

A Temporal Gradient of Anxiety in a Stressful Performance Context

Paul Salmon, Ph.D., G. Randolph Schrodt, M.D., and Jesse Wright, M.D., Ph.D.

Abstract

A representative sample of music school students was assessed for manifestations of performance anxiety in the context of jury performances conducted by the faculty. Two-thirds of the individuals surveyed reported being significantly troubled by performance anxiety. It was predicted that self-ratings of cognitive, affective, and physical variables related to anxiety would elevate as performance time approached, to a degree significantly in excess of that experienced on a day-to-day level.

It was predicted as well that students whose anxiety peaked prior to performing would manifest lower levels of tension while performing than those whose anxiety levels peaked during a performance, and that these students would overall be more experienced performers. Evidence was obtained in support of both hypotheses, and the data suggest that facilitating anticipatory anxiety in effective, experienced players may either evolve as a function of experience or else reflect a trait-based resistance to anxiety.

There is currently a need for descriptive data concerning the manifestations of performance anxiety in advance of the actual performance itself. Although a number of recent books^{1,2} and research studies have addressed the problem of performance anxiety and its treatment (see, for example, references 3–8), there is still much to be learned about the ways in which anxious expectations can impact on the quality of a live performance. A contemporary model of anxiety originally proposed by Lang⁹ grouped anxiety symptoms into three classes: physiological arousal, distressful cognitions, and behavioral avoidance of anxiety-provoking situations.¹⁰ Generally, intercorrelation among these variables are low,¹¹ so that in clinical practice it is common to find not only marked individual variations in symptomatology, but fluctuations in symptom manifestations over time¹² for a given individual as well.

Manifestations of anxiety do not require the presence of an activating stimulus, and there is considerable evidence

that the *anticipation* of stressful events can evoke as much anxiety as the event itself.^{13–16} Available evidence suggests, for example, that the approach of stressful events brings about changes in cognitive and physical status.¹⁷ In general, there is a pattern of gradually increasing physical arousal as the stressful event becomes imminent, with a sharp peak occurring just prior to and during onset of the event. Characteristic patterns of mental activity have been identified as well, with highly anxious individuals reporting increasingly intrusive negative thoughts¹⁸ a preoccupation with task-irrelevant cues,¹⁶ a greater sense of personal vulnerability,¹⁹ and even distortions in the perception of the passage of time.²⁰ The combination of these unpleasant cognitive and physical symptoms causes many individuals confronting a stressor to avoid cues associated with the event in advance of its occurrence.²¹ The point where anxiety peaks, however, differs depending on a number of factors, including the individual's experience, training, and previous encounters with stressors.^{14,22} Generally, the effect of experience in coping with stressful situations is to: (1) lower the overall level of tension experienced during the event itself;¹⁴ and (2) cause it to peak *in advance* of the situation and diminish thereafter.¹³

An important study in this context by Epstein and Fenz²³ assessed anxiety in experienced and inexperienced parachutists at different phases of the jump sequence. The investigators found that seasoned parachutists' anxiety peaked well in advance of the jump, whereas that of inexperienced parachutists was greatest at the moment of the jump. Both groups, it is important to note, experienced significant levels of anxiety, differing chiefly in terms of *when* distress was greatest.

Clinical reports suggest that performance situations can engender anxiety levels comparable to those experienced by the parachutists in Epstein and Fenz' study. Demands for high levels of technical proficiency, the activation of complex motor and cognitive skills, plus public evaluation and scrutiny¹ are all factors that may promote excessive

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Dr. Salmon is in the Department of Psychology, University of Louisville, and at the Norton Psychiatric Clinic, Norton-Kosair Children's Hospital, Louisville, Kentucky. Dr. Schrodt and Dr. Wright are at the Norton-Kosair Children's Hospital, Louisville, Kentucky. Address correspondence to: Paul Salmon, Ph.D., Department of Psychology, University of Louisville, Louisville, KY 40292.

anxiety. Both clinical experience and recent publications^{2,8} indicate that performance anxiety stemming from these factors is relatively commonplace among both experienced and inexperienced performers. What appears to differ is the point in the performance sequence when anxiety reaches a peak.

The purpose of this study was to assess manifestations of anxiety leading up to and including a live performance using retrospective data. It was hypothesized that self-report measures of anxiety would show a consistent increase up to the time of the performance itself, and that the reported levels would be significantly greater than those associated with non-performance situations. Second, it was predicted that the impact of anxiety would differ as a function of the point when it peaked during the time until the performance. Students whose anxiety was maximized during the performance were predicted to report higher levels of distress than those whose anxiety peaked *prior* to the performance.

Subjects

Forty subjects (18 male and 22 female), all undergraduate music majors, participated in the study. All were required to play for juries at the conclusion of the semester, and volunteered to complete a retrospective questionnaire concerning the impact of anxiety both in advance of and during the jury. More than half of the subjects reported being 14 or older at the time of their first public performance, although the mean age for beginning lessons was 9.8 (S.D. = 4.6).

Materials

Scores on the Burns Anxiety Inventory (BAI)²⁴ served as the primary dependent variable. Subjects were also given a general demographic questionnaire. The BAI is a 33-item questionnaire that assesses feelings (6 items), thoughts (11 items), and physical sensations (16 items) related to the experience of anxiety. "Feeling" states were assessed via items such as "Apprehension or a sense of impending doom"; "Feeling that things around you are strange, unreal or foggy." Thought items included references to fears (e.g., becoming ill, fainting) and problems with concentration. Physical symptoms included those associated with autonomic nervous system arousal, such as trembling, sweating, and ac-

celerated heart rate. Each item on the BAI is scored on a four-point scale, ranging from 0 (symptom absent) to 3 (strongly evident).

Procedure

Subjects completed the demographic questionnaire and the BAI 24 hours or less after their jury, having already agreed to participate in the study one week earlier. They were asked to rate the BAI items with respect to four time periods: one day before the performance, one hour before, during the performance itself, and on an average, day-to-day basis. Data were analyzed using the SYSTAT statistical package on a Macintosh Plus microcomputer.

Results

As predicted, there was an overall increase in reported symptoms of anxiety as the time of performance approached. Average global BAI scores for non-performance (i.e., day-to-day) circumstances averaged 10.3 (S.D. = 7.73), somewhat higher than the average for non-music undergraduate students at the same University.²⁵ A related-samples *t*-test comparing non-performance BAI scores with those associated with the performance revealed a significant difference ($t = 6.37, p < .001$), the latter averaging 26.07 (S.D. = 18.67).

Changes in affective, cognitive, and physiological correlates of anxiety were analyzed for four time periods using a multivariate analysis of variance (MANOVA) procedure: average (day-to-day) anxiety level plus anxiety levels one day before, one hour before, and during the performance itself. Significant increases were evident in all three domains, including cognitive ($F = 5.75, df = 3,40, p < .001$); affective/emotional ($F = 20.69, df = 3,40, p < .001$); and physiological ($F = 23.18, df = 3,40, p < .001$) (Fig. 1). Means and standard deviations for each variable by time interval are presented in Table 1.

For the second analysis, subjects were divided into two groups according to whether their anxiety peaked prior to or during the performance. Whereas the two groups did not differ significantly in day-to-day anxiety levels, a repeated-measures analysis of variance (ANOVA) of overall anxiety level by time period revealed a significant difference in anxiety associated with the time period leading up to and

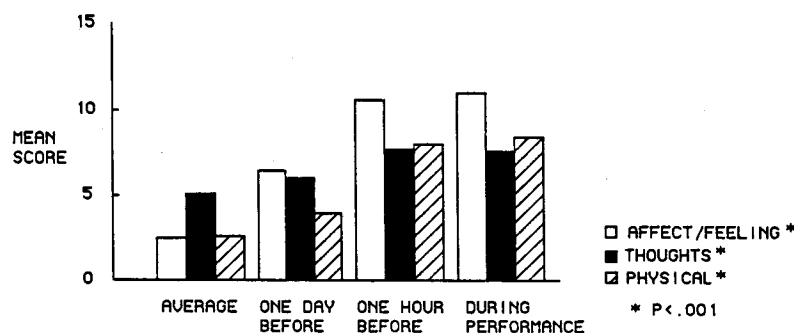


FIGURE 1. Changes in frequency of anxiety correlates.

TABLE 1. Correlates of Anxiety as a Function of Time Based on BAI Scores

		Emotional Responses	Cognitive Responses	Physiological Responses
Daily	Mean	2.53	5.12	2.58
	S.D.	2.99	4.28	2.69
One day before	Mean	6.48	6.00	3.99
	S.D.	6.05	6.04	4.64
One hour before	Mean	10.61	7.67	7.97
	S.D.	7.17	6.23	5.68
During performance	Mean	10.99	7.56	8.46
	S.D.	8.22	6.19	6.60

including the performance ($F = 6.58, df = 1,41, p < .015$) for both groups (Fig. 2). The mean anxiety level of subjects whose anxiety peaked prior to performing was 16.13 (S.D. = 12.63); that of subjects whose anxiety was at its highest during the performance was 38.63 (S.D. = 17.61). The results of this analysis are depicted in Figure 2.

As predicted, subjects in these two groups differed significantly in terms of experience, as evaluated by the age at which they began performing regularly in public ($t = 1.96, p < .05$), those subjects starting at a younger age reporting greater anxiety *prior to*, rather than during, their performance.

Discussion

Results of this study are consistent with others that have reported anxiety gradients in advance of stressful events.²⁶ Of particular interest is the replication of Epstein and Fenz²³ finding that individuals experienced in coping with stressful events report greatest distress in advance of, rather than during, the event itself. Anxiety peaked for seasoned per-

formers *before* the performance, and was less intense than that reported by inexperienced performers, for whom the greatest level occurred during their jury.

The present study leaves unanswered the question of whether effective performers develop coping skills as the result of experience, or whether they possess traits to begin with that make them less vulnerable to the impact of anxiety.²⁷ Whatever the source of their resistance to anxiety, they, like other individuals who cope with stress effectively, employ a wide range of therapeutic tactics to manage attendant levels of anxiety.

Coping Strategies

Although there are many available therapeutic coping strategies, the following three are representative of contemporary cognitive/behavioral interventions.¹⁵ Systematic rehearsal and exposure to performance-related situations²⁸ in response to anticipatory anxiety cues is one effective strategy. Experienced performers seem to mobilize feelings of tension and apprehension to engage in performance-related behavior, whereas less adept performers are likely to respond to such mildly noxious cues by *avoiding* preparatory activity. Second, positive, realistic self-statements may be used to counteract unrealistic anticipatory fears.^{15,29} Systematically reminding oneself, for example, that "I enjoy playing and love music," or "I practice effectively and am well prepared" can be a surprisingly simple yet effective way of addressing fears that for some performers assume catastrophic proportions. Third, the combined use of mental imagery and relaxation training as a means of visualizing the stressful event has proved effective in the development of anticipatory coping responses (see, for example, reference 30). Effective performers, whether they be musicians, actors, athletes, or others are usually adept at creating vivid mental images of

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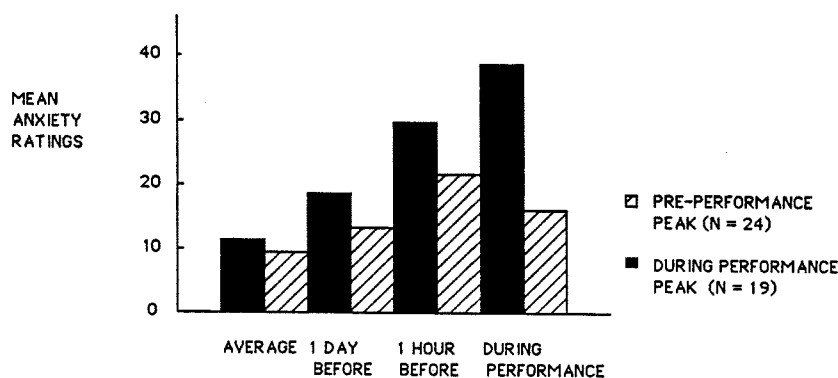


FIGURE 2. Performance anxiety levels and peak phase—repeated measures of main effect (group): $F = 6.58 (p < 0.015)$.

themselves coping effectively with the impending performance.

Conclusion

The results of this study underscore the anticipatory qualities of anxiety, and are consistent with other research suggesting that experience in coping with stressful events may alter the time course, but not necessarily the occurrence of, anxiety. Seasoned performers experience feelings of apprehension and worry just like novices. They may differ either in the intensity with which these cues are experienced, or in the degree to which they can utilize them effectively to promote systematic performance preparation.

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