

The Relationship Between the Dimensions of Alexithymia and the Intensity of Depression and Anxiety

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Abstract

Objective: The aim of the present study was to underline the multidimensional nature of alexithymia, and to examine the relationship between these dimensions and the intensity of depression and anxiety symptoms.

Method: The study included 145 undergraduate students that were administered 4 self-report instruments, including the Toronto Alexithymia Scale (TAS), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), and Positive and Negative Affect Schedule (PANAS).

Results: In accordance with the aim of the study, due to the increased number of items and relative strength of the psychometric characteristics of the subscales, the 26-item version of the Toronto Alexithymia Scale (TAS-26) was used. Following the factor analysis run for TAS, 3 dimensions with high internal consistency coefficients were obtained: 1. Difficulty in communicating feelings; 2. Difficulty in recognizing and identifying feelings; 3. Lacking in imaginative capacity. Hierarchical regression analyses indicated that the intensity of depressive symptoms was only related to an increase in the difficulty in communicating feelings; on the other hand the intensity of anxiety symptoms was related to an increase in difficulty in recognizing and identifying feelings and also conversely to depression symptoms, the intensity of anxiety symptoms was found to be related a decrease in the difficulty in communicating feelings dimension of alexithymia.

Conclusion: This study not only addressed the multidimensional nature of alexithymia, but also suggests further studies to consider alexithymia as a discriminating factor between depression and anxiety symptoms. According to the study, while people who have intensive depressive symptoms have difficulty in communicating their feelings, people who have anxiety symptoms tend to communicate more their feelings. In addition, the intensity of anxiety is positively related to difficulty in recognizing and identifying feelings. Another words, anxious people tend to have difficulty in recognizing and identifying their feelings. These findings of the study are discussed in light of the literature.

Key Words: Alexithymia, Depression, Anxiety, Positive-Negative Affects

INTRODUCTION

Alexithymia, originally derived from Latin, is the inability to describe emotions with words. Sifneos, who formerly defined the clinical features of alexithymia, positioned this concept in a theoretical framework with Nemiah in 1970 (Nemiah and Sifneos, 1970; Sifneos, 1996). Generally, this theory postulates that an alexithymic individual experiences difficulties understanding and regulating emotions. These include difficulty in recognizing, identifying, and describing emotions, and

a preference for focusing on external experiences rather than inner experiences.

Taylor et al. (1985), who developed various alexithymia scales, felt the need to make a definition of this construct. In this regard, they defined 5 theoretically-derived features: (a) difficulty in describing feelings; (b) difficulty in distinguishing feelings and bodily sensations; (c) lack of introspection; (d) social conformity; and (e) paucity of a fantasy life and of dreams. However, in the light of theoretical and research findings, the sub dimensions of alexithymia were redefined as: difficulty in de-

scribing feelings, difficulty in distinguishing feelings and bodily sensations, inability to communicate with others, paucity of a fantasy life and of dreams, and focusing on external experiences rather than internal experiences (Bagby et al., 1986; 1988). Taylor et al. subsequently found supportive evidence for the psychometric properties of their alexithymia scales. Therefore, they developed a valid and reliable tool that discriminates alexithymic characteristics (Taylor et al., 1988). Bagby et al. (1986) proposed that the Toronto Alexithymia Scale (TAS) reflects the theoretical knowledge about alexithymia, in terms of construct validity and factor structure.

In 1992 TAS was revised and shortened to its current version (Bagby et al., 1994a, 1994b). The most distinguishing literature finding about these scales is that as the developers of the scales, Taylor et al. (1985) proposed that TAS-26 includes 4 dimensions, whereas Parker et al. (1993) proposed that TAS-20 includes 3 dimensions. In the study comparing TAS-20 and TAS-26, Zimmerman et al. (2005), providing the most comprehensive source, proposed that although TAS-20 is a reliable and psychometrically strong scale, it does not reflect the original alexithymia construct fully as it lacks the imagination dimension. In addition, the study proposed that TAS-26 is more relevant for multidimensional alexithymia assessment.

Therefore, when the purpose of the 2 scales is compared, TAS-26, which was developed before TAS-20, should be used in studies that are based on the multidimensional nature of alexithymia. The main reason for this controversy is Taylor et al.'s assumption that the internal thinking dimension could compensate for the lacking in imaginative capacity dimension. For example, it is worth to mention that in their studies that evaluated the effects of alexithymia dimensions on depression and anxiety, Hendryx et al. (1991) preferred to use TAS-26. On the other hand, Zimmerman et al. (2005) pointed out that although they think that TAS-26 fully reflects the alexithymia concept, the scores derived from TAS-26 and TAS-20 are significantly related to each other and both scales can be used depending on the aim of the study.

Bagby et al. investigated the relationship between personality and psychopathology in alexithymia using TAS, and proposed a strong relationship between depression, anxiety, and alexithymia. The same research team (1986) stressed that the relationship between alexithymia and other clinical concepts would be more accurately determined when the effect of anxiety and depression is controlled.

The role of alexithymia in the mechanisms of development and the maintaining of psychopathology attracts more attention everyday. In particular, alexithymic characteristics are important risk factors for psychosomatic disorder and mood disorder cases that have main problems such as emotion regulation (Feldman et al., 2002; Yücel et al., 1998). Moreover, studies on eating disorders, panic disorder, social phobia, conversion disorder, and substance abuse also include alexithymia as an important factor to be studied in terms of its role (Çelikel and Saatçioğlu, 2002; Parker et al. 1993; Zeitlin and McNally, 1993). In recent years, alexithymia was frequently included in studies which were conducted with particular illness groups considered alexithymia as a mediating or moderating factor while studying depression and anxiety disorders (Aksu et al., 2004; Honkalampi et al., 2000; Karlıdağ et al., 1997; Şentürk et al., 2000; Taylor, 2000).

There are various studies on the relationship between depression and alexithymia in the literature (Haviland et al., 1988; Hendryx et al., 1991; Hintikka et al., 2001; Honkalampi et al., 1999; Saarijarvi et al., 2001; Wise et al., 1988). Hintikka et al. (2001) concluded that depression and alexithymia are positively and strongly related, and furthermore, these 2 conditions overlap. In studies conducted in Turkey, for example, Güleç et al.'s (2005) study on somatic symptoms of depression and Evren et al.'s (2002) study with alcohol abusers support these findings.

Conversely, other studies showed that the dimensions of alexithymia have different relationships with depression. Haviland et al. (1988b) found a relationship between the recognizing and identifying feelings, and difficulty in communicating feelings dimensions, and depression. It has been shown that external oriented thinking, which is another dimension of alexithymia, is not related to depression (Berthoz et al., 1999; Haviland et al., 1988b). Similarly, in a Turkish study of individuals with irritable colon syndrome, Sayar et al. (2000a) founded that these patients experienced difficulties in identifying and verbalizing their emotions and bodily sensations, and in using imagination, in addition to that, these dimensions of alexithymia were found positively related to the hypochondriac behaviors and tendency for somatization. In another study, Sayar et al. (2000b) showed that individuals with alexithymic characteristics who had difficulty in distinguishing feelings from bodily sensations displayed more suicidal ideation related to hopelessness.

In summary, considering the relationship between depression and the dimensions of alexithymia, a posi-

Table I. Toronto alexithymia scale factor analysis.

Toronto Alexithymia Scale (TAS)	Difficulty in Communicating Feelings	Difficulty in Recognizing and Identifying Feelings	Lacking in Imaginative Capacity
1. When I cry, I always know why.*	0.59	0.17	-0.06
2. Daydreaming is a waste of time.	-0.08	0.25	0.60
3. I wish I were not so shy.	0.37	0.29	0.04
4. I am often confused about what emotion I am feeling.	0.06	0.71	-0.04
5. I often daydream about the future.*	0.60	-0.09	0.60
6. I seem to make friends as easily as others do. *	0.43	0.10	0.14
7. Knowing the answers to problems is more important than knowing the reasons for the answers.	0.14	-0.27	-0.12
8. It is difficult for me to find the right words to describe my feelings.	0.06	0.70	-0.01
9. I like to let people know where I stand on things. *	0.67	0.02	0.05
10. I have physical sensations that even doctors don't understand.	0.03	0.26	-0.29
11. It's not enough for me that something gets the job done, I need to know why and how it works. *	0.83	-0.19	-0.03
Toronto Alexithymia Scale (TAS)	Difficulty in Communicating Feelings	Difficulty in Recognizing and Identifying Feelings	Lacking in Imaginative Capacity
12. I'm able to describe my feelings easily. *	0.51	0.37	-0.06
13. I prefer to analyze problems rather than just describe them.*	0.25	-0.05	-0.09
14. When I am upset, I don't know if I am sad, frightened, or angry.	-0.15	0.63	-0.12
15. I use my imagination a great deal. *	0.58	-0.06	0.63
16. I spend much time daydreaming whenever I have nothing else to do. *	-0.0	-0.18	0.61
17. I am often puzzled by sensations in my body.	0.16	-0.24	0.58
18. I daydream rarely.	-0.13	0.11	0.78
19. I prefer to just let things happen rather than to understand why they turned out a particular way.	0.19	0.10	0.29
20. I have feelings that I can't quite identify.	0.06	0.65	-0.25
21. Being in touch with emotions is essential. *	0.81	-0.27	0.13
22. I find it hard to describe how I feel about people.	0.05	0.62	0.01
Toronto Alexithymia Scale (TAS)	Difficulty in Communicating Feelings	Difficulty in Recognizing and Identifying Feelings	Lacking in Imaginative Capacity
23. People tell me to describe my feelings more than I do.	0.04	0.38	0.08
24. One should look for deeper explanations. *	0.77	-0.28	0.13
25. I don't know what's going on inside me.	0.12	0.73	-0.06
26. I often don't know why I am angry.	-0.09	0.51	0.02

* Reverse items.

tive relationship between depression and the dimension of difficulty in recognizing and identifying feelings is seen. However, in general, the lacking in imaginative capacity and external oriented thinking dimensions are not related to depression (Haviland et al., 1988b). Besides, there is no consistency between findings of stud-

ies which focused on the relationships of depression and dimensions of alexithymia (Wise et al., 1988; Sexton et al., 1998).

In addition to depressive symptoms, there are studies showing a relationship between alexithymia and anxi-

Table II. Arithmetic means, standard deviations, and correlation of the scales.

	BAI	BDI	TAS	PA	NA	DCF	DRIF	LIC
BAI	18.15 (11.02)	0.52**	0.12	-0.24**	0.45**	-0.08	0.25**	-0.01
BDI		11.53 (8.80)	0.30**	-0.50**	0.70**	0.14	0.30**	0.05
TAS			60.42 (9.79)	-0.42**	0.28**	0.72**	0.49**	0.41*
PA				29.37 (7.17)	-0.37**	-0.20*	-0.26**	-0.23*
NA					22.43 (6.34)	0.17*	0.29**	0.03
DEE						11.12 (5.64)	0.04	0.32*
DIDF							12.67 (5.49)	-0.12
LIC								8.72 (4.23)

Note. Arithmetic means and standard deviations in the parenthesis are presented crosswise. For all correlations, $n = 145$. Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI), Toronto Alexithymia Scale (TAS), Positive and Negative Affect Schedule (PANAS). PA: Positive affect; NA: Negative affect; DCF: Difficulty in communicating feelings; DRIF: Difficulty in recognizing and identifying feelings dimension; LIC: Lacking in imaginative capacity.

* $p < 0.05$; ** $p < 0.01$

ety (Arik et al., 2002; Berthoz et al., 1999). Researchers point out the heightened possibility of alexithymia in individuals with anxiety disorders. Related to the mechanisms that play a role in the development of anxiety disorders, it was proposed that alexithymia functions as a defense mechanism towards strong emotions. It was proposed that due to their fears of severe somatic sensations, individuals with panic disorder inhibit their emotional experiences and display alexithymic characteristics (Aslan et al., 1997). This also might indicate that alexithymia plays a role in emotional avoidance.

As there were no definite results concerning the relationship between alexithymia, psychosomatic complaints, and mood disorders, it was reported that the relationship between alexithymia and panic disorder is stronger than the relationship with other anxiety disorders, such as obsessive-compulsive disorder (OCD) or simple phobia (Parker et al., 1993; Zeitlin and McNally, 1993). For example, Joukamma and Lepda (1994) found that individuals with panic disorders displayed signifi-

cantly more alexithymic characteristics in comparison to healthy controls. On the other hand, Cox et al., (1995) compared individuals with social phobia and panic disorder, and did not find a significant difference in terms of alexithymic characteristics.

In their study on alexithymia and state-trait anxiety, Berthoz et al. (1999) reported a positive relationship between trait anxiety and the difficulty in recognizing and identifying feelings and the difficulty in communicating feelings dimensions of alexithymia. However, while there was a negative relationship between trait anxiety and the lacking in imaginative capacity dimension, there was no relationship between the external focused thinking dimension and trait anxiety. On the other hand, state anxiety had a positive relationship with the difficulty in recognizing and identifying feelings dimension, and a negative relationship with the lacking in imaginative capacity dimension. The difficulty in communication feelings and external focused thinking dimensions were not related to state anxiety. In summary, similarly to the

Table III. Hierarchical regression analysis. Dependent variable: Depression.

The step of entrance to the equation and variables	df	F change	Beta	t	Partial correlation (<i>pr</i>)	R ² for the model
1. Control variables	2, 142					
Gender	142	35.11***	0.14	2.10*	0.17	0.33
Anxiety	142		0.57	8.24***	0.57	
2. Alexithymia dimension	1, 141	7.42**				0.36
Difficulty in communicating feelings	141		0.18	2.73**	0.22	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: set values are presented for Beta and t.

literature findings regarding the relationship between depression and the dimensions of alexithymia, there are also studies showing the dimensions of alexithymia have different relationships with anxiety. However, the number of studies that have compared anxiety and depression in terms of the relationship with the dimensions of alexithymia are limited (For example; Marchesi et al., 2000).

One important model that stresses the common and different aspects of depression and anxiety disorders is the tripartite model of Clark and Watson (1991). According to this model, an increase in negative affect is associated with both depression and anxiety, but a lacking in positive affect is specifically associated with depression. Based on the relationship between alexithymia and positive-negative affect, it can be proposed that the dimensions of alexithymia have different relationships with depression and anxiety; however, there are no studies on the relationship between positive-negative affect and alexithymic characteristics.

The aim of the present study was to underline the multidimensional nature of alexithymia in Turkey, and to examine the relationship between these dimensions and the intensity of depression and anxiety symptoms. In addition, this study aimed to investigate the relationships of alexithymia dimensions and positive-negative affects that are known as discriminative characteristics of anxiety disorders and depression.

METHODS and MATERIALS

Sample

The study included 145 students, 119 women (82%) and 26 men (18%) men, from various undergraduate programs at Ortadoğu Technical University. The age range of the sample was between 18 and 36 years (mean: 21 years; *SD*: 2.09 years).

INSTRUMENTS

Beck Anxiety Inventory (BAI)

This scale consists of 21 items. Each item is rated between zero (never) and 3 (all the time). Increasing scores indicate severity of the intensity of anxiety symptoms. Possible scores range between 0 and 63. The BAI was developed by Beck and colleagues (1988), and the validity and reliability study in Turkey was performed by Ulusoy (1993).

Beck Depression Inventory (BDI)

The BDI is a self-report scale, which includes 21 items and each item is rated between 0 and 3. As scores increase, the severity of the intensity of depressive symptoms also increases. Possible scores range between 0 and 63. The scale was developed by Beck and colleagues (1979) and the validity and reliability study in Turkey was performed by Hisli (1988, 1989).

Positive and Negative Affect Schedule (PANAS)

This scale developed by Watson et al., (1988) includes two 10-item subscales, positive affect and negative affect. Each item refers an affect which is scored between 1 (very slightly or not at all) and 5 (extremely) in terms of its intensity. The positive affect subscale evaluates the degree of feeling interested, active, and alert whereas the negative affect subscale evaluates the degree of subjective complaints, such as upset, irritable, guilty, and afraid. Watson et al., (1988) reported that the internal consistency reliability of the scale for positive affect was 0.88 and for negative affect was 0.87. The reliability and validity study of the Turkish version was conducted by Gençöz (2000). Consistent with the original findings, Gençöz identified 2 dimensions in PANAS. In addition, the internal consistency for positive and negative affect was reported as 0.83 and 0.86, respectively, and test-retest validity was reported as 0.40

Table IV. Hierarchical regression analysis. Dependent variable: Anxiety.

The step of entrance to the equation and variables	df	F Change	Beta	t	Partial correlation (pr)	R ² for the model
2. 1. Control variables	2, 142					
Gender	142	34.50***	−0.13	−1.89*	−0.16	0.33
Anxiety	142		0.57	8.24***	0.57	
2. Alexithymia dimension	1, 141	4.30*				0.35
Difficulty in communicating feelings	141		−0.14	−2.07*	−0.17	
3. Alexithymia dimension difficulty in	1, 140	4.09*				0.37
Recognizing and identifying feelings	140		0.14	2.02*	0.17	

* p < 0.05, ** p < 0.01, *** p < 0.001

Note: Set values are presented for Beta and t.

and 0.54, respectively. Criterion related validity of the scale was checked with the BDI and BAI. The positive affect scale's correlations to these scales were −0.48 and −0.22, respectively, and the negative affect scale's correlations were found as 0.51 and 0.47, respectively.

Toronto Alexithymia Scale (TAS)

TAS was developed by Taylor et al., (1985) to measure alexithymic characteristics relevant to theoretical information while preventing the socially desirable responses, and obtaining high internal consistency values. TAS has 26 items measured on a 5-point Likert-type scale, which ranges from 1 (strongly disagree) to 5 (strongly agree). High scores indicate a high degree of alexithymia.

In their study, Taylor et al. (1985) established 4 dimensions of TAS: Dimension 1 (TAS-1) is related to identifying feelings and distinguishing them from bodily sensations, Dimension 2 (TAS-2) relates to thinking focused on external experiences rather than internal experiences, Dimension 3 (TAS-3) concerns expressing feelings verbally, and Dimension 4 (TAS-4) is related to lacking in imaginative capacity. These 4 dimensions account for 31.8% of the total variance. It was reported that TAS-1 accounts for 12.3% of the total variance (Cronbach's α = 0.83), TAS-2 accounts for 7.0 % (Cronbach's α = 0.72), TAS-3 accounts for 6.4% (Cronbach's α = 0.64), and TAS-4 accounts for 6.1% of the total variance (Cronbach's α = 0.69). Taylor et al. (1985) reported that the total internal consistency of TAS was 0.79 and split half reliability was 0.67. Furthermore, the test retest reliability coefficient was 0.82 for one week and 0.75 for 5 weeks.

The translation, reliability, and validity study of the Turkish version of the scale was conducted by Dereboy (1990, 1991). The internal consistency of the Turkish version of TAS is 0.65 and the test retest reliability coef-

ficient is 0.70 (Okyayuz, 1993). Analyses related to the factor structure and reliability of the scale was repeated in the present study and the findings are presented in the "Results" section.

PROCEDURE

This study was undertaken with the permission of the Psychology Department of Middle East Technical University, as the university does not have an ethics committee yet when the study was conducted. Data collection was initiated with the permission of related professor at the time of the course and there were no exclusion criteria. Scales were administered in a random mixed order so as to prevent any sequential bias. For each participant, completion of the scales lasted approximately 15 minutes. Before the scales were administered, the students were informed about the study and were asked to sign an informed consent form. In addition to the scales used in the study, a demographics form was also used.

Statistical Evaluation

Statistical analyses were performed with SPSS for Windows v.10.0 software. Factor analysis was used in order to determine the dimensions of TAS; to determine the level and direction of the relationship between the variables in the study, Pearson's correlation was used. In addition, the relationship between dimensions of alexithymia, and depression and anxiety symptoms was determined with hierarchical regression analyses.

RESULTS

Factor Structure and Reliability of Toronto Alexithymia Scale (TAS)

A factor analysis was conducted in order to determine the dimensions of TAS, and a factor load ≥ 0.30 was re-

quired in order for an item to be included in the related factor. A three-factored solution was obtained in the result of the factor analysis with varimax rotation and when the graphic distribution of the Eigen values (scree plot) and item contents were evaluated this analysis was found to be significant for the Turkish version of TAS. The Eigen values of these factors were 5.2, 3.8, and 2.4, which accounted for 20%, 15%, and 9.0% of the variance, respectively. Therefore, in sum, these 3 factors accounted for 44% of the total variance. Consistent with the literature, these factors were difficulty in communicating feelings, difficulty in recognizing and identifying feelings, and lacking in imaginative capacity dimensions (Table I).

The difficulty in communicating feelings dimension included 8 items and had an internal consistency coefficient of 0.82. The corrected item total correlations loaded on this dimension ranged from 0.23 to 0.72. The difficulty in recognizing and identifying feelings dimension included 8 items, and had an internal consistency coefficient of 0.80. The corrected item total correlations loaded on this dimension were between 0.30 and 0.62. Lastly, the lacking in imaginative capacity dimension included 6 items. As seen in Table I, item 5 and item 15 in the scale loaded onto both the lacking in imaginative capacity and difficulty in communicating feelings dimensions, but due to the content of these items and the related literature they were accepted to be part of the lacking in imaginative capacity dimension. The internal consistency coefficient of this last dimension was 0.75 and the corrected item total correlations ranged from 0.35 to 0.68. The internal consistency for the full scale was 0.70.

Items 7, 13, and 19, which are in the fourth dimension in the original study and focus on external experiences, (external-oriented thinking) did not load onto any factors in the present study and were excluded from the scale. Item number 10, which originally was in the difficulty in recognizing and identifying feelings dimension also did not load onto any factors in the present study and was excluded. Moreover, these items were excluded from all of the following analyses in this study.

Correlations between the dimensions

When correlations between the dimensions of alexithymia were considered, only the difficulty in communicating feelings and lacking in imaginative capacity dimensions were significantly correlated to each other ($r = 0.32$, $p < .05$). There were no significant correlations

between the difficulty in recognizing and identifying feelings dimension and the other 2 dimensions.

The total alexithymia score was significantly related to depressive symptoms ($r = 0.30$, $p < 0.01$), negative affect ($r = 0.28$, $p < 0.01$), and positive affect ($r = -0.42$, $p < 0.01$); however, there was no significant correlation between total alexithymia score and anxiety symptoms ($r = 0.12$, $p > 0.05$).

In the analyses of alexithymia dimensions and other variables, the difficulty in communicating feelings dimension was correlated with negative affect ($r = 0.17$, $p < 0.05$) and positive affect ($r = -0.20$, $p < 0.05$) variables, the difficulty in recognizing and identifying feelings dimension ($r = 0.29$, $p < 0.01$) and positive affect ($r = -0.26$, $p < 0.01$) variables, and also with depressive symptoms ($r = 0.30$, $p < 0.01$) and anxiety symptoms ($r = 0.25$, $p < 0.01$). Lastly, the lacking in imaginative capacity dimension was correlated only with the positive affect ($r = -0.23$, $p < 0.05$) variable (Table II).

The relationships between dimensions of alexithymia, and the intensity of the depressive and anxiety symptoms

In order to determine the predictive values of the dimensions of alexithymia specific to anxiety and depression, hierarchical regression analysis was conducted. Therefore, 2 separate regression equations were constructed for anxiety and depressive symptoms.

The first regression equation was formulated in order to investigate the relationship between alexithymia dimensions and depressive symptoms, and depressive symptoms were considered the dependent variable. As control variables, in addition to gender, anxiety symptoms were also included. Depending on the overlap between depression and anxiety assessments, these 2 variables were included in the equation in the first step and the variance they accounted for was statistically controlled. In the second step the 3 dimensions of alexithymia (difficulty in communicating feelings, difficulty in recognizing and identifying feelings, and the lacking in imaginative capacity) were proposed; therefore, only the dimensions that were significantly related to the dependent variable could enter the equation.

According to the results of this regression equation, the control variables gender ($\beta = 0.14$, $t(142) = 2.10$, $p < 0.05$; $\beta = 0.17$) and anxiety symptoms ($\beta = 0.57$, $t(142) = 8.24$, $p < 0.001$; $\beta = 0.57$) revealed significant relationships with depressive symptoms. According to this finding, there was an increase in depressive symp-

toms in women and individuals with high levels of anxiety. These 2 control variables accounted for 33% of the total variance ($F [2, 142] = 35.11, p < 0.001$). When this variance was controlled, only the difficulty in communicating feelings dimension ($\beta = 0.18, t(141) = 2.73, p < 0.01; pr = 0.22$) showed a significant relationship to depressive symptoms and entered into the equation from the second step. With this variable ($F_{\text{change}} [1, 141] = 7.42, p < 0.01$), the total variance explained increased to 36%. According to this result, when the large variance explained by gender and anxiety symptoms was controlled, increase in the difficulty in communicating feelings dimension still corresponded with increase in depressive symptoms (Table III).

Similar to the analysis conducted with depressive symptoms, another hierarchical regression analysis was conducted in order to evaluate the alexithymia dimensions that predicted anxiety symptoms.

The second regression equation was formulated to investigate the relationship between alexithymia dimensions and anxiety symptoms, and anxiety symptoms were considered the dependent variable. As control variables, in addition to gender, depressive symptoms were included. Depending on the overlap between depression and anxiety assessments, these 2 variables were included in the equation in the first step and the variance they accounted for was statistically controlled. In the second step, the 3 dimensions of alexithymia (difficulty in communicating feelings, difficulty in recognizing and identifying feelings, and lacking in imaginative capacity) were proposed. Therefore, only the dimensions that were significantly related to the dependent variable could enter the equation.

According to the results of this regression equation, the control variables gender ($\beta = -0.13, t(142) = -1.89, p < 0.05; pr = -0.16$) and depressive symptoms ($\beta = 0.57, t(142) = 8.24, p < 0.001; pr = 0.57$) demonstrated a significant relationship with anxiety symptoms. According to this, there was an increase in anxiety symptoms in men and individuals with high depression levels. These 2 control variables accounted for 33% of the total variance ($F [2, 142] = 34.50, p < 0.001$). When this variance was controlled, the difficulty in communicating feelings dimension ($\beta = -0.14, t(141) = -2.07, p < 0.05; pr = -0.17$) and the difficulty in recognizing and identifying feelings dimension ($\beta = 0.14, t(140) = 2.02, p < 0.05; pr = 0.17$) displayed significant relationships to anxiety symptoms and entered into the equation in the second and third steps, respectively. By including the difficulty

in communicating feelings dimension ($F_{\text{change}} [1, 141] = 4.30, p < 0.05$), the total variance explained was 35% and 37% when the difficulty in recognizing and identifying feelings dimension was included in the equation ($F_{\text{change}} [1, 140] = 4.09, p < 0.05$). According to this result, when the large variance explained by gender and depressive symptoms was controlled, an increase in the difficulty in recognizing and identifying feelings dimension and a decrease in the difficulty in communicating feelings dimension still matched with increased anxiety symptoms (Table IV).

DISCUSSION

The aim of this study was to emphasize that the dimensions of alexithymia might have different relationships with anxiety and depression symptoms. The results of this study supported the finding that alexithymia is a multidimensional construct, as expected, and 3 different dimensions were found: difficulty in communicating feelings, difficulty in recognizing and identifying feelings, and lacking in imaginative capacity.

As in Taylor et al.'s (1985) study on TAS in which their 4 dimensions accounted for 31.8% of the total variance, the 3 dimensions in the present study accounted for 44% of the total variance. In addition, when total scale internal consistency coefficients were compared, it was seen that the coefficient in this study (0.70) was higher than that reported by Dereboy (1990) (0.65), but lower than what Taylor et al. (1985) reported (0.79). When internal consistency coefficients of the separate dimensions were considered, it was seen that the dimensions in the present study (respectively 0.82, 0.80, 0.75) were generally higher than the factors reported in the original study. In the light of these findings it is concluded that 3 factored solution is more reliable for Turkish version of the scale.

In fact, it was previously proposed that the alexithymia concept is related to these 3 dimensions and that the fourth dimension is related to external-oriented thinking (*pensée opératoire*) (Taylor et al., 1985). The three-factor solution of the alexithymia concept was also preferred by Nemiah and Sifneos who brought the concept of alexithymia in theoretic and applied area (1970). In conclusion, the findings of the present study seem to be consistent with the literature.

In this study, when the large variance accounted for by control variables was controlled, the results of hierarchical regression analysis conducted in order to assess the relationship between alexithymia, and depression and

anxiety showed that the difficulty in communicating feelings dimension matched with depressive symptoms. On the other hand, in terms of the severity of anxiety symptoms, both the difficulty in communicating feelings and difficulty recognizing and identifying feelings dimensions matched with anxiety symptoms. These findings are consistent with the literature.

The relationship between depression and alexithymia has been the subject of various studies in recent years and the specific relationships between the dimensions of alexithymia and depression are known. For example, the study conducted by Saarjarvi et al. (2001) concluded that when depressive symptoms increased, individuals had difficulty in recognizing their feelings and therefore had difficulty in sharing them with others. In other words, generally, the difficulty in recognizing and identifying feelings dimension and the difficulty in communicating feelings dimension of alexithymia was found to be related to depression. The results of Saarjarvi et al. support the finding of the present study which pointed out the relationship between the difficulty in communicating feelings dimension and depressive symptoms. In the regression analysis, when 33% of the variance was explained by gender and anxiety level was controlled, only the difficulty in communicating feelings dimension was related to depression, whereas the difficulty recognizing and identifying feelings dimension was not. These findings support that, in particular, the difficulty in communicating feelings dimension is the only dimension of alexithymia associated with depressive symptoms so that emphasize the importance of communication related to depression..

When the relationship between anxiety and alexithymia is considered, generally, it is seen that the difficulty in recognizing and identifying feelings dimension is related to anxiety (Devine et al., 1999). Consistent with these findings, it was found a positive relationship between the difficulty in recognizing and identifying feelings dimension and anxiety symptoms; that is to say that the difficulty in recognizing and identifying feelings corresponded the anxiety level of individuals. On the other hand, according to the results of the present study, there was a negative relationship between the difficulty in communicating feelings dimension and the intensity of anxiety symptoms. This relationship showed that as the level of anxiety symptoms increased, individuals tend to communicate their emotions more often. This negative relationship points out that individuals who experience difficulty in communicating feelings, avoid relationships with various avoidance/escape methods

and thus decrease their anxiety levels. In conclusion, the avoidance/escape methods are strengthened with negative reinforcement (decrease in the level of anxiety). This finding is consistent with the findings of Berthoz et al., (1999) and Sayar et al., (2000).

Somatization has been subject of many studies as a concept related to alexithymia and investigated among other alexithymia related constructs (Taylor et al., 1991). In a study on the relationship between alexithymia and psychosomatic symptoms, De Gucht et al. (2004) also included negative and positive affect dimensions. According to the results of their study, when negative and positive affects were added to the model, the main effects of neuroticism and alexithymia on somatization disappear. This main effect showed that while negative affect was a mediator for neuroticism and positive affect was a mediator for both neuroticism and alexithymia. De Gucht et al. mentioned that the effect of positive affect is particularly very important when including alexithymia in somatization studies. In the present study, a decrease in the positive affect, which was thought to be related to depressive symptoms (Clark and Watson, 1991; Gençöz, 2000; Gençöz, 2002; Watson et al., 1988) was observed and displayed a significant relationship to all 3 dimensions of alexithymia, consistent with the expectations.

In sum, the results of this study supported the findings in the literature. Particularly, the present study indicates that among alexithymia dimensions, the difficulty in communicating feelings dimension was both related to intensity of depressive and anxiety symptoms (negatively) but in a opposite way, in addition, the difficulty recognizing and identifying feelings dimension was related to intensity of anxiety symptoms positively. When the relationships between negative and positive affect, and alexithymia were considered, there were significant relationships between both negative and positive affect in the correlation analyses when none of the variables were controlled. According to these findings, as positive affect was related to all 3 alexithymia dimensions, negative affect was only related to the difficulty in recognizing and identifying feelings and the difficulty in communicating feelings dimensions.

When the contributions of these findings on the clinical field are considered, the need to focus on the difficulty in communicating feelings dimension of alexithymia arises to individuals with depressive symptoms. On the other hand, when dealing with anxiety symptoms, both the difficulty in communicating feelings and difficulty in recognizing and identifying feelings dimen-

sions are important in order for to prevent avoidance of emotions in treatment process.

In future studies, similar research should be conducted with patients diagnosed with anxiety and depressive disorders, and the consistency of these findings should be established. In addition, the decrease in positive affect and alexithymia concept seems to be an important point

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