


Tuning into musicians' wellbeing: Research on music performance anxiety (MPA)

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The Music and Mental Health Research Clinic (MMHRC) at the University of Ottawa's Institute of Mental Health Research (IMHR) at The Royal is investigating how to reduce music performance anxiety (MPA) and the benefits of specific coping strategies for musicians

The audience cheers, and smiles are on every face. The music performance was incredible; it emotionally moved the audience, got their toes tapping, and made them forget their worries. On the other hand, the musicians are thinking about the note they missed or their tempo not being quite perfect. The audience does not see the musicians worrying before the performance, the state of anxiety during the performance, or the negative rumination that will occur afterwards. Biologically wired with an innate tendency to default to negative assumptions to avoid dangerous situations, our bodies react to stressors as if our lives are at stake (Baumeister, 2001; Rozin & Royzman, 2001; Ito & Cacioppo, 2005). This negativity bias is a key reason why changing our habits, behaviours, and thought patterns is so challenging. It often results in automatic negative thoughts, such as underestimating available opportunities and resources, and increased sensitivity to perceived threats.

This is precisely what happens to a high percentage of musicians when they experience performance anxiety. Musicians have a high incidence of anxiety, most specifically performance anxiety, though research has shown they are not likely to seek help or engage in health-promoting behaviours (Vaag et al., 2013; Kenny et al., 2014; Araújo et al., 2017; Alessandri et al., 2020). Music performance anxiety (MPA) can be debilitating and extinguish the joy that once came from performing. Musicians of all ages and skill levels experience performance anxiety, and up to 70% of professional orchestral musicians experience MPA severe enough to interfere with their job performance (Van Kemenade et al., 1995; James, 1998; Kenny, 2006).

Our work at The Royal

We all love music, but our team wants to ensure that musicians love playing it, too. To address the needs of musicians, the Music and Mental Health Research Clinic (MMHRC) at the University of Ottawa Institute of Mental Health Research (IMHR) at The Royal has been working to investigate how MPA can be reduced. This work provides empirical evidence on the mechanisms and benefits of incorporating specific coping strategies into musicians' lives.

More specifically, our program examines whether the experience of MPA can be reduced by mindfulness, the practice of being aware and open in the present moment without judgment. Mindfulness has been shown to positively impact the ability to maintain attention and regulate emotions — skills that are particularly beneficial to musicians (Tang et al., 2020; Hut et al., 2021). To achieve peak performance, musicians must focus on task-specific information while disregarding task-irrelevant information, like possible criticism (Nideffer, 1992). Unfortunately, MPA can result in impaired emotional, physiological, and cognitive functions, leading musicians to focus on negative internal and external stimuli as opposed to the music they are playing (Osborne & Franklin, 2002). Not only does this inhibit a musician's ability to perform at their best, but it can also severely impact their overall joy of performing and quality of life (Kenny & Ackermann, 2015; Araújo et al., 2017).

The musicians' brains changed with mindfulness

MMHRC researchers have identified several mindfulness interventions suitable for musicians and are testing them to identify their effectiveness in reducing MPA. Two different short-term mindfulness interventions have shown quantifiable changes in the musicians' experience of MPA (Stanson et al., 2022; Boileau et al., in press). This was observed both with subjective and objective measures. A third intervention is scheduled to launch in the fall of 2024.

Three groups of young adult musicians took part in the first two phases of the research. Two groups were invited to participate in two different mindfulness programs, and one group received no treatment at all (control group). All musicians underwent functional magnetic resonance imaging (fMRI) before and after the intervention period at The Royal's Brain Imaging Centre. This neuroimaging technique measures and maps brain activity, providing a window into the working brain.

The first phase intervention invited musicians to attend ten mindfulness sessions over a two-week period. The classes were an abridged version of a conventional eight-week Mindfulness-Based Stress Reduction (MBSR) program. They consisted of meditation, breath awareness, body scanning, mindful walking, qigong, and discussion groups. All classes were taught in-person by an MBSR facilitator.

In the second phase intervention, musicians attended ten in-person environmental vocal exploration (EVE) sessions. This intervention was developed and conducted by a certified music therapist, Dr Nicola Oddy, and combined mindfulness with vocal improvisation. During the sessions, Dr Oddy led the musicians in vocalizing exercises that involved focusing their attention both inwardly and outwardly to monitor their emotional and physical state and the environment around them.

Brain changes were observed in the two groups of musicians that participated in the interventions, while no changes were seen in the control group. Activity in regions of the brain related to emotion regulation and attention was significantly heightened in the mindfulness group and even more so in the EVE group. Adding the vocalization

component seemed to accentuate the effects of the mindfulness training. This may have occurred due to the vagus nerve stimulation that comes from vocalization, as this can help activate the parasympathetic nervous system, which acts as the brakes on the stress response.

Following the interventions, groups also reported significantly less MPA. In group discussions following the EVE intervention, common themes included present-moment focus, community, environment, and reciprocity between the self and the outside world.

Expanding the melodies of mindfulness

These exciting and novel results have led us to create a third phase of the project. We will be offering a free, musician-specific mental hygiene program hosted on The Royal's website. For this third phase, musicians will be introduced to several exercises from the Mental Hygiene Challenge, a multidisciplinary initiative at The Royal based on the work of Tremblay, Rodrigues, and Gulati (2021). Mental hygiene is the daily practice of activities that help support and maintain mental health. The term hygiene refers to practices that are conducive to health. Just as our physical bodies require daily hygienic practices such as personal and dental hygiene, mental hygiene advocates that our minds also require daily maintenance for optimal functioning. Participants will be introduced to mental hygiene and how to implement it daily. They will also be given a list of activities to choose from as part of the intervention. Potential activities will include mindfulness practices similar to phases 1 and 2, such as intentional breathing, chanting, meditation, and other contemplative practices like journaling and exercising gratitude. Psychologically focused exercises such as self-directed cognitive behavioural therapy and positive psychology interventions will also be included. Musicians will be able to choose the activities they enjoy the most to encourage consistent engagement with mental hygiene practice. The study will be implemented online to allow for the Pan Canadian recruitment of musicians. However, participants in the Ottawa area will undergo brain scans similar to phases 1 and 2.

Let the harmony between the audience and musicians continue

The results of our research to date highlight the need to better support musicians' well-being. Additionally, our research suggests that mindfulness and EVE are effective strategies to reduce MPA. The MMHRC will continue to identify, test, and scale interventions focused on helping musicians manage their performance anxiety more effectively and enhancing their performance experience.

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