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RELATIONS AMONG POSITIVE AND NEGATIVE AFFECT, DYSPHORIA AND ANXIETY[1]

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According to Tellegen et al.'s Two-factor model, commonalities between depression and anxiety are due to their shared variance with Negative affect (NA), a broad dimension of general distress. Low Positive affect (PA), a dimension of pleasurable emotions, is believed to be uniquely related to depression. In this study, we tested these basic assumptions. A sample of 141 students at the Faculty of Philosophy in Novi Sad filled out a state measure of PA, NA, and basic emotions (SIAB-PANAS), a depression scale (BDI-II), and a state anxiety scale (STAI-S). Hierarchical regression analyses were conducted to estimate the unique contributions of PA, NA, and basic emotions in the prediction of dysphoria and anxiety. The hypothesis that NA is a general dimension related to both dysphoria and anxiety was supported. Sadness and fear added incrementally to the prediction of both criteria. However, contrary to our hypothesis, PA was related to both dysphoria and anxiety. Joviality, attentiveness, and self-assurance were better predictors of anxiety than dysphoria. Methodological and clinical implications of the results were discussed.

***Key words**: Two-factor model, Positive Affect, Negative Affect, dysphoria, anxiety.*

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INTRODUCTION

In the past few decades the anxiety-depression relation has became a subject of much research and theoretical debates. High correlations between various anxiety and depression scales, similarities in their clinical pictures, frequent comorbidity, and common etiological factors suggest a significant degree of overlap between these two disorders and a close relation between syndromes and affective states.

Theoretical models about the anxiety-depression relation can be roughly divided into two groups. The first group emphasizes their heterogeneity, whereas the other stresses their commonalities and comorbidity. Those who emphasize heterogeneity have suggested that the affective and depressive disorders represent specific entities both at the higher level of broader classes of disorders and at the level of subtypes of disorders. Aaron Beck's "Content specificity hypothesis" is an example of the first group, suggesting the depressive and anxiety disorders are characterized by specific cognitive profiles unique to each disorder (a meta-analysis can be found in Beck & Perkins, 2001). On the other hand, the opponents of the first group have argued that depression and anxiety represent variations of the one and the same disorder. For example, Tyrer et al. (2003) have named that disorder a "General neurotic syndrome."

There are also authors who believe that the affective and anxiety disorders are related in a hierarchical manner. It has been suggested that similarities between these two disorders stem from a common higher order dimension (Tellegen, 1985; Watson, 2005). However, the classes, specific disorders and the subtypes of disorders can still be differentiated (Watson, 2005). Auke Tellegen and his colleagues have subscribed themselves to this view.

Two-Factor Affective Model

The first version of Tellegen et al.'s model was developed through factor-analytical procedures of self-report scales measuring different affective states (Tellegen, 1985; Watson & Clark, 1992a). The authors have concluded that there are two broad emotional dimensions – Negative Affect (NA) and Positive Affect (PA). They have also found that a certain hedonistic tone, positive-pleasant or negative-unpleasant, is dominant among self-reported affective states, and that emotions with the same hedonistic tone tend to group together, forming the higher order dimensions of NA and PA (Tellegen, 1985; Watson & Clark, 1992b).

NA is a factor of general distress, subjective misery, and dissatisfaction. People with high NA are characterized by negative emotions such as fear, tension, anger, guilt, despair, sadness, loneliness, and dissatisfaction with oneself. Low NA people can be described as calm and relaxed.

PA is a dimension of pleasant affective states. It reflects the extent to which one reports positive feelings such as joy, enthusiasm, energy, alertness; that is, the extent to which one engages actively in his /her environment (Watson et al., 1984).

According to the Two-factor model, NA is the main source of the overlap and comorbidity between anxiety and depression. Some support for this proposition comes from the studies demonstrating that both depression and anxiety are strongly related to NA, owing to the presence of two basic emotions-sadness and fear (e.g., Jolly et al., 1994; Mineka et al., 1998). These two specific emotions are assigned to NA on the basis of their common emotional tone. Additionally, sadness and fear are highly correlated themselves, but, at the same time, both have a significant amount of unique variance (Watson, 2005; Watson & Clark, 1992b).

On the other hand, PA is considered a distinctive characteristic of depression. Depression is characterised, besides the negative emotions like sadness, guilt and anxiety, by an absence of joy, pleasure, and other positive emotions. Thus, in people with low PA, we can recognize some characteristics of anhedonia. Supporting evidence for this aspect of the Two-factor model comes from studies that have found that PA is consistently negatively related to depression and more weakly related to anxiety (Jolly et al., 1994; Mineka et al., 1998).

To operationalise the Two-factor model, Watson, Clark & Tellegen constructed the Positive and Negative Affect Schedule (PANAS). It is a scale with two 10-item subscales developed to measure PA and NA. These two general affective dimensions explain successfully one half to three quarters of the variance in self-reported affectivity scores (Watson & Clark, 1994). PA and NA, as the higher order dimensions, consist of several related but distinct affective states. The higher order dimensions refer to the valence of affective descriptors, while lower order dimensions describe the specific content of emotions (Watson & Clark, 1994).

PA and NA have been extracted from the words describing transient affective states. However, they can also be extracted when people report on their usual and frequent affective experiences. In such instances, PA and NA can be considered traits. PA and NA as traits (positive and negative affectivity, or positive and negative emotionality – PEM and NEM) denote stable individual tendencies to experience a whole spectrum of positive or negative emotions. In people with high PA or NA, these emotions are frequently aroused even without a special stimulus or stressor (Clark & Watson, 1990). PA and NA, as states or traits, have been identified in both intra- and inter-individual analyses. They have emerged across different samples, time frames, and cultures (Almagor & Ben-Porath, 1989; Mayer & Gaschke, 1988; Mayer & Shack, 1989; Tellegen, 1985; Watson & Tellegen, 1982, cited in Watson & Clark, 1992a).

Extension of the Two-Factor Model – The Tripartite Model

Clark and Watson (1991) have extended the Two-factor model by proposing a second factor or dimension - physiological hyperarousal-that seems to be relatively specific to anxiety. It refers to physiological symptoms of anxiety like: breathlessness, dizziness, palpitations, lightheadedness, dry mouth, etc. The authors have proposed that the tripartite solution covers the whole affective-anxiety realm.

The tripartite structure of the symptoms of anxiety and depression has been found in different samples: students (Watson et al., 1995; Joiner, 1996), patients with addictions (Watson et al., 1995), depressive and anxiety patients (Clark et al., 1994), adolescent psychiatric patients, (Joiner et al., 1996; Jolly & Dyckman, 1994), as well as adults without disorders (Watson et al., 1995). In these studies, three factors have emerged: physiological hyperarousal, anhedonia (low PA) and general distress (NA). Also, the two-factor solutions found in some studies were interpreted as support for the Tripartite model (i.e., when NA was extracted as a higher order factor and PA and hyperarousel emerged as lower order factors) (e.g. Clark et al., 1994). Finally, compared to the scales of non-specific symptoms, the anhedonia and hyperarousel scales differentiated better anxiety from depression (Watson et al., 1995). However, because of some weaknesses, the Tripartite model was subjected to new revisions at the end of the last century.

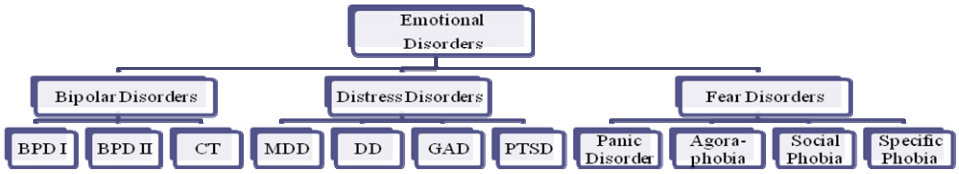
Integrative Hierarchical Model

The most recent revision developed by Mineka, Watson, and Clark is an integration of the Tripartite and Barlow's hierarchical model (Mineka et al., 1998). Similar to the previous model, there is one broad affective dimension of general distress – NA – common to all syndromes of the anxiety-depression spectrum. Thus, it is still believed that NA explains the high rate of comorbidity between the anxiety and depressive disorders. Additionally, all disorders, besides NA, contain a specific factor which is linked to some disorders but not others, and a unique factor related only to one disorder (i.e., it is not shared with any other disorder) (Kotov et al., 2007). As Zinbard and Barlow (1996) have suggested, all anxiety and depressive disorders can be classified as the emotional disorders. Among them, we can differentiate: Bipolar disorders, Distress disorders, and Fear disorders (Figure 1).

As can be seen in Figure 1, this new model includes the bipolar disorders too, which were excluded from the previous anxiety-depression models (Watson, 2005). Within the class of Distress disorders, together with Major depression (MD) and Dysthymic disorder (DD), are now placed Generalized anxiety Disorder (GAD) and Post-traumatic stress disorder (PTSD). High correlations with NA, genotypic (e.g., Kendler, 1996, cited in Watson, 2005) and phenotypic similarities (Krueger, 1999; Slade, 2004, cited in Watson, 2005) between GAD and depression are taken as

evidence for the placement of GAD and PTSD within the same class with MD and DD.

Figure 1: Revised structural model of anxiety and mood disorders for DSM-V



(from Watson, 2005; reprinted with permission)

Note. BPD I = bipolar I disorder, BPD II = bipolar II disorder, CT = cyclothimia, MDD = major depressive disorder, DD = dysthimic disorder, GAD = generalized anxiety disorder, PTSD = posttraumatic stress disorder.

Other anxiety-phobic disorders from the current classifications of disorders are now placed within the third group of disorders labelled Fear disorders. This new classification reflects the idea that physiological hyperarousal is not related to all forms of anxiety disorders. Thus, this new model implies that each disorder has a specific set of characteristics, for example, low PA in depression and physiological hyperarousal in panic disorder.

While the Tripartite model is largely a product of psychometric analyses, the developers of the integrative model have considered a broader range of empirical evidence – studies regarding common vs. specific genetic basis of disorders, epidemiological data about comorbidity, and experimental studies of cognitive biases for emotionally relevant stimuli. Thus, the integrative model represents a synthesis of contemporary scientific knowledge in the area of psychopathology of anxiety and depression.

Some recent studies have supported the hierarchical model. For example, Kotov et al., (2007) have examined the relation between four anxiety symptoms (chronic worry, obsessive-compulsive symptoms, panic, and social anxiety) and four traits (PEM and NEM**,** anxiety sensitivity, and negative evaluation sensitivity). NEM emerged as a general predictor of all four symptom dimensions, anxiety sensitivity was specific to the symptoms of panic and worry, whereas negative evaluation sensitivity was specific to social anxiety and worry. PEM was related only to social phobia.

As can be seen from this review, the models regarding the anxiety-depression relation have gradually developed to include more and more psychopathology, and

more specific forms of anxiety and depression. Yet, PA and NA are still considered important factors in explaining the overlapping and discriminating features of anxiety and depression. NA is still considered a dimension common to the depressive and anxiety disorders, even though it is differently distributed across Fear and Distress disorders. Low PA seems to be specific to depression, but also to some forms of anxiety disorders (social phobia). Thus, the Two-factor model has not lost its significance.

One aim of this study is to test the hypothesis that PA and NA are differently and specifically related to depression and anxiety. This hypothesis is pertinent to all three versions of the model. Specifically, we tested the following hypotheses:

1. There is a positive relation between NA and both depression and anxiety.
2. There is a negative relation between PA and depression. It has been demonstrated that lower order affective dimensions contain a significant amount of specific variance in addition to their common or shared variance (Watson & Clark, 1992b). Given this specificity, it is appropriate to examine the ways these specific emotions relate to depression and anxiety.
3. Lower order affective dimensions comprising NA relate positively to both depression and anxiety.
4. Lower order affective dimensions comprising PA relate negatively to depression.

METHOD

Sample

Participants were voluntarily recruited from the undergraduate students enrolled in different psychology courses at the University of Novi Sad, Faculty of Philosophy, Serbia. The sample consisted of 141 participants (age: M = 21.24**,** SD = 1.93). The majority of the sample were females (N=119). Thus, in the present study we relied on an analog nonclinical sample to explore clinically relevant phenomena. This sampling characteristic can lead to certain study limitations, which will be discussed thoroughly in the discussion section.

Instruments

Serbian Inventory of Affect based on the Positive and Negative Affect Schedule-X (SIAB-PANAS; Novovic & Mihic, 2008). This is a Serbian translation and adaptation of the Positive and Negative Affect Schedule-X (PANAS-X; Watson & Clark, 1994).

PANAS-X is a 60-item, expanded version of the original PANAS developed by Tellegen, Watson & Clark. It is one of the most popular instruments for measuring emotions. PANAS-X was psychometrically tested in different samples, with different concurrent tests, through self-reports and pear descriptions, and using different time frames (this moment, today, last few days, last week, last year, and generally). Test-retest reliability, encompassing different test-retest time periods was reported to be satisfactory (Watson & Clark, 1994).

In addition to PA and NA, SIAB-PANAS measures the following specific emotions: Fear, Sadness, Guilt, Hostility, Shyness, Fatigue, Surprise, Joviality, Self-Assurance, Attentiveness, and Serenity. Some, but not all, items from these specific subscales are used to create the composite, higher order scales. Joviality, Self-Assurance, and Attentiveness are considered the basic positive emotion scales, whereas Fear, Sadness, Guilt, and Hostility are regarded the basic negative emotion scales.

According to Watson and Clark (1994), the remaining specific scales, termed "Other emotion scales", tend to be inconsistently related to both PA and NA. Thus, "Other emotion scales" were not included in our analyses. The participants were asked to rate the extent to which they had experienced each mood state "right now" using a 5-point scale labeled "not at all," "a little," "moderately," "quite a bit," and "extremely." This type of instructions was intended to measure state affect. Table 1 shows descriptive statistics and reliabilities for the SIAB-PANAS scales on our sample. Currently, there are no norms for Serbian undergraduates. However, it is informative to compare the descriptive statistics obtained on our sample with the U.S. undergraduate norms (Watson & Clark, 1994). As can be seen, the mean values across various scales and subscales are fairly comparable.

Table 1: Descriptive Statistics and Reliabilities for the SIAB-PANAS Scales (state) and U.S. norms for PANAS-X

General and Specific Scales of SIAB-PANAS	SIAB-PANAS					PANAS-X	
	M	SD	α	Item-total r	Split –half reliability	U.S. norms M	U.S. norms SD
NA (10)	14.01	4.81	0.83	0.34	0.83	15.8	5.9
PA (10)	29.06	7.49	0.85	0.37	0.83	29.0	8.0
Fear (6)	8.35	3.17	0.80	0.43	0.83	9.9	4.5
Hostility (6)	7.87	2.57	0.65	0.29	0.63	9.3	3.9
Guilt (6)	7.60	3.08	0.83	0.46	0.85	8.7	4.0
Sadness (5)	7.72	3.71	0.86	0.57	0.88	9.4	4.4
Joviality (8)	21.38	7.31	0.92	0.61	0.93	21.7	7.5
Self-Assurance (6)	17.15	5.77	0.88	0.55	0.86	16.5	5.1
Attentiveness (4)	13.04	3.29	0.73	0.42	0.76	12.5	3.1

Note: The numbers in parenthesis designate the number of items; NA – Negative Affectivity; PA- Positive Affectivity

Beck Depression Inventory, Version II (BDI – II; Beck, Steer & Brown, 1996). This is one of the most frequently used instruments developed to assess the intensity of depression. It contains 21 items pertaining to measure depressive symptoms of various intensity. The participants were asked to select one statement that best described the way they had felt during the past two weeks using a 4-point scale with a maximum score of 63. For the current sample, Cronbach's alpha was .88. On average, the participants obtained the depression score of 6.59 (SD = 6.25). This score, according to the cut-off scores proved by Dozois et al. (1998), fell within a normal range (0-12 normal; 13-19 dysphoric; 20-63 dysphoric and depressed).

State-Trait Anxiety Inventory (STAI-S; Spielberger, 1977). It is a self-report inventory comprised of two 20-item subscales assessing state and trait anxiety. In the current study, we were interested in state anxiety. Thus, the participants were asked to report how they felt "right now" on a 4-point scale from "not at all" to "very much so." Scores can range from 20 to 80. The mean scale of 35.5 (SD = 9.07) was comparable to that reported for the U.S. undergraduate sample (M = 37.62, SD = 10.99), suggesting low levels of state anxiety (Kendall & Sheldrick, 2000).

Procedure

To test the proposed hypotheses, a series of hierarchical regression analyses were performed. In these analyses, predictors were entered in the regression equations in a particular order determined by the researchers. In the first pair of analyses, dysphoria and anxiety served as dependent variables, whereas NA and PA were entered as predictors. In the second pair of analyses, dependent variables remained the same, whereas the basic emotion subscales served as predictors. These separate pairs of analyses were required given the fact that the total scores on PA and NA represented combinations of the subscale scores. Thus, potential problems with singularity were avoided. NA and the basic negative emotion subscales were entered on the first step in their respective analyses, followed by PA and the basic positive subscales on the second step. Such order of variable entry was consistent with the suggestion that the contributions of affectivity scales in prediction of depression and anxiety should be assessed in order of their decreasing generality (Kotov et al., 2007). Namely, NA appears to be a more general factor common to all disorders, whereas PA seems to be a more specific factor associated with depression and some forms of anxiety disorders (Kotov et al., 2007; Mineka et al., 1998). To avoid overfitting, we repeated the analyses on a random sample. 75% of the cases were randomly selected from the original sample. All regression statistics obtained in these additional analyses were comparable to those reported in Tables 2 and 3. The analyses were performed with SPSS, version 16.

RESULTS

Contributions of NA and PA to Prediction of Dysphoria and Anxiety

The first pair of hierarchical regression analyses examined whether PA added incrementally to the prediction of dysphoria and anxiety above and beyond the variance explained by the general factor of NA. A summary of the regression statistics is presented in Table 2. As expected, NA was a significant unique predictor of dysphoria and anxiety accounting for 26% and 48% of their variance respectively [$F(1,138) = 47.77$, $p<.001$ and $F(1,138) = 18.32$, $p<.001$]. PA added incrementally to the prediction explaining the additional 9% of the variance in BDI - II and 15% of the variance in STAI-S [$F(1,139) = 127.17$, $p<.001$ and $F(1,139) = 54.06$, $p<.001$]. In total, NA and PA accounted for 35% of the variance in BDI-II scores and 63% of the variance in STAI-Scores [$F(2,137) = 36.05$, $p<.001$ and $F(2,138) = 114.89$, $p<.001$].

Table 2: Hierarchical Multiple Regression: Positive and Negative Affect Predicting Dysphoria and Anxiety

Order	Set of Predic-tors	BDI-II				STAI-S			
		R^2	Beta	Zero-order r[a]	sr^2	R^2	Beta	Zero-order r	sr^2
Step 1	NA	.26***	.43	.51	.26***	.48***	.59	.69	.48***
Step 2	PA	.35***	-.31	-.43	.09***	.63***	-.40	-.54	.15***

Note: Due to missing values, N=140 for BDI – II analysis and N = 141 for STAI-S analysis; Zero-order r = full correlations between predictors and dependent variables; sr^2 = squared part correlation indicating the unique contribution of each predictor to the total variance accounted for in the dependent variables.

[a] all correlations between predictors and BDI - II and STAI - S were significant at $p<.01$

***$p<.001$

Several additional information from Table 2 deserves attention. In the present study, the bivariate associations between PA and dysphoria and anxiety were comparable. These results seem at odds with some previous research demonstrating that PA tends to be more strongly negatively related to depression than anxiety. Additionally, NA and PA accounted for a smaller amount of the variance in BDI-II than in STAI-S due possible to a restriction of the range in BDI - II scores.

Contributions of Basic Emotion Subscales to Prediction of Dysphoria and Anxiety

To understand better the nature of relation between affectivity, dysphoria and anxiety, we performed two hierarchical regression analyses with the basic emotion subscales as predictors, and dysphoria and anxiety as dependent variables. All subscales within each modality were correlated significantly. A range of correlations for the negative subscales was from .42 - .74, and from .45 - .72 for the positive subscales. Also, the majority of bivariate correlations among subscales across modalities were significant. Thus, our interpretations of the contribution of a particular predictor were based on betas, zero-order and part correlations. Table 3 presents a summary of the regression statistics.

Regarding BDI-II, inclusion of the set of the basic negative subscales on the first step accounted for 40% of the variance [$F(4, 135) = 22.86$, $p<.001$]. Addition of the basic positive scales as a set resulted in a significant increment in the explained variance of 6% [$F(3,132) = 5.22$, $p<.01$]. The final regression equation, which included all predictors, was significant, accounting for 47% of the variance in BDI-II scoring [$F(7,132) = 16.52$, $p<.001$].

As can be seen from Table 3, all basic negative subscales were correlated with BDI-II. However, after partialling out their shared variance, only Sadness and Fear remained significant unique predictors of dysphoria (beta = .42, t = 3.96, $p <.001$ and beta = .20, t = 2.13, $p<.05$, respectively). Sadness and Fear accounted respectively for 7% and 2% of the unique variance in BDI-II scoring.

The basic positive subscales, as a set, added incrementally to the prediction of dysphoria. However, none of them alone was a significant predictor. Although their full correlations with dysphoria were significant and in the expected negative direction, their unique contributions were not. It appears that the positive emotion subscales maintain their influence on dysphoria through their shared or common variance rather then their unique associations.

Table 3: Hierarchical Regression Analyses: Basic Negative and Positive Subscales Predicting Dysphoria and Anxiety

Order	Set of Predictors	BDI-II				STAI-S			
		Δ R^2 for set	**Beta**	**Zero-order r[a]**	**sr^2**	**Δ R^2 for set**	**Beta**	**Zero-order r**	**sr^2**
	Basic Negative Subscales	.40***				.54***			
Step 1	Fear		.20	.50	.02*		.31	.65	.04***
	Hostility		-.11	.27	.00		.03	.42	.00
	Guilt		.15	.54	.00		.10	.61	.00
	Sadness		.42	.60	.07***		.40	.68	.06***

Step 2	*Basic Positive Subscales*	.06**				.13***			
	Joviality		-.15	-.43	.00		-.20	-.54	.02*
	Self-Assurance		-.08	-.38	.00		-.14	-.52	.01†
	Attentiveness		-.10	-.34	.00		-.13	-.42	.01*

Note: Due to missing values, N = 140 for BDI - II analysis and N = 141 for STAI-S analysis; Zero-order r = full correlations between predictors and dependent variables; sr^2 = squared semipartial correlation indicating the unique contribution of each predictor to the total variance accounted for in the dependent variables

[a] all correlations between predictors and BDI - II and STAI - S were significant at p <.01

†p < .10; *p < .05; **p < .01; ***p < .001

A hierarchical regression analysis with STAI - S as dependent variable was performed using the same order of variable entry as reported for BDI - II. Once again, both sets of predictors accounted for a significant amount of unique variance in the anxiety scores (54% for the basic negative emotion subscales and 13% for the basic positive emotion scales; [F(4,136) = 40.22, p<.001 and F(3,133) = 17.50, p<.001]. The final regression equation, which included all predictors, was significant accounting for 67% of the variance in STAI - S scoring [F(7,133) = 38.85, p<.001].

Regarding the set of the basic negative subscales predicting anxiety, the results were similar to BDI - II. Namely, Sadness and Fear were significant unique predictors of STAI-S, accounting for 6% and 4% of the unique variance in the anxiety scores. Higher anxiety scores were characterized by higher scores on the scales measuring sadness and loneliness (beta = .40, t = 4.26, p < .001), and fear and nervousness (beta = .31, t = 3.60, p<.001).

Among the predictors entered on the second step, Joviality and Attentiveness were significant unique predictors of anxiety, accounting for 2% and 1% of the variance respectively. Self-Assurance approached statistical significance. Thus, higher anxiety scores were characterized by lower scores on the scales measuring cheerfulness and alertness (beta = -.31, t = -.3.08, p<.01 and beta = -.20, t = -2.41**,** p<.05). Different from BDI-II, the positive emotion subscales maintained their influence on anxiety through their shared and unique variance.

DISCUSSION

The purpose of this study was to validate Tellegen et al.'s (Tellegen, 1985; Watson, 2005) propositions that depression and anxiety are both connected to NA, while only depression is uniquely related to low PA. We also tested the hypothesis that the basic emotions, the subdimensions of PA and NA, relate to depression and anxiety in the same way their higher-order counterparts do.

Overall correlations

Zero-order correlations between the higher and lower dimensions of SIAB-PANAS**,** on the one side, and BDI-II and STAI-S on the other, suggested that all emotions were significantly related to both anxiety and dysphoria. Generally, the correlations with the anxiety scale were higher then with the dysphoria scale. Also, compared to the basic positive subscales, the correlations among the negative emotion subscales, dysphoria, and anxiety tended to be higher. This result, we suppose, may reflect the fact that the negative emotions have the same valence as anxiety and dysphoria. Among all basic emotion scales, hostility had the lowest, but still significant, correlations with dysphoria and anxiety. This finding may reflect impression management concerns when reporting hostility, especially in the situations without a visible trigger that can serve as a justification for one's hostile feelings. Another possible explanation is the gender composition of our sample. The majority of the sample were females who were in some studies found to be less hostile (Watson & Clark, 1994).

NA as predictor

NA was correlated with both dysphoria and anxiety, although its correlation with the latter is higher. Such correlational pattern is somewhat different from the previous research reports. For example, the authors of PANAS-X found somewhat higher correlations between NA and BDI-II then between NA and STAI-S (Watson & Clark, 1994). Compared to our study, the instruments used in these studies had sampled behaviours and symptoms across similar time frames. For example, both BDI-II and PANAS-X inquired about longer time periods ("past two weeks" and "past few weeks"). However, in our study, SIAB-PANAS was administered in its state form ("right now"), whereas BDI-II was used as a symptom measure inquiring about the symptoms persisting over two weeks or longer. Additionally, BDI-II scores were skewed to the left reflecting a reduced range of scores.

One of the strongest associations obtained in our study was between NA and STAI-S. Besides the same test instructions ("right now'), the item content of the STAI-S measure may be an additional explanation for this finding. Several researchers have reported that STAI is not a pure measures of anxiety and that, in addition to anxiety, taps depression and some other characteristics such as self-respect (Endler, et al., 1992; Gotlib & Cane, 1989). Thus, it seems that STAI represents a measure of different negative emotions, similar to NA, so that the high correlation between these two measures are not surprising.

Finally, the regression analyses indicated that NA was a significant predictor of both dysphoria and anxiety accounting for 35% and 63% of their respective variance. Overall, the results have supported the proposition of the Two-factor

model suggesting that NA is a common characteristic of anxiety and dysphoria, and that it can be regarded a broad dimension of affectivity.

PA as predictor

Contrary to the hypothesis stemming from the Two-factor model, PA added incrementally to the prediction of the variance in both BDI-II and STAI-S, accounting for additional 9% and 15% of the variance respectively. These results differ from other research reports. For example, Watson and Clark (1988) found that trait PA discriminated well between depressive and anxious patients. Similarly, Novovic (2006) found that trait positive affect had higher correlations with depression than anxiety in a clinical sample. Also, consistent with the Two-factor model, Goencz (2002) showed that low PA predicted changes in depression but not in anxiety. Testing the Tripartite model in a student sample, Crawford and Henry (2004) found that PA was a significantly better predictor of the variance unique to depression than anxiety. Compared to our study, the cited studies used clinical samples and different measures of PA, dysphoria and anxiety.

However, our results are in line with some other research reports. For example, Watson and Clark (1994) found a significant correlation between PA and STAI-S although it was significantly lower then the correlation between PA and depression (-.35 vs. .51). Watson et al. (1988) obtained significant correlations between some symptoms of anxiety disorders, especially social anxiety symptoms and "nervousness", and PEM. In a recent Kotov et al.'s study (2007), social anxiety was also found to correlate with PEM. Additionally, Bienvenu et al. (2001) have demonstrated significant negative correlations between PA, on the one side, and agoraphobia, GAD, and social phobia, on the other. Thus, these findings seem to suggest that PA is not only specifically related to depression but also to some anxiety symptoms. These newer findings, in addition to some genetic data, have led to the last revision of the anxiety-depression model, the Integrative hierarchical model. In this last revision, GAD was excluded from Fear disorders and was placed within a category of Distress disorders (Mineka et al, 1998), due to the presence of distress (NA) among GAD symptoms and common genetic etiology between GAD and MD (Kendler, 1996).

Although we examined state emotions in a nonclinical sample, the aforementioned studies and theorizing have some relevance for our own research. One can assume that a substantial amount of the variability in our state emotion measure was due to participants' lasting characteristics as they were tested without any emotional priming. Also, it seems that a number of STAI-S items deal with worry and other GAD-like characteristics. These two factors together may account for the obtained relation between PA and anxiety in the present study.

Furthermore, Sloman et al. (2006) have argued that anxiety and depression as well as PA and NA are indistinguishable due to evolutionistic reasons. Both

affective dimensions are present in the «involuntary defeat strategy» which has the role in acceptance of defeat and avoidance of a stronger competitor under circumstances which overcome the person's strengths. Negative emotions are in relation with defensive behaviors, that is flight, fight or freeze, as well as anxious submissiveness. Low PA reduces explorative behaviors and resource acquisition seeking in defeat situations, which, in turn, protects an individual from further losses. This account of the relation of PA and anxiety in general population may be a more relevant for the present study providing our nonclinical sample.

Finally, subliclinical levels of anxiety and depression can be inseparable. Some researchers have suggested that clinical pictures become more separable as symptoms intensify, giving typical characteristics of specific disorders (Roth, 1989). Thus, at the sub-clinical level, anxiety and depression may represent a mixture of different neurotic symptoms and affective states. In other words, STAI-S may be a more suitable measure of general, sub-clinical symptoms of anxiety among students, whereas BDI-II may be less sensitive to sub-clinical forms of depression in this population. This, in turn, might have reduced the covariation between PA and BDI-II but not the covariation between PA and STAI-S.

Basic emotions as predictors

Dysphoria

The second purpose of the present study was to explore whether all subdimensions comprising PA and NA relate to dysphoria and anxiety in a manner similar to their higher-order counterparts. Based on the Two-factor model, we hypothesized that all basic emotions, both positive and negative, will be related to depression.

Among the basic negative emotions, sadness and fear were unique predictors of both dysphoria and anxiety. Although counterintuitive, these results do not oppose the Two factor model because both emotions are subdimensions of NA, and, similar to NA, they relate to both anxiety and dysphoria. After partialling out the variance shared among the negative emotions, hostility and guilt failed to reach statistical significance. If we had sampled more distressed participants, these associations might have been more pronounced. It is also possible that these emotions, compared to sadness and fear, occur less frequently in general population, particularly without a trigger, which probably can account for the nonsignificant results (Oatley & Jenkins, 1998).

The basic positive subscales, as a set, added incrementally to the prediction of dysphoria, so that the higher affectivity scores predicted lower dysphoria scores. This pattern seems to hold for the set of positive emotions but not for any specific positive emotion considered alone. Again, these undifferentiated associations between the set of positive emotions and dysphoria may be due to the characteristics

of our nonclinical sample. The effects of a particular scale might have been more specific if we had studied more disturbed participants.

Finally, the basic positive emotions accounted for a small amount of variance in dysphoria after partialling out the variance shared with the negative emotions. This finding suggests that in nonclinical samples the negative emotions may mediate the relation between the positive emotions and dysphoria. This would further imply that the positive emotions relate to dysphoria but only in individuals who at the same time express a certain amount of negative emotions. That this can be a reasonable explanation was supported by some additional mediational analyses that demonstrated that NA mediated partially the relation between PA and BDI-II (Sobel's test = -2.89, $p < .01$). Further studies need to examine generalizability of these findings in clinical samples. It is possible that NA does not have the mediational role in all depression subtypes, particularly those with somatic characteristics (endogenous depression). Namely, anhedonia can be seen even in retarded cases who report feeling no emotion.

Anxiety

Based on the Two-factor model, we did not expect to find significant associations between the specific positive emotions and anxiety. However, almost all positive emotions were significant predictors of anxiety, even after partialling their shared variance and the variance shared with the basic negative emotions. The following methodological factors can be responsible for such results: (1) characteristics of SIAB-PANAS and STAI-S which were employed in their state forms, with the instructions covering similar time frames, (2) populations for which the instruments are intended, and (3) item overlapping.

It is not surprising that joy, as one the central characteristics of PA (Egloff et al., 2003), had the same correlational pattern with anxiety as its higher-order counterpart. However, the significant negative correlation between anxiety and attentiveness deserves a greater consideration. Although this relation is not expected based on the Two-factor model, some current cognitive research and clinical experience support this relation. Low attentiveness can be considered a consequence of the cognitive bias typical for anxiety states. Namely, anxious individuals have difficulty focusing to stimuli other then those that are dangerous. Being in a function of scanning and detecting threatening stimuli, attention tends to be highly distractible in anxious individuals. Similarly, some cognitive authors claim that anxiety is characterised by the biases in the early stages of information processing (i.e., atentional deficits) as opposed to depression, which is related to memory biases and deficits (Mineka & Sutton, 1992).

There was a trend suggesting a negative association between self-assurance and anxiety. Although this relation is not expected based on the Two-factor model, some authors have considered the role of self-assurance in anxiety. According to the helplessness theories of anxiety, when a person estimates that he/she has inadequate

resources and strengths to overcome dangerous situations, anxiety ensues (e.g., Lazarus, 1968, Mandler, 1972, Seligman, 1975). Thus, a reference to self-assurance in this statement is obvious.

There are a number of limitations of the present study. First, the study findings cannot generalize to clinical samples and clinical states withouth further studies. Second, the majority of our sample were females. Although consistent sex differences were not found in the U.S. normative sample on the PANAS scales (Watson et al., 1988), especially in students samples, some authors did report some gender differences (e.g., MacKinnon et al., 1999). Thus, future studies need to explore if our findings can generalize to males. Third, the employed instruments are not equally suitable for exploration of affective states. In particular, BDI-II does not seem to be an ideal measure for validation of affective states in nonclinical population althoug it is frequently used in this way.

CONCLUSIONS

We can make the following conclusions about our hypotheses:

NA is a significant predictor of both anxiety and dysphoria, and it may play a significant role in explaining the close relation between them.

Low PA is also predictive of both anxiety and dysphoria. Thus, the hypothesis that low PA is a distinctive feature of depression is not supported at least when PA is considered in its state form in nonclinical population.

All negative basic emotions are significantly correlated with anxiety and dysphoria. However, when their shared variance is partialled out, only sadness and fear remain unique predictors of both criteria.

Contrary to the prediction, basic positive emotions are more strongly related to anxiety then dysphoria. This is the most controversial result from the perspective of the Two-factor model. However, it is in line with some recent theoretical developments (e.g., Hierarchical integrative model, some cognitive theories) whose proponents suggest a closer relation between PA and some forms of anxiety disorders. Finally, it is possible that in nonclinical samples the positive emotions exert partly their effects on dysphoria through NA.

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REZIME

RELACIJE IZMEĐU POZITIVNOG I NEGATIVNOG AFEKTA, DISFORIJE I ANKSIOZNOSTI

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Mogućnost razlikovanja, sličnosti i komorbiditet anksioznih i depresivnih stanja i poremećaja su u poslednjim decenijama predmet mnogih debata i istraživanja. Jedna od aktuelnih teorija koje se bave ovom problematikom je faktorski model Telegena i saradnika. Prva verzija njihovog modela, Dvofaktorski model, pretpostavlja da se sličnost i komorbidnost depresivnih i anksioznih poremećaja može objasniti činjenicom da jedan deo simptoma ovih poremećaja pripada širokoj afektivnoj dimenziji – Negativnom afektu (NA). NA je dimenzija distresa, demoralisanosti i nezadovoljstva. Ljudi, kod kojih je naglašena NA, skloni su doživljavanju različitih negativnih emocija kao što su tuga, bes, krivica, gađenje ili strah. Dakle, prema Dvofaktorskom modelu, i depresivne i anksiozne poremećaje karakteriše izražen NA. Sa druge strane, razlike između anksioznih i depresivnih poremećaja i stanja se mogu objasniti uz pomoć druge široke dimenzije, Pozitivnog afekta (PA). PA je faktor opšteg zadovoljstva, poduzetnosti i entuzijazma i njime su objedinjena prijatna afektivna stanja. Nizak nivo PA čini se da isključivo karakteriše depresivne poremećaje. Dakle, depresivne osobe se razlikuju od anksioznih po niskom PA, odsustvu prijatnih emocija, a što se kod kliničkih depresija prepoznaje kao anhedonija. Mada je Dvofaktorski model dalje razvijan kroz uvođenje dodatnih dimenzija, osnovna pretpostavka o ulozi PA i NA u diskriminaciji i preklapanju anksioznih i depresivnih poremećaja ostala je uglavnom nepromenjena. Stoga smo za cilj ovog istraživanja postavili proveru Dvofaktorske teorije anksiozno-depresivnog odnosa, na studentskom uzorku i na nivou trenutnih emocionalnih stanja. Konkretno, pretpostavili smo da su i anksioznost i disforičnost značajno povezani sa NA, a da je sa niskim PA povezana isključivo disforičnost. Pretpostavili smo da ove relacije važe kako za šire NA i PA dimenzije, tako i uže, bazične emocije koje ulaze u njihov sastav.

Uzorak se sastojao od 141 ispitanika, većinom ženskog pola (N=119). Šire PA i NA dimenzije, kao i bazična emotivna stanja koja ulaze u sastav PA i NA, mereni su prevedenim i adaptiranim instrumentom Votsona i Klarkove SIAB-PANAS, a kao kriterijski testovi korišćeni su Bekova skala depresivnosti (BDI) i Spilbergerov inventar anksioznosti (STAI).

Relacije između afektivnih (SIAB-PANAS) i kriterijskih varijabli (BDI i STAI-S) proveravane su linearnim korelacijama i hijerarhijskom regresionom analizom. Linearne korelacije svih širih i užih afektivnih dimenzija i skorova na BDI i STAI-S su se pokazale statistički značajnim i umereno visokim. Veza između širih dimenzija PA i NA kako sa disforijom, tako i sa anksioznošću je ostala značajna i nakon statističke kontrole međusobnih veza između pojedinih afektivnih stanja. Neočekivana veza između anksioznosti i niskog PA objašnjena je preko (1) nedovoljne diskriminativnosti Spilbergerovog instrumenta koji sadrži ajteme koji se odnose i na depresivnost, a ne samo anksioznost, (2) povezanosti samih fenomena anksioznosti i depresivnosti, koja je na nivou trenutnih stanja verovatno veća nego kada se radi o kliničkim entitetima, (3) novijih empirijskih i teorijskih postavki modela koje ukazuju na postojanje veze između nekih oblika anksioznosti i PA. Slično su objašnjeni i rezultati koji ukazuju na negativnu povezanost bazičnih pozitivnih emocija (radost, samopouzdanost i pažnja) sa anksioznošću, a koji su takođe suprotni postavkama Dvofaktorskog modela. Specifičnije objašnjenje negativne veze anksioznosti i samopouzdanja se može naći u nekoliko teorija anksioznosti koje nisko samopouzdanje ističu kao jedan od centralnih konstrukata u opisivanju anksioznosti. Takođe, negativna veza između anskioznosti i pažnje je u skladu sa nalazima kognitivnih istraživanja koja govore o problemima ili pristrasnostima pažnje kod anksioznih osoba. Poslednji rezultat koji nije u saglasnosti sa pretpostavkama Dvofaktorske teorije je da negativne emocije, hostilnost i krivica, nakon parcijalizacije varijabiliteta koji dele se ostalim negativnim emocijama, nisu značajno predviđale niti depresivnost, niti anksioznost. Pretpostavili smo da se ove emocije ređe javljaju bez okidača, te da je, u uslovima testiranja bez prethodnog indukovanja ovih afekata, varijabilitet odgovora verovatno mali, što je moglo uticati na intenzitet veze sa kriterijskim skalama.

Rezultati našeg istraživanja delimično potkrepljuju Dvofaktorsku teoriju, dok se pomenute protivrečnosti mogu objasniti metodološkim specifičnostima (studentska populacija, priroda instrumenata, ispitivanje emocija bez indukcije), kao i savremenijim teorijama koje sugerišu postojanje povezanosti između PA i nekih anksioznih stanja.

Ključne reči: *Dvofaktorski model, Poziitivni afekat, Negativni afekat, disforija, anksioznost.*

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