

## **Temperament and attachment dimensions as predictors for impairments of personality functioning according to DSM-5**

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### **Summary**

**Aim.** The study aimed to assess the role of temperament and attachment dimensions for personality pathology defined as impairments in self- and interpersonal functioning according to Criterion A of Section III of the DSM-5.

**Method.** The study was conducted in Poland with a group of 391 participants. The following measurement instruments were used: The Level of Personality Functioning Scale – Brief Form 2.0 (LPFS-BF 2.0), the Temperament Metadimensions Questionnaire (TMQ), the Attachment Style Questionnaire (ASQ), and the Experiences in Close Relationships – Revised (ECR-R).

**Results.** The joint estimation of temperament and attachment role in explaining impairments of personality functioning led to the following conclusions: (1) temperament explained impairments of self-functioning to a greater extent than impairments of interpersonal functioning; (2) temperamental “Reactivity” was more of a predictor of personality pathology than “Activity”; (3) adding attachment increased the magnitude of the explained variance of personality pathology; (4) attachment “Avoidance” explained impairments in interpersonal functioning to a greater extent, while attachment “Anxiety” explained impairments in self-functioning to a greater extent.

**Conclusions.** The impairments in personality functioning included in DSM-5 Criterion A are largely explained by two sets of variables: the more enduring and innate temperament and the attachment acquired through early interactions. Such a distinction is important from a clinical perspective, in which effective interactions can target those properties that can be modified and take into account those that are difficult or impossible to modify.

**Key words:** temperament, attachment, impairments of personality functioning

## Introduction

Human personality is formed on the basis of certain innate basic properties in the course of interaction with the environment, especially the social environment [1]. Therefore, predictors of personality pathology can also be located in these two basic areas: characteristics that are inborn and characteristics that are formed in the course of social interactions. However, the literature does not provide knowledge about the contribution of variables from these two areas jointly analyzed in explaining personality pathology. The purpose of this article is to fill this gap. In the research presented here: (1) personality pathology was defined as impairment in personality functioning according to Criterion A of Section III of the DSM-5 [2], (2) the innate foundation of personality was framed as temperament, and (3) the social interaction crucial for personality pathology was framed as attachment.

The Alternative Model for Personality Disorders (AMPD) described in Section III of the DSM-5 [2] contains two components: Criterion A concerning the level of impairments in personality functioning and Criterion B differentiating the personality pathology by using 25 maladaptive personality traits. In our study we focus on Criterion A, which defines personality pathology as impairments in personality functioning in two areas: self- and interpersonal functioning. Disturbances in self-functioning comprise problems with identity and self-direction, while impairments in interpersonal functioning are characterized by deficits in empathy and intimacy [2].

As the basis of personality, the literature usually points to temperament, which is the biologically determined disposition to specific emotional and behavioral responses [3, 4]. These innate characteristics include formal behavior characteristics such as the intensity of responses, processing speed, range of activities undertaken, need for stimulation and dominant mood [5]. Although there are not many studies on the relationship between temperament and personality pathology, the ones present in the literature suggest the existence of such relationships. It turned out that personality pathology is most likely when the temperament profile combines high harm avoidance, low reward dependence and high novelty seeking from Cloninger's model of temperament [4, 6]. The problem, however, is that there are many models of temperament in the literature that distinguish different dimensions, which makes it difficult to integrate knowledge about the relationship of temperament with other variables, including personality disorders. In wide-ranging studies, Ponikiewska et al. [7] analyzed the eight most widely used temperament models and showed that the dimensions distinguished in them form a hierarchical structure with two higher-order factors at the top of the hierarchy. In turn, Strus et al. [5] showed that these two general dimensions are closely related to activity and reactivity from their model, which is a reinterpretation of activity and reactivity from Strelau's Regulatory Theory of Temperament [8]. For this reason, this study will just take into account the measurement of activity and reactivity from the Strus et al. model [5]. These dimensions can be treated as the most general dimen-

sions of temperament, situated above the detailed dimensions distinguished in various temperament models.

Attachment is defined as mental representations of self, others, and interpersonal relationships (so-called internal working models), formed from early childhood experiences with caregivers [9]. These models strongly influence an individual's emotions, beliefs, attitudes and behaviors, and condition the quality of all later interpersonal relationships, especially romantic relationships [10]. There are several models of attachment but in most of them the following two dimensions of adult insecure attachment are distinguished: Anxiety and Avoidance. Attachment Anxiety corresponds to the fear of rejection, abandonment and being unloved, while Attachment Avoidance is discomfort with closeness, seeking independence, intimacy avoidance and extreme distancing from others [11]. Empirical research confirms the strong positive association between insecure attachment and personality pathology [12-18]. It turned out that impairments in self- and interpersonal functioning (according to Criterion A from the DSM-5 [2]) were associated with insecure attachment styles, while low intensity of insecure attachment styles were related to the healthiest level of personality functioning [15].

### Current study

Previous research does not allow us to assess to what extent the innate variables (temperament) and those developed in the course of social interaction (attachment) enable personality pathology to be predicted, as studies have focused on either temperament or attachment separately. In addition, many studies have used a categorical view of personality pathology [e.g., 4, 14] or a categorical view of attachment [14, 15]. The present study overcomes these limitations by (1) systematically applying a dimensional approach to personality pathology, attachment and temperament and (2) jointly examining the importance of temperament and attachment in explaining personality pathology. The aim of the current study was to answer the question of whether and to what extent dimensions of temperament and adult attachment explain the severity of personality pathology in the self- and interpersonal functioning (Criterion A) described in the DSM-5 AMPD [2]. We expected that (1) both temperament and attachment will contribute to explaining personality pathology and (2) temperament will play a larger role in explaining impairments in self-functioning while attachment (as the social component) will play a larger role in explaining impairments in interpersonal functioning. To ensure the robustness of our results we used two different adult attachment models and measures, which will be presented in the *Measures* section.

## Method

### Participants and procedure

The study was conducted in a sample of  $N = 391$  Polish participants (67.8% females) aged from 16 to 65 ( $M_{\text{age}} = 24.91$ ;  $SD_{\text{age}} = 7.80$ ). Over half of the participants were people with a high school degree (57%), living in a city of more than 100,000 residents (57,3%), employed (58.8%) and married or in a non-marital relationship (57%). The study was voluntary and anonymous. Data were collected through an online survey. All participants were recruited through social networks (e.g., Facebook, Instagram) and gave their consent to participate in the study. The study was accepted by the Ethical Board for Scientific Research at the Institute of Psychology, Cardinal Stefan Wyszyński University in Warsaw.

### Measures

To measure the impairments in personality functioning we used the Level of Personality Functioning Scale-Brief Form 2.0 (LPFS-BF 2.0 [19], Polish adaptation: [20]). It is a 12-item self-report questionnaire assessing the severity of personality pathology according to Criterion A described in Section III of the DSM-5 [2]. The LPFS-BF 2.0 consists of two higher-order components: impairments in self-functioning and impairments in interpersonal functioning. Participants are asked to rate the items on a 4-point Likert scale from 1 (completely untrue) to 4 (completely true).

To measure temperamental traits, we used the Temperament Metadimensions Questionnaire (TMQ [5]). It is a self-report measure, designed to assess the temperamental traits distinguished in the model proposed by Strus et al. [5] as a reconceptualization of Strelau's basic temperament dimensions based on the Circumplex of Personality Metatraits [21]. In the current study we used only the two meta-dimensions of temperament: Reactivity and Activity. Items are scored on a 5-point Likert scale (from 1 – describes me completely inaccurately to 5 – describes me completely accurately).

In order to measure attachment, we used two measures: Experiences in Close Relationships-Revised (ECR-R [11], Polish adaptation: [22]) and the Attachment Style Questionnaire (ASQ [23]; Polish version prepared for this study in consultation with the author). ECR-R consists of 36 self-reported items assessed on a 7-point Likert scale from 1 (strongly disagree) to 7 (strongly agree) and the ASQ consists of 40 self-reported items assessed on a 6-point Likert scale from 1 (totally disagree) to 6 (totally agree). For the study we used the two major attachment dimensions – Anxiety and Avoidance measured by both questionnaires.

## Results

Analyses were carried out in IMP SPSS Statistics 28 software. Table 1 shows the basic descriptive statistics and reliability coefficients of all scales used in the analysis.

**Table 1. Descriptive statistics and reliability indices of temperament and attachment dimensions and levels of personality functioning from measures used in this study ( $N = 391$ )**

	M	SD	SKE	K	$\alpha$
TMQ					
Activity	2.96	0.62	0.26	0.01	0.93
Reactivity	3.48	0.78	-0.21	-0.37	0.96
ASQ					
Attachment Avoidance					
Attachment Anxiety	3.46	0.80	-0.11	-0.10	0.87
ECR-R	3.80	0.99	-0.20	-0.50	0.88
Attachment Avoidance	3.29	1.12	0.27	-0.40	0.92
Attachment Anxiety	3.58	1.34	0.02	-0.77	0.94
LPFS-BF 2.0	2.35	0.60	0	-0.16	0.82
Total	2.62	0.77	-0.13	-0.76	0.83
Self-functioning	2.09	0.63	0.32	-0.27	0.70
Interpersonal functioning					

*Note.* TMQ – Temperament Metadimensions Questionnaire; ASQ – Attachment Style Questionnaire; ECR-R – Experiences in Close Relationships-Revised; LPFS-BF 2.0 – Level of Personality Functioning Scale-Brief Form 2.0.

Hierarchical multiple regression analysis was conducted to assess the role of temperament and attachment dimensions in explaining impairments of personality functioning and to verify the incremental validity of the attachment in explaining impairments of personality functioning, in addition to temperament (gender and age explained only 2% of the variance in the total score in LPFS-BF 2.0, so they were not included in the analysis presented here). In the first step, basic temperament dimensions were introduced to the regression analysis, followed by the basic attachment dimensions in the second step. The second step was run twice: with the ASQ and ECR-R scales to obtain robust and replicated results. The results of the regression analyses are reported in Table 2.

Table 2. Hierarchical multiple regression analysis: temperament and attachment dimensions as predictors for impairments of personality functioning

Model	Predictor	LPFS-BF 2.0 Scales		
		Total	Self-functioning	Interpersonal functioning
		$\beta$	$\beta$	$\beta$
Step 1	TMQ Activity	0.11*	0.13**	0.06
	TMQ Reactivity	0.49***	0.57***	0.23***
Model summary: $R^2_{\text{adjusted}}$		0.26***	0.35***	0.05***
Step 2a	TMQ Activity	0.16***	0.15***	0.11**
	TMQ Reactivity	0.19***	0.28***	0.01
	ASQ Avoidance	0.31***	0.14***	0.42***
	ASQ Anxiety	0.40***	0.43***	0.23***
Model summary: $R^2_{\text{adjusted}}$		0.54*** (***)	0.53*** (***)	0.32*** (***)
Step 2b	TMQ Activity	0.13***	0.13***	0.09*
	TMQ Reactivity	0.38***	0.47***	0.15**
	ECR-R Avoidance	0.36***	0.20***	0.44***
	ECR-R Anxiety	0.20***	0.22**	0.11*
Model summary: $R^2_{\text{adjusted}}$		0.48*** (***)	0.47*** (***)	0.30*** (***)

Note. The signs in parentheses refers to F change.

\*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$ .

As shown, all regression models were statistically significant. Both temperament dimensions explained 35% of the variance in self-functioning and 5% of the variance in interpersonal functioning. After adding the attachment dimensions in step 2, all variables together explained about half of the variance in self-functioning (48-53%) and one third of the variance in interpersonal functioning (30-32%). Both attachment dimensions from both measures were statistically significant predictors, but Attachment Anxiety was a stronger predictor of self-functioning, and Attachment Avoidance was a stronger predictor of interpersonal functioning.

## Discussion

The study we presented here allowed us to estimate the extent to which temperament and attachment dimensions jointly explain impairments in personality functioning as described in Criterion A of Section III of the DSM-5 [2]. The results showed

that both temperament and attachment dimensions significantly explained personality pathology, understood as personality dysfunction in two spheres: self (intrapsychic) and interpersonal.

It turned out that although temperament was significant for both self- and interpersonal functioning, its role in explaining self-functioning was much higher. This means that temperament is more responsible for impairments in self-functioning, while attachment is more responsible for impairments in interpersonal functioning.

From the two dimensions of temperament, Reactivity explained impairments in personality functioning to a greater extent than Activity. This was because the model of temperament we used [5] was developed based on the Circumplex of Personality Metraits [21], and temperamental Reactivity reflects the Gamma-Minus/Disintegration dimension (from the Circumplex of Personality Metraits), which is at the center of personality pathology [25].

Attachment dimensions added to temperament significantly increased the explained variance of impairments in personality functioning. Both Anxiety and Avoidance were significant predictors of these impairments, suggesting that early social interactions shaping attachment are responsible for personality pathology. The results confirm and extend the considerations of Ainsworth and Bowlby [26] and are consistent with the available evidence of a relationship between adult attachment and personality pathology [12, 15, 16, 18]. They are also consistent with theoretical models of attachment and personality disorders, whereby both are defined as disturbances in interpersonal functioning [17].

In agreement with the results of previous research on attachment and personality functioning from the DSM-5 (Criterion A) [15], our study also showed that attachment dimensions differentiated impairments in personality functioning. Attachment Anxiety was particularly relevant in explaining difficulties in self-functioning, whereas Attachment Avoidance was particularly relevant in explaining impairments in interpersonal functioning. These findings are theoretically consistent, as Attachment Anxiety refers to fear of rejection and the associated uncertainty about oneself and other people [11], while self-functioning impairment pertains to problems with identity and self-direction which are related to unstable self-esteem and low ability to regulate emotions [2]. On the other hand, Attachment Avoidance is related to discomfort with closeness, avoidance of intimacy, close relationships and dependency on others [27], and difficulties in interpersonal functioning also refers to problems with intimacy, closeness as well as building deep and sustainable relationships, stemming mainly from deficits in empathy [2].

In conclusion, our study has shown that both biological predispositions framed by temperament and the quality of early childhood experiences with caregivers and the attachment developed in the course of these experiences are significant predictors of human personality pathology. The results we obtained carry important clinical

implications. Attachment – acquired in the course of social interactions – appears to be more susceptible to modification than the rather difficult-to-modify temperament [1, 3]. Therefore, it may be beneficial to systematically incorporate a patient's attachment assessment and the implementation of attachment-based interventions into the treatment program for personality disorders. Knowledge of attachment can provide the clinician with important information about the patient's approach to treatment and equips the clinician with strategies he or she could use to reduce patient resistance and achieve the most favorable treatment outcomes. Working on attachment and building a secure relationship, such as a therapeutic alliance, can help the patient work through painful past events and reorganize internal models of self and others, thereby improving personality functioning. Research confirms that activation of the attachment system and restructuring of internal operating models contributes to certain modifications of personality traits underlying personality disorders [28].

This study is not free of limitations as it was conducted on a one-nation origin sample, recruited through social networks such as Facebook and Instagram, composed of volunteers and overrepresented by women as well as with the use of solely self-report measures. Therefore, the generalizability of our findings should be verified in further research in other populations, countries and cultures, and with other measures. Although the DSM-5 dimensional model [2] justifies the study of personality disorders also in the general population, future research should also be carried out in clinical trials.

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