Original Article

Dysfunctional attitudes, automatic thoughts and anxiety symptoms among Turkish youth: Results from a pilot study

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Abstract

Aim: The aim of this study is investigating the relationship between symptoms of anxiety and measures of automatic thoughts and dysfunctional attitudes which were developed for depression.
Material and Methods: One-hundred university students completed the Turkish version of Beck Anxiety Inventory (BAI), Automatic Thoughts Scale (ATQ), Dysfunctional Attitudes Scale (DAS) and a sociodemographic form. Data were analyzed by SPSS 24.
Results: The results indicated that there was a moderate positive correlation between anxiety and automatic thoughts. Dysfunctional attitudes, specifically Perfectionism and Need for Approval showed weak positive correlation with anxiety symptoms.
Conclusion: This finding shows that the cognitive content of both disorders cannot be fully separated.

Keywords: Anxiety; automatic thoughts; dysfunctional attitudes

INTRODUCTION

Cognitive patterns such as automatic thoughts and dysfunctional attitudes in depressive patients were begun to be studied with the cognitive approach introduced by Aaron T. Beck (1,2). In similar themes, but implicit, short and fast thoughts are called as automatic thoughts, which involuntarily, almost automatically pass through the minds of depressive patients. Dysfunctional attitudes are generalized rigid beliefs and assumptions that are fed by the distortions of reality of depressed individuals. These attitudes show themselves as harsh, excessive and dysfunctional judicial criteria and rules (3,4). Anxiety is associated with insecurity and vulnerability due to the perception of threat and danger. Unlike fear, there is a state of concern for an unknown source, since something bad will happen; as a result, physiological symptoms such as sweating, palpitation, and choking sensations may also ocur (5,6). The difference in cognitive content in anxiety and depression shows the specificity of cognitive content, accordingly, while cognitive content in anxiety is associated with threat and vulnerability, cognitive content in depression is associated with loss and worthlessness

(7,8). Negative automatic thoughts that contain themes of personal loss or failure and depressive symptoms are correlated and they influence each other to maintain depression (9). In their study, Bostan et al. (2018) showed that the negative relationship between emotional intensity and the management of automatic dysfunctional thoughts was stronger when individuals were less aware of their emotions and where emotion representation were also weak(10).

In another study Batmaz and friends examined the psychometric properties of the Turkish version of the cognition checklist (CCL), the Hospital Anxiety Depression Scale, (HADS), the automatic thoughts questionnaire (ATQ), and the CCL were administered to 425 psychiatric patients (11). With anxiety symptoms, the anxiety-automatic thoughts measured by CCL were 0.42; found a correlation coefficient of 0.33 between depressive automatic thoughts and reported that these two relationships were significant. De Graaf, Roelofs, and Huibers have demonstrated two sub-dimensions of dysfunctional attitudes consisting of attitudes related to "dependency" and "perfectionism/ performance evaluation", which are risk factors for

depression (12). Lee and Hankin investigated insecure attachment, non-affiliated attitudes, and low self-esteem as predictors of depression and anxiety in adolescence (13). Data were collected from participants about attachment patterns, dysfunctional attitudes, self-esteem, depression and anxiety. According to the findings, anxious and avoidant attachment patterns were associated with changes in depression and anxiety over time. In addition, dysfunctional attitudes and low self-esteem are mediating variables in the relationship between anxious attachment and these symptoms. Other studies have also been shown that increased trait avoidance tendencies are a risk factor for affective disorders (14)

This study focuses on the cognitive partnerships in anxiety and depression by examining the relationship between anxiety symptoms and automatic thoughts and dysfunctional attitudes associated with depression. Our hypothesis is that, the frequency of automatic thoughts and dysfunctional attitudes may increase anxiety symptoms. As dysfunctional attitudes increase, symptoms of anxiety may increase. Many early studies conducted in the other countries with depressed or dysphoric patients. However, there have been few examinations of the cognitive triad hypothesis in Turkish population.

MATERIAL and METHODS

Study Participants
The sample of this pilot study consisted of 100 undergraduate and graduate students over 18 years of age who accepted to participate in the study. The University of Uskudar Research Ethics Board (No:B.08.6.Y ÖK.2.ÜS.0.05.0.06/2018/471, Date: 23.03.2018) approved this study prior to data collection. Written consent was obtained from each participant. Easily accessible situation sampling method was used to identify the participants. With this method, students in classrooms and common areas in the university were reached and students participated in the research if they volunteered. 87 female and 17 male students aged between 18 and 53 participated in the study.

Inclusion Criteria

1-The participant is a university student

2-Age≥18 years

3-Informed consent of the person for inclusion in the study

4-The participant has understood the instructions of the scales

Exclusion criteria

1- Presence of any chronic medical illness based on the participant`s past medical history

2- Presence of other psychiatric disorder including psychosis and bipolar disorder, alcohol or substance use disorder.

Data Collection Tools
Sociodemographic Form

In this form prepared by the responsible person, in order to learn the sociodemographic information of the participants, eight questions were asked. The participants were asked to provide their information about gender, age, class, marital status, whether they live with their family or alone, by whom they are raised, whether they have a chronic mental illness, and whether they use cigarettes, alcohol or any other substance.

Automatic thoughts questionnaire (ATQ)
Automatic thoughts questionnaire (ATQ) was developed by Hollon and Kendall and aims to measure the frequency of the automatic negative thoughts and expressions that target the individual's self-associated with depression (15). ATQ is a 30-item instrument that measures the frequency of automatic negative statements about the self. Items are numbered from 1 (Never) to 5 (Always). The calculation of the score obtained from the scale is done by adding the quantitative responses to each item. Scores that can be obtained vary between 30 and 150. High scores indicate that the person applies more often to automatic negative thoughts about himself. The Turkish adaptation was performed by Şahin and Şahin (14). The reliability of the ATQ was found to be 0.91 and Cronbach's alpha was 0.93, total correlations ranged between 0.36 and 0.69 (16).

Beck Anxiety Inventory (BAI)
Beck Anxiety Inventory (BAI) is created by Aaron T. Beck and other colleagues is a 21-question multiple-choice self-report inventory that is used for measuring the severity of anxiety in children and adults (17). The BAI is a Likert-type scale that is numbered from 0 (None) to 3 (Serious). The total score from this inventory is calculated by summing the quantitative responses to all items. The scores can be varied between 0 and 63. The closer the score to the upper limit, there is the greater the severity of anxiety. The Turkish adaptation of the BAI was made by Ulusoy and other colleagues (18). The internal consistency of the scale was found to be α = 0.93, item-total correlations ranged between 0.42 and 0.75 (18).

Dysfunctional Attitudes Scale (DAS)
Dysfunctional Attitudes Scale (DAS) was first developed by Weissman and Beck to measure cognitive patterns in patients experiencing depression (19). As a result of factor analysis, Weissman and Beck developed a 100-item scale to form two parallel forms of 40-item, DAS-A and DAS-B. Then DAS-A adapted into Turkish by Şahinas DAS (20). DAS-A is a Likert type scale consisting of 40 items, numbered from 1 (Strongly Agree) to 7 (Strongly Disagree). The score from DAS-A were ranging from 40 to 240. High scores indicate that the cognitive patterns of the individual have more dysfunctional attitudes. Şahin proposed four-factor model application in which two items were coded inversely, instead of the conventional, 10-item reverse coded model. In this study, the calculation

method proposed by Şahin and Şahin was used (20). In studies the item-total correlations were reported to range between 0.20 and 0.50; the alphas' were between 0.87 and 0.92; the test-retest reliabilities were between 0.54 and 0.84.

Analysis of Data

Statistical analysis of the data was performed using IBM SPSS 24, with a significance level of 5%. Frequency, mean, standard deviation, minimum and maximum values were used for descriptive evaluation of the findings. Since the sample of the study consists of 100 people, the percentage values are the same as the frequency values. Therefore, the percentage values are not specified separately. In addition to descriptive findings, sociodemographic groups were compared according to quantitative variables. Mann Whitney U test were used in comparison of two independent groups where quantitative variables are not normally distributed and Kruskal Wallis H test were used to compare more than two independent groups. When there was a significant difference between the groups with Kruskal Wallis H test, post hoc was used to see which groups this difference was caused by. Mann Whitney U test. Spearman Correlation analysis was used to investigate the relationship between the normally distributed non-quantitative variables. When there was a significant difference between the groups with Kruskal Wallis H test, post hoc tests were performed with Mann Whitney U test in order to see which groups caused this difference. Spearman Correlation analysis was used to investigate the relationship between the normally distributed non-quantitative variables. Regression analysis was performed to investigate the effect of the automatic thoughts and dysfunctional attitudes on the symptoms of anxiety. Automatic thought frequency and dysfunctional attitudes were included as independent variables and anxiety symptoms as dependent variables.

RESULTS

Table 1 shows the distribution of students according to sociodemographic characteristics. When the participants were analyzed according to gender distribution, it was seen that 83 were female and 17 were male. When the distribution of the grade variable is examined, 43 of the participants are first grade, 17 are second grade, 13 are third grade, 3 are fourth grade and 24 are master students. In addition, 45 of the participants were between the ages of 18-20, 26 of them were between the ages of 21-23, 12 of them were between the ages of 24-26 and 11 of them were above the age of 27 years. 95 of the participants are single and 5 are married. It was found that 62 participants lived with their parents, 38 lived in dormitories, apartments or a house alone. 98 of the participants stated that they did not have a chronic mental illness and 2 of them stated that they had. There are 92 participants grown by mother and father, 4 grown by mother only, 1 person grown by caregiver (Table 1).

Table 1. Distribution of students according to socio-demographic characteristics

		Frequency (n)
Gender	Female	83
	Male	17
	Total	100
Grade	1th	43
	2th	17
	3th	13
	4th	3
	Master students	24
	Total	100
Age	18-20	45
	21-23	26
	24-26	12
	26+	11
	Total	94
Marital Status	Married	5
	Single	95
	Divorced	0
	Total	100
Living Place	With parents	62
	Alone (dormitory/house)	38
	Total	100
Mental Disorder	Yes	2
	No	98
	Total	100
The person who raised him/her	Parents	92
	Mother	4
	Father	0
	Caregiver	1
	Other	3
	Total	100

Table 2 shows the descriptive findings of ATQ, BAI and DAS sub-dimensions. The mean score of ATQ was 57.95 (SD = 20.51). The average of negative thoughts sub-dimension was 17.42 (SD = 6.80), 12.43 (SD = 5.19) of confusion / escape fantasies, 7.14 (SD = 2.74) of personal maladjustment and desires for change, loneliness / isolation 8.13 (SS = 2.95), hopelessness is 7.04 (SS = 2.93). The mean score of the BAI was 14.94 (SD = 11.44). The mean of the perfectionism/performance evaluation subscale of DAS was 39.75 (SD = 16.10), the mean of the need for approval subscale was 34.72 (SD = 12,12), the mean of the tentativeness subscale was 17.61 (SD = 4, 97) and the mean of the autonomous attitude subscale was 31.13 (SD = 31.12) (Table 2).

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Table 2. Descriptive Findings of BAI, ATQ and DAS

	Min	Max	Mean	SD
Automatic Thoughts	31	110	57.93	20.51
Negative thoughts towards oneself	10	37	17.42	6.80
Confusion / escape fantasies	6	25	12.43	5.19
Personal maladjustment and desires for change	3	14	7.14	2.74
Loneliness / isolation	4	15	8.13	2.95
Hopelessness	4	16	7.04	2.93
BAI	0	50	14.94	11.44
Perfectionism/ performance evaluation	17	90	39.75	16.10
Need for approval	13	66	34.72	12.12
Autonomous attitude	6	30	17.61	4.97
Tentativeness	15	42	31.13	5.85

BAI: Beck Anxiety Inventory, ATQ: Automatic Thoughts Scale, DAS: Dysfunctional Attitudes Scale

Table 3. Spearman Correlation Analysis between BAI, ATQ and DAS

		1	2	3	4	5	6	7	8	9	10	11
DAS	Rho	1.00										
	p											
NT	Rho	**0.93****	1.00									
	p	< 0.01										
C/EF	Rho	**0.91****	**0.81****	1.00								
	p	< 0.01	< 0.01									
PM/DC	Rho	**0.89****	**0.81****	**0.82****	1.00							
	p	< 0.01	< 0.01	< 0.01								
L/I	Rho	**0.88****	**0.78****	**0.77****	**0.74****	1.00						
	p	< 0.01	< 0.01	< 0.01	< 0.01							
H	Rho	**0.86****	**0.74****	**0.79****	**0.71****	**0.79****	1.00					
	p	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01						
PPE	Rho	**0.49****	**0.48****	**0.39****	**0.42****	**0.45****	**0.42****	1.00				
	p	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01					
NA	Rho	**0.41****	**0.41****	**0.36****	**0.37****	**0.31****	**0.31****	**0.71****	1.00			
	p	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01				
AA	Rho	0.02	0.04	0.04	0.01	-0.06	**-0.35****	-0.01	0.09	1.00		
	p	0.87	0.72	0.73	0.90	0.54	< 0.01	0.94	0.39			
T	Rho	**-0.27****	**-0.29****	-0.16	**-0.22***	**-0.33****	-0.10	**-0.27****	**-0.23***	**0.34****	1.00	
	p	0.01	< 0.01	0.12	0.03	< 0.01	0.31	< 0.01	0.02	< 0.01		
BAI	Rho	**0.50****	**0.49****	**0.51****	**0.36****	**0.40****	**0.45****	**0.20***	**0.21***	-0.01	-0.06	1.0
	p	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.04	0.04	0.93	0.57	

NT:Negative thouhts , C/EF: Confusion/ Escape Fantasies, PM/DC: Personal maladjustment and desires for change , L/I: Loneliness / isolation,
H: Hopelessness, PPE: Perfectionism/ performance evaluation, NA: Need for approval , AA: Autonomous attitude , T: Tentativeness ,
BAI: Beck Anxiety Inventory, **p < 0,01 * p < 0,0

Table 3 shows the results of the Spearman Correlation analysis applied to investigate the relationship between anxiety, automatic thoughts and dysfunctional attitudes. There was a moderate positive correlation between anxiety level and frequency of depressive automatic thoughts (r = 0.50, p <0.01), the frequency of self-negative automatic thoughts, (r = 0.49, p <0.01) and the frequency of automatic thoughts with the theme of confusion / escape fantasies, (r = 0.51, p <0.01). Likewise, there was a moderate positive correlation between anxiety level and the frequency of automatic thoughts with personal maladjustment and desires for change,

(r=0.36, p <0.01). The frequency of loneliness / isolation themed automatic thought (r = 0.40, p <0.01) and the frequency of hopelessness themed automatic thoughts (r = 0.45, p <0.01). There was a weak positive relationship between anxiety level and perfectionism/performance evaluation subscale of DAS (r = 0.20, p <0.05). In addition, the anxiety level is in a weak and positive relationship with the need for approval subscale (r = 0.21, p <0.05). However, there was no significant relationship between anxiety level and autonomous attitude and tentativeness subscales (p> 0.05).

Table 4. Investigation of the Relationship Between BAI, ATQ and DAS by Regression Analysis							
Dependent variable	Independent variable	ß	t	p	F	Model (p)	R2
BAI	Constant	-3.81	-0.50	0.62	5.76	0.01	0.23
	ATQ	0.26	4.36	**<0.01**			
	PPE	-0.08	-0.79	0.43			
	NA	0.15	1.20	0.23			
	AA	0.14	0.68	0.50			
	T	-0.15	-0.65	0.52			
ATQ: Automatic Thoughts Scale,PPE: Perfectionism/ performance evaluation, NA: Need for approval , AA: Autonomous attitude , T: Tentativeness , BAI: Beck Anxiety Inventory							

Table 5. Investigation of the Relationship Between BAI, ATQ and DAS by Regression Analysis							
Dependent variable	Independent variable	ß	t	p	F	Model (p)	R2
PTS	Constant	-1.38	-0.17	0.87	3.88	0.01	0.23
	NT	0.70	2.22	**0.03**			
	C/EF	0.62	1.48	0.14			
	PM/DC	-1.26	-1.84	0.07			
	L/I	0.47	0.75	0.45			
	H	-0.10	-0.16	0.88			
	PPE	-0.08	-0.83	0.41			
	NA	0.14	1.07	0.29			
	AA	-0.18	-0.78	0.44			
	T	0.13	0.60	0.55			
PTS: Perspective Taking Scale, NT: Negative thouhts, C/EF: Confusion/ Escape Fantasies, PM/DC: Personal maladjustment and desires for change, L/I: Loneliness / isolation, H: Hopelessness, PPE: Perfectionism/ performance evaluation, NA: Need for approval, AA: Autonomous attitude, T: Tentativeness, BAI: Beck Anxiety Inventory							

Table 4 shows the results of regression analysis to investigate the effect of automatic thoughts and dysfunctional attitudes on anxiety. The effect of automatic thoughts frequency and dysfunctional attitudes on anxiety was found to be significant (F (5.94) = 5.76, p < 0.01). In addition to the automatic thoughts in general, the explanatory power of perfectionism/performance evaluation, need for approval, autonomous attitude

and tentativeness on anxiety is 23%. The effect of the frequency of automatic thoughts on anxiety was found to be significant, p <0.01. As automatic thoughts increased, anxiety symptoms increased (ß = 0.26). No significant effect of perfectionism/performance evaluation, need for approval, autonomous attitude and tentativeness on anxiety (p> 0.05) (Table 4).

In order to examine the effect of automatic thoughts in different themes on anxiety, regression analysis was repeated by including sub-dimensions of automatic thoughts and dysfunctional attitudes as independent variables and the results are shown in Table 5. The effect of automatic thoughts on different themes and dysfunctional attitudes on anxiety was found to be significant in different themes, $F_{(5.94)} = 3.88$, $p < 0.01$. The explanatory power of these variables on anxiety symptoms was 28%. It is seen that only self-negative automatic thoughts, have a decisive effect on anxiety, $p < 0.05$. As self-negative thoughts increased, anxiety symptoms also increased ($\beta = 0.70$). There was no decisive effect on the anxiety of the confusion / escape fantasies, personal maladjustment and desires for change, loneliness / isolation, hopelessness, perfectionism/performance evaluation, need for approval, autonomous attitude and tentativeness ($p > 0.05$).

DISCUSSION

As stated in the literature, negative automatic thoughts are more prominent in patients with generalized anxiety disorder (GAD) and major depressive disorder (MDD) (21).

In this study, the relationship between anxiety, automatic thoughts and dysfunctional attitudes was examined. In the literature, it is stated that anxiety and negative automatic thoughts are related, and as the frequency of automatic thoughts increases, anxiety symptoms increase (22, 23). In a study conducted by Aydın et al. with 220 university students, the explanatory power of negative automatic thoughts on state anxiety, measured by ATQ, was found to be 39%. Although anxiety and automatic thoughts with threatening content are moderately related, there is a less but moderately significant relationship between anxiety and depressive automatic thoughts (24). Batmaz, et al. reported a similar finding in their study (11).Mahmoud et al. (2015) showed anxiety related to negative thinking and maladaptive coping in undergraduate students aged 18–24 years (25).

Awareness of psychopathology is related to the emergence of many symptoms of anxiety and mood disorders, result from negative, reactive, judgmental and inflexible responses, cognitions and emotions (26) and this has been demonstrated by studies proving the effectiveness of mindfulness-based interventions (27, 28). Based on literature knowledge that increased symptoms of depression and anxiety, increased negative cognition and decreased positive automatic thoughts would predict greater negative mood shift a study has been made in individuals with a history of depression, individuals with a current anxiety disorder, and a non-clinical control sample (29) and showed that previously mentioned predictor factors that may increase susceptibility to negative mood states in previously depressed individuals.

However, in their study Lamberton and Oei did not find this relationship (30); the cognitive content specificity hypothesis was strongly supported (31). In our study, as a result of regression analysis, it was found that negative thoughts had a predictive effect on anxiety symptoms. As a result of Wong's study examining the relationship between anxiety and cognitive triad, automatic thoughts and dysfunctional attitudes (32), it was shown that negative thoughts from the cognitive triad towards self were determinative in anxiety, not the automatic thoughts measured by ATQ. Yu et al. demonstrated that threat-related automatic thoughts, including social threat and physical threat, predicted anxiety; cognition about personal failure predicted depression; and thoughts about hostility were associated with behavioral problems (33). Automatic thoughts related to negative self-evaluation are also common in social anxiety disorder (34). These findings indicate that negative thought patterns are important in anxiety. Since automatic thoughts with negative self-perception theme are common in depressive disorders (35), it can be said that there is an important partnership between anxiety and depression in these themed automatic thoughts.

The hypothesis that anxiety was associated with dysfunctional attitudes and that anxiety was increased with dysfunctional attitudes could not be strongly supported in our study. There was a weak and positive correlation between anxiety and perfectionism/performance evaluation subscale and need for approval subscale of DAS. However, regression analysis showed that perfectionism/performance evaluation and need for approval did not predict anxiety. Significant correlation was found in other studies in the literature (32,36) ,but, the finding that dysfunctional thoughts do not have explanatory power on anxiety symptoms encountered in the study by Greenaway and Howlin in children with autism (37). The relationship between anxiety and dysfunctional attitudes should be investigated more specifically as suggested in depression (38).

CONCLUSION

In the literature, even in studies of different mental disorders, it was seen that depression-specific ATQ and DAS were mostly used for the assessment of automatic thoughts and dysfunctional attitudes. By developing new scales specific to the cognitive contents of different mental illnesses, automatic thoughts and dysfunctional attitudes in anxiety can be determined. It is important that these studies be performed in clinical groups in addition to populations from different cultures. Of course, larger sample with more homogeneous distribution in age and gender and more demographic studies are needed to replicate the results of the present study. But the findings certainly indicate for the importance of such treatments as cognitive behavioral therapy.

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