorders.

Personality functioning in anxiety disorders seems to be of particular interest. On the one hand, it was postulated that treatment-refractory anxiety disorders are associated with severe impairment in personality functioning [7]. On the other hand, theoretical models assume different functional levels for different anxiety disorders. It has been suggested that patients with generalized anxiety disorder have the lowest level of personality functioning, patients with agoraphobic and panic disorder have a higher level, and patients with specific phobias have the highest level [8].

In order to integrate clinical theory into empirical research, this review aims at the current literature on aspects of personality functioning in anxiety disorders and to provide a conceptual framework for this topic. First, methodological issues regarding the measurement of personality functioning in the wake of the new alternative model for personality disorders in DSM-5 will be discussed. Subsequently, an overview will be given about recent empirical studies on the relationship between the level of personality functioning and anxiety symptoms or disorders, respectively.

METHODOLOGICAL ISSUES: MEASUREMENT OF PERSONALITY FUNCTIONING

The concept of personality functioning or organization includes a comprehensive model composed of different dimensions, such as identity, the quality of interpersonal relationships, and additional aspects, such as the maturity of defense mechanisms and coping strategies. Table 1 provides a detailed list of valid assessment instruments used for the evaluation of personality functioning in anxiety populations. Some of them have been used in anxiety populations for the assessment of the overall level of personality functioning, that is, personality profiles at the structural level, severity of personality problems, and personality disorder or dysfunction (see Table 1 [9–15]). Other measures focus on specific aspects or dimensions of personality functioning, such as identity integration, including the level of self-differentiation (see Table 1 [16]), or the quality of the object relationships by assessing interpersonal problems or attachment styles (see Table 1 [17–24]).

LEVEL OF PERSONALITY FUNCTIONING IN ANXIETY DISORDERS

In Table 2, an overview of studies on personality functioning in anxiety disorders is given. Several studies have shown positive associations between an impairment of personality functioning and anxiety disorders (Table 2) [25**,26,27,28**,29,30,31,32**,33]. The study by Doering et al. [25**] showed that anxiety disorders were significantly associated with impairment of personality function, which was also significantly increased by comorbid personality disorders. Eikenaes et al. [26] confirmed that an anxiety disorder combined with a comorbid personality disorder goes along with an impaired personality functioning. Patients with social phobia without avoidant personality disorder reported less personality dysfunction regarding identity and relationships compared with patients with social phobia and avoidant personality disorder. Starr and Davila [27] found that anxiety disorders were associated with increased interpersonal problems not explained by comorbid depression. Xue et al. [28**] demonstrated that adults with anxiety disorders showed significantly lower differentiation of self not explained by sociodemographic characteristics. Adults with anxiety-related disorders also displayed significantly higher levels of anxiety and avoidant attachment than healthy persons. Palitsky et al. [29] assessed the risk for anxiety disorders in insecure attachment styles. It was shown that people with an avoidant or anxious attachment style were significantly more likely to have an anxiety disorder regardless of sociodemographic variables, comorbid mental disorders, or childhood adversity. The study by Pini et al. [30] revealed a higher rate of symptoms of anxious attachment in panic disorder patients with adult separation anxiety disorder (ASAD) compared...
with those without ASAD. However, two different attachment-related questionnaires found contradic-
ting results: ASAD patients were significantly more involved in relationships and had a higher need for approval, but there was no significant difference in the distribution of attachment styles between panic disor-
der patients with ASAD and those without ASAD. Manning et al. [31] identified 30 studies in their review of adult attachment and social anxiety, of which 28 publications showed a positive relationship between attachment insecurity and social anxiety with a particularly strong association for attachment anxiety. One empirical examination by Adams et al. [32**] investigated attachment and social/occupational dys-
function in individuals with major depressive disorder and comorbid social anxiety disorder (SAD) compared with major depressive disorder (MDD) alone. Comor-
brid SAD was significantly associated with higher attachment anxiety and avoidance than MDD only or no mental disorder. Additionally, Manes et al. [33] demonstrated that attachment security was signific-
antly associated with less social anxiety in SAD.
| Authors                          | N, sample, diagnosis                                                                 | Measures            | Results                                                                 | Alteration of personality function in anxiety disorders |
|---------------------------------|--------------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------|--------------------------------------------------------|
| Adams et al. [32**]             | N = 162, HC n = 62; MDD – SAD; n = 44; MDD + SAD; n = 56.                           | Functioning: ECR    | MDD + SAD significantly higher attachment anxiety and avoidance         | MDD + SAD ↓                                             |
|                                 |                                                                                      | Anxiety: LSAS       |                                                                                      |                                                        |
| Byrow et al. [36]               | N = 130; SAD n = 90; HC n = 40                                                      | Functioning: ECR    | No significantly different attachment styles the social phobia patients and nonclinical control group; anxious attachment related to greater vigilance for emotional stimuli | SAD ↔                                                  |
|                                 |                                                                                      | Anxiety: DSM-IV (SCID), ADIS-IV; SIAS |                                                                                      |                                                        |
| Byrow and Peters [37]           | N = 50 SAD                                                                            | Functioning: ECR    | Significant improvement in anxiety/avoidant attachment styles and social anxiety after 12 CBT sessions; attachment style did not moderate attention bias towards threatening stimuli | SAD↓ improves after psychotherapy                       |
|                                 |                                                                                      | Anxiety: SIAS       |                                                                                      |                                                        |
| Coronato-Nunes et al. [40]      | BPD, n = 16; substance use disorder n = 28; HC n = 60                              | Functioning: BPI-P  | Correlations of personality functioning and anxiety in borderline personality disorder | A↓                                                     |
|                                 |                                                                                      | Anxiety: BAI        |                                                                                      |                                                        |
| Dalbudak et al. [41]            | N = 271, n = 159 risk of IA, n = 112 no risk of IA                                  | Functioning: BPI    | Correlation of personality functioning and anxiety in a sample with different risks of internet addiction | A↓                                                     |
|                                 |                                                                                      | Anxiety: BAI        |                                                                                      |                                                        |
| Doering et al. [25**]           | N = 113 patients, GAD n = 22, PAD n = 47, PHO n = 28; HC n = 16                    | Functioning: STIPO   | ADs associated with significant impairment of PF; impairment significantly increased by comorbid PD; no differences in PF between patients with different ADs | AD↓; GAD – PAD – PHO                                   |
|                                 |                                                                                      | Anxiety: DSM-IV (SCID) |                                                                                      |                                                        |
| Eikenaes et al. [26]            | N = 91 patients; SP – APD, n = 20, APD-SP, n = 15, APD + SP, n = 56                | Functioning: SIPP-118, CIP Anxiety: Axis (M.I.N.I.) | Patients with SP and APD, had worse personality functioning than those without comorbid APD | AD + APD ↓                                             |
| Haber and Baum [35]             | N = 244, n = 19 AD                                                                   | Functioning: MMPI-2/MMPI-2-RF; Anxiety: DSM-IV | No association of anxiety disorders with personality disorder and functioning | AD ↔                                                   |
| Heidari et al. [44]             | N = 20 students with A or D                                                          | Functioning: AAS    | Anxiety reduced after psychotherapy in patients with insecure attachment | A↓                                                     |
|                                 |                                                                                      | Anxiety: DASS       |                                                                                      |                                                        |
| Hoyer et al. [46]               | N = 244 SAD                                                                           | Functioning: IIP, ECR Anxiety: DSM-IV (SCID I, II), ADIS-IV | Attachment style and interpersonal problems did not moderate the effects of psychotherapy in social phobia | SAD ↔                                                  |
| Knekt et al. [34]               | N = 326 patients, AD n = 142 (see Lindfors et al., 2014)                            | Functioning: LPO    | No significant differences in anxiety levels between high and low PF; only in low PF patients long-term psychodynamic psychotherapy superior to other treatments | A ↔                                                    |
|                                 |                                                                                      | Anxiety: SCL-90-ANX, HARS, DSM-IV |                                                                                      |                                                        |
| Manes et al. [33]               | N = 194 SAD                                                                           | Functioning: ECR-RD, BQCE Anxiety: LSAS | Attachment security associated with less social anxiety | SA↓                                                    |
|                                 |                                                                                      |                                                                                      |                                                        |
### Table 2 (Continued)

| Authors                  | N, sample, diagnosis         | Measures                                                                 | Results                                                                                     | Alteration of personality function in anxiety disorders |
|--------------------------|-----------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------|
| Manning et al. [31]      | Review, n = 30 SA studies   | Functioning: 13 attachment instruments                                   | Positive association between attachment insecurity and social anxiety                         | SA↓                                                     |
| Newman et al. [43]       | N = 83 GAD                  | Functioning: PAAQ; Anxiety: PSWQ, HARS                                    | More dismissing attachment styles in GAD; improvement after psychotherapy                     | GAD↓                                                    |
| Nielsen et al. [39]      | N = 147; n = 90 ADs, n = 57 HC | Functioning: ECR-R; Anxiety: DSM-IV (M.I.N.I.), BAI                       | Attachment anxiety significantly related to anxiety symptom severity                           | A↑                                                      |
| Notzon et al. [38]       | N = 388 HC                  | Functioning: AAS; Anxiety: SPAI                                           | More ambivalent attachment style associated with higher social                               | SA↓                                                     |
| Polisky et al. [29]      | N = 5692 public sample, ADs | Functioning: ASR; Anxiety: DSM-IV (WMH-CIDI 3.0)                          | Avoidant or anxious attachment style increased occurrence of an anxiety disorder              | AD↓                                                     |
| Pini et al. [30]         | N = 141 patients, PAD + ASAD n = 70; PAD - ASAD n = 71 | Functioning: RQ, ASQ; Anxiety: DSM-IV (ECIDI), PDSS, SCI-SAS, ASA-27       | Contradicting results of two different attachment-related questionnaires in patients with PAD with and without ASAD | PAD + ASAD↓---                                         |
| Schneider and Heuft [45**]| 850 mental disorders; n = 28 AD/OCD | Functioning: OPD-2, IIP; Anxiety: HADS                                 | Improvements in interpersonal patterns and anxiety after inpatient psychotherapy             | A↓                                                      |
| Starr and Davila [27]    | AD n = 295, DD n = 247      | Functioning: IIP; Anxiety: K-SADS, DSM-IV                                 | ADs associated with increased interpersonal problems not explained by comorbid depression; at age 15 and 20, GAD, SAD, and symptoms of AD associated with interpersonal problems; the strongest associations in GAD | GAD↓ | SAD | Symptoms of ADs↓ |
| Wiedemann et al. [42]    | N = 82 students             | Functioning: RQ; Anxiety: KMPAI, GAD                                     | Music performance anxiety correlated with insecure attachment and more negative concept of self | A↓                                                      |
| Xue et al. [28**]        | N = 231, ADs n = 114, HC n = 117 | Functioning: DSR, ECR-R; Anxiety: STAI                                  | Worse differentiation of self and higher anxious and avoidant attachment in AD patients      | AD↓                                                     |

A, Anxiety; AAS, Adult Attachment Scale; AD, Anxiety disorder; ADIS-IV, Anxiety Disorders Interview Schedule; APD, Avoidant Personality Disorder; ASA27, Adult Separation Anxiety Questionnaire; ASAD, adult separation anxiety disorder; ASQ, Attachment Style Questionnaire; BAI, Beck Anxiety Inventory; BPD, borderline personality disorder; BPI, Borderline Personality Inventory; CIP, Circumplex of Interpersonal Problems; D, Depression; DASS, Depression Anxiety Stress Scale; DD, depressive disorder; DSM, Diagnostic and Statistical Manual of Mental Disorders; ECR-R, Experiences in Close Relationships-Revised; GAD, generalized anxiety disorder/Severity Measure for Generalized Anxiety Disorder; HADS, Hospital Anxiety and Depression Scale; HARS, Hamilton Anxiety Rating Scale; HC, healthy controls; IA, internet addiction; IIP, Inventory of Interpersonal Problems; KMPAI, Kenny Music Performance Anxiety Inventory; K-SADS, Schedule for Affective Disorders and Schizophrenia in School-Aged Children; LPO, Level of Personality Organization Scale; LSAS, Liebowitz Social Anxiety Scale; M.I.N.I., Mini International Neuropsychiatric Interview; MDD, major depressive disorder; OCD, obsessive–compulsive disorder; PAD, panic disorder; PD, Personality disorder; PDSS, Panic Disorder Severity Scale; PF, Personality functioning; PHO, phobia; PSWQ, Penn State Worry Questionnaire; RQ, Relationship Questionnaire; SAD, Social anxiety disorder; SCID, Structured Clinical Interview for DSM; SCI-SAS, Structured Clinical Interview for Separation Anxiety Symptoms; SCL-90-ANX, Symptom Check List – Anxiety Scale; SIAS, Social Interaction Anxiety Scale; SIPP-118, Severity Indices of Personality Problems; SP, social phobia; STAI, State Trait Anxiety Inventory;
patients. Social anxiety mediated the effect of attachment on depression.

In contrast, other studies (see Table 2 [34–37]), have not found a significant association between the level of personality functioning and anxiety disorders. Knekt et al. [34] investigated the levels of anxiety at different levels of personality functioning and could not find any significant differences in the anxiety level between a neurotic level of personality organization and a higher borderline personality organization. Similarly, in the study of Haber and Baum [35], anxiety disorders were not significantly associated with personality disorder and functioning. Byrow et al. [36] found no significant difference in attachment styles in patients with social phobia compared with healthy controls. SAD patients avoided caring about emotional stimuli more than healthy controls, but the attachment style did not moderate this association. In a later study, Byrow and Peters [37] confirmed that attachment style did not moderate the relationship of attention bias towards threatening stimuli and difficulty disengaging from happy stimuli in SAD patients.

**COMPARISON OF LEVEL OF PERSONALITY FUNCTIONING IN DIFFERENT ANXIETY DISORDERS**

Doering et al. [25**] compared the levels of personality functioning in three different anxiety disorders – generalized anxiety disorders (GAD), panic disorder (PAD) and phobia (PHO) – testing the hypothesis that GAD patients were characterized by poorer personality structure, followed by PAD and PHO patients [8]. In the three different samples, a trend according to the hypothesis was found but no significant differences in personality functioning could be demonstrated. Therefore, it was concluded that anxiety disorders can occur at all levels of personality organization, from mild (‘high neurotic level’) to very severe impairment (‘low borderline level’). Starr and Davila [27] investigated the course of interpersonal functioning in different anxiety and depressive disorders during adolescence, but they did not carry out a group comparison, and therefore, it is not possible to compare different anxiety disorders directly. However, it was shown that at the age of 15 years, GAD, SAD, and other anxiety disorders were associated with several specific areas of interpersonal problems, whereas at the age of 20 years, all domains of interpersonal problems were affected. The strongest disturbances were found in GAD patients.

**LEVEL OF PERSONALITY FUNCTIONING AND ANXIETY SYMPTOMS**

Several studies have shown significant associations between the level of personality functioning and anxiety symptoms measured in clinical and non-clinical populations. Notzon et al. [38] found that a more ambivalent, less secure attachment style was associated with higher social anxiety in healthy probands. In the study of Nielsen et al. [39], attachment anxiety was significantly related to anxiety symptom severity in a mixed sample of anxiety disorders and healthy controls (HC), while attachment avoidance was not. The relationship between anxiety and attachment anxiety was mediated by emotion dysregulation. The results of Coronato-Nunes et al. [40] suggest that anxiety levels are significantly higher in borderline personality disorder with a significantly lower level of personality organization compared to other clinical populations and HC. Dalbudak, et al. [41] demonstrated a weak but significant positive correlation of the level of personality organization and anxiety in a sample with different risks of internet addiction. Wiedemann, et al. [42] investigated attachment in music students and were able to show a significant impact of adult attachment types on music performance anxiety (MPA). Students with a positive self-image (rejecting or secure attachment) showed lower MPA, while people with a negative self-image (worried or anxious attachment) suffered more from MPA. Regardless of attachment style, MPA and generalized anxiety were strongly associated.

**TREATMENT OUTCOME AND LEVELS OF PERSONALITY FUNCTIONING IN ANXIETY DISORDERS**

Several studies have examined the influence of personality functioning on the outcome of psychotherapy: Knekt et al. [34] found that in high level of personality organization (LPO) no difference in treatment outcome between three kinds of treatment occurred, while in patients with a low LPO long-term psychodynamic psychotherapy was shown to be superior to other treatments. A study of Newman et al. [43] showed a better therapy outcome of cognitive behaviour therapy in combination with additional emotional processing compared to add-on supportive listening in generalized anxiety disorder with high dismissing styles of attachment. Heidari et al. [44] examined the feasibility and efficacy of brief psychodynamic therapy as a treatment for anxiety and depressive symptoms in a group of young university students in Iran. Similar levels of reduction in anxious symptoms...
and similar further improvements at follow-up for both insecure attachment groups (avoidant and anxiously) were found. A recent study of Schneider & Heuft [45**] demonstrated clinically significant improvements of interpersonal patterns and anxiety in patients with mixed mental disorders after inpatient psychotherapy. Byrow et al. [37] could demonstrate a significant improvement in anxiety/avoidant attachment styles and social anxiety from pre to posttreatment after 12 CBT sessions. Attention biases measured at pretreatment were found to predict treatment outcome. Attachment style, however, did not moderate this relationship [37]. In a study by Hoyer et al. [46], attachment style and interpersonal problems did not or only marginally moderate the effects of interventions in cognitive therapy of social phobia among other variables such as personality, self-esteem and shame. No significant differences in attachment style could be shown for therapy completers and for those who dropped out.

CONCLUSION

Several conclusions can be drawn from this review of recent studies on personality functioning in anxiety disorders. First, there is a notable increase of interest in the concept of personality functioning also in other mental disorders than personality disorders as highlighted by the high number of pertinent studies on this topic in recent years. The concept of personality structure is reflected in the valid instruments used for the assessment of personality functioning in anxiety disorders that evaluate an overall level of personality functioning or focus on specific dimensions of personality functioning such as identity integration or the quality of object relationships assessed by interpersonal problems or attachment styles.

Anxiety disorders have been shown to be significantly associated with an impairment of personality functioning. The hypothesis derived from psychoanalytic theory that different anxiety disorders occur at different functional levels [8] could not be confirmed in recent empirical research. Therefore, it can be concluded that anxiety disorders can occur at all levels of personality organization. Personality functioning has been demonstrated to have an impact on anxiety disorders and treatment outcome with significant impairment in personality functioning being associated with treatment resistance [7,47]. There is evidence in the current literature that this is also the case for anxiety disorders. Treatment outcome might be influenced by the underlying levels of personality functioning in anxiety disorders.

The evaluation of personality functioning should be an essential element of a comprehensive diagnostic process of patients suffering from anxiety disorders. Treatment recommendations based on guidelines for the treatment of anxiety disorders suggest psychological therapy, pharmacotherapy, or a combination of both [48]. Patients suffering from anxiety disorders in combination with impaired personality functioning most probably do not benefit from mere psychopharmacotherapy. However, in patients with anxiety disorders treated with short-term psychotherapy (psychodynamic or cognitive behaviour therapy), remission was achieved in only about half of all patients treated [49]. It is possible that nonresponders have a higher impairment of personality function (or comorbid personality disorder) that requires more intense structure-oriented psychotherapeutic interventions such as Dialectical Behaviour Therapy (DBT), Mentalization-Based Therapy (MBT), Transference-Focused Psychotherapy (TFP), and Schema-Focused Therapy (SFT) [50].

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CONFLICTS OF INTEREST

There are no conflicts of interest.

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Papers of particular interest, published within the annual period of review, have been highlighted as:
• of special interest
•• of outstanding interest

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