Performance anxiety in gifted adolescent musicians
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Abstract

Among professional musicians as well as among music students, performance anxiety occurs frequently and can cause considerable distress. As the professional development starts early among future musicians, younger samples are of great interest, but to date, few studies have examined adolescents. The present survey explored performance anxiety in a sample of 15–19-year-old pupils who attended a German special music school. Of those pupils, 74 participated in the study (93% response rate). In addition to frequency and expression of performance anxiety, coping strategies were assessed. Results pointed to the high frequency of performance anxiety in this sample; about one third of the group were distinctly handicapped by their anxiety. Unfavorable coping strategies, such as drug or alcohol abuse were rarely reported. Most pupils called for more support either from their teachers or from outside of school to cope with their anxiety.

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1. Introduction

Although performance anxiety (PA) is maybe as old as artistic performance itself, psychological research on it started only about some decades ago. The main characteristics are: (1) irrational, perfectionist, or catastrophic cognitions (e.g., Steptoe & Fidler, 1987; Tobacyk & Downs, 1986); (2) physiological symptoms
like trembling, hyperventilation, or palpitation (e.g., James, 1988; Lehrer, 1987); and (3) behavioral characteristics like the avoidance of performances and auditions (e.g., Clark & Agras, 1991; van Kemenade, van Son, & van Heesch, 1995).

In contrast to the main characteristics, there is much less agreement in the literature on terms and exact definitions of the phenomenon. The most frequently used terms are “stage fright” or “performance anxiety,” but also “music performer’s stress syndrome” (Brodsky, 1996) or “musical performance anxiety” (Salmon, 1990) have been proposed.

Definitions differ, among other aspects, in the degree of specificity, or in the inclusion of positive aspects of apprehension. Some authors explicitly distinguish between low grades of anxiety or arousal, which are necessary to optimize the performance, and high grades of anxiety, which are characterized by a high psychological strain and impairment of the musicians’ performance. Different terms for each state have been proposed: For example, Möller (1999) has used “stage fright” for the positively connoted state and “performance anxiety” for disturbing levels of stress. According to Salmon’s (1990) widely used definition, musical performance anxiety is “the experience of persisting, distressful apprehension about and/or actual impairment of performance skills in a public context, to a degree unwarranted given the individual’s musical aptitude, training and level of preparation.” In this paper, we will refer to this definition and will use the term “performance anxiety” to denote those impairing levels of anxiety.

Similar to the diversity in definitions, a broad range of diagnostic instruments has been used to assess performance anxiety. In most studies, instruments were explicitly developed for the study, and their psychometric properties are rarely reported.

As performance situations are always social situations that include an evaluation of the musician by his or her auditory, performance anxiety is classified as variant of social phobia in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, APA, 1994). Besides a rather high association of social anxiety and performance anxiety reported by Cox and Kenardy (1993; r = .59), Osborne and Franklin (2002) also supported this allocation with an experimental design.

Prevalence estimates vary a lot across studies, which is presumably due to differences in: (1) definitions and measures of performance anxiety; (2) sample composition (e.g., professional musicians or music students); (3) components of performance anxiety (e.g., cognitive symptoms vs. physiological reactions); and (4) response rates. In some studies, the response rate was below one third of the population addressed by the study (e.g., 24%, van Kemenade et al., 1995; 32%, Marchant-Haycox & Wilson, 1992). As it is unclear whether only the more anxious or rather only those who did not regularly experience performance anxiety have participated in the study, a systematic bias cannot be ruled out in studies with low response rates.

The largest sample has been surveyed within the ICSOM study (Fishbein, Middlestadt, Ottati, Straus, & Ellis, 1988; n = 2212 professional musicians, 55% response rate), which focused on medical problems. Sixteen percent of the
participants considered performance anxiety as a serious problem with effects on their performance. It turned out to be the most frequently named psychological problem. Note, however, that only one single item was used to assess performance anxiety. Studies employing more sophisticated measures of performance anxiety but relying on much smaller samples have sometimes found even higher rates of professionals who indicated disturbing levels of performance anxiety (e.g., Steptoe & Fidler, 1987; \( n = 65 \): 32% reporting high levels of MPA; Marchant-Haycox & Wilson, 1992; \( n = 65 \): 47% reporting about performance anxiety; van Kemenade et al., 1995; \( n = 155 \): 58.7% knowing performance anxiety from their experience, 36.4% describing a stronger level of MPA).

Studies conducted in samples of music students yielded more consistent results, and the estimates are within the range reported by professional musicians. Schröder and Liebelt (1999) surveyed 330 German music students (age 20–23 years) and found 22.8% with strong performance anxiety. In the study by Wesner, Noyes, and Davis (1990; \( n = 302 \): 67% response rate), 21% of the sample reported quite high levels of performance anxiety; for 16.5% the anxiety even had a negative impact on their careers. Smaller studies yielded similar results (Hille, 2002; Kaspersen & Götestam, 2002; Lockwood, 1988).

For children and teenagers no estimates of the prevalence of performance anxiety are available. There are studies that explored different aspects of performance anxiety in teenagers or included adolescents in the sample, implying the existence of this phenomenon already at that age (Kendrick, Craig, Lawson, & Davidson, 1982; LeBlanc, Chang Jin, Obert, & Siivola, 1997; Lund, 1972; Rothlisberger, 1992), but prevalence rates for this age group are not reported.

In most studies, gender differences are documented, with women reporting higher levels of performance anxiety than men (e.g., Abel & Larkin, 1990; Craske & Craig, 1984; LeBlanc et al., 1997; Schröder & Liebelt, 1999).

### 1.1. Situational influences

Broad attention has been paid to situational factors influencing the occurrence and experience of performance anxiety. In addition to the mere presence of an audience, its size, status, and perceived competence influence the level of performance anxiety (Craske & Craig, 1984; Fredrikson & Gunnarsson, 1992; Hamann, 1982; LeBlanc et al., 1997; Ryan, 1998). Moreover, the size of the presenting group influences the level of anxiety, with solo settings eliciting the highest degree of anxiety, followed by smaller ensembles, orchestras, and teaching settings (Cox & Kenardy, 1993; Jackson & Latané, 1981).

### 1.2. Coping strategies

Coping with the impairing condition of performance anxiety is crucial for the career, and professional musicians frequently indicate the use of drugs as a coping strategy. In the ICSOM study (Fishbein et al., 1988), the use of drugs was reported...
as the most common strategy to cope by 40% of those with severe stage fright. Beta adrenoceptor blocking drugs are frequently used, often without medical prescription. In studies investigating student samples, much lower rates of drug usage (below 4%) have been reported (Hille, 2002; Wesner et al., 1990). But nearly half of the students impaired by performance anxiety and still about one third of the unimpaired ones would accept taking prescribed drugs if necessary to cope with performance anxiety (Wesner et al., 1990). Among the nonpharmacological coping strategies, a wide range of techniques is employed, such as Alexander technique, hypnosis, massages, yoga, positive self-instruction, relaxation techniques, and special practicing techniques. As nearly every study has assessed a different selection of possible actions against performance anxiety, it is not warranted to recommend a certain strategy over the others. No data on the use of coping strategies among adolescent musicians are available.

As musical career starts early, it is important to know about the expressions of performance anxiety not only in musical students but also in younger samples. To date, only a few studies have addressed performance anxiety in adolescent musicians. In the present study, we aimed at determining the characteristics and the frequency of performance anxiety in an adolescent sample. Short-term and long-term coping strategies as well as needs and wishes for support were explored. To avoid selection biases that would hamper the interpretation of the results, we aimed at a highest possible response rate.

2. Method

2.1. Measures

Performance anxiety was assessed with the German version of the Performance Anxiety Questionnaire (PAQ; English: Cox & Kenardy, 1993; German: Bühnenangstfragebogen, BAF; Fehm, Hille, & Becker, 2002). It contains 20 items, tapping cognitive as well as bodily symptoms of performance anxiety (e.g., “I worry about my performance.” and “I feel tense in my stomach.”). The frequency of each symptom is indicated on a 5-point Likert scale. The instruction used in this study refers to a typical solo situation; ensemble settings were not additionally assessed. The German version shows good to acceptable psychometric properties (internal consistency: Cronbach’s $\alpha = .88$; retest-reliability 4–6 weeks: $r = .86$; validity: correlation with a measure of stage anxiety referring to a performance situation: $r = .77$, all $P$’s $< .001$; Hille, 2002). Additionally, a self-rating of performance anxiety was included as a global measure of the construct of performance anxiety. The one-item measure asked for the typical extent of anxiety in the context of stage presentations (0: inexistent to 10: very strong). Finally, we included questions addressing situational influences on performance anxiety, short-term as well as long-term coping strategies, and open questions regarding unmet needs for coping assistance.
2.2. Participants

This study was conducted in cooperation with a “Gymnasium” in Dresden (roughly equivalent to American high school, covering grades 5–13) with a specialization in musical education. In addition to the regular academic curriculum pupils at this school attend extended music classes, and instrumental education is integrated in the class schedule. About half of the pupils come from outside the town and live in the school’s dormitories during the week. To be admitted to the school, applicants have to pass a qualifying examination consisting of a musical performance with a predefined program plus tests in musicality, music theory, and aural training.

Pupils from the last four grades ($N = 80$) were invited to take part in the study, and their parents’ permission was obtained in advance (no refusals). Three pupils refused to participate, and another three were absent on the study day, which resulted in a final sample of 74. This corresponds to a response rate of 92.5% (96.3% if only refusals are counted as dropouts).

The mean age of the sample was 17.1 years (S.D. = 1.2, range: 15–19); both genders were represented with nearly the same frequency: 35 females (48.6%), 37 males, 2 indications missing. Their main instruments were strings (43.2%) and wind instruments (37.8%); 10.8% indicated the piano as their main instrument; 8.3% of the samples were assigned to a mixed category (e.g., harp, guitar, percussion). Most of them played a second instrument. The first instrumental lessons were taken at a mean age of 6.5 years (S.D. = 2.1; 2 missing values). Nearly half of the sample (47.5%) had had their first public presentation before the age of eight years (range: 5–15). At present, public performances are an integral part of the pupils’ lives: presentations within an orchestra are given about three times in 6 months ($M = 2.9$, S.D. = 4.3, range: 0–24), in chamber music ensembles four times ($M = 4.0$, S.D. = 4.2, range: 0–20), and as solo players even more frequently ($M = 5.6$, S.D. = 4.8, range: 1–27). The vast majority of the sample (86.5%) reported to aim at studying music after school.

2.3. Procedure

Participants were assessed class-wise during the regular course time. Instructions were given orally for the total group, and the experimenter was present in the room to answer upcoming questions.

3. Results

3.1. Expressions and symptoms of performance anxiety

The participants’ mean BAF score was 58.1 (S.D. = 10.1, range: 28–82). This score is comparable to the mean of the student sample described by Hille (2002;
\( N = 103, M = 55.3, \text{ S.D.} = 12.3 \). The internal consistency of the questionnaire was .81, which is acceptable.

Among the bodily symptoms, nervousness and sweaty palms were most frequently reported (78.1% and 56.7%, respectively, of the participants experienced those symptoms “frequently” or “always” before and during performance situations.) Among the cognitive symptoms of performance anxiety, “I feel apprehensive about potential errors in my performance.” and “I am overcritical of my performance.” were reported most frequently (experienced “frequently” or “always” by 60.6% or 54.1%, respectively).

In contrast to many other studies, male and female adolescents did not differ in the level of performance anxiety, although a trend was found in the expected direction (females: \( M = 60.1, \text{ S.D.} = 9.4 \); males: \( M = 56.1, \text{ S.D.} = 10.3 \); \( t(70) = 1.721, P = .09, d = .41 \)). Those who aimed at studying music after school \( (n = 64) \) reported a significantly lower degree of performance anxiety than did those without such plans \( (n = 9; M = 64.4, \text{ S.D.} = 6.86; \text{ prospective students: } M = 57.6, \text{ S.D.} = 9.6; U = 146.5, P < .018) \).

In addition to the BAF an 11-point Likert scale was used to gain a self-rating of performance anxiety (0: no anxiety at all to 10: very strong anxiety). The mean of this measure was 5.5 (S.D. = 1.9, range: 1–9). The two measures of performance anxiety were significantly and substantially correlated \( (r = .55, P < .001) \). Again, female and male pupils did not differ significantly in their ratings of performance anxiety (females: \( M = 5.9, \text{ S.D.} = 1.74 \); males: \( M = 5.2, \text{ S.D.} = 2.1 \); \( t(70) = 1.47, P = .15 \)).

Four additional items addressed impairment and distress as well as possible positive and negative impacts of anxiety on solo performances. Answers are depicted in Table 1.

Strong negative influences (rating 3 or 4) of performance anxiety on the musical career were reported by 9.5% of the sample. Individual distress was reported by 32.5%. When the criteria of at least moderate impairment as well as at least moderate distress are combined, 33.8% of the sample have to be classified as being affected by a clinically relevant extent of performance anxiety.

Nearly three fourths of the sample (73%) judged anxiety as a negative influence on their performance, although it has to be noted that also positive influences on the

<table>
<thead>
<tr>
<th>Item</th>
<th>Not at all (“0”)</th>
<th>Somewhat (“1”)</th>
<th>Moderate (“2”)</th>
<th>Rather strong (“3”)</th>
<th>Very strong (“4”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative impact of PA on previous musical career</td>
<td>27.0</td>
<td>31.1</td>
<td><strong>32.4</strong></td>
<td>9.5</td>
<td>0</td>
</tr>
<tr>
<td>Impairment through PA</td>
<td>10.8</td>
<td>25.7</td>
<td><strong>31.1</strong></td>
<td>25.7</td>
<td>6.8</td>
</tr>
<tr>
<td>Positive influence on performance</td>
<td>18.9</td>
<td><strong>40.5</strong></td>
<td>27.0</td>
<td>10.8</td>
<td>1.4</td>
</tr>
<tr>
<td>Negative influence on performance</td>
<td>4.1</td>
<td>23.0</td>
<td>27.0</td>
<td><strong>39.2</strong></td>
<td>6.8</td>
</tr>
</tbody>
</table>

Note. Modes are printed in bold.
performance were reported by about 40% of the participants. The two dimensions seem not to be independent. However, they are not two poles of a continuum as indicated by a medium-sized negative correlation ($r = -0.38$, $P < .001$).

3.2. Correlates of performance anxiety

As in older samples, participants in this study reported that the individual experience of performance anxiety depended on the setting and the status of the audience. Participants rated their level of performance anxiety for four different settings (0: none to 4: very strong). Level of performance anxiety decreased significantly for each of the situations, with solo performances eliciting rather strong performance anxiety ($M = 2.99$, S.D. = 0.85) and music lessons being rarely affected by performance anxiety ($M = 0.84$, S.D. = 0.71; orchestra: $M = 1.15$, S.D. = 0.87; chamber music: $M = 1.59$, S.D. = 0.74).

More than half of the sample (58.1%) reported that their level of anxiety depended strongly on the status of the audience, with teachers and professors having been the group eliciting the highest amount of performance anxiety. When asked to write down why those persons led to higher anxiety, the most frequently indicated reasons were their professional knowledge (36.5%) and the high importance of their judgment (32.7%).

Apart from setting variables, the experience with performance situations was examined as possible mediator of performance anxiety. Three indicators of experience were included: the mean frequency of solo performances (number of occasions in six months), the mean frequency of all performances during the past six months, and the age at the first public performances. Neither were the three variables significantly correlated with the level of performance anxiety (solo performances: $r = -0.19$; all performances: $r = -0.11$; age at first performance: $r = 0.02$), nor was the participants’ age significantly associated with the level of performance anxiety ($r = 0.12$; all $P’s > 0.05$).

3.3. Coping with anxiety

To assess coping strategies for performance anxiety, short- and long-term strategies were presented. The participants were instructed to indicate the frequency of use of each strategy as well as their perceived helpfulness.

Short-term coping comprised all strategies that were reported to be used immediately before performance situations. Fig. 1 shows the results for the frequency as well as the perceived helpfulness of the strategies. For the figure, the five original categories were grouped by collapsing the frequency ratings always and frequently as well as sometimes and rarely. The use of alcohol and illegal drugs was reported for single cases only (Alcohol: rarely: $n = 2$; illegal drugs: rarely: $n = 1$, frequently: $n = 1$) and thus was not included in the figure.

Rehearsing difficult parts of the composition was the most frequently used strategy, considered to be moderately helpful ($M = 1.97$, S.D. = 1.25). In an open
question, participants were invited to describe other behavioral or cognitive strategies that could be described as rituals and were used immediately before performance situations. More than half of the sample (58.1%) answered the question and described a wide variety of different strategies, like “washing hands with warm water,” “eating chocolate,” “cleaning the instrument and talking to it,” or “walking in circles.” Positive thinking was indicated to be used at least “rarely” by 81.2% of the sample. Examples of positive thoughts were “I think of the beauty of the music,” “Concentrate on success,” “Thinking of close friends.” Again, the perceived helpfulness of this strategy was in the medium range ($M = 2.06$, S.D. = 1.41). The highest score for helpfulness ($M = 2.10$, S.D. = 1.70) was achieved by “Praying,” which was employed by 54.9% of the sample. Among the remaining strategies, relaxation instructions were used by only 18.4% of the sample, and only 6.8% applied them frequently or even always, but relaxation was perceived as rather helpful as indicated by a mean score of 1.90 (S.D. = 1.39). Substance-related strategies were uncommon in this sample; only smoking seemed of notable frequency (20.4%). They were rated as less helpful compared to the mental strategies. Among the mental strategies, no single strategy was perceived as more helpful than another ($\chi^2 = 1.34$, $df = 7$, $P = .72$), but for the substance-related strategies a significant difference was found ($\chi^2 = 22.46$, $df = 3$, $P = .000$). When single comparisons were conducted, only the difference between alcohol and calming substances reached the Bonferroni-corrected level of significance ($Z = -3.17$, $n = 58$, $P = .002$).

Long-term strategies were defined as activities used to “cope with performance anxiety in the long run” and included relaxation strategies, practicing strategies, talking to different groups of people and professional counseling or therapy. Relaxation in the long-term context meant continued practice of relaxation
strategies either related to performance situations or apart from them to positively influence the general level of stress. The results describing the frequency for long-term strategies and their perceived usefulness are depicted in Fig. 2.

Among the long-term strategies, talking to teachers, classmates, or friends were used by many participants, but for most of them talks were not a routine part of coping with performance anxiety as indicated by the high proportion of participants reporting talks “never” or “rarely.”

In contrast, practicing techniques seemed to be a more frequent strategy with 40.6% of the sample using it “frequently” or “always.” Only a small proportion of the sample practiced relaxation (14.5%) or was engaged in counseling or therapy (4.3%). The perceived helpfulness of all long-term strategies was in the medium or lower range. Overall, there was a significant difference between all strategies ($\chi^2 = 24.94$, $df = 5$, $P = .000$). Single comparisons revealed that this was due to the significant differences between the use of practicing strategies compared to all other strategies (Relaxation: $n = 54$, $Z = -4.09$; Talking with teachers: $n = 63$, $Z = -5.48$; Talking with classmates: $n = 62$, $Z = -4.07$; Talking with friends: $n = 59$, $Z = -3.27$; Counseling/Therapy: $n = 56$, $Z = -4.48$, all $P$’s < .001). Apart from those, only the comparison between Talking to teachers and Talking to classmates reached the adjusted level of significance ($n = 64$, $Z = -3.14$).

At the end of the coping section, participants were invited to write down further wishes for support in dealing with their performance anxiety. Among the 78% of the participants who took the occasion, only eight pupils (14%) did not call for further help. Of those, some indicated that they had no problem at all with performance anxiety; others felt that they had enough support or could handle the problem alone. The answers of those calling for more assistance (86%) were
classified into two categories: The first category comprised interventions that could be given during the regular instrumental lessons; 30 (52%) of all answers fell into that category. Most frequently named within this category were wishes for more occasions to perform (e.g., in front of friends or family members, \( n = 11 \)) and to talk more often and more openly about the subject of performance anxiety \( (n = 8) \). A last group of comments \( (n = 8) \) called for a more supportive atmosphere during the instrumental lessons with less pressure and more encouragement. In the second category, interventions outside the regular classes were requested (e.g., training courses for relaxation techniques or special performance training, \( n = 13 \)).

4. Discussion

The present study showed that even musicians not yet attending university or an academy of music experience significant levels of performance anxiety. The symptoms of performance anxiety and the associated distress are comparable to samples of music students or professional musicians. About a third of our sample reported a negative impact of their anxiety, and about ten percent felt their musical career to be negatively affected by their performance anxiety. Thus, primary prevention would probably need to start a lot earlier. As in previous studies, the level of performance anxiety rose with a higher degree of individual exposure to the audience and a higher status of the public. In contrast to other studies, no significant gender difference was found. This might either be a consequence of the relatively small sample, or it might be explained by a greater tendency of boys compared to men to openly report about anxiety symptoms. Neither the experience with public performances nor the frequency of actual performances was associated with the level of performance anxiety. This is in line with findings of other studies and it points to the fact that mere exposure to public performance does not automatically lead to a decrease in anxiety.

Many participants developed individual strategies to cope with their anxiety and rarely resorted to unfavorable means, such as drugs or alcohol. But the vast majority of the participants called for more help against their anxiety, and many of them felt that talking about the problem still occurred to rarely. For the setting of the present study, this has important implications: The structure of the training provides a unique opportunity to implement easily courses or other offers to help pupils to cope better with their anxiety. In contrast to university settings, where a special course dealing with performance anxiety will probably not be attended by those not willing to disclose their fears to their fellow students, the scholar setting allows to integrate targeted offers directly into the regular curriculum. The high and disturbing levels of performance anxiety reported by the sample clearly points to the relevance of those offers.

Among the limitations of the study, the issue of the generalizability of our findings arises. As, in Germany, attending a special school is not the regular way
to university education, our findings may apply only to those who attend the other two special schools in Germany. On the other hand, the sample is highly relevant for the issue of preventing and coping with performance anxiety because the vast majority of the participants can be regarded as future music students. A second limitation arises from the limited diagnostic options in the study: In favor of a high response rate we decided to use only questionnaire measures. Consequently, we are not able to report about mental disorders in the sample, and questionnaire measures may more easily be prone to distortions than personal interviews. In addition, the questionnaire measures focused on the subjective experiences of performance anxiety. It would be very interesting to link the subjective experience with other variables, for example, the teachers’ or the audiences’ judgment. But one should be well aware that these measures are not “objective” and also prone to biases like, for example, the personal relationship between pupil and teacher. A major strength is represented in the high response rate of more than 90%. Thus, we could mostly rule out systematic dropouts, for example among those with extremely high or low expressions of performance anxiety.

For future projects we would like to direct the attention to the course of performance anxiety during the musical career—an issue that, to our knowledge, has not yet been explored. As there have been only studies investigating performance anxiety cross-sectionally, we can only guess about the stability of the fears. Is it possible that performance anxiety disappears completely without any intervention? Will the remission be stable, or is previous anxiety a risk factor for more episodes of higher anxiety? Does the level of performance anxiety remain stable over the whole musical career? And most importantly: Which factors promote a decrease of the anxiety and which should be modified to prevent the spiral of increasing anxiety, the experience of more symptoms, possible negative feedback, and even higher degrees of anxiety?

References


