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**Types of Stress Associated with the  
Onset of Panic Disorder and Social Phobia**

**Diana L. Johnson**

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1995

**Running Head: TYPES OF STRESS**

### Abstract

The present study examined the association of different types of stress with the onset of both panic disorder and social phobia. Twenty-three subjects who met the DSM-III-R criteria for panic disorder and twenty-three subjects who met the DSM-III-R criteria for social phobia were matched on the variables of sex, race, level of education, and time of retrospection. Data related to circumstances surrounding onset were collected from semi-structured initial diagnostic interviews. Descriptions of the circumstances were then rated and classified by blind independent raters into categories of no stress/stress, conditional stressor/background stress, and evaluation related stress/not evaluation related stress. Results indicated that stress was found at the onset of both panic disorder and social phobia. It was further discovered that conditional stressors were more associated with the onset of social phobia, whereas background stress was more associated with the onset of panic disorder. Furthermore, evaluation related stressors were more associated with the onset of social phobia than panic disorder. However, evaluation related stressors were not found to discriminate between the subtypes of social phobia. Possible treatment and preventative implications are discussed.

### Types of Stress Associated with the Onset of Panic Disorder and Social Phobia

The two-stage theory of fear and avoidance (Mowrer, 1960, p.49) has had a major influence on the way behavior therapists view the acquisition of fears and phobias (Emmelkamp, 1982; Leitenberg, 1990; Öst and Hugdahl, 1981; Rachman, 1975). This theory continues to play an important role in the explanation of fear acquisition (Emmelkamp, 1982) despite recent criticism. Mowrer's two-stage theory of conditioning has suffered criticism because it does not account for the fact that avoidance behavior is resistant to extinction (Rachman, 1975). It has also been found that traumatic experiences do not necessarily lead to the conditioning of fears (Emmelkamp, 1982, p.21). However, many studies have recently provided experimental support for the conditioning theory (McAllister, McAllister, Scoles, & Hampton, 1986; Pitman & Orr, 1986; Wolpe, Lande, McNally, & Schotte, 1985). "There is almost universal agreement with Mowrer that the learning exhibited in studies such as the present one involves two stages: the classical conditioning of fear and the subsequent learning of an instrumental response based on fear" (McAllister et al., 1986, p.370). Therefore, despite criticism, Mowrer's theory remains an influential conditioning model for the development of anxiety disorders.

Mowrer's conditioning theory explains the acquisition of anxiety disorders by employing both classical and operant

conditioning. According to Mowrer (1960), "two causal steps are necessary" (p.49). In the first step, classical conditioning occurs in which an aversive event (e.g. an attack by a dog) is paired with a neutral stimulus (e.g. sight of a dog). As a result of this pairing, the neutral stimulus develops the ability to elicit the emotional responses originally elicited by the aversive event. In the second stage, behavior which reduces the fear or anxiety is learned through the operant principle of negative reinforcement. Avoidance of aversive stimuli leads to a reduction in anxiety and thus strengthens the avoidance behavior (McAllister et al., 1986). One prediction derived from Mowrer's two-stage theory is that a specific stressor, namely an aversive event, should be present at the onset of an anxiety disorder.

Panic disorder with agoraphobia is an anxiety disorder in which the association of its onset with stressful life events has been investigated in recent studies (Barlow, 1988; Faravelli, 1985; Last, Barlow & O'Brien, 1984; Pollard, Pollard & Corn, 1989; Roy-Byrne, Geraci & Uhde, 1986). Panic disorder is characterized by spontaneous panic attacks in which intense fear or discomfort is accompanied by physical symptoms including shortness of breath, dizziness, faintness, racing heart, shaking, nausea, chest pain, and a feeling of unreality. Panic disorder is often accompanied by agoraphobic avoidance in which places or situations are avoided

where attacks have previously occurred or where escape might be difficult.

According to Mowrer's conditioning theory, a conditional stressor rather than background stress should precipitate the onset of panic disorder. Conditional stress can be defined as stress associated with a clear aversive circumstance beyond usual daily demands whereas background stress can be defined as stress that is related to an increase in the aversive demands of daily life such as life hassles. Although stress has been implicated in the onset of panic disorder, studies have only recently focused on the type of stress associated with its onset (Craske, Miller, Rotunda & Barlow, 1990, p.396). Last et al. (1984) discovered that 91% of the agoraphobics in their study reported that a conditional stressor was present at the onset. Similarly, in other studies (Buglass, Clarke, Henderson, Kreitman, & Presley, 1977; Doctor, 1982; Finlay-Jones & Brown, 1981; Matthews, Gelder, & Johnston, 1981) it was found that although only a few panic disorder patients could identify a specific stressor when asked what caused their first panic attack, approximately 80% of these patients could describe a specific stressor if questioned systematically about their life events (Barlow, 1988, p. 216). In addition, Craske et al. (1990) found that initial panic attacks were associated with specific stressors in 72% of their panic disorder patients. These studies conclude that conditional stressors rather than background stress may be more implicated in

the onset of panic disorder. However, no consistent specific conditional stressor (e.g. interpersonal conflict) has been directly related with the onset of panic disorder.

Conversely, several studies report that background stress rather than conditional stressors is more associated with the onset of panic disorder. For example, Roy-Byrne et al. (1986) report that more life stress in general is experienced by panic disorder patients than by controls. Moreover, both Faravelli (1985) and Pollard et al. (1989) indicate that panic disorder patients experience a significantly greater amount of general life stress than controls, and that a sudden increase in life stress is observed in the month immediately preceding the onset of panic disorder. However, no conditional stressors are implicated. Therefore, Faravelli (1985), Pollard et al. (1989) and Roy-Byrne et al. (1986) conclude that background stress rather than conditional stress may be more implicated in the onset of panic disorder. Because of the inconsistency of reports concerning whether conditional or background stress is implicated in the onset of panic disorder, further replication seems necessary.

While Mowrer's theory has been inconsistent in predicting the onset of panic disorder, it may be a better predictor of the onset of social phobia because specific stressors are part of the phobic syndrome. However, whereas panic disorder has received empirical attention, "social phobia has remained relatively unstudied"

(Liebowitz, Gorman, Fyer & Klein, 1985, p.729). Mowrer's two-stage theory would predict that conditional stressors would also be found for the onset of social phobia. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R), social phobia is defined as a "persistent fear of one or more situations in which the person is exposed to possible scrutiny by others and fears that he or she may do something or act in a way that will be humiliating or embarrassing" (American Psychiatric Association, 1987, p. 241). Social phobia has two subtypes, generalized and specific. Generalized social phobia refers to anxiety experienced in most situations whereas a specific social phobia refers to a specific social performance anxiety such as public speaking (Holt, Heimberg & Hope, 1992). Progress has been made in developing treatments for social phobia. However, less progress has been made in understanding the factors involved in the development and maintenance of the disorder (Stopa & Clark, 1992). In fact, only one study has investigated the association of stress with the onset of social phobia. Öst and Hugdahl (1981) found that 58% of their subjects attributed their phobias to a conditional stressor. However, their study has been criticized because their subjects included not only social phobics, but small animal phobics and claustrophobics as well (Leitenberg, 1990, p.284). Therefore, research solely investigating the association of stress with the onset of social phobia has not yet been done.



Clearly research investigating the factors surrounding the onset of social phobia is needed to determine whether conditional or background stress can be associated with the onset of this disorder. Furthermore, if conditional stressors are found to be related to the onset of social phobia and panic disorder, it is possible that the type of stressor may predict the type of disorder. Thus far, the onset of panic disorder has not been consistently related to a specific type of conditional stressor. However, this question has not been studied in social phobia. Therefore, it is possible that the onset of social phobia is associated with a specific type of conditional stressor. Because fear of negative evaluation is a major part of the symptomatology of social phobia, evaluation related stressors may be more associated with this disorder than with panic disorder. Finally, research investigating how stressors relate to the subtypes of social phobia might be beneficial. For example, Heimberg, Hope, Dodge & Becker (1990) reported that generalized social phobics and public speaking phobics did not differ in their reports of severity in social phobic anxiety or anxiety in public speaking situations. However, generalized social phobics reported more distress and negative self statements during social interactions and expressed greater fears concerning negative social evaluation than public speaking phobics. Accordingly, it might be possible that evaluation related stressors may be implicated in the acquisition of generalized social phobia whereas stressors not involving evaluation may be associated with

the onset of specific social phobias. However, this also has not yet been investigated.

The present study replicated in part the research on panic disorder by investigating the association of conditional or background stress with the onset of this disorder. The study also investigated whether stress is associated with the onset of social phobia. Furthermore, an investigation was done to determine whether the stress associated with social phobia was conditional or background, whether the stressors associated with panic disorder were different from the stressors associated with social phobia, and whether the type of stressor discriminated the specific type of social phobia from the generalized type. Based on Mowrer's two-stage theory, it was hypothesized that conditional stressors would be present at the onset of both panic disorder and social phobia. It was also hypothesized that evaluation related stressors would be more associated with the onset of social phobia than with the onset of panic disorder. Finally, it was hypothesized that evaluation related stressors would be more associated with the onset of generalized social phobia than with the onset of the specific subtype of social phobia.

### Method

#### Subjects

Subjects for this study met the DSM-III-R criteria for either panic disorder or social phobia. Subjects were randomly drawn from

patients presented for evaluation and treatment at the University of Illinois Anxiety Disorders Clinic at Peoria. A random numbers table was used to select subjects from an alphabetized listing of patients. As part of treatment at the University of Illinois, patients granted consent to have their information used for research purposes as long as anonymity was maintained.

Subjects with panic disorder were assigned to one group and subjects with social phobia were assigned to a second group. Each group contained twenty-three subjects who were matched on the variables of sex, race, level of education, and time of retrospection. Each group contained eleven males and twelve females, and all subjects in each group were Caucasian. The average level of education of the social phobic patients was 14.3 years, and the average level of education of the panic disorder patients was 14.5 years. The average time of retrospection for the social phobic subjects was 13.9 years, and the average time of retrospection for the panic disorder patients was 13.6 years. All subjects were between the ages of 18 and 61.

### Materials

The data was collected from the reports of patients' initial diagnostic evaluations at the University of Illinois Anxiety Disorders Clinic at Peoria. Patients entering this clinic are evaluated prior to treatment generating extensive self- and clinician reports of the onset, course, and description of their disorder. Semi-structured

interviews are conducted, some of which involve the use of the Anxiety Disorders Interview Schedule (ADIS; DiNardo, O'Brien, & Barlow, 1983). The ADIS is a standardized interview which systematically questions patients regarding symptoms of every major anxiety disorder.

### Procedure

The information from these sources were used to determine what type of stress, if any, was associated with the onset of panic disorder and/or social phobia. Any event indicated by the patient was listed descriptively. Patient files were not used if the subjects had not been questioned about stressors near the onset of their disorders. Two blind independent raters then classified the events into the categories of stress/no stress, conditional stress/background stress, and evaluation related stress/not evaluation related stress. Stress was operationally defined as a self-reported negative change in demand of daily routines. The absence of a negative change in demand of daily routines constituted no stress. A conditional stressor was defined as a self-reported clear aversive circumstance beyond usual daily demands whereas background stress was defined as a self-reported general increase in the aversive demands of daily life. Evaluation related stressors were defined as conditional stressors which elicit self-reported humiliation or embarrassment. A conditional stressor which does not elicit self-reported humiliation or

embarrassment was categorized as not evaluation related. Interrater agreement was assessed using the kappa coefficient.

### Results

The twenty-three subjects in the panic disorder group were matched with the twenty-three subjects in the social phobia group on the variables of sex, race, level of education, and time of retrospection. T-tests were run for each of the matched variables and showed no significant between group differences. The mean age of social phobic patients was 34.5 years and the mean age of panic disorder patients was 46.7 years, a significant difference ( $t=-3.15$ ,  $df=44$ ,  $p<.002$ ). However, the average age of onset of social phobia is typically lower than the average age of onset of panic disorder. Because time of retrospection was matched, the difference in the age of these two samples corresponds with the difference in age of the disorders at onset.

The kappa coefficient was calculated for the categories of stress/no stress, conditional stressor/background stress, and evaluation related stress/not evaluation related stress. Reliability for each category of judgment was .91, .91, and .80, respectively indicating that interrater agreement was good. To test the hypothesis that stress will be found at the onset of social phobia and panic disorder, percentages of subjects with each disorder who reported stress at the onset were calculated and a Chi-Square test was performed. 91% of social phobic subjects and 83% of panic

disorder subjects reported stress at the onset of their disorders. The occurrence of stress vs. no stress at the onset of social phobia was found to be statistically significant,  $X^2(1, N = 23) = 15.696, p < .001$ . The occurrence of stress at the onset of panic disorder was also found to be statistically significant,  $X^2(1, N = 23) = 7.348, p < .008$ . Figure 1 shows the percentages of panic disorder subjects and social phobic subjects who reported stress or no stress at the onset of their disorders.

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Insert Figure 1 about here

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To test the hypothesis that conditional stressors would be found at the onset of both social phobia and panic disorder, percentages of subjects who reported conditional stressors at their onset were calculated and a Chi-Square test was performed. 65% of the social phobic subjects and 13% of the panic disorder subjects reported conditional stressors at their onset. The occurrence of conditional stressors at the onset of social phobia rather than background stress was found to be statistically significant,  $X^2(1, N = 23) = 5.762, p < .017$ . However, it was discovered that for panic disorder subjects, the occurrence of background stress rather than conditional stressors, was found to be statistically significant,  $X^2(1, N = 23) = 8.000, p < .006$ . Figure 2 shows the percentages of panic disorder subjects and social

phobic subjects who reported conditional stressors vs. background stress at the onset of their disorders.

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Insert Figure 2 about here

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To test the hypothesis that evaluation related stressors would be more associated with social phobia than with panic disorder, percentages of subjects in each group reporting evaluation related stressors were calculated and a Chi-Square test was performed. 74% of the social phobic subjects and 13% of the panic disorder subjects reported evaluation related stressors at the onset of their disorders. Evaluation related stressors were significantly more associated with the onset of social phobia than with the onset of panic disorder,  $X^2(1, N = 46) = 15.18431, p < .0002$ . Figure 3 depicts the percentages of social phobic subjects and panic disorder subjects who reported evaluation related stressors at their onsets.

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Insert Figure 3 about here

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To test the hypothesis that evaluation related stressors should be more associated with the onset of generalized social phobia than with the specific subtype of social phobia, percentages of subjects with each subtype who reported evaluation related stressors were calculated and a Chi-Square test was performed. 67% of the

generalized social phobic subjects and 100% of the subjects with the specific subtype of social phobia reported evaluation related stressors. This difference was not significant; thus, the hypothesis that evaluation related stressors should be more associated with the onset of generalized social phobia than the specific subtype of social phobia was not supported.

### Discussion

The present data support the hypothesis that stress should be associated with the onset of both social phobia and panic disorder, replicating previous research on panic disorder. Furthermore, the discovery that stress is associated with the onset of social phobia opens many previously unexplored avenues to research in this area including the type of stress more associated with social phobia as well as preventative and treatment implications for this disorder.

An investigation was also done to determine what type of stress was more associated with panic disorder. Results indicated that background stress was more associated with the onset of this disorder than conditional stressors. This finding did not support the original hypothesis. However, the data collected in this area is very inconsistent. Because conditional stressors cannot consistently be implicated in the onset of panic disorder, increased stress in general may be the best way to describe these precipitants of its onset. Further replication is necessary, however, to rule out methodological differences. In addition, the association of background stress with



the onset of panic disorder does not support applying Mowrer's theory of conditioning to the onset of panic disorder. Rather, background stress may make a person more vulnerable to developing an anxiety disorder in general. Therefore, it is possible that this theory would better apply to phobias rather than all anxiety disorders.

Mowrer's theory does appear to predict the onset of social phobia. Results were congruent with the hypothesis that conditional stressors should be present at the onset of social phobia. Furthermore, evaluation related stressors were found to be more associated with the onset of social phobia than with the onset of panic disorder. Therefore, a specific type of conditional stressor, namely evaluation related stressors, was found to be associated with the onset of social phobia. However, evaluation related stressors were not found to discriminate between the subtypes of social phobia. Therefore, although evaluation related stressors may be predictive of the onset of social phobia, they are not predictive of its subtypes suggesting other factors are involved in the particular expression of the disorder.

These results have many possible treatment and preventative implications. Because stress was found to be associated with the onset of both panic disorder and social phobia, stress management techniques could be incorporated into the treatment of these disorders to help reduce the amount of general stress experienced by

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these patients and possibly to reduce relapse rates of these patients. These techniques would be especially useful for the treatment of panic disorder because of its high rates of relapse.

The discovery that conditional stressors are associated with the onset of social phobia carries with it many treatment and preventative possibilities. First, the aforementioned treatment implications would also apply. Second, stress management techniques could be developed which are directed towards the individual's conditional stressor rather than stress in general. Third, because evaluation related stressors were found to be associated with the onset of social phobia, interventions could be created to prevent social phobia from developing after a person experienced a negative social evaluative situation. For example, speech classes could incorporate anxiety management techniques to help reduce the amount of anxiety experienced by the students while giving presentations. Finally, this intervention could also be incorporated into the treatment of social phobia to create a more specific method for relapse prevention. Further investigation is necessary.

The retrospective nature of the data and the self-report method of data collection were potential problems in this study. Subjects suffering from panic disorder or social phobia could be more inclined to recall negative life events or to attach greater meaning to these events to attempt to find the cause of their disorder. However, in order to counteract these difficulties, only those patients who had

social phobia or panic disorder as their primary diagnosis with no major comorbid disorders were used in this study. In addition, a reliable standardized semi-structured interview (ADIS; DiNardo, O'Brien, & Barlow, 1983) and the semi-structured interview given by clinicians at the University of Illinois Anxiety Disorders Clinic at Peoria were the primary sources from which the data was collected. Finally, subjects were randomly selected and matched between groups on several demographic variables. Therefore, although retrospective and based on self-report, the matching and rating procedures helped to increase internal validity. The primary strengths of the study are that it further supports research on panic disorder showing increased stress at onset, and it opens the door for further research on social phobia looking at the role of stress in its development. Therefore, future research will be necessary to assess its external validity.

In addition to planned analyses, the study revealed other important information which could support future study. First, a number of social phobic subjects reported their age of onset at 14 years. This is an age of low self-esteem for many adolescents. Moreover, peer influences and appearances have great importance. It is interesting to note that many of these 14 year olds experienced their first attack while in 9th grade speech class. Perhaps the timing of this first speech class is inappropriate due to the social pressure and low self-esteem felt by many adolescents at this age. Maybe

children in lower grades should be introduced to public speaking at an age where self appearance and peer acceptance are not such important influences. In addition, perhaps self-esteem workshops should be given in junior high and high schools as a preventative measure against developing social phobia. A second speculation that can be made is that many of the social phobic subjects who had a later age of onset attribute their onset to a change in career responsibilities which caused them to begin giving presentations or doing some type of public speaking. Many of these subjects also reported being "shy" most of their lives. Perhaps these subjects had a predisposition for developing social phobia and the disorder did not emerge until public speaking became an essential part of their lives.

In sum, future research could investigate possible treatments for panic disorder and social phobia which incorporate stress management techniques. Studies could be done to determine if these techniques could reduce relapse rates of patients tapering off medication. In addition, the possibility that conditional stressors could be used to create more individualized stress management techniques could be investigated. Furthermore, research could be done to determine if interventions could be created to prevent the onset of either disorder or to prevent relapse from occurring. Future research will also be necessary to determine if and how the etiology of panic disorder and social phobia involves the association of stress at the onset of these disorders. Finally, research could address the

speculations made concerning the frequent onset of social phobia at age 14 in speech class and the common development of social phobia in "shy" adults when public speaking becomes a necessity in their lives. All of these studies together will provide more definitive answers concerning the implications of a relationship between stress and panic disorder and social phobia.

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## Figure Captions

**Figure 1.** Percentages of panic disorder subjects and social phobic subjects who reported stress or no stress at the onset of their disorders. \* to denote significant difference between conditions (stress/no stress) for panic disorder subjects,  $X^2(1, N = 23) = 7.348$ ,  $p < .008$ . + to denote significant difference between conditions (stress/no stress) for social phobic subjects,  $X^2(1, N = 23) = 15.696$ ,  $p < .001$ .

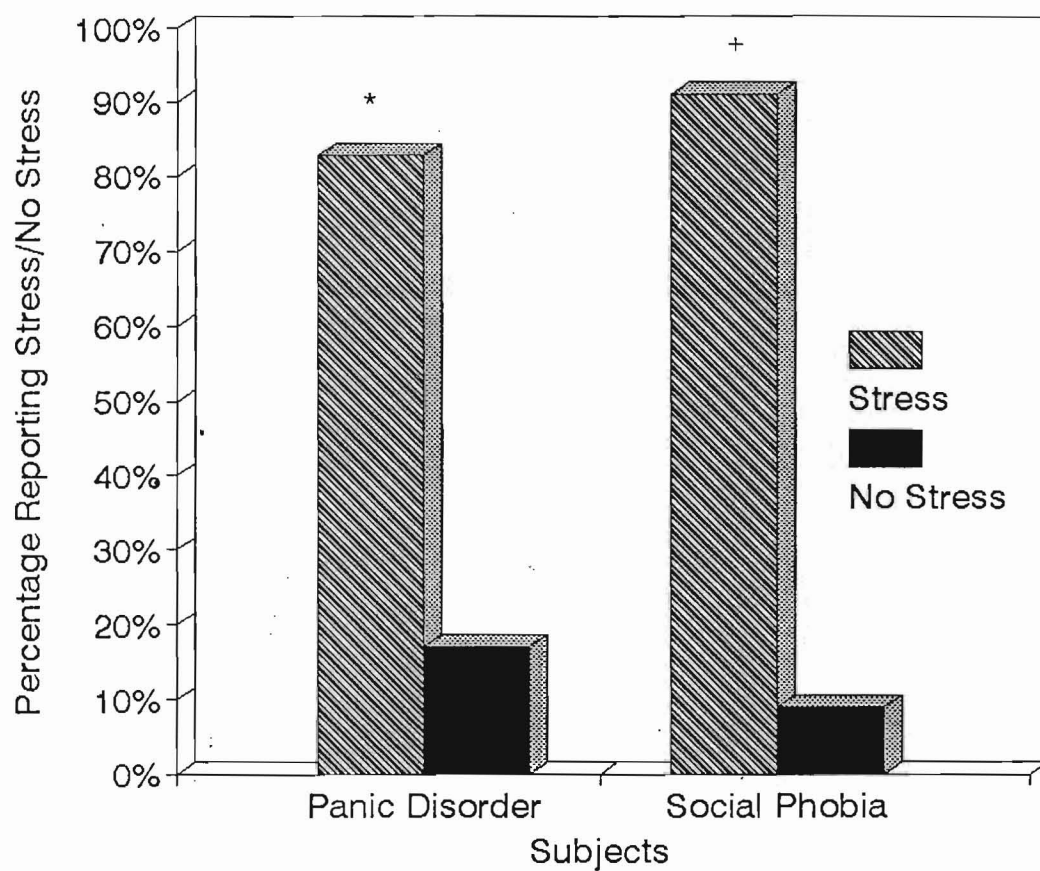


Figure 2. Percentages of panic disorder subjects and social phobic subjects who reported conditional stressors or background stress at their onsets. \* to denote significant difference between conditions (conditional stressor/background stress) for panic disorder subjects,  $X^2(1, N = 23) = 8.000, p < .006$ . + to denote significant difference between conditions (conditional stressor/background stress) for social phobic subjects,  $X^2(1, N = 23) = 5.762, p < .017$ .

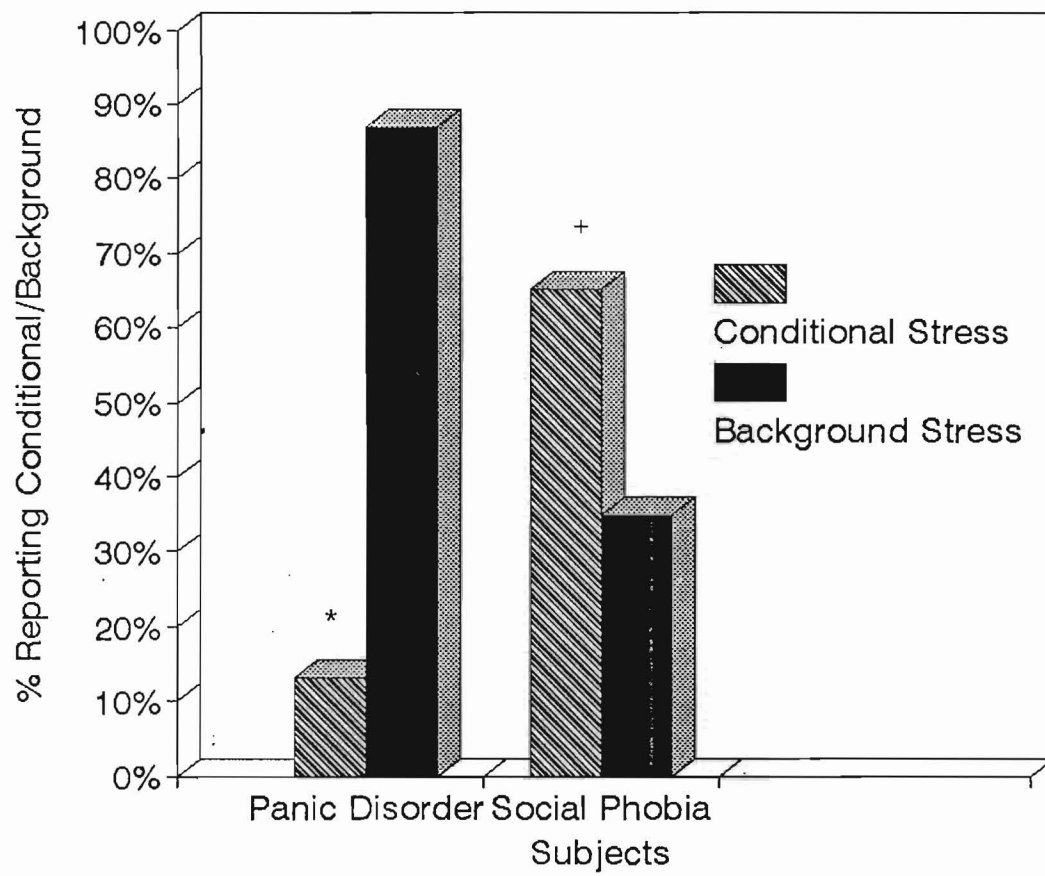


Figure 3. Percentages of panic disorder subjects versus social phobic subjects who reported evaluation related stressors at their onsets. \* to denote a significant difference between groups,  $X^2(1, N = 46) = 15.18431, p < .0002$ .

