IJASHSS - 2016- eISSN: 2345-2749

International Journal of Advanced Studies in Humanities and Social Science

Journal homepage: www.ijashss.com

Original Article

Compare of Cognitive Insight and Separation Anxiety in Patients with Generalized Anxiety Disorder and Obsessive-Compulsive Disorder

Ali Gholampour*

M.sc. of Clinical Psychology, Department of Psychology, University of Mohaghegh Ardabili, Ardabil, Iran

ARTICLE INFO

Article history:
Received: 23 April, 2016
Revised: 22 May, 2016
Accepted: 29 June, 2016
ePublished: 30 July, 2016

Key words:
Cognitive insight
Separation anxiety
Ardabil

ABSTRACT

The purpose of this study was to examine the compare of cognitive insight and separation anxiety in patients with generalized anxiety disorder and obsessive-compulsive disorder. The population consist of all patients with generalized anxiety disorder and obsessive-compulsive disorder referred to clinical centers of Ardabil. In this study 80 patients were selected. In this study were used of questionnaire of separation anxiety and cognitive insight. Data analysis included multivariate regression, pearson's r correlations, regression analysis, ANOVA analyses with SPSS software (package of Spss / pc + + ver 21). The results showed that, the mean of your thinking and cognitive vision in patients with obsessive-compulsive disorder more than patients with generalized anxiety disorder. According to the findings, the mean of discomfort due to separation, relax in the separation and cognitive insight in patients with obsessive-compulsive disorder more than patients with generalized anxiety disorder.

Introduction

Anxiety disorders are more prevalent than any other mental health disorder, composing the majority of lifetime mental health disorders worldwide (Kessler et al., 2009). Given this, the study of anxiety is a critical public health issue because it places a considerable emotional, social, and financial burden on both the individual and society as a whole. Along with the emotional facets of the disorder, anxiety patients have difficulty concentrating and report feeling distracted, which in turn can negatively impact their job performance and interpersonal relationships. One popular hypothesis is that working memory (WM) plays a key role in the cognitive problems experienced by anxious people by limiting resources necessary to perform goal-directed tasks (Shackman et al., 2006; Vytal et al., 2012). Despite difficulties with replicating anxiety-related impairment in the lab (Fales et al., 2008; Porcelli et al., 2008; Qin et al., 2009) WM capacity and performance is shown to be significantly reduced in patient populations (Lucas et al., 1991; Boldrini et al., 2005) and individuals with trait anxiety (Darke, 1988; Eysenck, 1998). WM is central to healthy functioning because it supports online maintenance and manipulation of information (e.g., carrying on a conversation, or tallying the cost of a grocery bill while shopping). Cognitive disruption in anxiety is thought, in

***Corresponding Author:** Ali Gholampour. M.sc. of Clinical Psychology, Department of Psychology, University of Mohaghegh Ardabili, Ardabil, Iran (ag_ha53@yahoo.com)

part, to reflect the presence of an attentional bias (Robinson et al., under review), where anxiety takes the reins of certain sensory, perceptual, and attentional processes, and threatening information is preferentially processed over other potentially important information (for a meta-analytic review of attentional bias in anxiety see Bar-Haim et al., 2007).

Anxiety's influence on behavior encompasses changes in early perceptual processes as well as changes in higher-order cognitive processes later downstream. Anxiety alters early sensory-perceptual processes in the auditory (Cornwell et al., 2007) and visual system (Lim et al., 2009; Shackman et al., 2011) that may serve to promote threat detection (e.g., detection of auditory tones or visual cues), and this garnering of resources extends into cognitive-affective biases that are manifested in behavior. Examples of this are found in studies where negatively valenced stimuli are processed more rapidly under anxious conditions (Robinson et al., 2011, 2012). However, this bias may be detrimental to other goal-directed behaviors that are not threat-relevant. As such, performance on tasks that involve attention, maintenance of information, and rapid sensory perception may be impaired.

Further impairment may result from additional competition for resources, this time at the level of executive processes. There are several theories [e.g., processing efficiency (Eysenck and Calvo, 1992), two-component model (Vytal et al., 2012), and hemispheric asymmetry hypothesis (Shackman et al., 2006)] that have built upon this basic premise, and although they are not necessarily mutually exclusive, they make different predictions about the influence of anxiety on cognition. One important distinction that underlies each of these theories is that anxiety can be described by both anxious arousal (e.g., physiological changes in heart-rate variability and eccrine responses, increased vigilance, and priming of other sensory-dependent defensive mechanisms) and anxious apprehension (e.g., awareness of physiological changes, worry, and rumination) (Heller et al., 1997). These two components rely on separable neural systems (Nitschke et al., 1999). In a similar vein, although verbal and spatial WM share many neural resources, they also engage separable neural systems, some of which overlap with the systems above [e.g., anxious apprehension and verbal WM engage dorsal, medial, and ventral prefrontal cortex (PFC) (D'Esposito et al., 1998; Kalisch et al., 2006; Engels et al., 2007; Paulesu et al., 2010), anxious arousal and spatial WM engage unique regions in middle and ventral PFC (Clark et al., 2003; Dalton et al., 2005; Silk et al., 2010), for a meta-analysis of spatial and verbal WM neuroimaging studies see Owen et al., 2005]. As such, although both components of anxiety (anxious apprehension and anxious arousal) are likely to affect any type of WM, they may differentially disrupt verbal and spatial WM. Specifically, anxious apprehension and anxious arousal may preferentially disrupt verbal and spatial WM, respectively. This is because verbal WM processes may share more neural circuitry with anxious apprehension (e.g., mechanisms involved in verbal information encoding and verbal-based worry) and spatial WM may share more neural circuitry with anxious arousal (e.g., mechanisms involved in spatial attention). The aim of this study was to examine the compare of cognitive insight and separation anxiety in patients with generalized anxiety disorder and obsessive-compulsive disorder.

Research methods

This research is causal-comparative study. The population consist of all patients with generalized anxiety disorder and obsessive-compulsive disorder referred to clinical centers of Ardabil. In this study 80 patients were selected. In this study was used of questionnaire for data collection. The patients answered the same questionnaire including: questionnaire of separation anxiety (including 26 questions) and cognitive insight (including 15 questions). The cronbach's alpha that obtained from the pilot data was 0.93 for separation anxiety, 0.86 for cognitive insight. Data analysis included multivariate regression, pearson's r correlations, regression analysis, ANOVA analyses with SPSS software (package of Spss / pc + + ver 21).

Results

The results showed that the mean age of group obsessive-compulsive disorder was 32.14 and SD was 5. 61 and group generalized anxiety disorder was 30.88 and SD was 5.42. According to the findings, 43.72 percent of group obsessive-compulsive disorder and 51.29 percent of group generalized anxiety disorder were female.

Table 1: The mean and standard deviation of cognitive insight in the studied groups

Variable	Group	Mean	SD
Your thinking	Generalized anxiety disorder	20.86	4.91
	Obsessive-compulsive disorder	23.53	3.98
Self confidence	Generalized anxiety disorder	15.23	2.73
	Obsessive-compulsive disorder	14.27	3.50
Cognitive insight	Generalized anxiety disorder	39.80	4.91
	Obsessive-compulsive disorder	43.70	7.27

The results showed that, the mean of your thinking in group generalized anxiety disorder was 20.86 and in group obsessive-compulsive disorder was 23.53. According to the results, mean of the self confidence in group generalized anxiety disorder was 15.23 and in group obsessive-compulsive disorder was 14.27. The results showed that, mean of the cognitive insight in group generalized anxiety disorder was 39.80 and in group obsessive-compulsive disorder was 43.70

Table 2: The mean and standard deviation of separation anxiety in the studied groups

Variable	Group	Mean	SD
Discomfort due to separation	Generalized anxiety disorder	38.12	11.04
	Obsessive-compulsive disorder	53.55	7.90
Concern of separation	Generalized anxiety disorder	12.76	3.10
	Obsessive-compulsive disorder	13.11	3.48
Relax in the separation	Generalized anxiety disorder	14.18	3.92
	Obsessive-compulsive disorder	19.22	10.57
Separation anxiety	Generalized anxiety disorder	65.44	16.39
	Obsessive-compulsive disorder	76.31	15.59

The results showed that, the mean of discomfort due to separation in group generalized anxiety disorder was 38.12 and in group obsessive-compulsive disorder was 53.55, According to the results, mean of the concern of separation in group generalized anxiety disorder was 12.76 and in group obsessive-compulsive disorder was 13.11. The results showed that, mean of the relax in the separation in group generalized anxiety disorder was 14.18 and in group obsessive-compulsive disorder was 19.22, According to the results, mean of the separation anxiety in group generalized anxiety disorder was 65.44 and in group obsessive-compulsive disorder was 76.31

Table 3: The results of multivariate variance analysis for cognitive insight

Test	Value	F	df of hypothesis	df of error	P	Chi Eta
Pylayy effect	0.15	1.45	2	77	0.000	0.55
Wilks Lambda	0.87	1.45	2	77	0.000	0.55
Hotelling effect	0.16	1.44	2	77	0.000	0.55
Largest root of the error	0.13	2.41	2	77	0.000	055

Table 4: The results of multivariate variance analysis for separation anxiety

Test	Value	F	df of hypothesis	df of error	P	Chi Eta
Pylayy effect	0.170	6.538	3	76	0.000	0.170
Wilks Lambda	0.830	6.538	3	76	0.000	0.170
Hotelling effect	0.204	6.538	3	76	0.000	0.170
Largest root of the error	0.204	6.538	3	76	0.000	0.170

According to the table 4 and 5, there is a significant relationship between at least one of the dependent variables in the group studied.

Discussion and Conclusion

The purpose of this study was to examine the compare of cognitive insight and separation anxiety in patients with generalized anxiety disorder and obsessive-compulsive disorder. The results showed that, the mean of your thinking and cognitive vision in patients with obsessive-compulsive disorder more than patients with generalized anxiety disorder ($p<0/05$). These results are in good agreement with results, Yon et al (2005), Colis et al, (2006), and Catapano et al (2012). Catapano et al, in study showed that, there is a significant relationship between poor insight with more damage and verbal memory and fluency in patients with OCD. Kashyap et al (2012) reports that, there is a significant relationship between poor insight with a severe form of obsessive-compulsive disorder. Colis et al, (2006), reports that patients with major depression had higher levels of cognitive insight compared with psychotic bipolar group. Mackvi et al, (1998), reports that, there is a relatively weak relationship between insight and symptoms, it is important to analyze and explore the cognitive processes related to the experiences of patients will require.

According to the results, there is a significant relationship between discomfort due to separation, relax in the separation and cognitive insight in patients with generalized anxiety disorder and obsessive compulsive disorder. The results showed that, the mean of discomfort due to separation, relax in the separation and cognitive insight in patients with obsessive-compulsive disorder more than patients with generalized anxiety disorder ($p<0/05$). These results are in good agreement with results, Goldwin et al (2001), Adamz et al (2007), Vahedi et al (2014) and Scaini et al (2014). Vahedi et al (2014) reports that, the mean of separation anxiety disorder in patients with obsessive-compulsive disorder more than patients with social anxiety disorder. Goldwin et al (2001), reports that, there is a significant relationship between compulsive disorder and separation anxiety. Scaini et al (2014) in a study showed that people with high scores are from separation anxiety, also had a high level of obsessive-compulsive symptoms. Evidence shows that separation anxiety disorder is not a passing phenomenon for children and if not treated will continue to teens and adult and child creates a lot of problems in the future and These problems include disorders of the OCD (Scaini et al, 2014). In addition, there is this anxiety leads to ritual behaviors in people with the database. The results Mroczkowski et al (2012) showed that the simultaneous occurrence of obsessive-compulsive disorder with separation anxiety, separation anxiety was lower than the rates alone. Because the data is collected through a questionnaire and like other self-report research results may be making the possibility of abuse.

References

Abramowitz, J.S., Whiteside, S., Kalsy, SA. & Tolin, DF. (2003). Thought control strategies in obsessive-compulsive disorder: A replication and extension. Behavior Research and Therapy, 41(2), 529-540.

Amador, X.F., & David, A.S. (2004). Insight and Psychosis. New York: Oxford Univercity Press.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th Ed.). Washington, DC: Author.

Bandura, A. (1988). Self-efficacy conception of anxiety. *Anxiety Res*. 1, 77–98.

Bar-Haim, Y., Lamy, D., Pergamin, L., Bakermans-Kranenburg, M. J., and Van IJzendoorn, M. H. (2007). Threat-related attentional bias in anxious and nonanxious individuals: a meta-analytic study. *Psychol. Bull*. 133, 1–24.

Bech, A.T., Baruch, E., Balter, J.M., Stress, R.A., & warman, D.M. (2004). Anew instrument for measuring in sight: the Beck cognsitive in sight scale, schizo phrenia Research, 68(5), 319-329.

Boldrini, M., Del Pace, L., Placidi, G. P., Keilp, J., Ellis, S. P., Signori, S., et al. (2005). Selective cognitive deficits in obsessive-compulsive disorder compared to panic disorder with agoraphobia. *Acta Psychiatr. Scand*. 111, 150–158.

Bonanno, G. A., Keltner, D., Holen, A., and Horowitz, M. J. (1995). When avoiding unpleasant emotions might not be such a bad thing: verbal-autonomic response dissociation and midlife conjugal bereavement. *J. Pers. Soc. Psychol*. 69, 975.

Borkovec, T. D., and Inz, J. (1990). The nature of worry in generalized anxiety disorder: a predominance of thought activity. *Behav. Res. Ther*. 28, 153–158.

Brown, T. A., Antony, M. M., and Barlow, D. H. (1992). Psychometric properties of the Penn state worry questionnaire in a clinical anxiety disorders sample. *Behav. Res. Ther*. 30, 33–37.

Catapano, F., Perris, F., Fabrazzo, M., Cioffi, V., Giacco, D., Santis, V D., & Maj, M. (2010). Obsessive–compulsive disorder with poor insight: A three-year prospective study. Progress in Neuro-Psychopharmacology and Biological Psychiatry, 34(2), 323–330.

Chapman, L. J., and Chapman, J. P. (2001). Commentary on two articles concerning generalized and specific cognitive deficits. *J. Abnorm. Psychol*. 110, 31–39.

Charney, D. S., Woods, S. W., Goodman, W. K., Rifkin, B., Kinch, M., Aiken, B., et al. (1986). Drug treatment of panic disorder: the comparative efficacy of imipramine, alprazolam, and trazodone. *J. Clin. Psychiatry* 47, 580–586.

Cherian, AV., Narayanaswamy, JC., Srinivasaraju, R., Viswanath, B., & Math, SB. (2012). Kandavel, TH. Reddy, YCJ Does insight have specific correlation with symptom dimensions in OCD?Journal of Affective Disorders. 138(3), 352–359.

Clark, L., Manes, F., Antoun, N., Sahakian, B. J., and Robbins, T. W. (2003). The contributions of lesion laterality and lesion volume to decision-making impairment following frontal lobe damage. *Neuropsychologia* 41, 1474–1483.

Cohen, L. J., Hollander, E., Decaria, C. M., and Stein, D. J. (1996). Specificity of neuropsychological impairment in obsessive-compulsive disorder: a comparison with social phobic and normal control subjects. *J. Neuropsychiatry Clin. Neurosci*. 8, 82–85.

Colis, MJ., Steer, R A., & Beck, A T. (2006). Cognitive Insight in Inpatients with Psychotic, Bipolar, and Major Depressive Disorders.Journal of Psychopathology and Behavioral Assessment. 28(4), 242-249.

Corballis, P. M., Funnell, M. G., and Gazzaniga, M. S. (2002). Hemispheric asymmetries for simple visual judgments in the split brain. *Neuropsychologia* 40, 401–410.

Cornwell, B. R., Alvarez, R. P., Lissek, S., Kaplan, R., Ernst, M., and Grillon, C. (2011). Anxiety overrides the blocking effects of high perceptual load on amygdala reactivity to threat-related distractors. *Neuropsychologia* 49, 1363–1368.

Cornwell, B. R., Baas, J. M., Johnson, L., Holroyd, T., Carver, F. W., Lissek, S., et al. (2007). Neural responses to auditory stimulus deviance under threat of electric shock revealed by spatially-filtered magnetoencephalography. *Neuroimage* 37, 282–289.

Cornwell, B. R., Echiverri, A. M., Covington, M. F., and Grillon, C. (2008). Modality-specific attention under imminent but not remote threat of shock: evidence from

differential prepulse inhibition of startle. *Psychol. Sci*. 19, 615–622.

Dalton, K. M., Kalin, N. H., Grist, T. M., and Davidson, R. J. (2005). Neural-cardiac coupling in threat-evoked anxiety. *J. Cogn. Neurosci*. 17, 969–980.

Darke, S. (1988). Effects of anxiety on inferential reasoning task performance. *J. Pers. Soc. Psychol*. 55, 499–505.

Davidson, R. J. (1978). Specificity and patterning in biobehavioral systems: implications for behavior change. *Am. Psychol*. 33, 430.

Davis, M. (1998). Are different parts of the extended amygdala involved in fear versus anxiety? *Biol. Psychiatry* 44, 1239–1247.

D'Esposito, M., Aguirre, G. K., Zarahn, E., Ballard, D., Shin, R. K., and Lease, J. (1998). Functional MRI studies of spatial and nonspatial working memory. *Cogn. Brain Res*. 7, 1–13.

Diekhof, E. K., Geier, K., Falkai, P., and Gruber, O. (2011). Fear is only as deep as the mind allows: a coordinate-based meta-analysis of neuroimaging studies on the regulation of negative affect. *Neuroimage* 58, 275–285.

Engels, A. S., Heller, W., Mohanty, A., Herrington, J. D., Banich, M. T., Webb, A. G., et al. (2007). Specificity of regional brain activity in anxiety types during emotion processing. *Psychophysiology* 44, 352–363.

Eysenck, M. W., and Calvo, M. G. (1992). Anxiety and performance: the processing efficiency theory. *Cogn. Emot*. 6, 409–434.

Eysenck, M. W., Derakshan, N., Santos, R., and Calvo, M. G. (2007). Anxiety and cognitive performance: attentional control theory. *Emotion* 7, 336–353.

Eysenck, N. D. M. W. (1998). Working memory capacity in high trait-anxious and repressor groups. *Cogn. Emot*. 12, 697–713.

Fales, C. L., Barch, D. M., Burgess, G. C., Schaefer, A., Mennin, D. S., Gray, J. R., et al. (2008). Anxiety and cognitive efficiency: differential modulation of transient and sustained neural activity during a working memory task. *Cogn. Affect. Behav. Neurosci*. 8, 239–253.

First, M. B., Gibbon, M., Spitzer, R. L., and Williams, J. B. W. (1995). *Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) Research Version*. New York, NY: New York State Psychiatric Institute.

Ge, Y., Wu, J., Sun, X., and Zhang, K. (2011). Enhanced mismatch negativity in adolescents with posttraumatic stress disorder (PTSD). *Int. J. Psychophysiol*. 79, 231–235.

Goldwin, R., Lipsitz, J.D., Chapman, T.F., Fyer, A.J. & Mannuzza, S. (2001). Obsessive- compulsive disorder and separation anxiety co-morbidity in early onset panic disorder. Psychological Medicine, 31(8), 1307-1310.

Grillon, C. (2002). Startle reactivity and anxiety disorders: aversive conditioning, context, and neurobiology. *Biol. Psychiatry* 52, 958–975.

Heller, W., Nitschke, J. B., Etienne, M. A., and Miller, G. A. (1997). Patterns of regional brain activity differentiate types of anxiety. *J. Abnorm. Psychol*. 106, 376–385.

Ikeda, M., Iwanaga, M., and Seiwa, H. (1996). Test anxiety and working memory system. *Percept. Mot. Skills* 82, 1223–1231.

Jacob, R. G., Moller, M. B., Turner, S. M., and Wall, C. 3rd. (1985). Otoneurological examination in panic disorder and agoraphobia with panic attacks: a pilot study. *Am. J. Psychiatry* 142, 715–720.

Kalisch, R., Wiech, K., Critchley, H. D., and Dolan, R. J. (2006). Levels of appraisal: a medial prefrontal role in high-level appraisal of emotional material. *Neuroimage* 30, 1458–1466.

Kashyap, H., Kumar, J. K., Kandavel, T., & Reddy, Y. C. J. (2012). Neuropsychological correlates of insight in obsessive–compulsive disorder. Acta Psychiatrica Scandinavica. 126(2), 106–114.

Katon, W. (1984). Panic disorder and somatization: review of 55 cases. *Am. J. Med*. 77, 101–106.

Kessler, R. C., Aguilar-Gaxiola, S., Alonso, J., Chatterji, S., Lee, S., Ormel, J., et al. (2009). The global burden of mental disorders: an update from the WHO World Mental Health (WMH) surveys. *Epidemiol. Psichiatr. Soc*. 18, 23–33.

Kim, S. H., and Hamann, S. (2007). Neural correlates of positive and negative emotion regulation. *J. Cogn. Neurosci*. 19, 776–798.

Lang, P. J., Bradley, M. M., and Cuthbert, B. N. (1998). Emotion and motivation: measuring affective perception. *J. Clin. Neurophysiol*. 15, 397–408.

Lavie, N. (2005). Distracted and confused?: selective attention under load. *Trends Cogn. Sci*. 9, 75–82.

Lavric, A., Rippon, G., and Gray, J. R. (2003). Threat-evoked anxiety disrupts spatial working memory performance: an attentional account. *Cogn. Ther. Res*. 27, 489–504.

Lim, S. L., Padmala, S., and Pessoa, L. (2009). Segregating the significant from the mundane on a moment-to-moment basis via direct and indirect amygdala contributions. *Proc. Natl. Acad. Sci. U.S.A*. 106, 16841–16846.

Lucas, J. A., Telch, M. J., and Bigler, E. D. (1991). Memory functioning in panic disorder: a neuropsychological perspective. *J. Anxiety Disord*. 5, 1–20.

Manoach, D. S., White, N. S., Lindgren, K. A., Heckers, S., Coleman, M. J., Dubal, S., et al. (2004). Hemispheric specialization of the lateral prefrontal cortex for strategic processing during spatial and shape working memory. *Neuroimage* 21, 894–903.

Markham, R., and Darke, S. (1991). The effects of anxiety on verbal and spatial task performance. *Aust. J. Psychol*. 43, 107–111.

Masson, M. E. (2003). Using confidence intervals for graphically based data interpretation. *Can. J. Exp. Psychol*. 57, 203–220.

Molina, S., and Borkovec, T. D. (1994). "The penn state worry questionnaire: psychometric properties and associated characteristics," in *Worrying: Perspectives on Theory, Assessment and Treatment*, eds G. C. L. Davey and F. Tallis (Oxford: John Wiley and Sons), 265–283.

Morgan, C. A. III., and Grillon, C. (1999). Abnormal mismatch negativity in women with sexual assault-related posttraumatic stress disorder. *Biol. Psychiatry* 45, 827–832.

Mroczkowski, M.M., Goes, F.S., Riddle, M.A., Grados, M.A., Bienvenu, O.J., Greenberg BD. & Fyer, AJ. (2012). Separation anxiety disorder in OCD. Depress Anxiety, 28(3), 62-256.

Mueller, S. C., Temple, V., Cornwell, B., Grillon, C., Pine, D. S., and Ernst, M. (2009). Impaired spatial navigation in pediatric anxiety. *J. Child Psychol. Psychiatry* 50, 1227–1234.

Nee, D. E., Brown, J. W., Askren, M. K., Berman, M. G., Demiralp, E., Krawitz, A., et al. (2013). A meta-analysis of executive components of working memory. *Cereb. Cortex* 23, 264–282.

Nitschke, J. B., Heller, W., Palmieri, P. A., and Miller, G. A. (1999). Contrasting patterns of brain activity in anxious apprehension and anxious arousal. *Psychophysiology* 36, 628–637.

Ochsner, K. N., Ray, R. D., Cooper, J. C., Robertson, E. R., Chopra, S., Gabrieli, J. D., et al. (2004). For better or for worse: neural systems supporting the cognitive down- and up-regulation of negative emotion. *Neuroimage* 23, 483–499.

Owen, A. M., McMillan, K. M., Laird, A. R., and Bullmore, E. (2005). *N*-back working memory paradigm: a meta-analysis of normative functional neuroimaging studies. *Hum. Brain Mapp*. 25, 46–59.

Paulesu, E., Sambugaro, E., Torti, T., Danelli, L., Ferri, F., Scialfa, G., et al. (2010). Neural correlates of worry in generalized anxiety disorder and in normal controls: a functional MRI study. *Psychol. Med*. 40, 117–124.

Porcelli, A. J., Cruz, D., Wenberg, K., Patterson, M. D., Biswal, B. B., and Rypma, B. (2008). The effects of acute stress on human prefrontal working memory systems. *Physiol. Behav*. 95, 282–289.

Qin, S., Hermans, E. J., Van Marle, H. J. F., Luo, J., and Fernández, G. (2009). Acute psychological stress reduces working memory-related activity in the dorsolateral prefrontal cortex. *Biol. Psychiatry* 66, 25–32.

Rapee, R. M. (1993). The utilisation of working memory by worry. *Behav. Res. Ther*. 31, 617–620.

Robinson, O. J., Charney, D. R., Overstreet, C., Vytal, K., and Grillon, C. (2012). The adaptive threat bias in anxiety: amygdala-dorsomedial prefrontal cortex coupling and aversive amplification. *Neuroimage* 60, 523–529.

Robinson, O., Letkiewicz, A., Overstreet, C., Ernst, M., and Grillon, C. (2011). The effect of induced anxiety on cognition: threat of shock enhances aversive processing in healthy individuals. *Cogn. Affect. Behav. Neurosci*. 11, 217–227.

Sanders, M. R. (2004). Every parent: A positive approachto children's behavior. Melbourne: Penguin Austalia.

Scaini, S., Pezzica, E., Belotti, R., Colonna, S. & Ogliari, A. (2014). The Nature of Covariation between Separation Anxiety Symptoms and Obsessive Compulsive Symptoms in Developmental Age. Ann Depress Anxiety, 1(4), 1017-1021.

Shackman, A. J., Maxwell, J. S., McMenamin, B. W., Greischar, L. L., and Davidson, R. J. (2011). Stress potentiates early and attenuates late stages of visual processing. *J. Neurosci*. 31, 1156–1161.

Shackman, A. J., Sarinopoulos, I., Maxwell, J. S., Pizzagalli, D. A., Lavric, A., and Davidson, R. J. (2006). Anxiety selectively disrupts visuospatial working memory. *Emotion* 6, 40–61.

Silk, T. J., Bellgrove, M. A., Wrafter, P., Mattingley, J. B., and Cunnington, R. (2010). Spatial working memory and spatial attention rely on common neural processes in the intraparietal sulcus. *Neuroimage* 53, 718–724.

Simon, N. M., Pollack, M. H., Tuby, K. S., and Stern, T. A. (1998). Dizziness and panic disorder: a review of the association between vestibular dysfunction and anxiety. *Ann. Clin. Psychiatry* 10, 75–80.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P., and Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologist Press.

Viviani, D., Charlet, A., van den Burg, E., Robinet, C., Hurni, N., Abatis, M., et al. (2011). Oxytocin selectively gates fear responses through distinct outputs from the central amygdala. *Science* 333, 104–107.

Vytal, K., Cornwell, B., Arkin, N., and Grillon, C. (2012). Describing the interplay between anxiety and cognition: from impaired performance under low cognitive load to reduced anxiety under high load. *Psychophysiology* 49, 842–852.

Watson, D. (2009). Differentiating the mood and anxiety disorders: a quadripartite model. *Annu. Rev. Clin. Psychol*. 5, 221–247.