



## Performance Anxiety. Recent Developments in Its Analysis and Management

Andrew Steptoe

*The Musical Times*, Vol. 123, No. 1674. (Aug., 1982), pp. 537-541.

Stable URL:

<http://links.jstor.org/sici?sici=0027-4666%28198208%29123%3A1674%3C537%3APARDII%3E2.0.CO%3B2-4>

*The Musical Times* is currently published by Musical Times Publications Ltd..

---

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/about/terms.html>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/journals/mtpl.html>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

---

The JSTOR Archive is a trusted digital repository providing for long-term preservation and access to leading academic journals and scholarly literature from around the world. The Archive is supported by libraries, scholarly societies, publishers, and foundations. It is an initiative of JSTOR, a not-for-profit organization with a mission to help the scholarly community take advantage of advances in technology. For more information regarding JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

Ex. 9

Al-le-lu-ia; Sal-va-tion and  
glory and power be-long unto our God  
a? when with choir

'voci', suggesting that it was intended for one of the oratorio choruses. A further concordance between this and ff.7 and 8 of Add.47906 confirms the connection, since here the theme is underlaid with the text of *Revelation*

19.1; 'Alleluia; Salvation, and glory, and honour, and power belong to our God' (ex.9).

Any discussion of the Third Symphony sketches should take into account Elgar's wish, expressed to Reed: 'Don't let anyone tinker with it' [114]. From the sketches it is only too clear that his anxiety was well founded. There is little doubt that the work was in considerable disarray at his death, with the tonal structures of the second and third movements undecided and the development and recapitulation sections of the outer movements barely contemplated. Nevertheless, the sketches remain of considerable value in the impression they give of Elgar's mind and working methods and of the way his imagination fulfilled itself in his chosen material. These sketches also emphasize Elgar's creative decline during his last 20 years. As I have tried to show, very little music for the Third Symphony was newly composed; instead, Elgar relied heavily on material from *The Judgement* and *King Arthur*, showing comparatively little inventive ability in its development or integration.

## Performance Anxiety

*Recent developments in its analysis and management*

Andrew Steptoe

The problems of performance anxiety and stage-fright are perennial concerns for musicians and other performing artists. Trembling, hyperventilation, nausea and diarrhoea are common even in mild cases, while severe difficulties may lead to premature termination of a promising career. Solutions have ranged from the strictly musical (Paderewski for example recommended detailed analysis of musical structure) to prolonged psychotherapy; alcohol, tranquillizers and other mundane remedies are also rather popular. Recently, however, the topic has attracted the attention of clinical psychologists and others concerned with the management of anxiety and stress-related disorders. The purpose of this article is to outline advances in our understanding of performance anxiety, bringing them to the attention of professional musicians and teachers.

Tension in performance has much in common with other focal anxieties such as fear of spiders or heights; in each case, the individual responds both physically and mentally to the presence of the feared situation. However, there is an additional element in performance anxiety, since it affects not only cognitions and physiology but behaviour. The performance itself involves a sequence of

skilled actions that may easily be disrupted, with disastrous consequences. The musician is particularly unfortunate in that the physical systems sustaining a performance are precisely those most likely to be disturbed by excessive tension. Sweat gland activity, salivation, muscle control and the breathing pattern are among the most sensitive indices of bodily arousal, yet are crucial to most performing arts. The highly competitive nature of the professional musician's life and career can only exacerbate these problems.

Detailed investigations of tension in performance have concentrated on two linked components: excessive physiological arousal and a maladaptive cognitive style. These must be described separately, since both have implications for the management of debilitating stage-fright.

**AROUSAL AND PERFORMANCE.** The quality of skilled performance varies in a systematic fashion with arousal, following a curvilinear or inverted-U-shaped pattern.<sup>1</sup>

<sup>1</sup> The Yerkes-Dodson law; for mechanisms underlying arousal and stress responses, see Andrew Steptoe, 'Sleep and Arousal' and 'Emotion and Stress', two chapters in the *Scientific Basis of Psychiatry*, ed. Malcolm Weller (London, in preparation).

Thus performance improves with increasing arousal up to an intermediate level but deteriorates as arousal rises beyond the optimum. The level of arousal can be monitored both physically (with recordings of pulse rate or muscle tension) and in terms of the efficiency and alertness of behavioural responses. It is influenced by biological factors, such as the diurnal rhythms of sleep and waking, and by external circumstances. Hence, for example, learner drivers may control a car efficiently with their instructors but see their skills disintegrate with the additional agitation and uncertainty that accompanies a driving test.

It has long been assumed that musical performance follows similar rules, and the pattern has now been confirmed in research on professional singers.<sup>2</sup> Young classical and operatic singers were asked to rank the quality of their performance in five different settings: a lesson, dress rehearsal, public performance, audition and practice in private. At an unrelated stage of the interview, they rated the tension they felt in these settings on a scale from 1 (extreme tension) to 9 (extreme relaxation). These responses were then compiled and averaged to produce the curve shown in fig.1. The performance scores are arbitrary, but lower numbers indicate superior quality.

As predicted, the best performance occurs at an intermediate tension level; when arousal is too high or too low, singing is less satisfactory. Interestingly, the peak in quality generally coincides with public performance in this sample. The more relaxed occasions of a lesson or practice are associated with moderate quality, while at the other extreme tension is too high during dress rehearsals for good

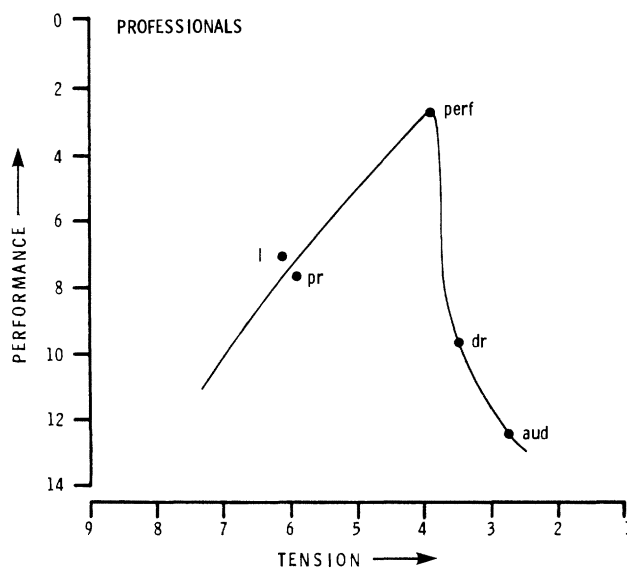
performance. Not surprisingly, the singers rank their appearances in auditions as worst of all, and this is the situation in which tension also rises to high levels. Similar patterns have been found among organists using physiological measures of tension and different methodology.<sup>3</sup>

Thus it seems that even professional musicians who report no special problems of performance anxiety are on a knife-edge when appearing in public; the smallest disturbance may push the individual on to the downward limb of the curve, where tension and deteriorating production reinforce each other. Since unexpected events are among the most potent means of stimulating physiological stress reactions, many performers adopt highly rigid preparation schedules, ordering their lives on the day of a show so that nothing is left to chance. Of course, those who experience high performance anxiety are already well above the optimum tension level when appearing in public, unlike the singers studied in fig.1.

Difficulties may also arise at the other end of the spectrum. Some musicians are unable to rise to the occasion, and give a dull performance through failing to generate enough excitement. This problem is especially common with repetitive appearances, as in a long opera run or well-worn series of orchestral concerts. It is possible deliberately to foster tension from irrelevant sources in order to improve performance. Some psychologists believe this is the strategy adopted by John McEnroe the tennis player; when the game is becoming too easy he loses concentration, makes mistakes, so deliberately increases tension by bad temper and social confrontation, and this in turn shifts his performance back to a higher level.<sup>4</sup>

The link between tension and performance also accounts for the claim, frequently expressed by musicians and actors, that they 'need' a certain level of anxiety, and that nervousness is essential to a good show. This belief arises from the mislabelling of general arousal for anxiety. The body is parsimonious in its reactions, and similar physiological changes underlie all intense states of emotional experience. The alterations in pulse rate, breathing, muscle tension and sweat gland activity are essentially non-specific, and respond equally to anger, elation, fear or desire.<sup>5</sup> The tension needed for a good performance is not anxiety, but a generalized state of moderate physical excitement. This is transformed into deleterious anxiety only through interaction with components of mental or cognitive attitude.<sup>6</sup>

<sup>2</sup> Unpublished research by the author; a preliminary account was presented at the International Conference on Tension in Performance, Kingston Polytechnic, Sept 1981.



1: Tension in singers in five different settings

<sup>3</sup> Mary Leglar: 'Measurement of indicators of anxiety levels under various conditions of musical performance', *Dissertation Abstract International*, xxxiv (1979), 5201-A

<sup>4</sup> Steve Murgatroyd: 'Arousal and McEnroe', *Bulletin of the British Psychological Society*, xxxiv (1981), 325

<sup>5</sup> for further discussion of this controversial issue, see Andrew Steptoe, 'Stress and Medical Disorders', *Contributions to Medical Psychology*, ii, ed. Stanley Rachman (Oxford, 1980), 55-78

<sup>6</sup> The term 'cognitive' is preferred by psychologists, partly as a reaction against mentalism, partly to distinguish cognitions (thoughts) from emotions as mental processes.

COGNITIVE ASPECTS OF PERFORMANCE ANXIETY. Performance in front of an audience is a demanding business, and generally requires a high degree of concentration. Thoughts are focussed on the expression of the words or music, their meaning and emotional content, the transmission of these qualities to the audience, integration with other performers, and judgment of overall effect. These are task-orientated thoughts, and will dominate the minds of responsible musicians during performance. However, other task-irrelevant thoughts may also intrude. They can be elicited by factors in the immediate environment – the antics of another musician, the noise of traffic outside the hall, an incorrect lighting cue – or may be internally generated. The calm musician is able to acknowledge these irrelevancies, but dismiss them without becoming distracted from the work in hand. But performance is threatened if these thoughts are over-intrusive, interfere with concentration and become tinged with anxiety.

Thus the performer's internal dialogue or inner speech plays an important part in exacerbating anxiety. Studies of music students and professionals have identified several potent sources of threat.<sup>7</sup> The practicalities of appearing in public, such as the unfamiliarity of the hall, unsatisfactory acoustics, travel arrangements, temperature, the size and attitude of the audience, financial difficulties or lack of confidence in other participants may act as triggers for worry. Concerns about the quality of performance itself crystallize into separate clusters of anxiety-provoking thoughts. There are worries about memory lapses and distraction, concerns about ability to master technical problems or the difficulties of a piece, fear of disapproval from friends, teachers or critics, and anxiety about losing physical control. People with stage-fright have a tendency to catastrophize, or exaggerate in imagination the consequences of a minor mishap. Thus a small mistake will be seen as ruining a whole performance, alienating the audience and critics, making friends or colleagues ashamed and damaging the individual's entire career prospects. They may also have negative thoughts about the self, seeing themselves as unworthy, technically incapable, not as talented as colleagues, and unable to give genuinely inspired readings.

Thoughts of this type are not inevitable, but form one of a number of cognitive reactions to the occasion. Other individuals may perceive the same incidents quite differently, viewing them as challenges and spurs to greater success rather than threats. These are all features of cognitive appraisal, or the interpretation of external cues and incidents. They form the basis of recent attempts to modify psychological and behavioural problems at a cognitive level.

TECHNIQUES FOR THE ALLEVIATION OF PERFORMANCE ANXIETY. The problems of tension in performance may be sufficiently severe to warrant professional assistance. Until recently, individuals with difficulties were frequently referred to psychotherapists, who view performance anxiety as a surface reflection of fundamental emotional needs or conflicts of motivation. However, the description provided above suggests that methods of countering either excessive physiological arousal or maladaptive cognitions may be valuable, without the need for deep exploration of the psyche.

The most rapid way to suppress physiological arousal is with drugs. The use of alcohol and tranquillizers can be catastrophic, since while these substances reduce physical agitation they also impair intellectual function. However, the group of drugs known as beta-blockers are more beneficial, since they act at the peripheral nerve terminals mediating sympathetic nervous arousal. They prevent transmission over these pathways, hence reducing the physical symptoms of performance anxiety without having sedative effects. Most people have expectations of benefit when taking medicine, so beta-blockers have been compared with placebo pills on a double-blind basis for effectiveness in alleviating performance anxiety. The first of these comparisons showed no significant differences between drugs and placebo in professional or orchestral players complaining of palpitations, tremor and other symptoms.<sup>8</sup> Symptoms decreased both with active and dummy tablets, reflecting the importance of expectancies and suggestion on drug effects. However, more recently, beta-blockers have been shown to advantage in double-blind studies of string and keyboard students.<sup>9</sup> The drug reduced pulse rate, tremor and excessive tension, leading in many cases to improvements in performances previously impaired by these mechanical factors.

Musicians with incapacitating physical symptoms may find rapid and dramatic relief through beta-blocking agents. But not all those with difficulties are content to rely on drugs for the maintenance of a professional career. Moreover, some participants in drug studies have complained that the absence of physiological arousal is disturbing, and that the cognitive elements of performance anxiety persist despite physical calm. Consequently, alternative approaches through the development of self-control over physiological and cognitive processes have been explored.

One method to show promising results in people with specific problems of excessive muscle tension is biofeedback. This is a technique for training in self-control over

---

<sup>7</sup> Paul Lehrer: 'Studies in performance anxiety', paper to the International Conference on Tension in Performance, 1981

<sup>8</sup> S. Liden and C.-G. Gottfries: 'Beta-blocking agents in the treatment of catecholamine-induced symptoms in musicians', *Lancet* (1974) no.2, 529

<sup>9</sup> I.M. James and others: 'Effect of oxprenolol on stage-fright in musicians', *Lancet* (1977) no.2, 952; C.O. Brantigan and others: 'The effect of beta-blockade on stage-fright', *Rocky Mountain Medical Journal*, lxxvi (1979), 227

physical functions. The activity of the disturbed muscle is recorded electrically, and transformed into a visual or auditory signal which can be perceived by the subject. The musician is thereby able to 'see' or 'hear' the high tension in the muscle and learn to regulate it. Biofeedback has been successfully applied to several instrumentalists. For example, a woodwind player developed excessive tightness in his jaw and constriction in the throat, which threatened to ruin his professional career.<sup>10</sup> He drank large amounts of vodka and took barbiturates in an attempt at relief, but these only exacerbated the problem. During the biofeedback treatment, electrodes were attached over the various muscle groups in his head and neck. A display of lights showed him the tension pattern of which he was previously only dimly aware. After several sessions, he was able to play while keeping these tensions at a low level, and could return to professional life.

Researchers have also applied biofeedback techniques to the muscle tensions that interfere with the flexibility of the larynx in singers, and excessive contractions in the forearm muscles of string players that impair bow action.<sup>11</sup> In each case, brief training has led to substantial reductions in tension and corresponding improvements in performance. These are however relatively specific techniques, designed for special difficulties with body control. Often the problems of performance anxiety are more general, and require modification on both the physiological and cognitive levels.

Relaxation training is a basic component of many intervention strategies. There are numerous techniques, but the method favoured by clinical psychologists is Jacobson's progressive muscle relaxation.<sup>12</sup> This teaches relaxation as a skill in muscular control, which has secondary effects on the brain through the reduction of sensory inputs. Autogenic training is a procedure akin to self-hypnosis, in which the practitioner repeats a series of formulae concerning warmth and heaviness in different parts of the body. These methods are seldom sufficient in themselves, but one way they can be integrated with cognitive factors is through 'systematic desensitization'. This procedure aims to replace the anxiety response to performance settings by more relaxed responses. The subject learns a brief relaxation technique, and then constructs a graded hierarchy of progressively more disturbing images associated with performance. A low-ranking item might be entering the dressing room before the show, while com-

ing on stage would elicit higher anxiety. The subject then imagines each item while relaxing, and only ascends the hierarchy when lower items can be imagined without fear. The procedure may also be carried out in real rather than imagined situations.

This method has been most successful in a carefully controlled study of performance anxiety in advanced piano students.<sup>13</sup> Systematic desensitization was compared with musical analysis and performance rehearsal and a no-training control group. Following treatment, the systematic desensitization group performed at lower subjective anxiety levels, exhibited lower pulse rate, and made fewer performance errors than the other groups. The musical analysis and rehearsal group also showed fewer errors (due to practice effects), but anxiety and physiological responses were unaffected.

Perhaps the most interesting set of techniques falls under the rubric of cognitive behaviour therapy.<sup>14</sup> These procedures may include relaxation as a coping response, but focus primarily on the cognitive processes underlying tension in performance. They involve analysing the cognitive reactions to aspects of performance and restructuring these thought processes through rational means. The individual may then be able to redefine anxiety-provoking stimuli as spurs to positive action and commitment. For example, a soloist might look round the audience part way through a recital to be confronted with a sea of glazed expressions. The thoughts running through an anxious performer's mind will include 'I am failing to get through to these people; they are bored and indifferent, and are disappointed in my performance; all my preparation has gone for nothing and I am a failure'. This might lead to a train of increasingly negative thoughts: 'I do not have the qualities needed for this job; I cannot get through to people; I will never have a successful career, so I may as well give up now'. The tendency towards catastrophizing can be managed by *reductio ad absurdum*. After the individual has trained in analysing and working through these arguments, the situation might be reappraised as follows: 'audiences often have glazed expressions, but that doesn't mean anything; they must be well disposed towards me or they would not be here; don't judge by appearances; there is no point in letting such a trivial matter interfere with my preparation; take a deep breath and carry on'.

Cognitive methods are being used increasingly in the management of psychiatric anxiety-based problems. Nagel and her colleagues applied the technique to a group of full-time music students and compared them with a no-treatment control group.<sup>15</sup> The students attended six

---

<sup>10</sup> J.R. Levee and others: 'Electromyographic biofeedback for relief of tension in the facial and throat muscles of a woodwind musician', *Biofeedback and Self-Regulation*, i (1976), 113

<sup>11</sup> T.E. Garrison: 'The effect of electromyographic biofeedback training on singers with tension problems in the laryngeal musculature', *Dissertation Abstracts International*, xxxix (1978), 2808A; R.L. Morasky and others: 'Using biofeedback to reduce left arm extensor EMG of string players during musical performance', *Biofeedback and Self-Regulation*, vi (1981), 565

<sup>12</sup> D.A. Bernstein and T.D. Borkovec: *Progressive Relaxation Training: a Manual for the Helping Professions* (Champaign, Ill., 1973)

<sup>13</sup> S.S. Appel: 'Modifying solo performance anxiety in adult pianists', *Journal of Music Therapy*, xiii (1976), 2

<sup>14</sup> D. Meichenbaum: *Cognitive Behaviour Modification* (New York, 1977)

<sup>15</sup> J. Nagel and others: 'A cognitive-behavioural approach to musical performance anxiety', paper to the International Conference on Tension in Performance, 1981

weekly sessions, during which the cognitive procedures were introduced, together with relaxation training. The intervention produced significant reductions in self-report both of specific performance tension and general anxiety, although unfortunately no musical or physiological measures were taken. Participants in the treatment said they were able to control themselves both mentally and physically to a greater extent, practise more efficiently, and prevent themselves from being thrown by mistakes or minor mishaps.

★

This brief review can do no more than enumerate contemporary trends in the management of performance anxiety. However, some important themes emerge. The behavioural psychological programmes described are problem-

orientated, aimed at coping with specific difficulties in performance without delving into psychological depths. Interventions are brief, and do not persist beyond the immediate goals of tension control. This contrasts with the long-term psychotherapy frequently recommended to anxious performers; but, aside from the endorsements of clients and therapists who have a personal stake in the venture, there is no systematic evidence that psychotherapy has any impact on this problem. Finally, the methods currently being explored are fundamentally self-help procedures. They aim to assist the performer to manage the difficulties of this taxing profession without the need for external props and aids. The time may even come when systematic instruction in relaxation and appropriate cognitive attitudes becomes a standard element in a musical education.

## On – and from – Goehr

Bayan Northcott

Alexander Goehr is  
50 on 10 August.

In 1975, during a Radio 3 interview with the present writer, Alexander Goehr made an admission of a kind not often heard from contemporary composers in mid-career:

Having severe limitations as a musician, I can only compose by playing games of a certain kind – technical games – with my material, and leaving the rest to the subconscious, hoping that it will produce what I had visualized in the first place.<sup>1</sup>

At a time when the production of new music has grown out of all proportion to any social requirement, when a composer's best hope of creating a need for his work would seem to be by selling himself as the fount of Novelty, the Revolution or the Divine, so frank a confession of disability almost amounts to rocking the professional boat. Nor is it an isolated dereliction in Goehr's public utterances. Asked in the same interview whether the Beethoven variation model he had deployed in *Metamorphosis/Dance* had affected the work's stylistic surface, he replied:

I'm safe there because I'm not good enough to imitate a style. You know when we're students we're sometimes asked to write things in the style of this or that – and in Messiaen's class we had to write things in the style of Fauré or Franck and I must admit to having no ability in this direction at all.

Later, apropos the 'Baroque' tendency of his scoring with its maintenance of select combinations to section length:

There's very little of the Wagnerian, Mahlerian or Schoenbergian orchestration with its gradually shifting colours and elaborate doublings. I'm not able to do it at all. Not since my earliest works have I attempted that kind of orchestration, nor am I likely to.

At the very least, such disclaimers would seem a gift to hostile critics. The cynical might be tempted to interpret them as something worse: modesty, the ultimate weapon of the pretentious.

Or they could be taken as tokens of a rare musical realism, sounded as early as 1960 in an article questioning the 'historical inevitability' of total serialism:

This outlook amounts to a complete neutralization of musical character. The creative idea is replaced by mere procedure. There is no material in the traditional sense . . . No amount of technical ingenuity can break the monotony of regularity – even though this regularity can be shown to contain within itself, the widest possible degree of isolation and differentiation. The dull impression is simply due to the fact that all serial possibilities are continually present in the work. Musical interest is always produced by the restriction of possibilities – a restriction which is determined, in its turn, by the character of the material, by individual invention.<sup>2</sup>

Such a reassertion of the primacy of musical material over technical process is not so surprising coming from the son of a Schoenberg pupil; what was more so at that stage – coming from a friend of Boulez and Nono and a pupil of Messiaen (who once wrote that 'an abundance of technical means allows the heart to expand freely') – is the linking of that primacy with an axiom about restriction resembling nothing so much as the neo-classical Stravinsky who wrote: 'My freedom will be so much the greater and more meaningful the more narrowly I limit my field of action.'<sup>3</sup>

<sup>1</sup> *Music Weekly*, Radio 3 (19 Jan 1975)

<sup>2</sup> A. Goehr: 'Is there only one way?' *Score* (1960), no.26, p.63

<sup>3</sup> I. Stravinsky: *Poetics of Music* (Eng. trans., New York, 1947), 68