





## Article

# Anxious Temperament Predicts Poor Acceptance of Self and Life in Bipolar Disorder during the COVID-19 Pandemic

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**Abstract:** The coronavirus disease (COVID-19) pandemic and the social distancing resulting thereof are having a great impact on psychological well-being. Studies investigating resilience found that it impacts mental health during crises. This study aimed to evaluate the influence of pre-crisis temperament on resilience in individuals with bipolar disorder during the COVID-19 pandemic. An online survey was conducted in Austria between April and June 2020, including 36 individuals with bipolar disorder and 39 healthy controls. Resilience was assessed with the 13-item resilience scale, and temperament was measured with the Temperament Evaluation of Memphis, Pisa, Paris and San Diego-autoquestionnaire (TEMPS-A). The bipolar disorder group showed lower resilience than the control group, and scored higher on the TEMPS-A for depressive, cyclothymic, and anxious temperaments. Resilience could be predicted by anxious temperament in individuals with bipolar disorder, and correlated negatively with depressive symptoms in both groups. The results suggest that anxious temperament influences the resilience of individuals with bipolar disorder, likely more than temporary hardships, such as the first months of the COVID-19 crisis. It is therefore important to improve the resilience of individuals with bipolar disorder not only by short-term interventions, but by strengthening resilience and reducing anxious temperament in the long term.

**Keywords:** mental health; COVID-19 pandemic; bipolar disorder; temperament; resilience



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## 1. Introduction

Coronavirus disease 2019 (COVID-19), a contagious airborne disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first discovered in Wuhan, China [1]. In March 2020, the World Health Organization (WHO) labeled the virus as a pandemic [2], and subsequently several lockdowns occurred across the world.

The COVID-19 pandemic has imposed a psychological burden upon many people. Increased distress, anxiety, helplessness, depression, suicidal thoughts, fear, and post-traumatic stress symptoms have been reported as reactions to the COVID-19 pandemic and its associated measures [3–7]. These findings are consistent with the results of studies about previous pandemics, such as the SARS pandemic in 2003 [8]. For the economic system, unemployment was and still is a problem exacerbated by the pandemic [9]. Thus, quarantine and other social distancing measures have caused loss of personal freedom, uncertainty, and fear of the future, and may contribute strongly to the development of mental health problems [10]. The amount of emotional distress during the COVID-19 crisis has depended, among other factors, on personality structure, individual coping mechanisms, and resilience patterns [11,12].

Psychiatric illness has proven to be a risk factor in the face of the pandemic [13]. Specifically, individuals with bipolar disorder (BD), a neuropsychiatric illness, are at risk for the increased recurrence of affective episodes in the face of stressful events [14]. During the pandemic, individuals with BD in particular have suffered from more psychological distress [15], post-traumatic stress symptoms [16], depression, anxiety [17], and fear [18] than mentally healthy individuals. Additionally, they have been more affected by COVID-19-associated changes in lifestyle [19]. Moreover, limited resources for medical treatment and misinformation have been an additional strain for these individuals, possibly contributing to illness exacerbation [20,21].

Resilience is closely related to measures that helped prevent the virus from spreading. The concept of resilience is of particular interest for understanding how to brave difficult times [22], enabling a person to endure adversity and still be able to uphold a positive attitude [23]. Resilience has been a popular research topic since Werner et al.'s influential publication [24]. There is no universal definition as of yet. However, certain concepts recur across different explanations [25], such as the influence of biological factors, personality, and social environment [22]. Wagnild and Young [26] suggested two main aspects. The first aspect, "acceptance of self and life", leads to balance, adaptability, and flexibility. The second aspect, "personal competence", encompasses self-reliance, determination, independence, mastery, and resourcefulness [27].

Resilience has been reported to be negatively correlated with depressive symptoms in mentally healthy people during the COVID-19 pandemic [28], and predicts the severity of depressive symptomatology [29]. Accordingly, resilience and positive emotions are positively correlated [30]. Individuals with affective disorders are known to have less resilience than people without a mental disorder [31]. In individuals with BD, resilience correlates negatively with the number of depressive episodes and the number of suicide attempts [32]. Furthermore, resilience correlates positively with perceived social support [33], and can predict the social functioning of individuals with BD [34].

Temperament is an aspect of personality comprising emotional reactions and both their intensity and velocity [35]. An important development in the study of temperament was the five-factor model by Akiskal et al. [36]. They took the four fundamental states put forward by Kraepelin [37] and assigned a temperament to each of them. In addition to the four temperaments depressive, cyclothymic, hyperthymic, and irritable, the authors added the fifth, anxious temperament, and proposed a questionnaire to measure them. Depressive temperament is characterized by self-doubt and melancholy, thus increasing the risk for developing dysthymia. Cyclothymic temperament features rapid changes in mood, which result in relationship problems, unstable lifestyle, and substance abuse, linking this temperament to cyclothymia and BD. People with hyperthymic temperament have a positive outlook on life and are self-confident and determined. Irritable temperament leads to heightened impatience, aggressiveness, and dissatisfaction. Lastly, anxious temperament indicates heightened nervousness, insecurity, caution, and stress [36]. A considerable number of studies have found that subjects with BD score higher on each of the temperament scales than individuals without a mental illness, except for the hyperthymic temperament, which features mixed results [38,39]. Apart from a recently published paper [32], which found negative correlations of resilience with depressive, cyclothymic, and anxious temperaments and a positive correlation with hyperthymic temperament in individuals with BD, the research on affective temperaments in relation to resilience and BD is lacking. Therefore, the COVID-19 pandemic as a worldwide crisis is a great opportunity to study resilience, particularly in relation to temperament.

The aim of this study was to analyze: 1. The difference between individuals with BD and mentally healthy individuals with regard to resilience during the pandemic. 2. The associations between resilience and COVID-19 fears, emotional distress due to social distancing, situational concerns, depressive symptoms, as well as temperament factors. 3. The associations between temperament factors and COVID-19 fears, emo-

tional distress due to social distancing, situational concerns, and depressive symptoms.  
4. Whether pre-crisis temperament can predict resilience during the COVID-19 crisis.

## 2. Materials and Methods

### 2.1. Subjects

The investigation was conducted at the Medical University of Graz, Austria, Department of Psychiatry and Psychotherapeutic Medicine, as part of the ongoing BIPLONG study (“The Bipolar Disorder in the Longitudinal Course”) aiming to explore the relationship between BD and weight, lifestyle, and cognitive function in a longitudinal setting. Both individuals with BD and healthy controls (HCs) are recruited continuously and attend sessions of measurement in the outpatient center for BD in Graz. All individuals with BD are diagnosed using the Structured Clinical Interview of the Diagnostic and Statistical Manual of Mental Disorders IV (DSM-IV; [40]). Inclusion criteria comprise an age of 18 or older, an IQ of  $\geq 70$ , and the absence of other severe mental or brain illnesses (e.g., drug dependency, epilepsy, dementia). Exclusion criteria are an age of  $< 18$ , an IQ of  $< 70$ , and a diagnosis of another severe mental or brain illness. BD must be euthymic at the time of participation, while HCs are required to have no first-degree relatives with severe mental illness.

For researching individuals with BD during the COVID-19 pandemic, an online survey was sent out via LimeSurvey ([www.limesurvey.org](http://www.limesurvey.org), accessed on 10 June 2020) to all previously recruited BIPLONG participants ( $n = 229$ ), of which 141 took part. The survey took place from 9 April to 4 June 2020, which was from the 5th to the 13th week of COVID-19-specific measures in Austria. These measures consisted of social distancing, travel restrictions, and closure of public facilities, and were first eased on 13 April 2020. During the observation period of this study, 3736 people were newly infected with COVID-19 and 375 died of the disease [41].

The current investigation included the individuals who completed all relevant questionnaires and for whom information on temperament was available from previous visits. As the pre-pandemic TEMPS-A was not available for many participants, 36 individuals with BD (15 females, 21 males) and 39 HCs (29 females, 10 males) were finally included. The number of excluded participants from the original number of 81 was 6. One participant of the HC group and five participants of the BD group were excluded due to outliers in resilience and temperament, as this study used regression analysis, which is very sensitive to outliers. Outliers were characterized as values more than twice the size of interquartile range.

### 2.2. Methods

The online survey contained several questionnaires in German, of which some were selected for this analysis.

Resilience was measured using the 13-item resilience scale (RS-13), a short German version by Leppert et al. [27] of the original 25-item scale by Wagnild and Young [26]. Items measuring the two resilience aspects “personal competence” and “acceptance of self and life” are rated on a Likert-type scale ranging from 1 (= “I don’t agree”) to 7 (= “I strongly agree”). The total score assumes values from 13 to 91, with a higher score suggesting a higher level of resilience. The test–retest reliability of  $r = 0.61$  was acceptable.

Depressive symptoms were measured with Beck’s Depression Inventory (BDI-II; [42]), a 21-item questionnaire, using the German version by Kühner et al. [43]. A total score of 18 or higher is considered clinically relevant and indicative of depressive symptoms. The German BDI-II has high internal consistency (Cronbach’s  $\alpha = 0.89$ ) and test–retest reliability ( $r = 0.78$ ). The criterion validity of the BDI-II with other depression scales is satisfactory ( $r = 0.68$  to  $0.89$ ).

Manic symptoms were evaluated by the Altman Self-Rating Mania Scale (ASRM; [44]). A score above 5 correlates with manic symptoms, and the internal consistency is high (Cronbach’s  $\alpha = 0.79$ ).

The Temperament Evaluation of Memphis, Pisa, Paris and San Diego-autoquestionnaire (TEMPS-A; [36]) was used for measuring the five temperaments: depressive, cyclothymic, hyperthymic, irritated, and anxious. Cronbach's  $\alpha$  ranges between 0.63 for depressive temperament and 0.76 for anxious temperament [45]. The TEMPS-A was assessed before the COVID-19 crisis at the first timepoint of the BIPLONG study, which ranged from 8 years to 45 days before the second timepoint. As temperament is a stable construct [46], this pre-crisis variable was employed in the current analyses without controlling for the time difference.

1. A self-constructed questionnaire was applied to measure COVID-19 fears, using the mean index of three items:
  - "How strongly do you rate your concerns and fears about the coronavirus?"
  - "How strongly do you rate your fear of contracting the coronavirus?"
  - "How strongly do you rate your fear of infecting others with the coronavirus?"
2. A second self-constructed questionnaire assessed emotional distress due to social distancing by asking participants to rate their response to five items: "*Social distancing makes me feel lonely/bored/frustrated/anxious/hopeless*". These items were intended to measure the impact of social distancing on the mental health of the participants. In addition, situational concerns were assessed by the following items:
  - "I worry about my health."
  - "I worry about my relatives' health."
  - "I fear for my job/company."
  - "I cope well with social distancing and manage to occupy myself."

These items were intended to measure the concerns about the pandemic, encompassing a broader spectrum. Scores from 0 (= not correct at all) to 4 (= fully correct) were used for rating each item. The mean score of both variables was calculated.

### 2.3. Statistical Analyses

To test for differences between the group of individuals with BD and HCs, we conducted chi-square tests for differences in sex, two-tailed Fisher's exact tests for differences in education, independent *t*-tests for metric variables and Mann–Whitney-U-tests for non-parametric data, two multivariate covariance analyses (MANCOVAs), and two covariance analyses (ANCOVAs). The first MANCOVA tested differences in the two subscales of the RS-13 ("personal competence" and "acceptance of self and life"), and the second MANCOVA tested differences in the five temperaments of the TEMPS-A, both with age as covariate. An ANCOVA for the RS-13 sum score with the same covariate was performed separately from the other two resilience aspects to avoid multicollinearity between "personal competence" and the RS-13 sum score. Mann–Whitney-U-tests were used to test differences in BDI-II, ASRM, COVID-19 fears, emotional distress due to social distancing, and situational concerns.

Key conditions for parametric analyses (linearity, normality, and homogeneity) were tested with Kolmogorov–Smirnov tests, Levene's tests, and graphical visualization. In the control group, the assumption of normality was violated for the BDI-II score as well as hyperthymic temperament. Therefore, Spearman correlation analyses were performed when these variables were involved.

Partial correlations with age as covariate were performed separately for the BD and HC groups to identify associations between the RS-13 sum score and the two resilience subscales and BDI-II, COVID-19 fears, the emotional distress index, situational concerns and the five temperaments. Additionally, partial correlations with age and covariate were used for the association between COVID-19 fears, emotional distress due to social distancing, situational concerns, and the five temperaments.

A linear regression analysis was performed to examine the variance in the resilience accounted for by temperament.

Error probabilities below 0.05 were accepted due to the clinical nature of the study. Bonferroni corrections were adjusted for all analyses, corresponding to the number of tests. The statistical program used to perform the statistical analyses was Statistical Package for Social Sciences (SPSS), version 26, by IBM.

### 3. Results

#### 3.1. Sample Description

Table 1 shows the sociodemographic characteristics of the sample and the differences between the groups. The BD group consisted of 36 individuals, of which 22 were diagnosed with BD type I and 14 with BD type II. The two BD types differed neither in resilience nor in temperament. The BD group was significantly older and had lower levels of education than the HC group. None of the participants or their close contacts had tested positive for COVID-19 or were spending time in quarantine at the time of testing.

**Table 1.** Sociodemographic characteristics, resilience, BDI-II, ASRM, COVID-19-related variables, and temperament of individuals with BD and HCs.

		Group		Statistics	<i>p</i>	$\eta^2$
		BD ( <i>n</i> = 36) M ( $\pm$ SD)	HC ( <i>n</i> = 39) M ( $\pm$ SD)			
Age		50.18 (13.06)	34.09 (11.64)	<i>U</i> = 258.00	<b>0.000 **</b>	
Sex ( <i>n</i> )				$\chi^2$ = 8.25	<b>0.004 **</b>	
	Male	21 (58.3%)	10 (25.6%)			
	Female	15 (41.7%)	29 (74.4%)			
Education ( <i>n</i> )				$\chi^2$ = 22.36	<b>&lt;0.001 **</b>	
	Secondary school	1 (2.8%)	1 (2.6%)			
	High school	5 (13.9%)	6 (15.4%)			
	Apprenticeship	13 (36.1%)	0 (0.0%)			
	College	7 (19.4%)	4 (10.3%)			
	Bachelor's degree	7 (19.4%)	19 (48.7%)			
	Master's degree	3 (8.3%)	9 (23.1%)			
Diagnosis						
	BD 1	22 (61.1%)				
	BD 2	14 (38.9%)				
Resilience		69.31 (11.52)	76.96 (9.76)	<i>F</i> = 6.71	<b>0.012 *</b>	0.09
	"Acceptance of self and life"	21.13 (4.84)	23.01 (3.82)	<i>F</i> = 4.35	<b>0.024 *</b>	0.06
	"Personal competence"	48.18 (7.71)	53.95 (6.55)	<i>F</i> = 6.80	<b>0.011 *</b>	0.09
BDI-II		8.25 (7.81)	4.06 (3.47)	<i>U</i> = 539.00	0.083	
ASRM		2.15 (3.02)	0.49 (0.88)	<i>U</i> = 452.00	<b>0.004 **</b>	
COVID-19 fears <sup>a</sup>		3.31 (2.34)	3.80 (1.88)	<i>t</i> = −1.02	0.311	
Emotional distress due to social distancing <sup>b</sup>		1.33 (0.84)	1.15 (0.75)	<i>t</i> = 0.96	0.340	
Situational concerns <sup>c</sup>		1.65 (0.93)	1.51 (0.67)	<i>t</i> = 0.73	0.467	
TEMPS-A						
	Depressive	17.97 (7.84)	10.72 (3.39)	<i>F</i> = 18.23	<b>&lt;0.001 **</b>	0.20
	Cyclothymic	18.61 (5.98)	9.97 (3.62)	<i>F</i> = 46.51	<b>&lt;0.001 **</b>	0.40
	Hyperthymic	21.75 (5.72)	22.21 (5.38)	<i>F</i> = 1.01	0.319	0.01
	Irritable	16.28 (6.58)	13.44 (5.26)	<i>F</i> = 4.55	0.036 *	0.06
	Anxious	18.14 (7.31)	13.95 (5.61)	<i>F</i> = 7.80	<b>0.007 **</b>	0.10

*Note.* BD = bipolar disorder group; HC = healthy control group; M = mean; SD = standard deviation; BDI = Beck's Depression Inventory; ASRM = Altman Self-Rating Mania Scale; TEMPS-A = Temperament Evaluation of Memphis, Pisa, Paris and San Diego-autoquestionnaire. <sup>a</sup> "How strongly do you rate your concerns and fears about the coronavirus?", "How strongly do you rate your fear of contracting the coronavirus?", and "How strongly do you rate your fear of infecting others with the coronavirus?" Mean index of three 0–10 scales; <sup>b</sup> "Social distancing makes me feel lonely/bored/frustrated/hopeless/anxious" Mean of five 0–4 point scales; <sup>c</sup> "I worry about my health", "I worry about my relatives' health", "I fear for my job/my company", and "I cope well with social distancing and manage to occupy myself." Mean of four 0–4 point scales; \* *p* ≤ 0.05, \*\* *p* ≤ 0.01. Bonferroni correction for multiple comparisons for the RS-13 factors: threshold of significance, *p* ≤ 0.025 (0.05/2 tests). Bonferroni correction for multiple comparisons for BDI-II score, ASRM score, emotional distress, COVID-19 fears, age and sex: threshold of significance, *p* ≤ 0.0083 (0.05/6 tests). Bonferroni correction for multiple comparisons for the TEMPS-A factors: threshold of significance, *p* ≤ 0.01 (0.05/5 tests).



### 3.1.1. Differences in Resilience, COVID-19-Related Variables, and Temperament in Individuals with BD and HCs

Table 1 displays the differences between the BD and HC groups for resilience, COVID-19-related variables, depressive and manic symptomatology measures, and temperament values. The BD group had a lower overall resilience than the HC group. A MANCOVA with the covariate age showed a significant group effect ( $F_{2,71} = 3.40, p = 0.039, \eta^2 = 0.09$ ), indicating that the groups differed in both “personal competence” and “acceptance of self and life”.

Mann–Whitney–U-tests resulted in a significantly higher ASRM score in the BD group than in the HC group, while no differences between the groups were found for BDI-II, COVID-19 fears, emotional distress, or situational concerns.

A second MANCOVA with age as covariate showed a significant difference in the five temperament scales ( $F_{5,67} = 9.77, p < 0.001, \eta^2 = 0.42$ ). Table 1 displays the univariate results, showing higher scores in depressive, cyclothymic, and anxious temperaments in the BD group compared with the HC group.

### 3.1.2. Associations between Resilience and Both COVID-19-Related Variables and Temperament

In the BD group, no significant correlations were found between resilience on the one hand, and COVID-19 fears, emotional distress due to social distancing, and situational concerns on the other (Table 2). Both resilience subscales and the sum score correlated negatively with the BDI-II score. “Acceptance of self and life” correlated negatively only with anxious temperament, but did not remain significant after Bonferroni correction.

**Table 2.** Correlations between the RS-13 sum score, “acceptance of self and life”, and “personal competence” and COVID-19 fears, emotional distress, situational concerns, BDI-II, and TEMPS-A.

Variables	Resilience											
	“Acceptance of Self and Life”				“Personal Competence”				RS-13 Sum Score			
	BD (n = 38)		HC (n = 36)		BD (n = 38)		HC (n = 36)		BD (n = 38)		HC (n = 36)	
	r	p	r	p	r	p	r	p	r	p	r	p
COVID-19 fears <sup>a</sup>	−0.18	0.290	−0.30	0.066	−0.07	0.691	−0.28	0.084	−0.12	0.485	−0.31	0.059
Emotional distress due to social distancing <sup>b</sup>	−0.36 *	0.033	−0.30	0.064	−0.28	0.106	<b>−0.44 **</b>	0.005	−0.33	0.050	−0.42 *	0.009
Situational concerns <sup>c</sup>	−0.25	0.156	−0.24	0.156	−0.23	0.180	−0.28	0.091	−0.26	0.137	−0.28	0.090
BDI-II	<b>−0.67 **</b>	<0.001	<b>−0.51 **<sup>d</sup></b>	0.001	<b>−0.65 **</b>	<0.001	<b>−0.61 **<sup>d</sup></b>	<0.001	<b>−0.72 **</b>	<0.001	<b>−0.61 **<sup>d</sup></b>	<0.001
TEMPS-A												
Depressive	−0.20	0.253	−0.36 *	0.029	−0.10	0.571	−0.13	0.449	−0.15	0.397	−0.23	0.175
Cyclothymic	−0.24	0.166	−0.41 *	0.011	0.03	0.845	−0.31	0.062	−0.07	0.673	−0.37 *	0.024
Hyperthymic	0.08	0.649	0.31 <sup>d</sup>	0.057	0.27	0.121	0.29 <sup>d</sup>	0.070	0.21	0.219	0.32 <sup>d</sup>	0.045
Irritable	−0.145	0.407	−0.02	0.891	−0.11	0.547	−0.20	0.240	−0.13	0.457	−0.14	0.402
Anxious	−0.35 *	0.039	−0.37 *	0.024	−0.15	0.380	−0.23	0.165	−0.25	0.154	−0.30	0.069

Note. BD = bipolar disorder group; HC = healthy control group; TEMPS-A = Temperament Evaluation of Memphis, Pisa, Paris and San Diego-autoquestionnaire. <sup>a</sup> “How strongly do you rate your concerns and fears about the coronavirus?”, “How strongly do you rate your fear of contracting the coronavirus?”, and “How strongly do you rate your fear of infecting others with the coronavirus?” Mean of three 0–10 scales; <sup>b</sup> “Social distancing makes me feel lonely/bored/frustrated/hopeless/anxious” Mean of five 0–4 point scales; <sup>c</sup> “I worry about my health”, “I worry about my relatives’ health”, “I fear for my job/my company”, and “I cope well with social distancing and manage to occupy myself”, Mean of four 0–4 point scales; \*  $p \leq 0.05$ , \*\*  $p \leq 0.01$ . <sup>d</sup> Spearman correlation analysis. Bonferroni correction for multiple comparisons for the RS-13 factors and COVID-19 variables and BDI: threshold of significance,  $p \leq 0.006$  (0.05/8 tests) are marked in bold letters. Bonferroni correction for multiple comparisons for the RS-13 factors and TEMPS-A variables: threshold of significance,  $p \leq 0.005$  (0.05/10 tests).

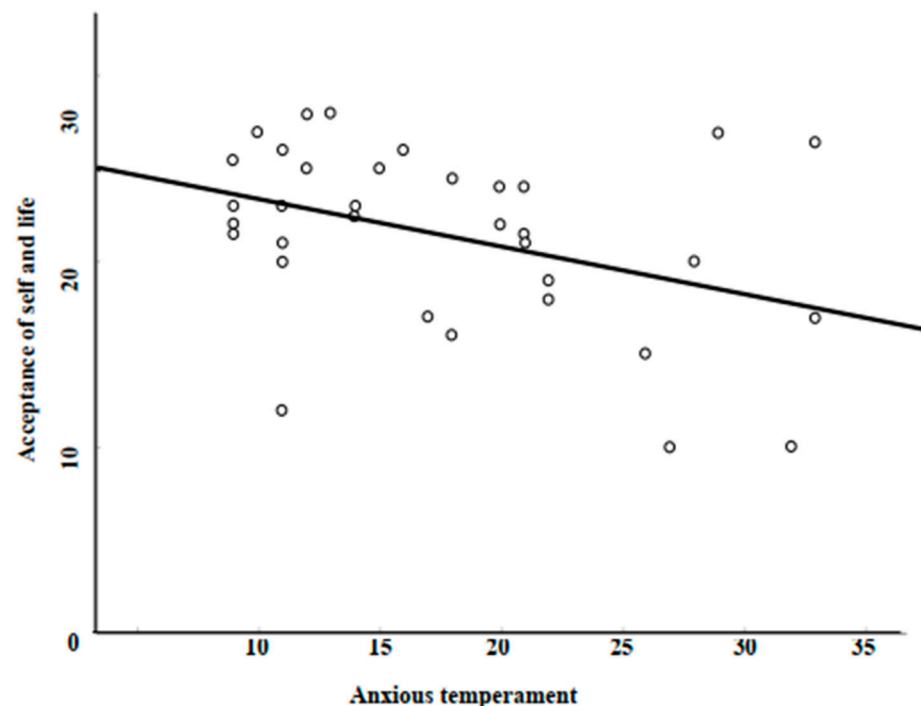
In the HC group, no significant correlations were found between the resilience subscales on the one hand and COVID-19 fears and situational concerns on the other (see Table 2). The resilience subscale “personal competence” correlated negatively with emo-

tional distress due to social distancing. Both resilience subscales and the sum score correlated negatively with the BDI-II score. A negative correlation was found between “acceptance of self and life” and cyclothymic temperament.

There were no significant correlations between COVID-19 fears, emotional distress due to social distancing, and situational concerns, and any of the five temperaments in individuals with BD. In the HC group, anxious temperament correlated positively with COVID-19 fears ( $r = 0.56, p < 0.001$ ) after Bonferroni correction ( $0.05/15 = 0.003$ ), while further correlations did not show significant results. Neither emotional distress nor situational concerns correlated significantly with temperament in HCs.

### 3.1.3. Predicting Resilience with Anxious Temperament

As anxious temperament was found to be the only temperament significantly correlating with resilience in individuals with BD, a linear regression analysis was performed. The variance of “acceptance of self and life” could be partly explained by anxious temperament, with a higher score on the scale for anxious temperament predicting a lower “acceptance of self and life” during the pandemic ( $B = -0.25, SE = 0.11, \beta = -0.38, t = -2.42, p = 0.021, R^2 = 0.15, \text{adjusted } R^2 = 0.12, F_{1,35} = 5.85$ ). A graphical representation of their relation is displayed in Figure 1.



**Figure 1.** The correlation between anxious temperament and “acceptance of self and life” in individuals with BD during the COVID-19 pandemic.

## 4. Discussion

This pre–post study examined resilience in individuals with BD and healthy controls during the beginning of the COVID-19 pandemic in Austria. Overall resilience and both of its aspects, “acceptance of self and life” and “personal competence”, were less pronounced in individuals with BD than in HCs. Individuals with BD had higher scores in depressive, cyclothymic, and anxious temperaments—the latter of which predicted the resilience factor “self-acceptance” during the COVID-19 crisis. Negative correlations were found between BDI-II and resilience in both groups, and between “personal competence” and emotional distress due to social distancing in HCs.

Our results show that individuals with BD had lower resilience than HCs, which was also found in previous studies [31]. A lack of resilience indicates reduced goal-orientation

and life satisfaction [47] and leads to worse social functioning in individuals with BD [34], consequently decreasing their mental health [48]. This is supported by increased depressive symptoms and their negative correlation with resilience in individuals with BD, which was also found in HCs and is consistent with the current literature [49]. The association between resilience and depression was established before the COVID-19 crisis, and is applicable to various situations and health problems [50,51]. Regarding these results, it is assumed this association is stable, even in times of crisis. However, the significantly lower education levels of individuals with BD might have taken part in influencing their mental health as well. Unemployment and lack of funds may have been of greater concern, leading to more depressive symptoms.

Emotional distress due to social distancing correlated negatively with “personal competence”, however, this was only observed in HCs. It is possible that individuals with BD might be more familiar with periods of social isolation during their illness episodes [52]. Consequently, the distress they were feeling during the crisis was not dependent on measures of social distancing but other factors, as shown by the significant correlation between resilience and the BDI-II score.

No correlation between resilience and COVID-19 fears was found in this study. In contrast, another study found a negative correlation of resilience with the statement “Since the outbreak, I feel scared about the future” [49]. Additionally, the groups did not differ in COVID-19 fears, emotional distress, or situational concerns, although they had significantly different levels of resilience. Considering these results, we suggest that resilience may not be able to decrease the sensation of acute fear, but may help in coping with it over a longer period of time.

At pre-crisis, the BD group scored higher on the depressive, cyclothymic, and anxious temperament scales than the HC group—a pattern which has been found in prior studies and corresponds to the characteristics of BD [53]. Each of these three temperaments was found to be a risk factor for developing moderate-to-severe psychological distress during the COVID-19 pandemic [54]. As they were more prominent in individuals with BD, these individuals had a higher risk of feeling distressed than HCs.

The results obtained in the present study suggest that high anxious temperament predicts low “self-acceptance” in individuals with BD. The anxious temperament as a significant predictor concurs with the concept described by Akiskal et al. [36], who specifically mentioned BD in relation to anxious temperament. Regarding correlations of temperament with only self-acceptance in both groups, it is assumed that temperament influences the “acceptance of self and life” more than it influences a confident and competent approach to life, as displayed by the subscale “personal competence”. Accepting oneself and being accepted is apparently easier without expressing too many traits attributed to one temperament (with the exception of the hyperthymic temperament), as this may be perceived as negative. In turn, being at peace with oneself facilitates the regulation of emotions. In line with this, one study found correlations between resilience and cyclothymic, hyperthymic, anxious, and depressive temperament in individuals with BD [32]. Considering that temperament predicted the resilience of individuals with BD during the pandemic and that there was only one significant association between resilience and COVID-19-related negative feelings, it may be assumed that resilience is not so much influenced by temporary hardships, but by stable personality traits that take part in shaping one’s resilience over a long period of time.

Neither COVID-19 fears, nor emotional distress, nor situational concerns correlated with temperament in the BD group, but there were several significant correlations in HCs. On the basis of these results, we assume that temperament is not a deciding factor in influencing the negative feelings related to the COVID-19 pandemic of individuals with BD. It is possible that the affective disorder changed their acceptance of uncertainty, fear, and periods of social distancing, regardless of temperament. These feelings were more of a novelty for HCs than individuals with BD, and are indeed more prominent in the lives of those with BD (especially during depressive episodes), and are perhaps dependent on other factors [55]. As previous studies have shown, socioeconomic environment played



an important role: increased access to social infrastructure and medical help, as well as moving back in with their families greatly influenced mental health in individuals with BD during the pandemic [56].

This study highlights the importance of working to increase resilience in individuals with BD, even during the COVID-19 pandemic. A higher level of resilience could further enhance the ability to cope with symptoms of BD and improve the quality of life [57]. As Leys et al. [58] proposed, resilience should be seen more as a skill than a trait, which implies it can be improved through intervention [59]. This is reconcilable with the present study's result: for an intervention to improve resilience, it must be administered over a long period of time, as short-term happenstances do not seem to markedly influence it. For instance, resilience could be furthered by utilizing the concept of assisted resilience as individualized therapy in BD, promoted by Bolos [60]. Marano et al. [61] suggest increasing resilience through coaching. Similarly, Echezarraga et al. [48] advocate a resilience-based support of individuals with BD. Decreasing anxiety may also make a notable contribution [62].

## 5. Limitations

This study is limited by several factors. Firstly, the size of both samples was small, which might have caused the underestimation of any meaningful relationship between temperament and resilience. Secondly, the study was conducted via online services; consequently, the manic and depressive symptomatology could not be assessed objectively via external rating. Thirdly, three self-constructed index variables—COVID-19 fears, emotional distress due to social distancing, and situational concerns—were used, for which no reference values exist. Fourthly, the groups differed in age and sex, the first of which was corrected for in statistical analyses by using it as a covariate. However, sex could not be controlled for, which is a major limitation of this study. Both groups additionally differed in their education level, which could not be adjusted and might have taken part in influencing the participants' mental health situation. Moreover, the particular situation in Austria during the first lockdown might impede generalization to individuals with BD in other countries. In addition, resilience was not measured before the COVID-19 pandemic, and thus there are no baseline measures to use for reference. Finally, it should be mentioned that the data were collected early in the pandemic, and the results might be more pronounced if the collection took place at the present time.

## 6. Conclusions

Individuals with BD were found to have lower resilience during the COVID-19 crisis compared to HCs. Anxious temperament before the crisis predicted the resilience factor self-acceptance in individuals with BD. The results suggest that the influence of anxious temperament on resilience is more important than that of temporary hardships, supporting the hypothesis that resilience is a stable construct. Hence, it is important to improve resilience in general, not only by short-term interventions, but by strengthening both self-acceptance and competence in dealing with life stress in the long term.

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