

Indicators of Music Performance Anxiety in Nonverbal Behaviors: A Case Report of a Classical Vocal Soloist

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Abstract

Music performance anxiety (MPA) is the experience of distinctive, and ongoing anxiety and apprehension related to performing music. Symptoms include cognitive, behavioral, somatic, and affective elements, which may facilitate or impair performance quality. Increases in the experience of MPA are associated with situations in which an individual is highly invested, and perceives he/she is being evaluated, or fears failure. This case report combines self-report and observational methodologies to examine the experienced MPA and nonverbal behaviors of a female vocalist, studying classical voice at a tertiary level, in two recital situations. Greater pre-performance state anxiety was reported prior to performing solo at a lunchtime recital than prior to giving a solo performance at an evening recital. Examination of the vocalist's nonverbal behaviors confirmed the differences in self-report state anxiety between the two recitals. The vocalist displayed many more self-stimulating, adaptor behaviors in the higher anxiety-provoking recital. This case demonstrates that performing musicians' nonverbal behaviors not only reflect their expressive and communicative intentions, but that experienced anxiety can "leak" through the performance presentation. The MPA management strategies reportedly used could be improved to be more effective and reliable. As performing musicians' nonverbal behaviors have a powerful effect on audience judgments of performances, the development of performance-based treatment strategies for MPA, to complement established treatments, such as cognitive-behavioral therapy, and stress-reduction activities, is advocated. Performance-based strategies are potentially valuable to develop concurrently developing skills for managing MPA as well as optimal audio and visual musical communication with the audience.

Keywords: Music performance anxiety; Nonverbal behaviors; Vocal performance; Embodied cognition; Performer-audience communication; Anxiety; Self-report; Observational study

Introduction

Music performance anxiety (MPA) is the experience of distinctive, and ongoing anxiety and apprehension related to performing music (for a thorough review, see D.T. Kenny's 2011 book on the subject [1]). Precursors include a range of biological, psychological, and experiential factors, which can leave an individual pre-conditioned and susceptible to MPA. Symptoms include cognitive, behavioral, somatic, and affective elements, which may facilitate or impair performance quality. Music performance anxiety may exist comorbidly with anxiety disorders, especially social phobia, and may be experienced regardless of performance training, preparation, or expertise. The experience of MPA may be heightened in situations of higher investment or pressure, where there is a sense of evaluation, or where failure is feared.

The present case report focuses on the physical manifestation of MPA as overt, observable nonverbal behaviors evident while performing in high anxiety provoking performance contexts. Previous MPA research has incorporated standardized anxiety measures, such as the Spielberger State-Trait Anxiety Inventory [2-5], and behavioral observations [6-8] to examine the coupling of subjective experience and overt behaviour in music performance. In contrast to the behavioral observation system used in some previous MPA research [6-8], the present case study uses the coding system of Ekman and

Friesen [9], which has been used to study the nonverbal behaviors of singers [10,11], and postulates that distinct hand movements relate to different psychological states and processes. Furthermore, raters are able to code reliably nonverbal behaviors that relate to the majority of the system components (illustrators, emblems, adaptors, and affect displays [12]). In addition, previous research demonstrates that adaptor nonverbal behaviors are associated with states of heightened anxiety [13-15].

Previous research demonstrates the powerful effect performing musicians' nonverbal behaviors can exert on observer judgments of performance [16-18]. Instrumental musicians have an object to manipulate, which occupies the hands and arms, possibly masking some visually observable indicators of anxiety. For vocalists, their body is their instrument, leaving their hands relatively free to gesticulate. Vocalists' postures, facial expressions and gesticulations serve to support the creation of sound, embody expression, and communicate with co-performers and the audience [9,17,19]. Thus, this case focuses on vocal performance, as vocalists' nonverbal behaviors potentially present optimal opportunities to observe physical signs of experienced MPA. Furthermore, although MPA studies have been conducted with vocalists, none have explicitly examined associated nonverbal behaviors [4,5].

In Western classical music performance, the musician's prime role is to act as a conduit for the music, transforming a notated score into sound, and interpreting and expressing the music through various cognitive and affective lenses [20]. By contrast, Western popular music performers may be as much the focus as the music. Although the "star

persona” might be presented, displays of the more intimate “self” may “leak” through as the performer negotiates his/her different roles [21]. Observational case studies of popular music vocalists suggest that adaptor nonverbal behaviors (those to satisfy personal needs) [9] reveal these more intimate personal states [11,15,19]. Kurosawa and Davidson suggest that self-adaptor nonverbal behaviors, such as fiddling with one’s hair, could reveal a less confident performer, and exist in an effort to cope with anxiety. Therefore, in Western classical vocal performance, where a sense of refinement is expected in the performance presentation, adaptor nonverbal behaviors that indicate intimate states and are potentially indicative of MPA, would be arguably less desirable than in popular contexts.

The aim of this case report is to examine a classical vocalist’s subjective experience of MPA and her nonverbal behaviors during performance. In a study conducted with a group of university students studying classical voice, one case was identified who self-reported greater state anxiety prior to performing solo at a lunchtime recital than prior to giving a solo performance at an evening recital. Her audiovisual performance recordings of both recitals were examined for nonverbal behaviors that might outwardly reflect her differing experiences of MPA.

Case Report

The case reported here is that of a female (aged 28 years, Amy [pseudonym]) undertaking an undergraduate degree in classical voice at an Australian university. Amy gave informed written consent prior to participating in the study. She also agreed to have her performances audio-visually recorded. This is unlikely to have exacerbated her experience of MPA, as it is usual practice for musicians to record their performances for personal documentation, and for professional audition and grant application purposes.

Amy reportedly sang most often as a soloist, and often experienced quite a high degree of anxiety when performing solo in public recitals. Her subjective experience of MPA was exacerbated if the audience included people possessing knowledge about singing. Smaller-sized audiences, numbering up to approximately 50 were most anxiety provoking for Amy, with the level of anxiety experienced reducing as audience numbers increased. Amy felt that anxiety often interfered with her performance, despite considerable experience and well preparedness. Her greatest anxiety-provoking concerns related to performing from memory, and the technical challenges presented by the music. To manage her MPA, Amy reported always using meditation and naturopathy, physical exercise (often), and sometimes massage. She had never used prescription medication, recreational drugs, or alcohol to manage her MPA. Amy reported rarely using psychological therapy techniques to reduce her MPA. However, it was beyond the scope of this study to investigate Amy’s full psychiatric condition and treatment history. Amy’s trait anxiety was measured using the self-report Spielberger State-Trait Anxiety Inventory (STAI) [2] Form Y-2. Her trait anxiety raw score was 63 out of a possible maximum of 80 (T score = 72.66; normative female samples of: college students M = 40.00, SD = 10.15; working adults aged 25-29 yrs M = 39.40, SD = 11.40).

Amy performed from memory, two different and well-known arias, of comparable difficulty and duration, accompanied by a pianist. She performed one (duration 2 m 44 s) at a lunchtime recital, and the other (duration 2 m 29 s) approximately one month later at an evening recital. The audience on both occasions included fellow student

vocalists and also performers, vocal teachers, and other members of the public, including the student vocalists’ friends and family members. Both recitals took place in the same venue, with which Amy was familiar. Amy self-reported state anxiety pre and post the lunchtime and evening recitals using the STAI Form Y-1. Results, shown in Table 1, indicate higher scores for the lunchtime recital (T-score: 66.94) than for the evening recital (T-score: 49.36) (Normative female samples: college students M = 38.76, SD = 11.95; working adults aged 25-29 yrs M = 39.50, SD = 12.10.).

	Lunchtime recital		Evening recital	
	Raw score	T score	Raw score	T score
Pre-performance	59	66.94	38	49.36
Post-performance	30	44.67	28	41.00

Table 1: The vocalist’s self-reported state anxiety using the STAI Form Y-1 pre- and post-performance at the lunchtime and evening recitals

Amy’s nonverbal behaviors were documented in audiovisual recordings of each recital using ELAN (version 4.7.3) video annotation software [22]. Her nonverbal behaviors were analyzed using Ekman and Friesen’s [9] system of classifying bodily movement according to its communicative function. The focus was on adaptors (self-satisfying movements such as fiddling or wringing fingers). However, object adaptors such as (fiddling with clothing), affect displays (reflecting emotional/affective states), illustrators (speech-describing/reinforcing gestures), emblems (gestures that can stand for speech, e.g. thumbs up), and regulators (regulating the flow of interactions, e.g. with the accompanying pianist) were also documented. Table 2 displays the patterns of observed communicative or expressive nonverbal behaviors, documented as overall frequency counts and summed durations for each movement category.

	Lunchtime recital		Evening recital	
	Frequency of observation	Duration (mm:ss.ms)	Frequency of observation	Duration (mm:ss.ms)
Adaptors	16	01:41.7	4	00:35.8
Adaptors (object)	0		5	00:31.7
Adaptors/affect displays	9	00:27.9	4	00:34.7
Affect displays	12	00:17.0	12	00:26.3
Illustrators	2	00:04.0	6	00:16.1
Emblems	2	00:02.0	0	
Regulators	0		0	

Table 2: The frequency and duration of observed nonverbal behaviors analyzed using Ekman and Friesen [9]. Note: “Adaptors/affect displays” nonverbal behaviors appeared to involve self-satisfying/self-touching behaviors, but concurrently reflect emotional/affective states.

The prevalence of adaptor nonverbal behaviors in Amy’s recitals aligns with her reporting of: experiencing high MPA often when performing solo in public, when the audience includes members

possessing a degree of expertise in singing, and high self-report trait and pre-performance (lunchtime recital) state anxiety. Amy primarily engages in manual adaptor behaviors [13] such as squeezing or wringing the finger(s) of one hand with the other, clasping the hands tightly together, or gesturing with the hands while squeezing one hand/fingers with the other. Other adaptor behaviors involve manipulating a piece of clothing as a prop (object adaptor), or holding the hands to the chest and abdomen, which could also signal an affect display.

The affect display, illustrator, and emblem nonverbal behaviors evident in both recitals reflect the affective characteristics of the music, and are allied to the lyrics. In the evening recital, where Amy's self-report state anxiety is lower, the summed duration of these types of musically expressive nonverbal behaviors is almost double that observed in the lunchtime recital. In addition, Amy uses more arm and hand gestures, of greater amplitude. Although the frequency of these musically expressive nonverbal behaviors, summed together, is comparable between recitals, Amy engages in them fleetingly during the lunchtime recital. Differences between lunchtime and evening recitals, in self-report state anxiety pre-performance, and frequency and duration of nonverbal behaviors, indicate that Amy's performance preparation and MPA management strategies could be improved to be more effective and reliable.

Discussion

This case report demonstrates that a classical vocalist's personal experience of MPA may "leak" through his/her performance presentation and be evident in his/her nonverbal behaviors [13-15,21]. Of course, the limitation of drawing conclusions from a single case must be born in mind when interpreting results. Yet, as previous research demonstrates the powerful effect performing musicians' bodily gestures can have on observer judgments of performance [16,18,23], increased anxiety-related nonverbal behaviors could have the undesired effect of reducing performance quality by detracting from optimal communication with the audience.

Kokotsaki and Davidson [6], however, reported no correlations between undergraduate music student vocalists' trait or pre-performance state anxiety and marks awarded in examination. It is possible that the participants in Kokotsaki and Davidson's [6] study were able to adjust their behaviors to mask physical markers of MPA, or the results may relate to the low-moderate levels of trait and state anxiety reported by participants. Indeed, a moderate degree of anxiety can facilitate performance [24]. However, high anxiety can result in lower performance quality [25]. As illustrated by this case report, the adaptor nonverbal behaviors observed, particularly in conjunction with the high self-report state anxiety prior to the lunchtime recital, indicate the possibility that physical markers of MPA may be evident to the observer [11], and could have a negative impact on performance judgments. This idea warrants systematic investigation in a future study.

Amy's reporting of the contexts in which she experiences MPA aligns with much empirical research. The experience of MPA is greater: in solo (cf. ensemble) performance contexts [3], when performing in the presence of an audience [25], and where the audience includes members perceived as possessing music expertise and status in the field [26]. However, somewhat contrary to the literature, Amy's experience of MPA reportedly peaks as the audience numbers about 50, and decreases as the size of the audience increases

beyond this threshold [24]. Amy's reporting of stressful situational factors, and personal concerns about task mastery, and an adequacy of skill to meet task demands, despite well-preparedness, also aligns with prominent theoretical models of MPA [1,27,29]. Thus, her case appears to be largely "typical" of someone who experiences MPA.

Amy's high self-report trait anxiety is in line with previous literature reporting high trait anxiety in a sample of professional opera chorus artists [2], and in a sample of female music college vocal students [6] as compared to norms. Her high pre-performance state anxiety at the lunchtime recital is in line with Kokotsaki and Davidson's [6] results for female student vocalists in the research sample as compared to the norm. Differences in pre-performance state anxiety between recitals, coupled with the patterns of nonverbal behaviors observed, suggest that Amy's MPA management and performance preparation strategies could be revised to be more effective and reliable. Although Amy reportedly used psychological therapeutic techniques rarely to manage her MPA, her full psychiatric condition and treatment history was not available, and ascertaining this information was beyond the scope of the study. Therefore, it is possible that a well-established anxiety treatment, such as Cognitive Behavioral Therapy (CBT), may be beneficial to Amy in managing her MPA, and anxiety more generally [1]. This could be explored in future work. However, from a range of more established treatments for MPA, including CBT, performance-based strategies, which are aimed at improving performance while reducing anxiety, are emerging [1].

Behavior techniques can be learned to reduce the effect of external and internal stressors on achieving peak performance [30]. Drawing on ideas from sports psychology, performance-based strategies, such as Anxiety Management Training [31], focus on embedding relaxation techniques and cognitive skills to deal with unhelpful thoughts within the program of skill acquisition. As skill acquisition and anxiety reduction techniques are learned concurrently, there is maximal transfer from practice to performance. Of course, a point of difference between most sports and performing arts contexts is that an important aim of artistic performance is to enhance expressive audiovisual communication between performer and audience; not only manage anxiety to promote optimal motor performance.

Recent theorizing suggests that performer-audience communication is underpinned by shared motor representations elicited by audio and visual information via a human Mirror Neuron System, which is activated similarly for performed and perceived actions [32-34]. It is plausible that observers, or audience members, gain insight into a performer's actions and internal states through the nonverbal behaviors observed during performance. Therefore, to support optimal performance, performers might be able to shape the audience experience of their performances, as well as manage their MPA, through a treatment strategy focused on building awareness of, and developing appropriate subtle nonverbal behaviors, through the period of performance preparation and practice. The design and evaluation of such treatment strategies is timely to minimize debilitating experiences of MPA and support musicians to perform at their best.

Interestingly, and contrary to what might be expected, the less-prestigious, and arguably lower-pressure, lunchtime recital evoked greater MPA than the higher-pressure evening recital; in spite of similarities in environmental conditions. Therefore, Amy's state anxiety might be attributed to a number of person-related factors, such as her self-perceptions in relation to the situation [35], rather than the specific prevailing environmental conditions. Although her practice

and rehearsal sessions were not documented, greater repetition of the evening recital aria, such as through listening and performing, might have occurred. This may have developed a preference for [36,37], or increased familiarity [38] with, that music, in contrast to the lunchtime recital aria. An increased preference and familiarity may have, in turn, engendered more positive subjective emotions towards the evening recital situation, resulting in more confident and extroverted gestures.

The lower self-report state anxiety experienced prior to the evening performance might simply reflect an "order effect". That is, Amy may have gained performance experience through the lunchtime recital and in the ensuing period leading up to the evening recital that engendered greater capability to deal with MPA. Or perhaps she experienced greater arousal due to the lunchtime concert occurring during the day rather than at night. Of course, the limitations of, and questions raised through this case report, could be addressed in the future through a series of controlled studies involving a number of participants.

The results of this case report indicate that experienced MPA may be evident in the nonverbal behaviors of a classical vocalist in live performance. Potentially, anxiety-related nonverbal behaviors negatively impact performance quality and optimal performer-audience communication. Therefore, to augment more established methods of managing MPA, the development and evaluation of performance-based strategies could be valuable in assisting musicians to perform at their best.

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