## Is It Anxiety or Arousal That Can Facilitate Musical Performance?

TO THE EDITOR—*Is it anxiety or arousal that can facilitate musical performance?* This is a complicated question that begs for clarification. This letter is an attempt to dig into the issue by framing some of the core questions that will hopefully lead to a greater understanding.

Fundamental to this question is how music performance anxiety (MPA) *might* be facilitative. Is it anxiety or arousal or an interaction effect between the two? And what is the difference between somatic anxiety and arousal? Is arousal that is perceived as anxiety (referred to as *anxiety sensitivity*) what triggers somatic anxiety? Is arousal that is perceived as rewarding devoid of anxiety? And can both arousal and somatic anxiety be facilitative or just arousal? Finally, if somatic anxiety can be facilitative, what determines if and when it will be facilitative or debilitating?

The confusion over the difference between arousal and anxiety has persisted over the last several decades right up to the present. Salmon[1(p4)] in a past review of the literature on MPA weighed in on this point in stating, "It is widely accepted as a truism that 'a bit of anxiety' is helpful during a performance. In reality, it is a heightened state of arousal—not anxiety—that performers attempt to optimize. . . ."

Part of the confusion has to do with a reliance on older, somewhat outdated state theories of anxiety such as Martens et al.'s multidimensional theory of anxiety[2] and Hardy's catastrophe model,[3] both of which draw heavily on the Yerkes-Dodson law[4] that found that arousal can have a positive impact on performance. Kenny has written that newer studies have not updated the original Yerkes-Dodson law to address "the complexity of the arousal-performance relationship."[5(p141)] For example, Miller and Chesky,[6] in applying the multidimensional theory of anxiety to MPA, explored the relationship between cognitive anxiety, somatic anxiety, and self-confidence but did not reference arousal at all. We are left to conclude that their use of the term *somatic anxiety* must incorporate arousal since the Yerkes-Dodson law upon which the multidimensional theory of anxiety is based focuses solely on arousal. So, is it the arousal or the somatic anxiety that could be facilitative? Until there is common agreement about the terms, parsing out specific effects will be difficult.

Kenny also makes the case that these older, state anxiety theories are too narrowly focused in a conceptual sense.[5] They overlook other intrapsychic, negative life experiences and performance factors that must also be accommodated. More contemporary, emotion-based theories of anxiety, including Barlow's[7] and Kenny's,[5] have broadened the conceptualization of MPA beyond the simple situational response to a performance event that has historically been referred to as "stage fright."

But back to the questions at hand. Recent neuroscience findings have established that anxiety and arousal are indeed different.[8] The brain's threat detection system is tied to the amygdala that generates the anxiety and fear that is the hallmark of MPA. Somatic anxiety can trigger arousal, whereas arousal does not necessarily trigger anxiety—sexual arousal being the best example of that. As such, anxiety (both cognitive and somatic) and arousal are both elements of MPA, and the relationship between each goes right to the heart of the questions above.

We might think of rising arousal as an accelerating car approaching a fork in the road—to the left is the brain's reward system and to the right is the threat detection system. Depending on what is driving the arousal, the promise of reward or the detection of threat, will determine the consequence of the arousal: excitement or anxiety. LeDoux's research[8] points out that this process begins at an unconscious level before arising to the conscious awareness of the performer who then perceives it in a particular way. If anxiety is attached to arousal, then MPA symptoms will occur if the intensity levels are high enough. Of course, this relationship is not as binary as the metaphor might suggest. Both arousal and anxiety reactions can trigger each other in a reciprocal fashion depending on the particular intrapsychic and situational circumstances at play.

It is important to remember that any anxiety that is triggered comes with a price tag of upwards of 50 symptoms across five categories of functioning (somatic, affective, cognitive, psychological, and behavioral), many of which will disrupt mental functioning to an extent that can impair performance. So whatever benefits may accrue from the arousal are likely to be offset by the debilitating aspects of the somatic and cognitive anxiety.

If the performer can manage the symptoms, it may offer them a sense of mastery and control over the anxiety that can be reassuring. If that capacity to manage anxiety extends over many performances, increased self-confidence can build and will likely project forward to future performances.

In this more nuanced understanding, MPA can be considered facilitative of performance only with certain performers under certain circumstances when their psychological coping strategies can manage the anxiety suffi-

ciently to enable the arousal to support optimal functioning. But the reality is that for many performers, especially those who have multiple underlying sources of anxiety (trait anxiety, anxious attachment, co-morbid conditions, traumatic performance history), the uncertainty over whether they will be able to manage the symptoms effectively during the stress of performance is the threat that the symptoms are expressing. Considering all the factors that contribute to MPA, caution is advised to not overstate its potential benefits.

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1. Salmon P. A psychological perspective on musical performance anxiety: a review of the literature. *Med Probl Perform Art* 1990; 5(1):2–11.
2. Martens R, et al. The development of the competitive state anxiety inventory-2 (CSAI-2). In Martens R, Vealey S, Burton D, eds. *Competitive Anxiety in Sport*. Champaign IL: Human Kinetics; 1990: pp117–90.
3. Hardy L. A catastrophe model of performance in sport. In Jones JG, Hardy L, eds. *Stress and Performance in Sport*. Chichester UK: Wiley; 1990: pp81–106.
4. Yerkes RM, Dodson JD. The relation of strength of stimulus to rapidity of habit formation. *J Compar Neurol Psychol* 1908;18:459–82.
5. Kenny DT. The psychology of music performance anxiety. Oxford Univ. Press; 2011.
6. Miller SR, Chesky K. The multidimensional theory: an assessment of and relationships between cognitive anxiety, somatic anxiety, and self-confidence over multiple performance requirements among college music students. *Med Probl Perform Art* 2004; 19(1):12–20.
7. Barlow DH. *Anxiety and its Disorders. The Nature and Treatment of Anxiety and Panic,* 2nd ed. New York: Guilford Press; 2000.
8. LeDoux J. *Anxious: Using the Brain to Understand and Treat Anxiety*. New York: Viking; 2015.
9. Insel T, et al. Research Domain Criteria (RDoC): toward a new classification framework for research on mental disorders. *Am J Psychiatry* 2010;167:748–51. https://doi.org/10.1176/appi.ajp.2010.09091379

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