



OPEN ACCESS

EDITED BY

Bridget Rennie-Salonen,
Stellenbosch University, South Africa

REVIEWED BY

Jesper Hohagen,
Freiburg Institute for Musicians' Medicine,
Germany

Susanna Cohen,
Bar-Ilan University, Israel
Maria-Victoria Urruzola,
University of the Basque Country, Spain

*CORRESPONDENCE

Mats B. Küssner
✉ mats.kuessner@hu-berlin.de

RECEIVED 22 December 2023

ACCEPTED 17 December 2024

PUBLISHED 22 January 2025

CITATION

Aubry L and Küssner MB (2025) Early harmonies, enduring echoes—how early life experiences and personality traits shape music performance anxiety. *Front. Psychol.* 15:1360011. doi: 10.3389/fpsyg.2024.1360011

COPYRIGHT

© 2025 Aubry and Küssner. This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or reproduction in other forums is permitted, provided the original author(s) and the copyright owner(s) are credited and that the original publication in this journal is cited, in accordance with accepted academic practice. No use, distribution or reproduction is permitted which does not comply with these terms.

Early harmonies, enduring echoes—how early life experiences and personality traits shape music performance anxiety

Ludivine Aubry^{1,2} and Mats B. Küssner^{3*}

¹Department of Psychology, Humboldt-Universität zu Berlin, Berlin, Germany, ²Department of Clinical Psychology and Psychotherapy, University of Bern, Bern, Switzerland, ³Department of Musicology and Media Studies, Humboldt-Universität zu Berlin, Berlin, Germany

Music performance anxiety (MPA) is a deeply personal and often debilitating experience, causing talented musicians to dread the very stages upon which they showcase their art. An increasing number of studies have addressed this anxiety phenomenon, however, definitions vary and the underlying causes remain unclear. According to the DSM-5, MPA is categorized as a specific subtype of social anxiety disorder, with a shared understanding that its development is shaped by predisposing vulnerabilities as well as external stressors and circumstances. This mini-review provides an overview of relevant literature on the multi-dimensional causes of MPA, with a particular focus on early life experiences and personality traits. It aims to address three key challenges in the field by emphasizing the importance of an enhanced investigation of formative life events, recognizing the (potentially) mediating effects of personalities, and highlighting the necessity to explore protective factors. Investigating early life experiences and personality traits in the context of MPA can deepen our understanding of its origin and development, offering valuable perspectives to tailor interventions, prevent the escalation of anxiety, and foster supportive environments conducive to the well-being and professional growth of musicians.

KEYWORDS

music performance anxiety, musicians' mental health, parental behavior, attachment style, music teacher's role, Five-Factor Model, perfectionism, sensory processing sensitivity

1 Introduction

What roles do early life experiences and personality traits play in the development of music performance anxiety (MPA), a multi-faceted and widespread phenomenon commonly experienced by musicians of all skill levels, from hobbyists to professionals (Spahn et al., 2011)? Kenny's conceptualization of MPA builds on Barlow's theoretical framework, which posits that three types of vulnerabilities contribute to anxiety development: a generalized biological (hereditary) vulnerability, a generalized psychological vulnerability, and a specific psychological vulnerability (Barlow, 2000, 2002; Kenny, 2011). According to this model,

a musician's inherent traits and formative experiences shape their susceptibility to MPA. A growing body of literature (Fernholz et al., 2019; Kirsner et al., 2023; Papageorgi, 2022) underscores that a comprehensive understanding of MPA requires closer attention to these formative years and traits, while acknowledging their complex interactions. Examining personality traits and early life experiences within this framework helps identify individual vulnerabilities and potential maladaptive coping mechanisms, which lay the groundwork for preventive measures and effective anxiety management interventions. This review aims to provide a structured and critical overview of recent research, highlighting three key areas that demand attention for advancements in the field: the imperative for enhanced exploration of formative life events, understanding the (potentially) mediating effects of personalities, and the necessity to recognize protective factors.

Several researchers have already explored variables contributing to MPA, spanning from genetic factors to performing circumstances and experiences. In particular gender (Hildebrandt et al., 2012; Kenny et al., 2004, 2014; Khalsa et al., 2009; Papageorgi, 2022; Tardif et al., 2023), age (Dempsey and Comeau, 2019; Fehm and Schmidt, 2006; Fishbein et al., 1988; Kenny et al., 2014; Middlestadt, 1990; Osborne et al., 2005; Papageorgi, 2022; Patston and Osborne, 2016; Steptoe and Fidler, 1987), performance setting (Boucher and Ryan, 2011; Papageorgi, 2022; Ryan and Andrews, 2009), instrument type, musical genre (Nusseck et al., 2015; Perdomo-Guevara, 2014), and performance experience (Fehm and Schmidt, 2006; Kenny, 2011; Papageorgi et al., 2013). Beyond the genetic and conceptual factors mentioned above, the depth of personal experiences and individual traits play a crucial role in shaping the onstage experience of musicians. Individual personality traits and early life experiences have been found to influence an individual's perception and management of psychological distress, such as anxiety (Kotov et al., 2010; Lähdepuro et al., 2019). Some musicians may therefore be inherently more prone to MPA, while others demonstrate greater resilience. Studies have highlighted the role of early life experiences in shaping personality development (Csathó and Birkás, 2018; Kitamura and Fujihara, 2003) and their interconnection with psychosocial factors such as self-esteem, self-efficacy, and social support (Bandura, 1997; Pérez-Fuentes et al., 2019). For instance, a study conducted by Kitamura et al. (1999) showed that individuals who perceive stronger social support tend to display higher levels of extraversion and lower levels of neuroticism. Other findings indicated that extraversion, agreeableness, conscientiousness, and openness to experience were positively associated with self-esteem, whereas neuroticism was found to be a significant negative predictor (Amirazodi and Amirazodi, 2011). Social support, self-esteem, and self-efficacy have also been found to play pivotal roles in shaping musicians' beliefs about their ability to cope with anxiety and on how to perform well (Chan, 2011; Dempsey and Comeau, 2019; Papageorgi, 2022; Schneider and Chesky, 2011). How early life experiences and personality traits affect MPA's emergence will be discussed in the following sections.

2 Early life experiences

Studies suggest that children exposed to early adverse experiences are more prone to developing anxiety or other mental

illnesses (Bick and Nelson, 2016). Therefore, acknowledging the heightened vulnerability during these stages is essential when addressing MPA. Early life experiences can mold core beliefs, influencing self-esteem, self-efficacy, and the overall perspective on performance (Givertz and Segrin, 2014; Kirsner et al., 2023; McPherson et al., 2012; Zarza-Alzugaray et al., 2018). Furthermore, the occurrence of MPA in very young musicians (Boucher and Ryan, 2011) underscores the need to address coping strategies as early as possible, which, correspondingly, relies on the support provided by their environment (Fehm and Schmidt, 2006). Factors explored in the context of early life experiences and MPA include parental behavior, attachment style, the influence of music teachers, and early exposure to music performance. For an overview, see [Supplementary Table 1](#).

2.1 Parental behavior

During childhood, parental behavior can exert substantial influence on children's musical development. McPherson (2008) presents a model that clarifies how parental goals influence various child outcomes, including musical competence and the development of a musical identity. Parents, for instance, who show interest and value their children's musical activities through supportive words or actions, strengthen the parent-child relationship, provide encouragement and motivation during difficult times, and enhance feelings of competence (McPherson and Davidson, 2002). Moreover, parents often take the lead in initiating young musicians' careers and are actively involved in their offspring's musical advancement (Corrigan and Schellenberg, 2015; Uptis et al., 2016). Ryan et al. (2023) noted that young piano students with musically educated parents exhibited higher levels of MPA, suggesting a potential influence of the parents' expectations and their critical understanding of musical performance. In the course of researching MPA various parenting styles were examined. Notably, perceiving parents as critical, abusive, over-controlling, or overprotective emerged as potential risk factors for experiencing heightened MPA (Aubry and Küssner, 2023; Dobos et al., 2019; Kirsner et al., 2023; Papageorgi, 2022; Wiedemann et al., 2020). A study by Kirsner et al. (2023) explored MPA in the context of early childhood experiences and dysfunctional cognitive schemas. The authors found that when musicians perceived their primary caregivers as failing to meet fundamental emotional needs, it could lead to the development of dysfunctional cognitive schemas, which were subsequently identified as significant predictors of MPA. The fundamental aspect of these schemas, as defined by Young et al. (2003), was characterized as *Impaired Autonomy and Performance*. Individuals with this schema may struggle with a persistent sense of incompetence, fear of failure, or a heightened sensitivity to perceived shortcomings, impacting self-esteem, decision-making, and overall performance.

2.2 Early attachment

Attachment style, which refers to an individual's patterns of emotional bonding and connection developed in early childhood through interactions with caregivers, has been linked to MPA

(Kenny, 2011). These early attachment patterns shape one's approach to intimacy and relationships throughout life (Bowlby, 1969; Karavasilis et al., 2003). However, there are only a limited number of publications exploring this area in relation to MPA (Kenny and Holmes, 2015; Kenny and Holmes, 2018; Wiedemann et al., 2020). Wiedemann et al.'s (2020) findings suggest that musicians characterized by dismissive or secure attachment styles exhibit lower anxiety levels compared to those with preoccupied or anxious attachment styles. Individuals exhibiting a dismissive or secure attachment style may possess a greater sense of confidence, self-assurance, and emotional security, leading to a reduced susceptibility to performance anxiety. In contrast, individuals displaying a preoccupied or anxious attachment style may experience heightened performance anxiety due to increased self-doubt, concerns about external evaluation, or a lack of confidence in their abilities. A published case report further demonstrated the relationship between insecure attachment and the occurrence of MPA. A young musician's unresolved early attachment ruptures contributed to vocal difficulties and heightened anxiety during musical performances (Kenny and Holmes, 2015).

2.3 The role of music teachers

The importance of the music teacher's role in the context of MPA has been underscored in various studies. Music teachers serve as influential guides during key stages of musical education. They shape students' perceptions, self-efficacy, and coping mechanisms, thereby influencing their pupils' vulnerability to experiencing and ability to manage MPA (MacAfee and Comeau, 2023; Gill et al., 2022). However, it seems that music teachers do not always adequately address MPA during performance preparation. Fehm and Schmidt (2006) identified the significant influence of teachers on anxiety in music students aged 15–19, which was linked to their expertise and the perceived judgments they made. The students further conveyed a desire for more support in managing performance-related anxiety, emphasizing the importance of candid discussions about experienced distress and highlighting the necessity to provide more practical techniques such as relaxation or performance skills. Ryan et al. (2021) found comparable outcomes revealing that although a considerable number of piano students experienced nervousness during lessons, less than half mentioned that their teachers tackled concerns related to performance preparation, memorization strategies or MPA management. Moreover, they noted that students who experience negative emotions after lessons often link it to a sense of having disappointed their teacher. Ryan and Andrews (2009) investigated choral singers from seven choirs, stating that the conductors' attitude and behavior during rehearsals emerged as a crucial factor influencing the singers' experiences of performance anxiety.

2.4 Early exposure to music performance

Although the literature presents differing views on how performance experience influences MPA (Fehm and Schmidt, 2006; Kenny, 2011; Papageorgi et al., 2013; Sárbescu and Dorgo, 2014),

a recent study highlighted that the onset age of musical training exert a favorable impact on MPA. According to Zarza-Alzugaray et al. (2018) musicians who commence their musical training at or before the age of seven typically report lower levels of performance-related anxiety compared to those who initiate training later in life. Cultivating familiarity and comfort with musical elements, instruments, and performance environments may reduce anxiety and facilitates individuals' navigation through such events. Early skill development might enhance confidence and competence in performance, potentially reducing anxiety arising from the fear of making mistakes or facing negative judgment. However, in addition to the onset age of musical training, the nature of the experience appears to be crucial. Kenny and Holmes (2018) revealed in their qualitative research that humiliating sensitizing experiences during adolescence, such as memory lapses associated with feelings of shame, are linked to heightened MPA. Similarly, Osborne and Kenny (2008) discovered that music students who reported having a negative performance experience scored notably higher on MPA.

3 Personality traits

Musicians' personality traits have been studied with regard to musical preferences (Rentfrow and McDonald, 2009), training and involvement (Corrigall and Schellenberg, 2015), genius (McCrae and Greenberg, 2014), and musical sophistication (Greenberg et al., 2015). Personality is further linked to the experience of flow during musical activities and performances (Antonini Philippe et al., 2022; Biasutti, 2017; Cohen and Bodner, 2019; Forbes, 2021). Whereas individuals displaying higher levels of Openness, Emotional Stability, Extraversion, and Conscientiousness are more inclined to encounter the psychological state of flow (Butkovi  et al., 2015; G zmen and A çı, 2016; Tan et al., 2021), suffering from MPA decreases the probability of experiencing flow (Cohen and Bodner, 2019, 2021). Flow is thus fundamental for musicians dealing with MPA, as it enhances performance quality and reduces anxiety-related symptoms, contributing to a more fulfilling and enjoyable musical experience (Spahn et al., 2021). While studies on trait anxiety have offered significant insights into MPA (Osborne and Kenny, 2008; Niering et al., 2023; Thomas and Nettelbeck, 2014), the following sections will concentrate on personality traits that reveal more specific influences on this phenomenon. While trait anxiety helps explain general predispositions to anxiety, it does not capture the distinct ways in which individuals experience and respond to performance-related stress. In contrast, the Five-Factor Model, perfectionism, and sensory processing sensitivity (SPS) might directly shape MPA through specific mechanisms. For example, openness to experience may help performers reframe anxiety as a source of motivation and growth; perfectionism may heighten anxiety by enforcing unattainable performance standards; and SPS might amplify stress through an increased sensitivity to environmental stimuli, such as audience feedback or performance settings. By concentrating on these personality dimensions, we can uncover distinct subtypes of MPA, identify critical stress triggers for different individuals, and provide tailored strategies that address the unique interplay of personality and performance-related stress (see overview in [Supplementary Table 2](#)).

3.1 Five-Factor Model

The Five-Factor Model, commonly referred to as the Big Five personality traits, is a widely accepted framework in psychology, encompassing Openness (the inclination to embrace new ideas and experiences), Conscientiousness (organized and goal-directed behavior), Extraversion (sociability and assertiveness), Agreeableness (cooperativeness and empathy), and Neuroticism (emotional instability and lack of resilience) (Digman, 1990; Goldberg, 1993). A study on the Five-Factor Model and performance anxiety revealed that Neuroticism and Conscientiousness predicted performance anxiety positively, while Extraversion predicted performance anxiety negatively. Openness correlated negatively with performance anxiety but lacked predictive value, and Agreeableness showed no correlation (Özdemir and Dalkıran, 2017). Although research on the Five-Factor Model is limited in the context of MPA, one of its components—Neuroticism—features widely in the literature about MPA. Neuroticism reflects the extent to which an individual experiences negative emotions and emotional instability. It correlates positively with various mental health issues and appears to negatively predict life quality and longevity (Lahey, 2009). It is therefore not surprising that musicians' with neurotic tendencies seem to be in general more susceptible to MPA (Hodapp et al., 2009; Rae and McCambridge, 2004; Sadler and Miller, 2010; Smith and Rickard, 2004; Spahn et al., 2024; Steptoe and Fidler, 1987). Neurotic traits may intensify emotional responses to MPA stressors, contributing to persistent rumination on potential mistakes, heightening the fear of failure, and increasing concerns about perceived judgment and criticism. This, in turn, further fuels the cycle of anxiety in the intricate realm of music performance.

3.2 Perfectionism

Perfectionism is a personality trait characterized by a persistent striving for flawlessness, an elevated tendency for self-criticism, and the establishment of unrealistically high standards (Flett and Hewitt, 2002). In a competitive environment such as the music industry, the fear of making mistakes and the constant pursuit of excellence motivates musicians to strive for perfection. Studies have shown that perfectionism appears to already be common among young musicians (Patston and Osborne, 2016; Stoeber and Eismann, 2007) and findings reveal positive correlations between MPA and perfectionism (Diaz, 2018; Dobos et al., 2019; Kenny et al., 2004; Kobori et al., 2011; Langendörfer et al., 2006; McNeil et al., 2022; Mor et al., 1995; Papageorgi, 2022; Sarıkaya and Kurtaslan, 2018; Sinden, 1999). Patston and Osborne (2016) highlight a more pronounced developmental trajectory for females compared to males and demonstrate that while developmental pathways are similar for both genders in late childhood, they appear to diverge during early adolescent. Moreover, as musicians gain experience, levels of both MPA and perfectionism tend to ascend. Notably, MPA research underscores the need to differentiate between positive and negative aspects of perfectionism. Stoeber and Eismann (2007) demonstrated that responding negatively to imperfection correlated positively with performance anxiety, while the pursuit for perfection aligned with musical effort and

accomplishment. These findings were supported by Butkovič et al. (2022) who identified a positive correlation solely between maladaptive perfectionism and MPA, without any observed link to adaptive perfectionism. Dobos et al. (2019) found positive associations with only four out of six perfectionism subscales, including Parental Criticism and Doubts about Actions. Patston and Osborne (2016) further emphasized a particularly significant positive relationship between MPA and the subscale Concern over Mistakes, emphasizing the diverse nature of perfectionism.

3.3 Sensory processing sensitivity

Sensory processing sensitivity (SPS) is a personality trait characterized by a heightened awareness and responsiveness to sensory stimuli. Individuals experiencing high SPS process information on a much deeper level, experience intensified emotional reactions, and may find themselves more easily overwhelmed by intense sensory input. It is assumed that highly sensitive people are inclined to choose creative professions (Aron, 1997), suggesting that this trait might be especially prevalent among musicians. Highlighting this assumption, Bridges and Schendan (2019) illustrate how individuals with heightened sensitivity tend to demonstrate elevated levels of creativity. This occurrence arises from a combination of diverse traits and biological processes that influence the development of neurotransmitter systems, sensitivity mechanisms (especially reduced inhibition), and brain networks responsible for automatic attention and orientation. While SPS has been studied in connection with various aspects of psychological functioning (Aron et al., 2005; Liss et al., 2005, 2008), its association with MPA has been relatively unexplored. However, a recent study examined the relationship between MPA, parenting style and SPS in a diverse sample of 342 musicians, indicating that SPS could be a potential risk factor for experiencing heightened MPA (Aubry and Küssner, 2023).

4 Challenges for future research

To advance our knowledge of the impact of early life experiences and personality traits on MPA, we propose to focus on three key areas: examining formative life events, investigating how personality traits (potentially) mediate MPA, and identifying protective factors. Addressing these areas will enhance our ability to identify risk factors and enable us to develop more effective interventions. These points are explored further in the subsequent sections.

4.1 Enhanced investigation of formative life events

Research on the impact of early life experiences on MPA is still limited, and there is a pressing need for a deeper exploration of how formative life events and cultural/environmental influences shape the development of MPA. For instance, the absence of research examining the connection between trauma and MPA is particularly striking, given that trauma's

effects have been explored in connection to various aspects of musical practice, including creative expression, performance, memory, and concentration (Swart, 2014; Swart et al., 2010). Trauma has also been linked to anxiety disorders (Heim and Nemeroff, 2001; Kuo et al., 2011; Lochner et al., 2010; Špila et al., 2008), but its specific impact on performance anxiety remains unexplored. Understanding this mechanism could lead to more targeted, trauma-sensitive interventions that address the unique challenges musicians face when performing under intense fear. Moreover, examining other formative experiences—such as negative peer interactions, social standing, experiences of loss, social isolation and early physical health issues—will broaden our understanding of MPA's complexity.

4.2 Understanding personality's (potentially) mediating effect

It is crucial to recognize that the trajectory of personality traits is not uniform, with personality and early life experiences being deeply intertwined (Srivastava et al., 2003). This relationship underscores the individual variability in how musicians experience and cope with MPA, highlighting the need to address the holistic development of musicians when exploring MPA in the context of their careers. While the specific connection between early life experiences and personality in relation to MPA has been limitedly explored, findings in other domains suggest that these effects are relevant. For instance, Liu et al. (2021) found that childhood psychological maltreatment is linked to increased neuroticism and reduced coping behavior, contributing to higher levels of social anxiety. Thus, musicians with a history of childhood distress may be more vulnerable to MPA due to the development of anxiety-prone personality traits. Moreover, traits such as perfectionism and sensory processing sensitivity may act as mediators between early life experiences and MPA. For example, musicians who grew up in hypercritical or unsupportive environments may develop perfectionistic tendencies, characterized by an intense fear of failure and a drive for flawless performance, which heightens their susceptibility to MPA. Similarly, individuals with high SPS, tend to react more intensely to all kinds of environmental stimuli. This heightened responsiveness can increase the likelihood of developing anxiety, as they are more affected by stressors such as performance pressure or audience reactions (vulnerability-stress model, Zubin and Spring, 1977). Further empirical studies are essential to shed light on the mediating roles of perfectionism and SPS in the development of MPA.

4.3 The exploration of protective factors

Finally, it seems important to not only address how early life experiences can have adverse effects on MPA but also to emphasize factors that can yield positive effects. Currently there are no studies investigating for instance parenting styles that may mitigate the development of MPA. Nevertheless, research in other areas of psychological functioning has indicated that an authoritative parenting approach serves as a preventive measure

against anxiety in children. Authoritative parents are responsive to their children's needs while maintaining clear expectations (Erozkan, 2012; Manoochehri and Mofidi, 2014; Panetta et al., 2014; Pinguart, 2017; Timpano et al., 2015; Wei and Kendall, 2014; Wolfradt et al., 2003; Yaffe, 2018; Yazdani and Daryei, 2016). It would be interesting to find out if this holds true in the context of MPA. Providing a guided, structured and at the same time supportive environment may encourage independence and self-expression contributing positively to a child's confidence in its musical pursuit. The same applies to the behavior and the role of music teachers. Indeed, several recent studies have focused on strategies that teachers impart to help their students better cope with performance stressors (MacAfee and Comeau, 2023; Huang and Yu, 2022). However, some teachers stated feeling ill-prepared to support pupils in this regard and expressed a need for additional training to effectively address MPA during music lessons (Moura and Serra, 2021; Sieger, 2017). Further research should explore how primary caregivers and teachers can enhance musicians' overall enjoyment of performances.

5 Conclusion

Considering MPA to be multifaceted, early life experiences and personality appear to influence musicians' responses to performance stress. However, limited research exists on how specific formative experiences (e.g., trauma, negative peer interactions, cultural influences) contribute to MPA's development. Similarly, the mediating roles of personality traits like perfectionism or SPS remain underexplored, particularly their interplay with early life experiences in creating vulnerability or fostering resilience to MPA. Addressing these gaps is crucial for identifying how foundational experiences and personality traits predispose individuals to MPA or buffer against it. Such knowledge would clarify risk factors and support the development of targeted, evidence-based interventions, especially for musicians with unique vulnerabilities. By uncovering the nuanced interplay between early life experiences and personality traits, we can refine our understanding of MPA, predict susceptibility more accurately, and tailor interventions that empower musicians to navigate performance anxiety with greater confidence and resilience, ultimately supporting their well-being and artistic expression.

Author contributions

LA: Conceptualization, Writing – original draft, Writing – review and editing. MBK: Supervision, Writing – review and editing.

Funding

The author(s) declare that financial support was received for the research, authorship, and/or publication of this article. We acknowledge that we received the following financial support for the publication of this article. This work was generously supported by the Graduate Paper Award presented to Ludivine Aubry at the International Symposium on Performance Science 2023.

Acknowledgments

We would like to thank the conference participants of the International Symposium on Performance Science (ISPS) 2023 for their constructive feedback on the conference paper which has been incorporated into this mini-review, and the editors for the opportunity to publish it in this context. We acknowledge the use of generative AI technology for language refinement. ChatGPT (OpenAI, version as of December 2024) was employed to correct English language errors and polish the writing style, ensuring clarity and precision in expression.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships

that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fpsyg.2024.1360011/full#supplementary-material>

References

- Amirazodi, F., and Amirazodi, M. (2011). Personality traits and self-esteem. *Proc. Soc. Behav. Sci.* 29, 713–716. doi: 10.1016/j.sbspro.2011.11.296
- Antonini Philippe, R., Kosirnik, C., Ortuño, E., and Biasutti, M. (2022). Flow and music performance: Professional musicians and music students' views. *Psychol. Music* 50, 1023–1038. doi: 10.1177/03057356211030987
- Aron, E. N. (1997). *The highly sensitive person: How to thrive when the world overwhelms you*. New York: Three Rivers Press.
- Aron, E. N., Aron, A., and Davies, K. M. (2005). Adult shyness: The interaction of temperamental sensitivity and an adverse childhood environment. *Pers. Soc. Psychol. Bull.* 31, 181–197. doi: 10.1177/0146167204271419
- Aubry, L., and Küssner, M. B. (2023). Music performance anxiety and its relation to parenting style and sensory processing sensitivity. *Jahrb. Musikpsychol.* 31, 85–106. doi: 10.5964/jbmgm.155
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.
- Barlow, D. H. (2000). Unraveling the mysteries of anxiety and its disorders from the perspective of emotion theory. *Am. Psychol.* 55, 1247–1263. doi: 10.1037/0003-066X.55.11.1247
- Barlow, D. H. (2002). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. New York: Guilford Publications.
- Biasutti, M. (2017). "Flow and optimal experience," in *Reference Module in Neuroscience and Biobehavioral Psychology*, ed. J. P. Stein (New York: Elsevier), doi: 10.1016/B978-0-12-809324-5.06191-5
- Bick, J., and Nelson, C. A. (2016). Early adverse experiences and the developing brain. *Neuropsychopharmacol.* 41, 177–196. doi: 10.1038/npp.2015.252
- Boucher, H., and Ryan, C. A. (2011). Performance stress and the very young musician. *J. Res. Music Educ.* 58, 329–345. doi: 10.1177/0022429410386965
- Bowlby, J. (1969). *Attachment and loss: Volume 1 attachment*. New York: Basic Books.
- Bridges, D., and Schendan, H. E. (2019). Sensitive individuals are more creative. *Pers. Individ. Differ.* 142, 186–195. doi: 10.1016/j.paid.2018.09.015
- Butkovića, A., Ullén, F., and Mosing, M. A. (2015). Personality related traits as predictors of music practice: Underlying environmental and genetic influences. *Pers. Individ. Differ.* 74, 133–138. doi: 10.1016/j.paid.2014.10.006
- Butkovića, A., Vukojevića, N., and Carevića, S. (2022). Music performance anxiety and perfectionism in Croatian musicians. *Psychol. Music* 50, 100–110. doi: 10.1177/0305735620978692
- Chan, M.-Y. (2011). *The relationship between music performance anxiety, age, self-esteem, and performance outcomes in Hong Kong music students*. Doctoral Dissertation. Durham: Durham University.
- Cohen, S., and Bodner, E. (2019). The relationship between flow and music performance anxiety amongst professional classical orchestral musicians. *Psychol. Music* 47, 420–435. doi: 10.1177/0305735618754689
- Cohen, S., and Bodner, E. (2021). Flow and music performance anxiety: The influence of contextual and background variables. *Music Sci.* 25, 25–44. doi: 10.1177/1029864919838600
- Corrigan, K. A., and Schellenberg, E. G. (2015). Predicting who takes music lessons: Parent and child characteristics. *Front. Psychol.* 6:282. doi: 10.3389/fpsyg.2015.00282
- Csathó, Á., and Birkás, B. (2018). Early-life stressors, personality development, and fast life strategies: An evolutionary perspective on malevolent personality features. *Front. Psychol.* 9:305. doi: 10.3389/fpsyg.2018.00305
- Dempsey, E., and Comeau, G. (2019). Music performance anxiety and self-efficacy in young musicians: Effects of gender and age. *Music Perform. Res.* 9, 60–79.
- Diaz, F. M. (2018). Relationships between meditation, perfectionism, mindfulness, and performance anxiety among collegiate music students. *J. Res. Music Educ.* 66, 150–167. doi: 10.1177/0022429418765447
- Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annu. Rev. Psychol.* 41, 417–440. doi: 10.1146/annurev.ps.41.020190.002221
- Dobos, B., Piko, B. F., and Kenny, D. T. (2019). Music performance anxiety and its relationship with social phobia and dimensions of perfectionism. *Res. Stud. Music Educ.* 41, 310–326. doi: 10.1177/1321103X18804295
- Erozkan, A. (2012). Examination of the relationship between anxiety sensitivity and parenting styles in adolescents. *Educ. Sci. Theory Pract.* 12, 52–57.
- Fehm, L., and Schmidt, K. (2006). Performance anxiety in gifted adolescent musicians. *J. Anxiety Disord.* 20, 98–109. doi: 10.1016/j.janxdis.2004.11.011
- Fernholz, I., Mumm, J. L. M., Plag, J., Noeres, K., Rotter, G., Willich, S. N., et al. (2019). Performance anxiety in professional musicians: A systematic review on prevalence, risk factors and clinical treatment effects. *Psychol. Med.* 49, 2287–2306. doi: 10.1017/S0033291719001910
- Fishbein, M., Middlestadt, S. E., Ottani, V., Straus, S., and Ellis, A. (1988). Medical problems among ICSOM musicians: Overview of a national survey. *Med. Prob. Perform. Art.* 3, 1–8.
- Flett, G. L., and Hewitt, P. L. (2002). *Perfectionism: Theory, research, and treatment*. Washington, DC: American Psychological Association.
- Forbes, M. (2021). Giving voice to jazz singers' experiences of flow in improvisation. *Psychol. Music* 49, 789–803. doi: 10.1177/0305735619899137
- Gill, A., Osborne, M. S., and McPherson, G. (2022). Sources of self-efficacy in class and studio music lessons. *Res. Stud. Music Educ.* 46, 4–27. doi: 10.1177/1321103X221123234
- Givertz, M., and Segrin, C. (2014). The association between overinvolved parenting and young adults' self-efficacy, psychological entitlement, and family communication. *Commun. Res.* 41, 1111–1136. doi: 10.1177/0093650212456392
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *Am. Psychol.* 48, 26–34. doi: 10.1037/0003-066X.48.1.26

- Gözmen, A., and Aşçı, F. H. (2016). The role of big five personality traits and perfectionism in determining dispositional flow in elite athletes. *Hacettepe J. Sport Sci.* 27, 40–48.
- Greenberg, D. M., Müllensiefen, D., Lamb, M. E., and Rentfrow, P. J. (2015). Personality predicts musical sophistication. *J. Res. Pers.* 58, 154–158. doi: 10.1016/j.jrp.2015.06.002
- Heim, C., and Nemeroff, C. B. (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: Preclinical and clinical studies. *Biol. Psychiatry* 49, 1023–1039. doi: 10.1016/S0006-3223(01)01157-X
- Hildebrandt, H., Nübling, M., and Candia, V. (2012). Increment of fatigue, depression, and stage fright during the first year of high-level education in music students. *Med. Prob. Perform. Art.* 27, 43–48. doi: 10.21091/mppa.2012.1008
- Hodapp, V., Langendorfer, F., Bongard, F., and Kreutz, G. (2009). Arbeitsbedingungen, gesundheitliche Beschwerden und Aufführungsängste bei professionellen Orchestermusikern. *Musikphysio. Musikermed.* 15, 99–113.
- Huang, W.-L., and Yu, H. (2022). Social support in university music students' coping with performance anxiety: People, strategies and performance situations. *Music Educ. Res.* 24, 124–135. doi: 10.1080/14613808.2022.2028752
- Karavasilis, L., Doyle, A. B., and Markiewicz, D. (2003). Associations between parenting style and attachment to mother in middle childhood and adolescence. *Int. J. Behav. Dev.* 27, 153–164. doi: 10.1080/0165025024400015
- Kenny, D. T. (2011). *The psychology of music performance anxiety*. Oxford: Oxford University Press.
- Kenny, D. T., and Holmes, J. (2015). Exploring the attachment narrative of a professional musician with severe performance anxiety: A case report. *J. Psychol. Psychother.* 5, 1–6. doi: 10.4172/2161-0487.1000190
- Kenny, D. T., and Holmes, J. (2018). Attachment quality is associated with music performance anxiety in professional musicians: An exploratory narrative study. *Pol. Psychol. Bull.* 49, 283–298. doi: 10.24425/119496
- Kenny, D. T., Davis, P., and Oates, J. (2004). Music performance anxiety and occupational stress amongst opera chorus artists and their relationship with state and trait anxiety and perfectionism. *J. Anxiety Disord.* 18, 757–777. doi: 10.1016/j.janxdis.2003.09.004
- Kenny, D. T., Driscoll, T., and Ackermann, B. (2014). Psychological well-being in professional orchestral musicians in Australia: A descriptive population study. *Psychol. Music* 42, 210–232. doi: 10.1177/0305735612463950
- Khalsa, S. B., Shorter, S., Cope, S. M., Wyshak, G., and Sklar, E. (2009). Yoga ameliorates performance anxiety and mood disturbance in young professional musicians. *Appl. Psychophysiol. Biofeedback* 34, 279–289. doi: 10.1007/s10484-009-9103-4
- Kirsner, J., Wilson, S. J., and Osborne, M. S. (2023). Music performance anxiety: The role of early parenting experiences and cognitive schemas. *Front. Psychol.* 14:1185296. doi: 10.3389/fpsyg.2023.1185296
- Kitamura, T., and Fujihara, S. (2003). Understanding personality traits from early life experiences. *Psychiatry Clin. Neurosci.* 57, 323–331. doi: 10.1046/j.1440-1819.2003.01124.x
- Kitamura, T., Kijima, N., Watanabe, K., Takezaki, Y., and Tanaka, E. (1999). Precedents of perceived social support: Personality and early life experiences. *Psychiatry Clin. Neurosci.* 53, 649–654. doi: 10.1046/j.1440-1819.1999.00620.x
- Kobori, O., Yoshie, M., Kudo, K., and Ohtsuki, T. (2011). Traits and cognitions of perfectionism and their relation with coping style, effort, achievement, and performance anxiety in Japanese musicians. *J. Anxiety Disord.* 25, 674–679. doi: 10.1016/j.janxdis.2011.03.001
- Kotow, R., Gamez, W., Schmidt, F., and Watson, D. (2010). Linking “big” personality traits to anxiety, depressive, and substance use disorders: A meta-analysis. *Psychol. Bull.* 136, 768–821. doi: 10.1037/a0020327
- Kuo, J. R., Goldin, P. R., Werner, K., Heimberg, R. G., and Gross, J. J. (2011). Childhood trauma and current psychological functioning in adults with social anxiety disorder. *J. Anxiety Disord.* 25, 467–473. doi: 10.1016/j.janxdis.2010.11.011
- Lähdepuro, A., Savolainen, K., Lahti-Pulkkinen, M., Eriksson, J. G., Lahti, J., Tuovinen, S., et al. (2019). The impact of early life stress on anxiety symptoms in late adulthood. *Sci. Rep.* 9:4395. doi: 10.1038/s41598-019-40698-0
- Lahey, B. B. (2009). Public health significance of neuroticism. *Am. Psychol.* 64, 241–256. doi: 10.1037/a0015309
- Langendorfer, F., Hodapp, V., Kreutz, G., and Bongard, S. (2006). Personality and performance anxiety among professional orchestra musicians. *J. Individ. Differ.* 27, 162–171. doi: 10.1027/1614-0001.27.3.162
- Liss, M., Mailloux, J., and Erchull, M. J. (2008). The relationships between sensory processing sensitivity, alexithymia, autism, depression, and anxiety. *Pers. Individ. Differ.* 45, 255–259. doi: 10.1016/j.paid.2008.04.009
- Liss, M., Timmel, L., Baxley, K., and Killingsworth, P. (2005). Sensory processing sensitivity and its relation to parental bonding, anxiety, and depression. *Pers. Individ. Differ.* 39, 1429–1439. doi: 10.1016/j.paid.2005.05.007
- Liu, F., Wang, N., and Chen, L. (2021). Neuroticism and positive coping style as mediators of the association between childhood psychological maltreatment and social anxiety. *Curr. Psychol.* 42, 1–10. doi: 10.1007/s12144-021-02360-9
- Lochner, C., Seedat, S., Allgulander, C., Kidd, M., Stein, D., and Gerdner, A. (2010). Childhood trauma in adults with social anxiety disorder and panic disorder: A cross-national study. *Afr. J. Psychiatry* 13, 376–381. doi: 10.4314/ajpsy.v13i5.63103
- MacAfee, E., and Comeau, G. (2023). Teacher perspective on music performance anxiety: An exploration of coping strategies used by music teachers. *Br. J. Music Educ.* 40, 34–53. doi: 10.1017/S0265051722000146
- Manoochchri, M., and Mofidi, F. (2014). Relationship between child rearing styles and anxiety in parents of 4 to 12 years children. *Pro. Soc. Behav. Sci.* 116, 2578–2582. doi: 10.1016/j.sbspro.2014.01.614
- McCrae, R. R., and Greenberg, D. M. (2014). “Openness to experience,” in *The Wiley Handbook of Genius*, ed. D. K. Simonton (West Sussex: Wiley-Blackwell), 222–243.
- McNeil, D. G., Loi, N. M., and Bullen, R. (2022). Investigating the moderating role of coping style on music performance anxiety and perfectionism. *Int. J. Music Educ.* 40, 587–597. doi: 10.1177/02557614221080523
- McPherson, G. E. (2008). The role of parents in children's musical development. *Psychol. Music* 37, 91–110. doi: 10.1177/0305735607086049
- McPherson, G. E., and Davidson, J. W. (2002). Musical practice: Mother and child interactions during the first year of learning an instrument. *Music Educ. Res.* 4, 141–156. doi: 10.1080/14613800220119822
- McPherson, G. E., Davidson, J. W., and Faulkner, R. (2012). *Music in our lives: Rethinking musical ability, development, and identity*. Oxford: Oxford University Press.
- Middlestadt, S. E. (1990). Medical problems of symphony orchestra musicians: From counting people with problems to evaluating interventions. *Rev. Interam. Psicol.* 24, 159–172.
- Mor, S., Day, H. I., Flett, G. L., and Hewitt, P. L. (1995). Perfectionism, control, and components of performance anxiety in professional artists. *Cogn. Ther. Res.* 19, 207–225. doi: 10.1007/BF02229695
- Moura, N., and Serra, S. (2021). Listening to teachers' voices: Constructs on music performance anxiety in artistic education. *J. Sci. Technol. Arts* 13, 99–117. doi: 10.34632/jsta.2021.9853
- Niering, M., Monsberger, T., Seifert, J., and Muehlbauer, T. (2023). Effects of psychological interventions on performance anxiety in performing artists and athletes: A systematic review with meta-analysis. *Behav. Sci.* 13:910. doi: 10.3390/bs1310910
- Nussek, M., Zander, M., and Spahn, C. (2015). Music performance anxiety in young musicians: Comparison of playing classical or popular music. *Med. Prob. Perform. Art.* 30, 30–37. doi: 10.21091/mppa.2015.1005
- Osborne, M. S., and Kenny, D. T. (2008). The role of sensitizing experiences in music performance anxiety in adolescent musicians. *Psychol. Music* 36, 447–462. doi: 10.1177/0305735607086051
- Osborne, M. S., Kenny, D. T., and Holsomback, R. (2005). Assessment of music performance anxiety in late childhood: A validation study of the music performance anxiety inventory for adolescents (MPAI-A). *Int. J. Stress Manag.* 12, 312–330. doi: 10.1037/1072-5245.12.4.312
- Özdemir, G., and Dalkıran, E. (2017). Identification of the predictive power of five factor personality traits for individual instrument performance anxiety. *J. Educ. Train. Stud.* 5, 109–114. doi: 10.11114/jets.v5i9.2522
- Panetta, S. M., Somers, C. L., Ceresnie, A. R., Hillman, S. B., and Partridge, R. T. (2014). Maternal and paternal parenting style patterns and adolescent emotional and behavioral outcomes. *Mar. Fam. Rev.* 50, 342–359. doi: 10.1080/01494929.2013.879557
- Papageorgi, I. (2022). Prevalence and predictors of music performance anxiety in adolescent learners: Contributions of individual, task-related and environmental factors. *Music Sci.* 26, 101–122. doi: 10.1177/1029864920923128
- Papageorgi, I., Creech, A., and Welch, G. (2013). Perceived performance anxiety in advanced musicians specializing in different musical genres. *Psychol. Music* 41, 18–41. doi: 10.1177/0305735611408995
- Patston, T., and Osborne, M. S. (2016). The developmental features of music performance anxiety and perfectionism in school age music students. *Perform. Enhanc. Health* 4, 42–49. doi: 10.1016/j.peg.2015.09.003
- Perdomo-Guevara, E. (2014). Is music performance anxiety just an individual problem? Exploring the impact of musical environments on performers' approaches to performance and emotions. *Psychomusicology* 24, 66–74. doi: 10.1037/pmu0000028
- Pérez-Fuentes, M. D. C., Molero Jurado, M. D. M., Gázquez Linares, J. J., Oropesa Ruiz, N. F., Simón Márquez, M. D. M., and Saracosti, M. (2019). Parenting practices, life satisfaction, and the role of self-esteem in adolescents. *Int. J. Environ. Res. Public Health* 16:4045. doi: 10.3390/ijerph16204045
- Pinquart, M. (2017). Associations of parenting dimensions and styles with internalizing symptoms in children and adolescents: A meta-analysis. *Mar. Fam. Rev.* 53, 613–640. doi: 10.1080/01494929.2016.1247761
- Rae, G., and McCambridge, K. (2004). Correlates of performance anxiety in practical music exams. *Psychol. Music* 32, 432–439. doi: 10.1177/0305735604046100
- Rentfrow, P. J., and McDonald, J. A. (2009). “Music preferences and personality,” in *Handbook of music and emotion*, eds P. N. Juslin and J. Sloboda (Oxford: Oxford University Press), 669–695.

- Ryan, C., and Andrews, N. (2009). An investigation into the choral singer's experience of music performance anxiety. *J. Res. Music Educ.* 57, 108–126. doi: 10.1177/0022429409336132
- Ryan, C., Boucher, H., and Ryan, G. (2021). Performance preparation, anxiety, and the teacher. Experiences of adolescent pianists. *Rev. Music. OICRM* 8, 38–62. doi: 10.7202/1079790ar
- Ryan, C., Boucher, H., and Ryan, G. (2023). Practice, performance, and anxiety: A pilot study on student perception of parental involvement and formal music lessons. *Music Sci.* 6, 1–14. doi: 10.1177/20592043221145000
- Sadler, M. E., and Miller, C. J. (2010). Performance anxiety: A longitudinal study of the roles of personality and experience in musicians. *Soc. Psychol. Pers. Sci.* 1, 280–287. doi: 10.1177/1948550610370492
- Sărbescu, P., and Dorgo, M. (2014). Frightened by the stage or by the public? Exploring the multidimensionality of music performance anxiety. *Psychol. Music* 42, 568–579. doi: 10.1177/0305735613483669
- Sarkaya, M., and Kurtaslan, Z. (2018). Prediction of musical performance anxiety according to music teacher candidates' perfectionism and self-efficacy beliefs. *Int. Online J. Educ. Sci.* 10, 183–198. doi: 10.15345/iojes.2018.04.010
- Schneider, E., and Chesky, K. (2011). Social support and performance anxiety of college music students. *Med. Probl. Perform. Art.* 26, 157–163. doi: 10.21091/mppa.2011.3025
- Sieger, C. (2017). Music performance anxiety in instrumental music students: A multiple case study of teacher perspectives. *Contrib. Music Educ.* 42, 35–52.
- Sinden, L. M. (1999). Music performance anxiety: Contributions of perfectionism, coping style, self-efficacy, and self-esteem. *Diss. Abstr. Int* 60:590A.
- Smith, A. J., and Rickard, N. S. (2004). Prediction of music performance anxiety via personality and trait anxiety in young musicians. *Aust. J. Music Educ.* 1, 3–12.
- Spahn, C., Krampe, F., and Nusseck, M. (2021). Live music performance: The relationship between flow and music performance anxiety. *Front. Psychol.* 12:725569. doi: 10.3389/fpsyg.2021.725569
- Spahn, C., Krampe-Heni, F., Hohagen, J., Immerz, A., and Nusseck, M. (2024). Personality traits in musicians with different types of music performance anxiety. *Front. Psychol.* 15:1398095. doi: 10.3389/fpsyg.2024.1398095
- Spahn, C., Richter, B., and Altenmüller, E. (2011). *MusikerMedizin: Diagnostik, therapie und prävention von musikerspezifischen erkrankungen*. Stuttgart: Schattauer Verlag.
- Špila, B., Makara, M., Kozak, G., and Urbańska, A. (2008). Abuse in childhood and mental disorder in adult life. *Child Abuse Rev.* 17, 133–138. doi: 10.1002/car.1022
- Srivastava, S., John, O. P., Gosling, S. D., and Potter, J. (2003). Development of personality in early and middle adulthood: Set like plaster or persistent change? *J. Pers. Soc. Psychol.* 84, 1041–1053. doi: 10.1037/0022-3514.84.5.1041
- Steptoe, A., and Fidler, H. (1987). Stage fright in orchestral musicians: A study of cognitive and behavioural strategies in performance anxiety. *Br. J. Psychol.* 78, 241–249. doi: 10.1111/j.2044-8295.1987.tb02243.x
- Stoeber, J., and Eismann, U. (2007). Perfectionism in young musicians: Relations with motivation, effort, achievement, and distress. *Pers. Individ. Differ.* 43, 2182–2192. doi: 10.1016/j.paid.2007.06.036
- Swart, I. (2014). Overcoming adversity: Trauma in the lives of music performers and composers. *Psychol. Music* 42, 386–402. doi: 10.1177/0305735613475371
- Swart, I., Niekerk, C., and Hartman, W. (2010). Trauma-related dissociation as a factor affecting musicians' memory for music: Some possible solutions. *Aust. J. Music Educ.* 2, 117–134.
- Tan, J., Yap, K., and Bhattacharya, J. (2021). What does it take to flow? Investigating links between grit, growth mindset, and flow in musicians. *Music Sci.* 4, 1–11. doi: 10.1177/2059204321989529
- Tardif, C., Boucher, H., Lane, J., and Barbeau, A.-K. (2023). Music performance anxiety in children 9–12 years old in a music program. *Psychol. Sch.* 61, 671–685. doi: 10.1002/pits.23079
- Thomas, J. P., and Nettelbeck, T. (2014). Performance anxiety in adolescent musicians. *Psych. Music* 42, 624–634. doi: 10.1177/0305735613485151
- Timpano, K. R., Carbonella, J. Y., Keough, M. E., Abramowitz, J., and Schmidt, N. B. (2015). Anxiety sensitivity: An examination of the relationship with authoritarian, authoritative, and permissive parental styles. *J. Cogn. Psychother.* 29, 95–105. doi: 10.1891/0889-8391.29.2.95
- Uptis, R., Abrami, P. C., Brook, J., and King, M. (2016). Parental involvement in children's independent music lessons. *Music Educ. Res.* 19, 74–98. doi: 10.1080/14613808.2016.1202220
- Wei, C., and Kendall, P. C. (2014). Child perceived parenting behavior: Childhood anxiety and related symptoms. *Child Fam. Behav. Ther.* 36, 1–18. doi: 10.1080/07317107.2014.878175
- Wiedemann, A., Vogel, D., Voss, C., Nusseck, M., and Hoyer, J. (2020). The role of retrospectively perceived parenting style and adult attachment behaviour in music performance anxiety. *Psychol. Music* 48, 707–723. doi: 10.1177/0305735618817877
- Wolfradt, U., Hempel, S., and Miles, J. N. V. (2003). Perceived parenting styles, depersonalisation, anxiety and coping behaviour in adolescents. *Pers. Individ. Differ.* 34, 521–532. doi: 10.1016/S0191-8869(02)00092-2
- Yaffe, Y. (2018). Establishing specific links between parenting styles and the s-anxieties in children: Separation, social, and school. *J. Fam. Issues* 39, 1419–1437. doi: 10.1177/0192513X17710286
- Yazdani, S., and Daryei, G. (2016). Parenting styles and psychosocial adjustment of gifted and normal adolescents. *Pac. Sci. Rev. B Hum. Soc. Sci.* 2, 100–105. doi: 10.1016/j.psrb.2016.09.019
- Young, J. E., Klosko, J. S., and Weishaar, M. E. (2003). *Schema therapy: A practitioner's guide*. New York: Guilford Press.
- Zarza-Alzugaray, F. J., Orejudo, S., Casanova, O., and Aparicio-Moreno, L. (2018). Music performance anxiety in adolescence and early adulthood: Its relation with the age of onset in musical training. *Psychol. Music* 46, 18–32. doi: 10.1177/0305735617691592
- Zubin, J., and Spring, B. (1977). Vulnerability: A new view of schizophrenia. *J. Abnorm. Psychol.* 86, 103–126. doi: 10.1037/0021-843X.86.2.103