

Comparing Attentional Control and Intrusive Thoughts in Obsessive-Compulsive Disorder, Generalized Anxiety Disorder and Non Clinical Population

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Objective: Attention is an important factor in information processing; obsessive-compulsive disorder (OCD) and generalized anxiety disorder (GAD) are two main emotional disorders with a chronic course. This research examined the relationship among attentional control and intrusive thoughts (worry, rumination and obsession) in these disorders. It was hypothesized that attentional control is a common factor in OCD and GAD. In addition, we compared worry, rumination and obsession among OCD, GAD and non-clinical participants.

Method: The research sample included three groups: OCD (n = 25), GAD (n = 30) and non-clinical samples (n = 56). Data were collected using the Attentional Control Scale (ACS), Rumination Response Scale (RRS), Pennsylvania State Worry Questionnaire (PSWQ), Beck Depression Inventory (BDI), Beck Anxiety Inventory (BAI), Obsessive-Compulsive Inventory-Revised (OCI-R) and General Health Questionnaire (GHQ-28). Data were analyzed using MANOVA and MANCOVA by SPSS-17.

Result: Multivariate Analysis of Variance revealed that the OCD and GAD groups reported greater deficits in attentional control, higher obsessive-compulsive symptoms, rumination, worry, anxiety and depression compared to the control group.

Conclusion: This research indicated a great attentional deficit in obsessive-compulsive disorder and generalized anxiety disorder. However, no significant difference was found between these two disorders.

Keywords: Attention, Worry, Obsession, Rumination

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In recent years, researchers have been interested in studying the role of attention in anxiety and mood disorders such as post traumatic stress disorder (1), obsessive-compulsive disorder (2-5), generalized anxiety disorder (2), major depressive disorder (6), dysphoric mood (7) and neuroticism (8).

Attention is a core factor in information processing and has an important role in learning. Attention arises from several interacting systems, one of which is anterior attentional system that serves as an executive function over other attentional processes (9). Attentional control has three factors: focusing, shifting and ability to control attention (9). These constructs are defined as "attentional focusing which is the capacity to intentionally hold the attentional focus on desired channels and thereby resist unintentional shifting to irrelevant or distracting channels. attentional shifting is the capacity to intentionally shift the attentional focus to desired

channels, thereby avoiding unintentional focusing on particular channels", and "ability to control attention" is the flexibility to control thoughts (9-10, p 225).

Recent conceptualizations of GAD and OCD suggest that these two disorders may be fundamentally more similar in functionality and content of worry and obsession (11). Obsession is a main feature of OCD and worry is the core feature of GAD (12). Worry is a chain of thoughts and images which negatively affect-laden and is relatively uncontrollable. It represents an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes. Therefore, worry relates closely to the fear process (13). According to the Diagnostic and Statistical Manual of Mental Disorders (12), obsessions are defined as "intrusive thoughts, ideas, images, impulses, or doubts that the person experiences in some ways as senseless and that

evoke affective distress". Generally, both worry and obsessions are intrusive and uncontrollable thoughts produce negative affect. They often share similar themes (e.g., fears of getting sick, making mistakes or losing someone important) (Schut, Castonguay, & Borkovec, 2001 as cited in (14)).

Turner, Beidel, and Stanley (1992, p 265, as cited in (15)) reviewed the literature on obsession and worry and outlined five main similarities concluding that obsession and worry (1) both occur in non-clinical and clinical populations (2), have a similar form and content in nonclinical and clinical populations, (3) occur in greater frequency and with greater perceptions of uncontrollability in clinical compared to non-clinical samples, (4) are both associated with adverse mood and (5) appear to have some shared vulnerability. Finally, although they are distinct experiences, pathological worry and obsession may share notable similarities in their underlying vulnerability and maintenance (14), and researches reported significant correlations between measures of obsessions and worry (16, 17).

Rumination is another intrusive thought that is defined as "repetitive and passive thinking about one's symptoms of depression and the possible causes and consequences of these symptoms" (18). Rumination has been implicated in OCD and GAD (2). The associations between obsessional thoughts, worry and rumination that are related to both disorders may suggest that these cognitive symptoms derive from a common underlying mechanism. Therefore, while obsessional thoughts, preservative worry and rumination are all distinct in terms of content and form, they might be exacerbated by a common cognitive vulnerability (2). One such cognitive vulnerability might be a deficit in attentional control (9).

In the current study, it was hypothesized that if an attentional control deficit is playing a role in appearing worry, obsession and rumination, it can be targeted in the treatment of OCD and GAD due to the nature of plasticity of attentional control (2). For example, metacognitive therapy uses attention training techniques in treatment of mental disorders (19), and there are some studies (20) that have performed attention modification programs in GAD.

Attentional control is a new concept and there are few studies considering the nature of attentional control. Many studies in attention domain relate to attention biases and specifically to social phobia (21-23). Attention bias is one type of deficit in attentional control. Also, little information is available on the relation between attentional control and cognitive symptoms; and many studies have assessed the relation between attentional control and disorders (1, 6). Although some studies have directly investigated the relationship between intrusive thoughts in OCD and GAD and attentional control, indirect evidence supports the proposed associations. For example, Olafson et al. (6) found that both focusing and shifting

factors of the Attentional Control Scale had moderate and negative correlations with the symptoms of anxiety and depression indicating that both types of symptoms are associated with a decreased ability to focus and shift attention, and many studies have suggested that rumination is highly correlated with depression (18). Also, some other studies (8, 9) indicated that neuroticism and high anxiety are related to low attentional control (both focus and shifting) and (6) conveyed that neuroticism or trait anxiety is a general vulnerability factor for the development of psychological disorders. Armstrong et al. (2) found that the OCD and GAD groups reported greater deficits in attentional focus and shifting compared to the control group. Also, the OCD and GAD groups reported more obsessional thoughts, preservative worry and rumination compared to the control group. Another research indicated that attentional control was convincingly associated with symptom scores (24). Due to the importance of attentional control as a transdiagnostic factor and the high comorbidity of emotional disorders, the present research seeks to assess the differences between obsessive compulsive disorder and generalized anxiety disorder in attentional control. Also rumination, obsession and worry are common transdiagnostic factors and they are included in this study as well.

Material and Methods

Samples and Procedure

This was a causal-comparative study. The sample size was derived based on the last similar studies (2). The participants of this study included 56 (21 men) non-clinical participants, 30 (11 men) patients with general anxiety disorder and 25 (4 men) with obsessive compulsive disorder. The total sample consisted of 36 men and 75 women, with the mean age of 31.89 (SD = 8.13).

All clinical participants were recruited from Roozbeh hospital and psychiatric and psychological clinics all over Tehran in 2012. Non-clinical participants were recruited from different regions of Tehran. At first, clinical participants provided informed consent and were administered the SCID-I. Then, they completed five self-report questionnaires. Participants were debriefed regarding the nature of the research. Patient anonymity was preserved. In order to ensure the mental health of the non-clinical population, they were asked to fill out the GHQ questionnaire, a well-known screening instrument for measuring current mental health (25) (with cut off point, 23). Exclusion criteria for all groups were a diagnosis of psychotic disorder, substance abuse, attention deficit hyperactivity disorder, or central nervous system diseases .

The comparison of clinical and non-clinical group for gender, marital status, work, socioeconomic status, religion (Table 1) and age (sig (2- tailed)) = .296, df = 109) showed no significant differences.

Measures

The research instruments were as follows: 1- Structured Clinical Interview for DSM-IV (SCID-I). 2- Rumination Response Scale (RRS). 3- Attentional Control Scale (ACS). 4- Pennsylvania State Worry Questionnaire (PSWQ). 5- Beck Depression Inventory (BDI). 6- Beck Anxiety Inventory (BAI). 7- General Health Questionnaire (GHQ-28).

SCID-I, Research Version, Patient Edition (26) is a semi structured clinical interview used to diagnose mental disorders as delineated in the DSM-IV. Inter-rater and test-retest reliability estimates the SCID-I vary, but have generally been found to be in the fair to good range (27). Also, this instrument has shown high reliability and validity in Iran (28). In this study, OCD and GAD part of this measure was used by a clinical psychologist.

Attentional Control Scale (ACS, (9)). The scale includes 20 items and uses a 4-point Likert scale. The ACS has the following two subscales: 1) focusing: the ability to maintain attention on a given task, 2) shifting: the ability to reallocate attention to a new task or to engage attention on multiple tasks. The ACS total score had adequate internal consistency ($\alpha = .84$) as did the focus and shifting subscales ($\alpha = .82$ and $\alpha = .68$, respectively, (6)). This instrument had adequate internal consistency in both clinical ($\alpha_{\text{tot}} = .81$, $\alpha_{\text{focus}} = .78$, & $\alpha_{\text{shifting}} = .84$) and non-clinical ($\alpha_{\text{tot}} = .74$, $\alpha_{\text{focus}} = .73$, & $\alpha_{\text{shifting}} = .68$) samples in Iranian population (29).

The Obsessive-Compulsive Inventory-Revised (OCI-R); (30) is an 18-item questionnaire of OCD symptoms. The scale provides a total score and six factors (washing, checking, obsessing, neutralizing, ordering and hoarding). The six factors appear consistent across samples and demonstrate good convergent and divergent validity with the YBOCS in patients with OCD (30). Also internal consistency of this scale was good in Iran ($\alpha = .85$) (31).

Penn State Worry Questionnaire (PSWQ); (32). The scale comprises of 16 items and uses a 5-point Likert scale. The PSWQ measures the tendency, intensity and uncontrollability of worry. The PSWQ has good internal consistency in both undergraduate ($\alpha = .92$) and clinical samples ($\alpha = .74$) (32). Additionally, the PSWQ has demonstrated good test retest reliability over periods up to 10 weeks and is moderately to strongly correlate with the measures of anxiety and depression (32). This instrument has adequate internal consistency ($\alpha = .88$) and test-retest reliability ($r = .79$) in Iran (33).

Beck Depression Inventory-II (BDI-II); (34) is a 21-item self-report measure with robust psychometric properties (which assesses the severity of a range of affective, somatic and cognitive symptoms of depression. Also, the Persian version of this scale has good total validity ($\alpha = .91$) and test-retest reliability ($r = .94$) (35).

Beck Anxiety Inventory (BAI; (36) is a 21-item self-report measure which assesses the severity of a range of physiological and cognitive symptoms of anxiety over the preceding week. Also, Kaviani and Mosavi validate this instrument in Iran and indicated that it has a good internal consistency ($\alpha = .92$) and test-retest reliability ($r = .83$) (37).

Rumination Response Scale (RRS); (38) is a self-report measure that assesses the tendency to ruminate in response to depressed mood. The RRS contains 22 items that are symptom-focused, self-focused, or focused on possible causes and consequences of the depressive mood. Participants respond on these items on a 4-point Likert-type scale ranging from 0 to 3 and yielding scores from 22 to 88 (38). The RRS possesses good internal consistency ($\alpha = 0.89$) (38) and 5-month retest reliability (39). Internal consistency of the Persian version is reported 0.88 to 0.92, using Chronbach's alpha which is good and reliable (40).

The General Health Questionnaire-28 (GHQ-28(41) is a 28-item self-report questionnaire with a 4 point Likert scale. The GHQ has demonstrated good psychometric properties ($\alpha = 0.89$, $r = 0.83$) (41). Also, total internal consistency ($\alpha = 0.90$) and test-retest reliability ($r = .70$) of the Persian version was good (42).

Data Analysis

Data were analyzed using SPSS-17. The descriptive statistics and chi-square and t-test were used to analyze the demographic data. Also, Multivariate analysis of variance (MANOVA) and Multivariate analysis of covariance (MANOVA) were employed to compare the groups.

Result

Research findings are presented in two sections: the descriptive findings and the findings relevant to the hypotheses.

Descriptive findings consist of the means and standard deviations of the research variables (attentional control and its subscales, obsessive compulsive symptoms and its six facets, worry, depression, anxiety and reflection, brooding and depression related rumination) (table 2)

Multivariate analysis of variance (MANOVA) revealed a main effect of group for all variables. Levene's test of equality of error variance was not significant in ACS, Reflection, brooding and depression related rumination, PSWQ and OCI-R, indicating that variance was equal across groups in these variables. The two patient groups differed only in depression. These data are presented in Table 3.

Also, another MANOVA were conducted to compare the subscales among the three groups. Also, a MANCOVA with BAI scores as the covariate. This analysis revealed that the three groups were significantly different in all variables except for attentional control and reflection rumination.

Table1: The Relation between Clinical and Non- Clinical Group in Socio- Demographic Characteristics by Chi-Square Test

variable	Marital tatus	Gender	Socioeconomic status	Work	Religion
Sig (2-tailed)	0.204	0.250	0.581	0.251	0.243
df	2	1	2	5	1

Table2. Means and Standard Deviations of all Variables

Variables	Total		Non clinical		OCD		GAD	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
attentional control	49.67	7.46	52.76	6.83	45.08	8.26	48.01	5.44
attention focus	21.06	4.35	22.90	4.18	19.28	4.64	19.66	3.55
attention shifting	28.60	4.58	29.86	4.51	25.8	4.89	28.33	3.28
total OCI-R	26.67	11.56	21.86	9.18	35.08	13.21	28.66	9.64
Washing	4.78	3.62	3.77	2.51	7.88	3.97	4.10	3.73
Ordering	6.55	3.43	5.27	3.01	7.84	3.64	7.86	3..21
Obsession	5.51	3.01	4.25	2.96	7.08	2.96	6.56	2.04
Neutralizing	3.01	2.19	2.71	1.59	3.68	3.08	2.96	2.23
Hoarding	3.32	2.75	2.96	1.85	4.56	4.08	2.96	2.61
Checking	4.56	3.11	3.87	2.39	5.32	3.18	5.20	3.93
Reflection	11.04	3.26	9.51	2.69	12.72	2.49	12.53	3.49
Brooding	12.66	3.94	10.09	2.66	15.8	3.03	14.86	3.42
depression- related	26.56	8.38	22.39	5.57	34.12	7.88	31.37	7.02
Depression	15.87	11.95	8.91	6.88	29.72	12.60	17.33	7.02
Anxiety	15.64	12.29	5.82	5.17	24.96	9.04	26.20	8.86
Worry	50.98	13.06	42.14	10.18	58.60	10.99	61.13	6.58

Table3: Multiple Comparisons among Non- clinical, obsessive- compulsive disorder (OCD) and generalized anxiety disorder (GAD) Participants

Variable	(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.
OCI-R	NC	GAD	-6.81	2.34	0.012
	NC	OCD	-13.22	2.48	0.001
	GAD	OCD	-6.41	2.79	0.061
PSWQ	NC	GAD	-18.99	2.16	0.001
	NC	OCD	-16.46	2.29	0.001
	GAD	OCD	2.53	2.59	0.592
reflection ruminaton	NC	GAD	-3.03	0.65	0.001
	NC	OCD	-3.22	0.69	0.001
	GAD	OCD	-0.19	0.78	0.970
depression related ruminaton	NC	GAD	-9.34	1.48	0.001
	NC	OCD	-11.73	1.57	0.001
	GAD	OCD	-2.39	1.77	0.373
brooding ruminaton	NC	GAD	-4.78	0.67	0.001
	NC	OCD	-5.71	0.71	0.001
	GAD	OCD	-0.93	0.80	0.478
BAI	NC	GAD	-20.38	1.76	0.001
	NC	OCD	-19.14	1.93	0.001
	GAD	OCD	1.24	2.43	0.942
BDI	NC	GAD	-8.42	1.965	0.001
	NC	OCD	-20.81	2.09	0.001
	GAD	OCD	-12.39	2.88	0.001
ACS	NC	GAD	4.61	1.54	0.010
	NC	OCD	7.53	1.64	0.001
	GAD	OCD	2.92	1.85	0.260

Table 4. Multiple Comparisons in Subscales

Variable	(I) group	(J) group	Mean Difference (I-J)	Std. Error	Sig.
focus	NC	GAD	-2.94 [*]	.93	.005
		OCD	-3.33 [*]	.98	.003
	GAD	OCD	-.39	1.11	.935
shifting	NC	GAD	1.67 [*]	.97	.206
		OCD	4.20 [*]	1.03	.001
	GAD	OCD	2.53	1.17	.081
checking	NC	GAD	-1.32 [*]	.79	.270
		OCD	-1.44 [*]	.71	.143
	GAD	OCD	-.12	.96	.999
hoarding	NC	GAD	-.01	.54	.270
		OCD	-1.59	.85	.200
	GAD	OCD	-.12	.96	.999
neutralizing	NC	GAD	-.25	.46	.929
		OCD	-.96 [*]	.65	.383
	GAD	OCD	-.71	.74	.712
obsessing	NC	GAD	-2.32 [*]	.54	.001
		OCD	-2.83 [*]	.71	.001
	GAD	OCD	.51	.69	.849
ordering	NC	GAD	-2.59 [*]	.73	.002
		OCD	-2.57 [*]	.77	.003
	GAD	OCD	-.03	.87	.999
washing	NC	GAD	-.33	.76	.962
		OCD	4.11 [*]	.86	.001
	GAD	OCD	-3.78 [*]	1.04	.002

MANCOVA for subscales revealed significant differences among groups in neutralizing, obsessing and washing.

Discussion

The present study set out to compare intrusive thoughts and attentional control in Obsessive-Compulsive disorder, General Anxiety disorder, and non clinical population. The results indicated that compared to the control group, OCD and GAD groups reported greater deficits in attentional control, however, OCD and GAD groups did not differ in attentional control. These findings suggest that attentional control might be a psycho pathologic factor and it doesn't exist in non clinical population. Many of studies indicated the role of attentional control in many disorders (1-8). Since, the current findings indicated that attentional control is a shared factor in OCD and GAD; we can conclude attentional techniques are general clinical skills that can be used by less experienced clinicians for treating OCD, GAD and also in comorbid conditions.

In the current study two clinical groups had higher obsessional thoughts and worry scores than nonclinical group and this finding is not congruent with traditional concepts that assumed worry is the specific factor for GAD, and obsession is the specific factor for OCD (12, 43). However of course, there are some researches that

disagree with this hypothesis and have reported that obsessional thoughts discriminate these two groups better than preservative worry (2). The overlap between worry and obsession can be due to their nature; however, it can also be related to poor discriminant validity of current measures and questionnaires in distinguishing worry and obsession. For example in OCI-R subscales, washing was the only subscale with significantly different scores in OCD and GAD groups. This finding suggests that washing/contamination is the factor that can differentiate these two groups at least in Iran. Part of this finding relates to cultural characteristic of OCD in Iran. Since patients in Iran often describe washing/contamination as their major intrusive thought, and they often seek treatment for their washing more than other OCD symptoms, participants of the current study might be more involved in contamination thoughts rather than other intrusive thoughts.

MANCOVA analysis indicated, when anxiety assumed as covariate the difference between group was not significant, this result confirmed previous results that attentional control has a high correlation with trait anxiety (8, 9). In this research depression is the only factor that differs between GAD and OCD groups, but in Brown, Moras, zinbarg, & Barlow's (43) study GAD and OCD groups didn't differ in depression symptoms. One explanation for this contradiction is, OCD patients

in our study had chronic course, and depression is due to their OCD symptoms. Research findings indicate dysphoric mood amplifies severity of obsessions in OCD patients (45). Another explanation is that may be OCD symptoms that reported by patients are due to increase in severity of depression. In fact the relationship between obsession and depression has been argued, Rachman described "often the obsession cause a lowering in mood but in other instances a lowering of mood is followed by an increase in obsessional activity"(46).

Conclusion

In summary, findings of present study support transdiagnostic model as a new approach for diagnosis, conceptualizing and treatment of comorbid disorders especially emotional disorders and their common features and also, they can be used for designing a unified treatment protocol that will target the attention. Like every other study, there are several limitations in this research that should be considered. Attentional control is a new concept that is under investigations in recent years; however there aren't enough researches and support for this concept yet. Psychology as a developing science needs more studies in this domain including studying other disorders to assess the differences between them in attentional control and other transdiagnostic factors.

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