Music performance anxiety: perceived causes, coping strategies and clinical profiles of Brazilian musicians

Ansiedade de *performance* musical: causas percebidas, estratégias de enfrentamento e perfil clínico de músicos brasileiros

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Abstract

Introduction: Music performance anxiety (MPA) is characterized by long-lasting, high intensity apprehension associated with performing music in public. At extreme levels, MPA can impair the career and quality of life. Our goal is to describe the clinical profile, perceived causes and coping strategies associated with MPA.

Methods: In this cross-sectional study, several self-assessment instruments were administered to a sample of 214 Brazilian musicians (68% male, 53.3% classical/46.7% popular musicians). Data were analyzed using descriptive and parametric statistics, based on the variables of musical training and level of MPA.

Results: Percentages of indicators of pathology were high (40% high MPA levels, 37% social anxiety, 12.5% depression, 13.5% alcohol abuse), and musicians with high MPA levels were the most affected. A wide variety of situations were associated with MPA, especially those related to the individual (pressure from self/ concern about audience). Emotion-focused coping and internal resources were prominent among the resources used for coping with MPA (breathing, increased practice, familiarization with performance venue), although they were not always effective. It was relatively uncommon for musicians to seek specialized resources and treatments.

Conclusions: The results demonstrate the vulnerability of the targeted professional groups and the need for preventive strategies and behavioral, environmental, educational, and pharmacological interventions to change this scenario.

Keywords: Anxiety, music performance, coping strategies, musicians, psychopathology.

Resumo

Introdução: Ansiedade de *performance* musical (APM) é definida como uma condição de apreensão duradoura e intensa, associada ao desempenho musical em público. Em níveis extremos é prejudicial à carreira e qualidade de vida do músico. Objetiva-se descrever o perfil clínico, as causas percebidas e estratégias de enfrentamento da APM.

Métodos: Neste estudo transversal, vários instrumentos de autoavaliação foram administrados a 214 músicos brasileiros (68% do sexo masculino, 53,3% clássicos/ 46,7% populares). Os dados foram analisados por estatística descritiva e paramétrica, com base nas variáveis formação musical e nível de APM.

Resultados: Encontrou-se um percentual elevado de indicadores de psicopatologia (40% altos níveis de APM, 37% ansiedade social, 12,5% depressão, 13,5% abuso de álcool), sendo os músicos com altos níveis de APM aqueles com maior comprometimento. Uma ampla variedade de situações foi associada à APM, com destaque para aquelas relacionadas ao próprio indivíduo (pressão de si próprio/preocupação com a plateia). Entre os recursos utilizados para enfrentamento da APM destacaram-se aqueles focados na regulação emocional e no uso de recursos internos dos músicos (respiração, aumento do treino, familiarização com a prática no local da apresentação), embora nem sempre tenham sido eficazes. Mostrou-se pouco comum a busca por recursos e tratamentos especializados.

Conclusões: Evidencia-se a condição de vulnerabilidade desse grupo profissional e a necessidade de estratégias preventivas e intervenções comportamentais, ambientais, educativas e farmacológicas que permitam mudanças neste cenário.

Descritores: Ansiedade, *performance* musical, estratégias de enfrentamento, músicos, psicopatologia.

Introduction

Music performance anxiety (MPA) is a condition characterized by long-lasting, high intensity apprehension associated with performing music in public. It varies from a state considered common among musicians to extreme levels that are considered pathological.[1,2] Empirical studies indicate that MPA can be understood and classified as a subtype of social anxiety disorder (i.e., MPA shares the same diagnostic criteria as social anxiety disorder, but the fear is restricted to performing in public, which is why the specifier "performance only" is used to classify it).[1,3] As such, it could be treated with relative efficacy.[4] MPA has negative implications for musicians' careers and quality of life, with extreme situations leading to an early exit from the profession.[2]

Although the prevalence of MPA has not been precisely established, a literature review[5] reported significant rates ranging from 15% to 25% worldwide. In Brazil, the prevalence in a sample of professional and amateur musicians was 24%.[2]

These substantial rates notwithstanding, MPA has rarely been investigated, recognized and diagnosed. Many musicians and healthcare providers believe MPA to be inherent to the profession. Consequently, the possibilities for management, treatment and prevention of MPA are restricted, contributing to increased difficulties and suffering for affected individuals.[4] Furthermore, as is widely known, a significant number of musicians self-administer medications, especially when anticipating a performance, or employ ineffective coping mechanisms, which are often derived from personal strategies.[6-8]

Such scenarios are a cause for concern and demand attention and action within the public health and musical education fields to develop preventive strategies and implement behavioral, environmental, educational and even pharmacological strategies. The purpose of this study was to describe the clinical profile, perceived causes and strategies for coping with MPA from the perspective of a sample of Brazilian musicians, as a function of their MPA levels and musical training.[4]

Methods

The study was approved by the local ethics committee (Process no. 2855/2015).

A convenience sample comprising 214 Brazilian professional musicians was assessed. Participants who had completed undergraduate courses in music and had professional ties to orchestras were categorized as classical musicians. Popular musicians were self-defined as musicians and regularly performed for audiences in various settings (such as bars, religious ceremonies and parties) but did not have academic training in music.

Recruitment was conducted in various states of Brazil and involved the country's main orchestras and university music schools. The inclusion criteria were as follows: musicians of either sex, over the age of 18, who perform for large audiences at least once a month, and agreed to voluntary participation in the study, as indicated by signature of an informed consent form. The only exclusion criterion was failure to fill out all of the self-assessment instruments.

The instruments used for data collection are described below.

Kenny Music Performance Anxiety Inventory, revised (KMPAI)

This is a 40-item inventory developed by Kenny[9] to assess anxiety vis-à-vis music performances. It is a revised and expanded version of an earlier 24-item inventory.[10] A version translated, adapted and validated for Brazilian Portuguese[11] was used. The internal consistency (Cronbach's alpha) of this version of the instrument is 0.96. The cutoff point for defining high levels of MPA is 108.[10]

Anxiety Sensitivity Index

This is a 16-item instrument[12] for identifying the level of anxiety individuals experience in specific situations. It is subdivided into physical (physiological aspects), mental (cognitive aspects) and social (social aspects) subscales. A version translated into Brazilian Portuguese was used.[13] The internal consistency of this instrument in that study was 0.88 (Cronbach's alpha).

Causes of Music Performance Anxiety Checklist

This instrument[14] comprises a 22-item checklist of commonly perceived causes of MPA. Respondents are first requested to choose between yes and no options for each item on a list of factors that might contribute to MPA. They are then requested to classify the items they marked as yes in order of relevance. Number (1) is attributed to the most significant factor/cause, and the remainder of factors/causes are numbered consecutively. This version was translated into Brazilian Portuguese.[13]

Self-management of Music Performance Anxiety Rating Scale

This is an 18-item self-assessment scale that seeks to identify strategies used by musicians to self-manage MPA.[14] Respondents are first requested to indicate the strategies they most commonly use, attributing a score of (1) to the most frequently used and numbering the

remaining strategies consecutively. Next, respondents are required to indicate the effectiveness of each strategy on a 4-point Likert scale (0 = not effective at all, 3 = very effective). A version translated into Brazilian Portuguese was used.[13]

Social Phobia Inventory (SPIN)

This instrument was formulated to quantify the physiological symptoms of social anxiety-related fear and avoidance.[15] A version translated into and adapted for Brazilian Portuguese was used (Cronbach's alpha = 0.71-0.90) and a cutoff point of 19 was established to define social anxiety.[16]

Trait Questionnaire of the State-Trait Anxiety Inventory (STAI-T)

This instrument was developed by Spielberger, Gorsuch and Lushene in 1970 and has been translated into and validated for Brazilian Portuguese.[17] It assesses trait anxiety (how individuals generally feel) through 20 statements, which participants respond to on a four-point Likert scale (almost always – almost never). In the present study, the internal consistency of the instrument was $\alpha = 0.88$.

Patient Health Questionnaire – 2 (PHQ-2)

This instrument was designed for screening depressive episodes using two items investigating presence of symptoms over the previous 15 days. Participants respond to the items on a four-point Likert scale.[18] A version translated into and adapted for Brazilian Portuguese was used and the cutoff point adopted to define presence of depression was 3.[19] The internal consistency of this instrument in the present study was 0.75.

Alcohol Use Disorders Identification Test (AUDIT)

This test was originally developed by the World Health Organization at the end of the 1980s. AUDIT is one of the most widely used measurements in the world for identifying high-risk groups and screening for inappropriate alcohol use. A version translated into Brazilian Portuguese was used. The internal consistency was $\alpha = 0.81$, and the cutoff point indicative of alcohol-related disorders was 8, as suggested by Lima et al.[20]

Identification Questionnaire

This questionnaire comprises 12 items on the sociodemographic and musical characteristics of the sample.

The instruments were administered individually. Participants were provided with notebooks containing the instruments described above, accompanied by written instructions. A previously trained examiner was available at the time of administration to provide guidance and clarifications as needed.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 18. Descriptive statistics (mean, standard deviation and percentages) were used to characterize the sample, the musicians' clinical profile, aspects related to perceived causes of MPA and coping strategies. Correlation analysis (Pearson's correlation test) and logistic regression (backward method) were used to evaluate associations among the different clinical variables.

Musical training and clinical status (MPA levels) variables were compared using the chi-square and Student's t tests. The effect size of differences was estimated using Cohen's d and categorized as follows: small, $0.20 \leq d < 0.5$; medium, $0.50 \leq d < 0.8$; or large, $d \geq 0.80$.[21]

The significance level was set at 0.05 in all analyses.

Results

The sociodemographic, clinical and musical characteristics of the sample are described in Table 1.

With regard to the data described in Table 1, it is noteworthy that many of the musicians who reported taking medications (n = 39) stated that they did so to treat heart, thyroid and gastrointestinal problems. Only 4% of the participants (n = 9) reported taking psychotropic agents and 0.9% reported taking beta blockers (n = 2).

Table 2 lists results for psychiatric indicators as a function of MPA levels. Considering the cutoff points adopted, approximately 37% of the participants exhibited social anxiety, 40% exhibited high MPA levels, 12.5% exhibited depression, and 13.5% exhibited alcohol abuse. Analysis of the indicators as a function of the MPA levels showed that participants with high levels exhibited a more severe clinical profile (except for alcohol abuse). The effect sizes of these differences were large. Correlations between MPA and these variables were significant and of moderate magnitude (social anxiety: 0.60; anxiety-trait: 0.62; anxiety sensitivity: 0.53; depression: 0.40). Presence of social anxiety was a predictive factor for MPA (odds ratio = 8.18; 95% CI = 4.3-15.5). It is noteworthy that 70% of the musicians with indications of social anxiety had high MPA levels and 66% of the musicians with high MPA levels had indications of social anxiety.

Comparison of the participants as a function of their musical training did not reveal significant differences in

the psychiatric indicators, with the exception of the social subscale of the anxiety sensitivity index (p = 0.01), on which classical musicians exhibited higher levels of sensitivity to aspects related to social assessment, with a medium effect size (d = -0.35) (see supplementary material S1 for more information).

Table 3 lists the participants' assessments of the perceived causes of MPA as a function of MPA level.

The most commonly perceived causes of MPA – mentioned by more than half of the sample – were pressure from self, attempting a difficult repertoire, uncertainty attributable to technical flaws, concern

Table 1 - Sociodemographic, clinical and musical characteristics of the sample of Brazilian musicians analyzed (n = 214)

Variables	n	%	Variables	n	%
Sex			Instruments*		
Male	143	67.6	String	90	42.1
Female	71	32.4	Voice	29	13.5
			Wind	31	14.4
Age, mean (SD)		34.0 (14.3)	Percussion	14	6.5
			Piano	24	11.2
Marital status			Other	1	0.5
Without partner	142	67.6	Several	21	9.9
With partner	68	32.4	NR	4	
NR	4				
			Music performance anxiety		
Educational level			High level	83	39.7
Up to 11 years of formal schooling	61	30.5	Low level	126	60.3
> 11 years of formal schooling	139	69.5	NR	5	
NR	14				
			Use of medication		
Musical training			Yes	39	18.9
Classical musicians	114	53.3	No	167	81.1
Popular musicians	100	46.7	NR	8	

% = valid percentage; SD = standard deviation; NR = not reported.
* Nonexclusive categories.

Table 2 - Psychiatric indicators in the sample analyzed, as a function of levels of music performance anxiety

Psychiatric indicators*	High MPA levels (n = 83)	Low MPA levels (n = 126)	p	Effect size Cohen's d
Anxiety – STAI-T, mean (SD)	49.5 (11.4)	35.9 (7.8)	< 0.001[‡]	-1.45
Social anxiety – SPIN, mean (SD)	24.7 (13.1)	11.3 (9.1)	< 0.001[‡]	-1.23
Yes (%)[†]	65.1	18.3		
Anxiety sensitivity – ASI				
ASI_total score, mean (SD)	22.3 (11.9)	13.0 (8.4)	< 0.001[‡]	-0.94
ASI_physical subscale, mean (SD)	10.22 (7.2)	5.08 (5.0)	< 0.001[‡]	-0.86
ASI_mental subscale, mean (SD)	3.79 (3.27)	1.92 (1.99)	< 0.001[‡]	-0.73
ASI_social subscale, mean (SD)	8.28 (3.2)	5.97 (3.5)	< 0.001[‡]	-0.68
Depression – PHQ2, mean (SD)	1.8 (1.5)	0.7 (1.1)	< 0.001[‡]	-0.86
Yes (%)[†]	25.3	4.0		
Alcohol abuse – AUDIT, mean (SD)	4.0 (5.8)	3.5 (4.5)	0.511	-0.09
Yes (%)[†]	16.9	11.1		

ASI = Anxiety Sensitivity Index; AUDIT = Alcohol Use Disorders Identification Test; MPA = music performance anxiety; PHQ2 = Patient Health Questionnaire – 2; SD: standard deviation; SPIN = Social Phobia Inventory; STAI-T = Trait questionnaire from the State-Trait Anxiety Inventory.
* Five musicians were excluded from this analysis because they did not respond to the KMPAI correctly, so MPA severity could not be assessed.
[†] Percentage of individuals with scores over the cutoff point suggested in the psychometric study cited in the Methods section; p: significance level
[‡] Statistical significance.

about audience reaction/evaluation, and presence of trait anxiety. The least frequently perceived causes of MPA were pressure from parents/teachers and a lack of support from close people.

When comparing participants with high and low levels of anxiety, with the exceptions of causes involving inadequate preparation, a lack of support from close people, and pressure from parents/teachers, the group with a high MPA level assessed the situations most frequently associated with anxiety, among which pressure from self and concern about audience reaction/ evaluation stood out. These were also the situations most frequently mentioned as the primary cause of anxiety.

Analysis of the musicians according to their musical training showed that classical musicians mentioned the following as the main causes of MPA: pressure from self, uncertainty attributable to technical flaws, and a difficult repertoire. It should be noted that although pressure from parents and lack of support from close people were not frequently cited by the participants in

this group, they were rated as having a high degree of relevance by those participants who did mention them.

Among the popular musicians, there was a trend toward mentioning a broader variety of anxiety-inducing situations as cause of MPA, denoting a degree of heterogeneity. Presence of trait anxiety and concern about audience reaction/evaluation were frequently cited and rated at a high degree of relevance. Situations such as lack of support from close people, pressure from parents, inadequate preparation, lack of self-confidence, health issues, lack of confidence, pressure from teachers and pressure from self were ascribed high values (high degree of relevance), but were seldom mentioned (less frequent) (see supplementary material S2 for more information).

Table 4 lists the coping strategies employed by the musicians analyzed and their degree of effectiveness.

Overall, the coping strategies most frequently employed by the whole sample involved use of the individuals' internal/personal resources. The following strategies stood out in terms of frequency and were

Table 3 - Perceived causes of music performance anxiety, as a function of MPA levels

Perceived causes of anxiety*†	High MPA levels (n = 83)		Low MPA levels (n = 126)		
	Yes	R1	Yes	R1	p
Health problems when playing	33	1.2	25	4.0	0.001‡
Difficult repertoire	61	1.2	71	12.7	0.010‡
Bad performance experience	58	1.2	43	0	< 0.001‡
Concern about audience reaction/evaluation	70	14.5	46	4.3	0.001‡
Concern about reliability of memory	48	6.0	49	6.4	0.007‡
Presence of physical symptoms	57	7.2	41	4.0	< 0.001‡
Lack of self-confidence	47	2.4	16	0	< 0.001‡
High level of self-consciousness	37	1.2	40	4.8	0.023‡
Low self-esteem	47	2.4	17	1.6	< 0.001‡
Inadequate preparation	43	4.8	52	10.3	0.101
Lack of support from close people	12	1.2	20	0.8	0.930
Lack of confidence	58	3.6	24	2.4	< 0.001‡
Negative thoughts/worried about performing	60	3.6	39	1.6	< 0.001‡
Negative performance feedback	50	1.2	36	1.6	< 0.001‡
Difficulty in coping with performance-related negative thoughts	44	2.4	18	0	< 0.001‡
Difficulty in coping with performance-related physical symptoms	39	7.2	26	2.4	< 0.001‡
Pressure from parents	4	0	5	1.6	0.72
Pressure from teachers	15	1.2	18	0	0.39
Pressure from self	71	13.3	76	13.5	< 0.001‡
Pressure from competition	39	1.2	25	0	< 0.001‡
Technical flaws that cause uncertainty	59	4.8	59	1.6	< 0.001‡
Trait anxiety	69	12.0	45	7.9	< 0.001‡

MPA = music performance anxiety; R1 = percentage relative to the cause classified as most relevant – score 1.
* Five musicians were excluded from this analysis because they did not respond to the KMPAI correctly, so MPA severity could not be assessed.
† Nonexclusive categories.
‡ Statistical significance.

also were deemed relatively effective: deep breathing, increasing practice, familiarizing oneself with the venue, and relaxation techniques. The most effective techniques (≥ 65% rated them as effective) involved use of medications and seeking psychiatric help. However, these techniques were employed the least often.

Musicians with high and low MPA levels used similar coping strategies. Significant differences were only observed for frequency of use of anxiolytics and beta blockers, discussing anxiety with family/friends, and consulting a psychologist, which were more frequently employed by musicians with high MPA levels.

Although there was no difference between classical and popular musicians in terms of the strategies they used most and least frequently, the former more frequently used beta blockers and relaxation techniques, more frequently discussed their anxiety, with their music teachers, and more frequently sought to familiarize themselves with the performance venue.

The effectiveness of coping strategies was similar between the groups with and without high MPA. It is noteworthy that breathing and familiarizing oneself with the performance venue were more effective among the participants with low MPA levels. Use of distraction methods and deep breathing were less effective among the classical musicians (see supplementary material S3 to S6 for more information).

Discussion

This study investigated the clinical profile, perceived causes and coping strategies of MPA among a sample of Brazilian musicians. High percentages of pathological indicators were detected in comparison with the overall Brazilian population,[22] even taking into account the false-negative rates of the screening instruments used. In a population-based study conducted by Andrade et al.,[22] rates of social anxiety, depression, and alcohol abuse were 3.5%, 9.4%, and 2.7%, respectively, whereas the rates identified in the present study were 37.0%, 12.5%, and 13.5%, respectively. These data are alarming and provide evidence of the extreme vulnerability of this population group.

Approximately 40% of the participants exhibited pathological levels of MPA. Although this rate is higher than was detected in a previous study,[2] it is consistent with the higher rates reported in studies performed with samples of Dutch and Japanese musicians (59% and 64%).[23,24] As expected, musicians with high MPA levels also more frequently displayed the other pathological indicators analyzed; a finding that reinforces the association between MPA and psychiatric comorbidities.[2,3] These findings also add weight to the results of previous studies suggesting that MPA is a subtype of social anxiety[3,25,26] that can be predicted by

Table 4 - Coping strategies used by musicians to deal with MPA situations, classified according to frequency of use and level of effectiveness

Coping strategies*	Musicians who use strategy		Frequency of use (%)		Effectiveness (%)	
	n	%	1st	2nd	0	1
Alcohol	22	10.3	40.9	13.6	40.9	59.1
Antidepressants	2	0.9	50.0	--	50.0	50.0
Anxiety medications	17	7.9	41.2	11.8	35.3	64.7
Beta blockers	21	9.8	52.4	--	19.0	81.0
Deep breathing	142	66.3	46.5	21.8	29.2	70.8
Distraction methods	37	17.3	16.2	32.4	42.5	57.5
Discuss anxiety with family/friends	57	26.6	12.3	19.3	58.2	41.8
Discuss anxiety with music teacher	41	19.2	7.3	17.1	46.3	53.7
Consult doctor	7	3.3	14.3	14.3	60.0	40.0
Consult psychologist	17	7.9	14.3	23.5	53.3	46.7
Consult psychiatrist	9	4.2	22.2	11.1	28.6	71.4
Familiarize self with venue	98	45.8	23.5	13.3	68.1	31.9
Hypnosis	5	2.3	20.0	40.0	66.7	33.3
Increase practice	114	53.3	27.2	31.6	51.1	48.9
Mock performance practice	64	29.9	12.5	17.2	35.5	64.5
Use nonprescribed medication	6	2.8	50.0	33.3	50.0	50.0
Positive self-talk	58	27.1	15.5	12.1	56.1	43.9
Relaxation techniques	93	43.5	12.9	31.2	30.4	69.6

% = percentage relative to the number of participants who reported using the particular strategy; 1st = first most frequently employed strategy, 2nd = second most frequently employed strategy; 0 = not effective/relatively ineffective; 1 = quite/very effective.
* Nonexclusive categories.

this disorder and shares the same theoretical cognitive-behavioral model.[27,28]

However, contrary to expectations, classical musicians (considered to be high performance musicians) did not exhibit higher levels of MPA or other psychopathologies, which contradicts the hypothesis that high demands and long hours of preparation before a performance – both so common in the lives of orchestra musicians – are risk factors for mental health problems among this population.

However, the classical musicians did exhibit higher rates of anxiety sensitivity with relation to social exposure. Fear of the uncomfortable feelings of anxiety that characterize anxiety sensitivity and a belief that such feelings might have negative social consequences, in addition to the high levels of demands imposed by the musicians themselves and the audience, might be related to this finding.[29] Considering that the musicians' condition/profession necessarily involves heavy social exposure, which is intrinsic to musical practice, experiences of suffering and/or loss are a part of everyday life in the music world.

Regardless of their professional and clinical characteristics, all the musicians analyzed cited the following as the most frequently perceived causes of MPA: pressure from self, attempting a difficult repertoire, uncertainties attributable to technical flaws, and concern about audience reaction/evaluation. This finding corroborates the theoretical model developed by Valentine,[30] which emphasizes participation of variables related to the individual, the task, and the situation in the etiology of MPA. Individual-related causes predominated among the causes most frequently cited by the classical musicians and/or the musicians with high levels of MPA (pressure from self, uncertainty attributable to technical flaws, and concern about audience reaction), which might be related to self-esteem issues and perfectionism, which in turn may be more common among musicians with these characteristics.

Kemp[31] and Lehmann et al.[32] have emphasized the relevance of cognitive processes. According to these authors, ways of thinking and interpreting aspects of musical performance are impregnated by negative beliefs about oneself and one's own performance that have developed throughout life and may result in the perception of performance as threatening. This situation might further contribute to facilitating experiences of anxiety, low self-esteem, and high levels of perfectionistic concerns (excessive worry, negative reaction and doubts relative to one's own actions, in addition to a rigid view of success and failure).[14]

Concern about audience reaction/evaluation is a core aspect of MPA and is related to both the individual and the situation. Therefore, it was unsurprising that this concern was the most frequently cited cause of MPA by participants with higher levels of symptoms, who might interpret the audience's judgment as threatening and negative.[32] This negative and intimidating interpretation of social judgment is a core aspect of social anxiety disorder.[1]

Uncertainty caused by technical flaws (which is both an individual and a task-related cause) was more frequently cited by the classical musicians than the popular musicians. This finding might be related to greater sensitivity to one's own flaws and the demands inherently imposed on high-performance musicians. Within this context, technique plays a significant role vis-à-vis performance, favoring an increase in anxiety experienced as a function not only of the audience evaluation but also of the technical-interpretive assessment of critics, teachers, conductors and orchestras.

With respect to task-related causes, regardless of their training and level of MPA, the musicians analyzed emphasized attempting difficult repertoires. According to Sinico & Winter,[33] the repertoire played should take into account the demands inherent to the task and the musician's skills to avoid a possible mismatch between these two factors that increases the likelihood of occurrence of symptoms of anxiety. However, these authors also considered that dysfunctional beliefs relative to both repertoire difficulty and the musician's musical skills might contribute to increased anxiety. This hypothesis is consistent with the specialized literature that emphasizes the relevance of cognitive symptoms (distorted thoughts and beliefs) in the genesis and maintenance of anxiety and MPA.[5,32]

Classical musicians and/or musicians with high levels of MPA cited a broader variety and higher frequency of causes of MPA. This fact may be related to the higher levels of anxiety sensitivity exhibited by these two groups compared with all others. Another possible explanation is that the classical musicians mentioned a larger number of causes as a function of the pressure and high demands typical of the profession, as previously reported in the literature.[34,35]

The poorer clinical profile of the participants with high MPA levels may have favored their identification of and their sensitization to a larger number of causes of MPA.

Considering the wide variety of situations that make occurrence of MPA symptoms more likely, it is crucial to acquire accurate knowledge of both the resources musicians deploy to cope with and minimize the symptoms and the level of those resources' effectiveness, approached from the perspective known

in the literature as coping strategies. Coping strategies are behavioral and cognitive practices that can be learned and are used to address internal or external stimuli that are interpreted as intimidating or threatening.[36] Kenny[14] adapted this notion to the musical setting and defined it as the set of cognitive-behavioral skills employed for coping with MPA symptoms.

Lazarus & Folkman[37] divided coping strategies into two distinct categories: a) problem-focused coping, which encompasses varying behaviors that seek to solve problems associated with an aversive stimulus, and b) emotion-focused coping, which is characterized by strategies that seek to develop new ways to interpret and experience aversive stimuli. According to these authors, the choice of a given strategy depends on the situation individuals face and their repertoire of skills and internal resources.

The coping strategies most often employed by the musicians analyzed in the present study were deep breathing, increased practice, familiarizing themselves with the performance venue and relaxation techniques. These preferences were common to the various groups of musicians and are consistent with previous reports in the literature,[38,39] thus reinforcing the predominance of emotion-focused strategies. Although the effectiveness of these strategies was rated as reasonable by the participants, the strategies were less effective for both the participants with high levels of MPA and the classical musicians.

In contrast, problem-focused strategies, which also include seeking healthcare professionals and services (i.e., external resources), were used less often, even though they were perceived to be more effective. The low frequency of seeking medical and psychological care is noteworthy and might reinforce a previous statement in the literature,[2,14] that musicians see MPA as a normal and typical aspect of their profession. This attitude hinders musicians from seeking specialized help, thereby rendering it even more difficult for healthcare professionals to screen for and detect this problem.

The aforementioned considerations evidence the relevance of campaigns to raise awareness of this condition, to explain it, and to publicize the availability of specialized services for the affected population. Although infrequent, MPA is associated with increased procurement of psychological care. That psychologists are rarely consulted is regrettable, since their therapeutic resources include cognitive-behavioral therapy, which is one of the intervention modalities for treating MPA for which there is the greatest evidence of effectiveness, according to a literature review.[40]

The frequency of use of beta blockers was similar to the frequency reported in another Brazilian study that assessed students studying for music degrees (17.3%),[8] but lower than the frequency found in a study conducted with orchestra musicians in Australia (30.9%).[41] This strategy was rated as effective by 80% of the classical musicians and 73.3% of the musicians with high MPA levels who reported using it. The musicians who benefited from beta blockers were possibly those most affected by the physiological symptoms of anxiety because these drugs have no effect on cognitive, emotional, or psychological symptoms.[14] These findings reinforce reports in the literature[6,7,42] on the frequent use of this medication by musicians, especially high-performance musicians,[43] primarily to obtain relief from symptoms such as palpitations, hyperventilation, tremors and nausea.[44]

Use of anxiolytics was reported with low frequency, but was rated highly effective. This low frequency of use may be attributable to the undesirable side effects of these drugs, such as impairment of fine motor coordination and performance quality.[8]

Although also of low frequency, seeking support from family, friends and teachers was more frequent among both classical musicians and musicians with high MPA levels. It is worth stressing the relevant role of music teachers in the training and guidance of their students, which might be a key element in the process of identifying, understanding and managing MPA. However, as Nascimento[8] observed, more than half of teachers do not provide their students with information about coping strategies, and when they do, their advice is based on common sense rather than on the information available in the literature. Ray et al.[45] analyzed the curricula of various higher education music schools across Brazil and observed that psychological education was scarce in the field of musical training and that little information was provided about psychology as it relates to music performance.

Regardless of their professional training, support from family and friends was highly relevant to the participants in this study. The family and social environments may be perceived as imposing less pressure and fewer demands than the music environment and are more sensitive to suffering. These findings are consistent with Dews & Williams,[46] who reported that friends were named as the primary network of support for music students, whereas formal counseling was rated as the last resource.

One further coping strategy for MPA that merits mention is alcohol consumption. Indeed, in this study, 25% of the participants who reported drinking as a way to cope with MPA exhibited alcohol abuse and rated this strategy as highly effective. This behavior also occurs among individuals with social anxiety, who often drink

as a way to cope with anxiety when in situations of exposure.[47] We call attention to the risks associated with alcohol consumption.

Although the strategies most frequently used were ascribed some degree of effectiveness, it is curious that the most effective strategies were not the most frequently used and that some of the least frequently used strategies were rated highly effective. This incongruence calls for serious reflection, especially on the possibility of failure in the management of MPA and the intense suffering experienced by musicians.

These findings reinforce Mejía's[48] observation that musicians employ a wide variety of strategies to cope with MPA intuitively, possibly without guidance from teachers and healthcare providers. To this, one should add the nearly absolute lack of specialized services for the treatment of MPA and other psychopathologies among musicians, particularly in Brazil, and also of initiatives within education and public policy settings for the prevention and promotion of the physical and mental health of musicians.

The main limitation of the present study was the use of self-report scales on signs and symptoms for evaluating psychopathological conditions, especially MPA. Use of structured interviews or clinical diagnosis is suggested for future studies.

Conclusion

The results of this study support the conclusion that there was a high prevalence of MPA among Brazilian musicians, regardless of their field of activity and professional training. A wide variety of situations were associated with occurrence of MPA, among which individual-related situations – particularly pressure from self and concern about audience reaction – were prominent. Emotion-focused coping and internal resources stood out among the resources for coping with MPA, even when they were not always effective. The respondents seldom reported seeking specialized resources and treatments, which is evidence of the vulnerability of the targeted population group and of the need for action to change this scenario.

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