

The Role of Cognitive Vulnerability in Emersion of Fear

Ali Asghar Chegini^a, M.A Mohammad Reza Jalali^a, PhD Gholam Reza Sarami^b, PhD
Mohsen siavashi^c, M.A

^aDepartment of psychology, Imam Khomeini International University, Qazvin, Iran

^bDepartment of psychology, Allame Tabatabaei University, Tehran, Iran

^cDepartment of psychology, Azad University, Arak, Iran

ABSTRACT

This study is done in order to evaluate the fears of boys and girls and study the role of cognitive vulnerability in fear acquisition. Methodological approach was an ex post facto and causal-comparative type. The sample was 300 high school students. Fear and cognitive vulnerability was evaluated with FSSC-R and CVS. Results of t-test show that there is a significant difference between fears of boys and girls ($P < 0.01$) and the most current fears of boy and girl students were: Failing a test, Deep water or the ocean, beetle, Not being able to breathe, Getting a cut or injury, Cemeteries, Germs or getting a serious illness, Falling from high places, Bombing attacks, Getting a shock from electricity and Earthquakes. As well analyses of variance and regression recommend that cognitive vulnerability and its factors (uncontrollability, unpredictability, disgusting and dangerousness) have significant effect on fear acquisition ($P < 0.001$). The result of this study is that there is a large difference between fear of boys and girls. And a greater effect on fear for disgusting compared to other factors.

KEYWORDS: Danger; Controllability; Fear; Disgust; Predictability.

1. INTRODUCTION

Fear is a feeling that protects human. The phrase “fear” comes from the old English source *fere*, meaning “hazard,” or “coming unexpectedly upon.” If we are ready, then we may not feel scared. The phrase “fear” itself is a concept. The emotion result from a process in the body that is triggered by something we perceive, hear, touch, feel, or smell. And these factors can come up from the outside or from our imagination. Whatsoever the source, fear is not something we include, but something we perform. No matter what the reason of fear, it constantly expresses itself throughout the body. We cannot be rationally scared. Fear puts us in contact with our body [1]. Aristotle considered fear as being explanation for by a combination of higher mental life and a lower sensational life. Pre-dating much of current cognitive psychology, Aristotle indicates that at least a number of our feelings as arising from our perception of the world. He also considered emotion as being associated with enjoyment and soreness and listed a variety of specific emotions such as anger and fear [2]. In cognitive behavioral model, fear is explained on the bases of psychological processes, and any kinds of disorder are originated from faulty mental construction. In this attitude, has proposed that maladaptive cognitions are significant factors in the etiology and continuance of fears. Among the cognitive points of view, we can point to the cognitive vulnerability model. The Cognitive Vulnerability Model of the etiology of fear proposes that perceptual characteristics of uncontrollability, unpredictability and dangerousness are causal in the determination of fear [3]. In The Cognitive Vulnerability Model It is not necessary, therefore, for a person to consciously access any information relating to a particular stimulus in order for the person to react to that stimulus [4]. The perceptual vulnerability is a deep feeling of excitement that reappears the experience of being ready for an annoying event [5]. In any case, the researches show that no theory is immune to cultural effects, especially about cognitive approaches; these differences are more evident; because this matter is connected to thought & mind [6]. For example, the research shows evident differences between Asian & American cultures in the matter of view points, beliefs & information. Also there are some meaningful differences about prevalence of physical & mental disorders among American White Race groups, American natives, African Americans, Asians & spinaches [7]. In Iranians society & culture, the people of different religions & tribes have their be considered the cognitive factors causing fear in this cultural texture, and if the result of the research is different from other researches, so the effective cultural factors should be recognized in next steps. With regards to these factors, it is necessary to do this research in Iran society to recognize the efficacy of cognitive factors in fear acquisition.

2. Vulnerability Components:

Danger: Many researches support the hypothesis of the role of danger in an etiology of fear acquisition. Hafman [8] believes that remedial exposure is a form of cognitive invention that in particular changes the perception connected to dangerousness.

Disgust: The disgusting aspects of some stimuli may be a causative factor to create fear, in spite of their potential threat [4] For example; Tucker & Bond [9] found that sexuality & disgust sensitivities predicted the fear from injurious animals. Woody et al

[10] also found that compared to anxiety, there was a strong expected disgusting to avoid spider. Muris, et al [11] in a research found that giving some information about disgustingness & pollution of animal may increase the children's fear from them. Olatunji & Deacon [12] showed the people who frightened of spider, in comparison with control group, significantly gained a higher number on the scale of disgusting to exposure to spider. Van Overveld et al. [13] found that expectation of events related to disgusting, are a strong prediction for fear from spider.

Prediction: Unpredictability indicates the unavailability of information about some aspects of stimulus, like its characteristics, movement or position [14].

Many studies have shown the relationship between unpredictability and fear [4, 15]. It seems there are several factors for unpredictability; for example : (a) doubt of the characteristics and, so, the possible harmfulness of the stimulus; (b) doubt or unpredictability of face with a stimulus; (c) unpredictability of the duration of the meet; (d) unpredictability of the strength of an distasteful event; and (e) the unpredictability of truly suffering impairment if encountered. It is likely that some of these factors are more essential in shaping fear than other factors and those person differences in the order of significance of this fear relevance may also happen [16].

Control: Control can be defined as ones belief in having a response to manipulate the harmfulness of a stimulus. Based on different theoretical approaches control can have some meanings, and following it, disturbing disorders like fear, can differently connect to the control factor. For example, Rotter with propounding the locus of control that is the amount of one's generalized belief to effect on his or her own life, shows that people who have the variable named external control source, believe that reception of their reinforcement depends on other people, fortune or chance, and they cannot influence their own life [17]. These people influence with fear more than person, who has internal control source [18]. Another aspect of control that resembles control source, is self efficacy. These two variables consider our perception or belief about our control degree on our life event and our attempts to cope with them. They are different in this fact that, control source can be generalized to many available situation in life, whereas self efficacy limits to an especial situation. Self efficacy means to believe that we succeed in whatever we want to do, and this matter cause the people with low self efficacy to be ready for social alarm more than other. Generally, researches have shown the relationship between uncontrollability and fear [19, 20]. For example, in the frame of cognitive vulnerability model, Armfield & Mattiske [21] found that fear from spider had a high correlation with all four factors of cognitive vulnerability, and girls fear was more than boys. Furthermore, Armfield et al. [22] showed that fear from dentistry was related meaning fully to perception from uncontrollability, unpredictability and dangerousness of dentistry environment ($p \leq 0.001$). In other research, Armfield [23] found that animal's perception as dangerous, disgusting and uncontrollable was related significant to fear ($p \leq 0.001$). Armfield's [24,3] experimental researches showed that touching up and changing the measure of controllability of a frightful stimuli, by giving some information about that stimuli, had a significant consequence on the perception of its uncontrollability ($p \leq 0.007$). Also, touching up the quantity of predictability of stimuli had a meaningful effect on the perception of its predictability ($p \leq 0.001$). Finally, touching up the quantity of dangerousness stimuli has a meaningful effect on perception of its dangerousness ($p \leq 0.001$). In short, cognitive vulnerability pattern includes perceptions of the uncontrollability and unpredictability of the stimulus as well as its potential and probability of causing a negative ending, which may relate to both hazard and disgust. The content of this cognitive diagram is based on learning experiences connected with a particular stimulus and is middling by various individuality differences. Right away following the launch of the vulnerability schema two parallel processes occur. The first is a quick automatic emotional reaction which may cause a person to show instant fear responses. The additional process is a somewhat slower cognitive evaluation which incorporates a variety of other evaluations. A range of other cognitive factors such as, attention biases impinge upon the common cognitive evaluation and, to a minor extent, may serve to intensify the pre-attentive involuntary response. The response set stemming from this process includes an affecting/cognitive reaction, a physiological response, and a behavioral reaction. The understanding of the outcome of the interface feeds back into the vulnerability schema and moderate cognitive processes [4]. Consequently, the aims of this research are: recognizing role of cognitive vulnerability and all of its factors to create fear.

3. METHOD

3.1. Participants

The final sample for this study included the FSSC-II and CVS scores of 300 students. Children's ages ranged from 15 to 16-years old, with a mean age of 15.7 years. These children were students of high schools from Malayer, Iran. The participants chosen on cluster sampling and measured their fear with Fear Survey Schedule for Children – Revised (FSSC-R) and data of research was analyze with Standard Deviation, Mean, t-test, two-way analyze of variance and stepwise multiple regression.

3.2. MATERIALS

Children's fears were assessed using the FSSC-R and cognitive vulnerability was assessed using the CVS. Fear Survey Schedule for Children – Revised: The FSSC-R is planned to evaluate the construct of fear in children and teenagers. It is planned 1) as a tool to recognize fear sensitivities in children and youth, 2) as a normative scale for selecting fearful children and youth for prevention and cure trials, and 3) as a pre-treatment and post-treatment scale in therapy result studies with youths. The FSSC-R is a broadly used self-report scale of children and youths' fears. The scale, a revision of Scherer and Nakamura's Fear Survey Schedule for Children, contains 80 substances that are each rated on a 3-point scale. An overall fear score can be obtained, as can five subscale scores also, the number of severe fears can be showed. Cronbach's alpha coefficients for the FSSC-R overall fear

score have constantly been reported to be over .90 while the subscale to be .57 to .89 [25, 26, 27]. The validity of the FSSC-R has been confirmed in several studies. In the early studies, girls were found to account higher levels of fear than boys and kids were found to indicate higher levels of fear than older children. These results are consistent with the existing literature on gender-related fears. Also, boys and girls who were school anxiety were also indicate to show higher levels of fear than group control [27] and fear levels were shown to be positively correlated to trait anxiety and negatively correlated to internal locus of control [25, 26, 28]. Cognitive Vulnerability Questionnaire which is a 15-item Questionnaire planned to evaluate vulnerability-related Perceptions. The four subscales appraise perceptions of danger, disgust, control, and predictability in an unsystematic array through the Questionnaire. A number of the items have their path reversed. A complete Questionnaire score is obtained by first summing together the make for each item from each subscale and after that dividing make by the number of objects.

4. RESULTS

Results of this study indicate that girls show higher levels of fear than boys (see table 1). And the most current fears of boys were: failing a test, deep water or the ocean, beetles, bombing attacks, getting a cut or injury, cemeteries, falling from high places, germs or getting a serious illness, earthquakes, and not being able to breathe. And the most current fears of girls were: failing a test, beetles, getting a cut or injury, falling from high places, earthquakes, not being able to breathe, and getting a shock from electricity(see table 2).

Table 1: Group Statistics

	Gender	Mean	Std. Deviation
Fear	Girl	141.49	19.18
	Boy	122.31	17.95

Table 2: 10 pervade fears in boys and girls.

Gender	Kind of fear	Frequency	Percent
Boy	Bombing attacks	48	32
	Getting a cut or injury	63	42
	Failing a test	84	56
	beetles	78	52
	Cemeteries	54	36
	Deep water or the ocean	78	52
	Falling from high places	52	34.7
	Germs or getting a serious illness	53	35.3
	Earthquakes	46	30.7
	Not being able to breathe	76	50.7
Girl	Bombing attacks	63	42
	Fire—getting burned	64	42.7
	Getting a cut or injury	68	45.3
	Failing a test	85	56.7
	beetles	91	60.7
	Falling from high places	87	58
	Getting a shock from electricity	75	50
	Germs or getting a serious illness	63	42
	Earthquakes	72	48
	Not being able to breathe	83	55.3

Table 3: Independent Samples t-test for Equality of Means

t	df	Sig.	Mean Difference
8.94	298	0.00	19.18

Analysis of variance (table 4) showed that main effect of gender variable was significant ($F= 44.70$; $p< 0.01$). On the other word, there is a meaningful difference between girls and boys fear. The main effect of cognitive vulnerability is significant, too ($F =166.81$; $p< 0.01$). This means that cognitive vulnerability has a significant effect in acquisition of fear. Between these two variables, the most influence is related to cognitive vulnerability with effect size of 0.36, but the interaction effect of two gender and cognitive vulnerability variables on fear, is not significant ($F= 0.46$; $P> /05$). It means that influence of cognitive vulnerability on fear, in boys and girls is the same. Also, the stepwise multiple regression (table 5) show that in first step of regression, disgusting factor and fear have a correlation ($R= 0.54$) and explain 29 percent of fear variance. In second step, the unpredictability factor was added and caused to increase the multiple correlation coefficients to 0.59; in this step, these two factors could state 0.35 percent of fear variance. In third step, uncontrollability factor was added and caused to increase multiple correlation coefficients to 0.61, in this step; three factors could explain 0.38 percent of fear variance. In the last step, dangerousness factor was added, too, and caused to increase multiple correlation coefficients to 0.63. In this step, all of four factors together could explain 0.39 percent of fear variance. Also, as has reported in table 6, with adding each of cognitive vulnerability factors the amount of Beta weight decreased, and at last when all factors participated in regression, disgusting factor showed the most influence and dangerousness

showed the less influence. On the other hand, t-test show that obtained coefficients is significant for fear regression equation ($P \leq 0/01$). According to obtained coefficients in table 5, amount of fear can be predicted by means of below equation:
 Fear = disgusting (2.58) + unpredictability (2.53) + uncontrollability (2.32) + dangerousness (2.28) +93

Table 4: Results of two-way analyze of variance, to consider cognitive vulnerability influence on Boys and girls fear

Source	Sum of Squares	d f	Mean Square	F	Sig.	Eta squared
gender	9930.939	1	9930.939	44.705	0.000	0.131
vulnerability	37056.150	1	37056.150	166.810	0.000	0.360
Gender * vulnerability	103.454	1	103.454	0.466	0.496	0.002

Table 5: multiple correlation coefficients

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.544 ^a	.296	.294	17.548
2	.599 ^b	.359	.354	16.782
3	.618 ^c	.382	.376	16.498
4	.631 ^d	.399	.390	16.306

- a. Predictors: (Constant), disgusting
- b. Predictors: (Constant), disgusting , dangerousness
- c. Predictors: (Constant), disgusting , dangerousness , unpredictability
- d. Predictors: (Constant), disgusting , dangerousness , unpredictability , uncontrollability

Table 6: the coefficients of the equation of stepwise multiple regression, to predict fear.

Model		Unstandardized Coefficients (B)	Beta Coefficients	t	Sig.
1	disgusting Constant	101.07	-	34.46	0.001
		6.56	0.544	11.20	0.001
2	disgusting Constant	95.74	-	31.98	0.001
	unpredictability	4.55	0.378	6.67	0.001
		4.15	0.294	5.19	0.001
3	disgusting Constant	93.25	-	31.06	0.001
	unpredictability	3.16	0.262	4.13	0.001
	uncontrollability	3.34	0.236	4.10	0.001
		2.95	0.230	4.71	0.001
4	disgusting Constant	93	-	31.24	0.001
	unpredictability	2.58	0.214	3.27	0.001
	uncontrollability	2.53	0.180	2.95	0.003
	dangerousness	2.32	0.181	2.83	0.005
		2.28	0.179	2.70	0.007

5. DISCUSSION

In the field of current fears in girls and boys, it was shown they were common in current fears and they were just different in two cases; and this proportional similarity, to some extent, was because of similarity of the age and culture of test cases in this research. Of course, there were some other current fears in both of two groups especially in girls; but, only ten first cases of them are reported. Except for failing a test that relates to failure and criticism, other seven cases relates to danger, death, injury and small animals. Consequently, all of them are theoretically comprehensible, because they relate to the sense of danger and lack of tranquility. Also, the results of t-test shows that fear intensity in girls are higher than boys. This finding coordinates with results of previous researches in Iran [29, 30]. There are a number of potential explanations for why; women are more likely than men to develop fear: Women are likely to use emotion-focused coping more often than men in response to moderately stressful situations. Also To make this finding lucid, it can be said that women are finding information about future distasteful events more than men, thus giving information about uncontrollability, unpredictability, disgusting and dangerousness of a stimulus or situation is more effective in women [31]. Also compared to men, women are more possible to misjudge the possibility of threat, to expect harm, and to anticipate poor coping ability. Another possible explanation is that Compared to men, women are commonly better at recognize affect in nonverbal cues. For example, gender differences in reactivity to facial expressions appear at the same developmental time as differences in negative affectivity and socialization appear. Because facial expressions are a primary means of communicating danger, women's superior understanding to facial expressions places them at particular threat for emergent fears. Greater fear among women may be influenced by two related things. Initial, women may be more prone to vicarious fear conditioning because they are more sensitive to socially-transmitted information and are more attentive to others' expressions of fear. Next, women's suffering following aversive experiences may be inflated subsequent to ruminative reevaluation of the threat-value of stimuli. Result shows the people with high- level vulnerability obtained higher marks than people with low- level vulnerability, in fear scale, that coordinates with results of previous researches [3, 4, 21, 22, 23]. Also, results shows each of these four cognitive-vulnerability factors relates to fear significantly. This finding coordinates with results of previous researches [11,

12, 13, 20, 32, 31, 33]. The only difference between the results of these factors; so, in present research is the importance amount of any vulnerability factors; so, in present research, disgusting and dangerousness are the most important factors of cognitive-vulnerability whereas Armfield's researches show that uncontrollability and unpredictability have the more important role in fear acquisition; perhaps, this is because of some Iranian's beliefs like beliefs in divine decree, fate and fictional creatures that can cause someone to believe that he/she has not any control on his/her environment, so, losing control or being in an uncontrollable situation doesn't differ his/her status; it means a kind of learned helplessness. These conditions as well, social, economic and politic problems and irresolution's, in recent decades, can cause an unsafe circumstance, so disgusting and dangerousness of a stimulus or situation can have a great effect on one's perception from that stimulus or situation as a dreadful one.

This research findings show that disgusting factor is the most important factor to predict fear, and after that other factor are set in order of uncontrollability, unpredictability and dangerousness. In many researches disgusting is a general negative tension that is known as one of causative factors to create disturbing disorders [34]. Findings have shown that first output of disgust is to support someone against contamination and likely injury arising from it [35]. Disgust is a tension that in the first look is seen as an answer for incepting an unpleasant food, to avoid aversive stimuli, so it acts a tool to protect a living creature from injury and damage. Thus, it seems logical if stimuli or disgusting situations causes the fear answer in a living creature. Disgusting share for predicting fear is more than other cognitive-vulnerability factors. It can be because of the relationship and overlapping between fear and disgust. Fear and disgust can be stimulated synchronously when facing a stimulus or situation [36]. Generally, there are two antagonist viewpoints about the relationship between fear and disgust. Some of researchers believe in disgust as a causative factor in fear acquisition, but some other researchers believe in fear to reinforce the tendency of previous general disgust. Based on this viewpoint, disgust reaction can explain the vulnerability not causative factor. The second determinate factor of fear in this research is uncontrollability of stimulus or situation. The ability of human being to gain control and to continue it is essential for his/her survival. Personal control has made a cognitive structure to experience the hope and optimism, and it relates to health. Having control on life events decrease the amount of experienced disturbance [37]. Uncontrollable events can lead to this expectation that now answer of a person can control the future events; in the result of this mind scheme, people can be affected with stress, disturbance, fear and depression [32]. On the other hand, uncontrollability perception denotes that one's answer can't reduce the harmful aspect of a stimulus or situation and he/she will be injured [38]. Cognitive determine the manner of explanation of events, their dangerousness and the amount of needed compatibility, and probably the people who themselves able to control the especial stimulus when facing it, they experience low stress, and since that human being survival extensively depends on controlling environment, control sense strengthens the tolerance of stressful events. Therefore, perception the environment as uncontrollable, causes to form the vulnerability model in people, also this model causes to form negative excitements like fear and disturbance [39]. The other factor is predictability of stimulus or situation causes the sense of being unsafe and vulnerability mind scheme. On the other hand, unpredictability has an approximate relationship with uncontrollability, and just this matter causes one of them to be more effective than the other, in creation of fear, in present research. Also, strong relationship between control and prediction with fear has caused that dangerousness factor to be a weaker determinant alone, for fear amount. The relationship between control and prediction is not a linear relationship; although the control often denotes predictability does not denote the controllability, necessarily. Improvement of control and prediction perceptions is the main base for remedial process in behavioral-cognitive cures. Uncontrollability and unpredictability show the environment unsafe [14, 8] The last factor in cognitive-vulnerability is dangerousness. Living creatures evolutionally have found to avoid dangerous things for their survival. So, situation that cause them such sensation, lead them to feel fear, because living creatures are planed so that protect themselves against threats that lead to hurt for them. Harm warning and hazard perception lead to the fear acquisition [40]. It seems that a kind of agitation in regular actions of cognitive system causes someone to interpret the environment events, without any distinction, as dangerous. Moreover, one key principle in this interpretation is maximizing the amount of danger and degree of injury of a dreadful situation [41]. Final result of this research is the meaning of cognitive-vulnerability as the perception of uncontrollability, unpredictability, disgusting and dangerousness of a stimulus or condition has a significant effect on fear from that stimulus or situation. Cognitive-vulnerability model offer a new point of view of compounding the diverse study sources and a new testable assumption, about fear an etiology. Of course, this model is in progressing step and needs more consideration, and it can be an essential step to do the researches associated to fear.

6. REFERENCES

1. Oconnor, J.(2005).Free yourself from fears. London:Nicholas Brealey Publishing
2. Strongman, K. T.(2003). The Psychology of Emotion . John Wiley & Sons Ltd.
3. Armfield, J. M. (2008). An experimental study of the role of vulnerability related perceptions in spider fear: Comparing an imaginal and in vivo encounter. *Anxiety Disorders* 22, 222–232.
4. Armfield, J. M. (2006). *Cognitive vulnerability: A model of the etiology of fear*. *Clinical Psychology Review*, 26, 746–768.
5. Mineka, S., & Kihlstrom, J. F. (1978). Unpredictable and uncontrollable events: A new perspective on experimental neurosis. *Journal of Abnormal Psychology*, 87, 256–271.

6. Tseng, W. & Streltzer, J. (2001). *Culture and psychotherapy*. American Psychiatric Press, Inc
7. Kazarian, S. & Evans, D.R. (2001). *Handbook of Cultural Health Psychology*. Academic press
8. Hofmann, G.S. (2008). Cognitive processes during fear acquisition and extinction in animals and humans: Implications for exposure therapy of anxiety disorders. *Clinical Psychology Review*, 28, 199–210
9. Tucker, M., & Bond, N. W. (1997). The role of gender, sex role, and disgust in fear of animals. *Personality and Individual Differences*, 22, 135–138.
10. Woody, S. R., McLean, C., & Klassen, T. (2005). Disgust as a motivator of avoidance of spiders. *Anxiety Disorders*, 19, 461–475.
11. Muris, P., Mayer, B., Huijding, J., & Konings, T. (2008). A dirty animal is a scary animal! Effects of disgust-related information on fear beliefs in children. *Behaviour Research and Therapy* 46, 137–144
12. Olatunji, B.O. & Deacon, B. (2008). Specificity of disgust sensitivity in the prediction of fear and disgust responding to a brief spider exposure. *Anxiety Disorders*, 22, 328–336
13. Van Overveld, M., de Jong, P. J., & Peters, M. L. (2006). Differential UCS expectancy bias in spider fearful individuals: Evidence towards an association between spiders and disgust-relevant outcomes. *Journal of Behavior Therapy and Experimental Psychiatry*, 37, 60–72.
14. Zvolensky, M.J., Eifert, G.H., Lejuez, C.W., Hopko, D.R., & Forsyth, J.P. (2000). Assessing the perceived predictability of anxiety-related events: a report on the perceived predictability index. *Journal of Behavior. Therapy and Experimental Psychiatry*, 31, 201–218.
15. Craske, M. G., Zarate, R., Burton, T., & Barlow, D. H. (1993). Specific fears and panic attacks: A survey of clinical and nonclinical samples. *Journal of Anxiety Disorders*, 7, 1–19.
16. Doogan, S., & Thomas, G. V. (1992). Origins of fear of dogs in adults and children:
The role of conditioning processes and prior familiarity with dogs. *Behaviour Research and Therapy*, 30, 387–394.
17. Coit, C. (2006). The stability of locus of control and self-efficacy during and after a weight reduction intervention and their relation to weight loss and regain. unpublished thesis for the degree of master of arts.
18. Weems, C.F., & Silverman, W.K. (2006). An integrative model of control: Implications for understanding emotion regulation and dysregulation in childhood anxiety. *Journal of Affective Disorders*, 91, 113–124.
19. Weiss, J. M. (1971). Effects of coping behaviour in different warning signal conditions on stress pathology in rats. *Journal of Comparative & Physiological Psychology*, 17, 1–13.
20. Waters, A.M., Craske, M.G., Bergman, R. L., & Treanor, M. (2008). Threat interpretation bias as a vulnerability factor in childhood anxiety disorders. *Behaviour Research and Therapy*, 46, 39–47
21. Armfield, J. M., & Mattiske, J. K. (1996). Vulnerability representation: the role of perceived dangerousness, uncontrollability, unpredictability and disgustingness in spider fear. *Behaviour Research and Therapy*, 34, 899–909.
22. Armfield, J. M. & Slade, Gary. D. & Spencer, A. John (2008). Cognitive vulnerability and dental fear. *BMC Oral Health*, 8:2
23. Armfield, J. M. (2007). *Manipulating perceptions of spider characteristics and predicted spider fear*: evidence for the Cognitive Vulnerability Model of the etiology of fear. *Journal of Anxiety Disorders*, 21, 691–703.
24. Armfield, J. M. (2007). Understanding animal fears: a comparison of the cognitive vulnerability and harm-looming model. *BMC Psychiatry*, 7:6
25. Friedman, A. G., Campbell, T., & Okifuji, A. (1991). Specific fears as predictors of generalized anxiety in children. *Journal of Psychopathology and Behavioral Assessment*, 13, 45–52.
26. King, N. J., Gullone, E., & Ollendick, T. H. (1992). Manifest anxiety and fearfulness in children and adolescents. *The Journal of Genetic Psychology*, 153, 63–73.
27. Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behaviour Research and Therapy*, 21, 685–692.
28. Ollendick, T. H., King, N.J., & Frary, R.B., (1989). Fears in Children and Adolescents: Reliability and generalizability across Gender, Age, and Nationality. *Behaviour Research and Therapy*, 27, 19–26
29. Firoozi, M.R. (1994). Content, severity and prevalence of fear of juvenile students in Shiraz. Unpublished

30. thesis for the degree of Master of Arts. [Persian]
31. Nariman,F.(1994).Study Of fearful factors in Iranian children. Unpublished thesis for the degree of Master of Arts.[Persian]
32. Lejuez, C.W.(1999). Preference Between Predictable and Unpredictable Administrations of Carbon Dioxide-Enriched Air. unpublished thesis for the degree of doctor of Philosophy in adult clinical psychology, West Virginia University.
33. Deardorff, J. Gonzales, N. A. & Sandler, I. N.(2003). Control Beliefs as a Mediator of the Relation Between Stress and Depressive Symptoms Among Inner-City Adolescents. *Journal of Abnormal Child Psychology*, Vol.31,No.2, pp.205–217
34. Gerdes, A. B. M., Uhl, G., & Alpers, G.W. (2009). Spiders are special: fear and disgust evoked by pictures of arthropods. *Evolution and Human Behavior*, 30 , 66–73.
35. Dovey, G.C.L., MacDonald, B.A.,& Brierley, L.(2008). The effect of disgust on anxiety ratings to fear-relevant,disgust-relevant and fear-irrelevant stimuli. *Journal of Anxiety Disorders*, 22 , 1347–1354.
36. Connolly, K. M., Lohr, J.M., Olatunji, B. O. , K. S. Hahn,& Williams, N. L.(2009). Information processing in contamination fear: A covariation bias examination of fear and disgust. *Journal of Anxiety Disorders*, 23 , 60–68.
37. Rachman, S. (2004). Fear of contamination. *Behaviour Research and Therapy* 42 , 1227–1255
38. Franken, R. (2006). *Human motivation* (6th edn.). Florence, KY: Wadsworth.
39. Graham, S. Bellmore, A.D. & Mize, J.(2006). Peer Victimization, Aggression, and Their Co-Occurrence in Middle School: Pathways to Adjustment Problems. *Journal of Abnormal Child Psychology*, Vol. 34, No. 3, pp. 363–378
40. Sokolowski, K. L.& Israel, A. C.(2008). Perceived anxiety control as a mediator of the relationship between family stability and adjustment. *Journal of Anxiety Disorders*, 22 ,1454–1461.
41. Ekman,P. (2003). *Emotions.revealed : recognizing faces and feelings to improve communication and emotional life*. New York: Times Books.
42. Beck, A. T., & Emery, G. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York: Basic Books.