I. INTRODUCTION

Performance anxiety is a debilitating psychological state among artists that occurs before and during a performance. The state might be severe enough to impair or end a professional career. The literature on performance anxiety is rather sparse, although it is a common and debilitating experience for 15-67 percent of musicians. Some authors describe performance anxiety as a type of social anxiety characterized by the fear of negative evaluation of others. Public self-focus and concern over mistakes as manifested on four levels, i.e., physiological, behavioral, cognitive, and emotional level.

Debilitating performance anxiety causes impairment in a single area for example performing on stage in front of an audience. Paradoxically, performance anxiety occurs in a task that the individual is highly committed to. In addition, the individual has high expectations to succeed well and fears being scrutinized by others. Some individuals harbour an imposter syndrome believing they will fail and be found out as incompetent, although they are talented and knowledgeable.

A. Work strains among opera singers

In an explorative interview study with well established opera singers, the aim was to capture the problems that opera singers have to cope with related to their professional career. Interestingly, the opera singers did not bring up the issue of performance anxiety in the interviews. Instead, the most spontaneously mentioned subject was worry about others’ reactions to their achievements. The reactions of significant others were both desired and feared. Many of the singers found themselves being “constantly exposed” to the risk of receiving negative criticism from the audience and significant others. The singers also expressed an ambivalent attitude towards positive evaluations. A male opera singer put into words his dependence of others’ positive validation described both as a psychological problem and a work strain:

“To regard the positive reactions of my achievement as recognition and validation of my ambitions will make me feel secure, but one can become too dependent and demand even more recognition all the time; sexually, artistically or whatever. Everything you do is being judged, that is the whole idea of it: you have really tried to do your best on stage, so afterwards you expect an evaluation. This is what you get used to, you have been taught to react this way.”

In addition to worry about negative evaluation, the opera singers expressed concerns about vocal indisposition. Vocal indisposition is an inability to sing satisfactorily or not at all and was explained by the opera singers to be caused by somatic problems such as colds or allergies. If indisposed, they would not able to perform at a high vocal level and would fail to meet their own and others’ expectations with risk of losing their credibility as professional opera singers. As a consequence, they engaged in various health promoting strategies in order to protect their voice from colds or avoiding pubs or cafés where they would use their talking voice incorrectly due to complex acoustics. Their choice of health promoting strategies was often based on highly individual assumptions regarding the effect of these preventive measures to for example use herbal products, engage in physical training or avoid public transportation where there could be a risk to be contaminated by a cold.

Similar findings on instrumentalists indicate that they also use a wide range of strategies with the aim to decrease the influence of performance anxiety. Musicians might use any coping strategy they believe will reduce the anxiety, even if the strategy will not be efficient enough to do so. Common methods include muscle relaxation, breathing techniques, reading and distraction prior the performance. Singers, like musicians, might carry out rituals on the day of the performance such as...
eating particular food, remaining silent or insisting on a certain
time schedule for various activities (Sandgren, 2002). However,
care of vocal functioning is of major importance, as opera
singers completely depend on the vocal functioning for their
livelihood throughout a very long career. With respect to the
outstanding demands of vocal quality and endurance, it can be
assumed that “professional singers are the Olympic athletes of
the voice world” (p. 229, Sataloff, 1999).

The findings on illness worry and fear of negative
evaluation among opera singers raised questions if opera
singers might experience another form of performance anxiety
compared to musicians. Both musicians and opera singers
worry that they will not succeed in performing well enough,
although they engage in coping strategies for different reasons;
musicians make efforts to decrease the influence of anxiety on
performance, whereas opera singers make efforts to protect
their voice from somatic illness that might impair their
performance. Performance anxiety has been assessed by its
various components (affect, cognition, behavior, physiology)
(Steptoe, 2001) and is significantly associated with social
anxiety and perfectionism (Gorges et al., 2007), personality
dispositions such as state and trait anxiety (Kenny et al., 2004;
Kokotsaki & Davidson, 2003), but thus, research has not
studied indicators of illness worry or bodily preoccupation that
might be of central importance for singers as they use their body
as the instrument on stage.

B. Aspects of health anxiety

Dancers, like singers, use their body as their core instrument.
Both singers and dancers have reported hypochondriasis
(Marchant-Haycox & Wilson, 1992) that is traditionally
defined as a somatoform disorder in DSM-IV (American
Psychological Association, 1994) with the main feature of “a
preoccupation with fears of having, or the idea that one has, a
serious disease based on a misinterpretation of one or more
bodily signs or symptoms”. The heightened focus on their body
among dancers was explained by dance-technical reasons (Gray
& Kunkel, 2001). One reason behind this heightened bodily
preoccupation might be the singers’ and dancers’ daily focus
and training with their core instrument.

Singers give evidence of a heightened sensitivity and
concern for their vocal health (Sapir et al., 1996; Sandgren,
2002) and can report voice problems of no known medical
reason (Phyland et al., 1999). The characteristics of illness
worry might lead the individual to seek medical, rather than
psychological, consultation (Longly et al., 2005). Common
voice problems might be vocal fatigue (Kitch & Oates, 1994)
and upper respiratory problems (Eller et al., 1992). Opera
singers visited a physician on average 4.7 times and other
medical caregivers 4.8 times during the last 12 months
(Sandgren, 2002). One singer visited the physician 40 times and
another singer visited other caregivers 25 times. However, the
opera singers’ worry about somatic impairment should also be
considered from another angle. To be a singer is a high-risk
occupation for voice problems due to a risk for injury because
of the demanding ways they use their voice (Verdolini & Ramig,
2001; Williams, 2003).

More lately, the conceptualization of hypochondriasis is
under debate, and new classifications are suggested under the
name of health anxiety disorder. More attention has been
directed towards the marked and persistent somatic distress and
care-eliciting behavior based on a biopsychosocial model
where the significance of intrapersonal and interpersonal
relations are accounted for (Noyes et al., 2008). In the case of
opera singers, four common criteria for the reconceptualized
frame work of health anxiety might correspond to their bodily
preoccupation: a) their preoccupation and fear of having a
somatic impairment, b) reassurance-seeking behavior by taking
a few tones to check the vocal functioning several times a day or
by visiting caregivers, and c) their preoccupation can cause
impairment in occupational functioning, and d) the distress and
illness behavior are not associated with any psychiatric disorder.
The framework for health anxiety disorder has five features
according to Noyes et al. (2008). The most important feature is
distress and preoccupation with physical symptoms and/or
impairment. Secondly, the individual displays an illness
behavior. Thirdly, the distress and illness behavior interfere
with physical, occupational or interpersonal functioning. Other
features concern the chronic duration of symptoms and that the
symptoms are not related to other psychiatric disorders.

Health anxiety has been associated with interpersonal
aspects in terms of attachment insecurity in clinical
(Asmundson et al., 2001) and non-clinical (Cox et al., 2000)
samples. The anxiety occurs as a reaction due to qualities in
how a person relates to other persons. Individuals with
attachment insecurity tend to be dependent of others’ approval,
i.e. to receive a positive view and display a tendency to seek
reassurance. This kind of preoccupied attachment style is
associated with symptom reporting, use of medical care and
negative affect. Although attachment styles have not been
studied among artists, it is of interest to highlight this aspect, as
the artists strive to perform their best and hope to receive
recognition from others. The performance could be regarded as
an interpersonal process between the singer and the audience.

It should be added that researchers acknowledge the
significance of personality traits for health anxiety. In particular
neuroticism has been associated with health anxiety. Researchers
suggest (Feist, 1998, Sandgren, 2009) that intrapersonal, and not interpersonal aspects of neuroticism are
significant for health anxiety in non-clinical samples. Artists in
general are characterized by elevated levels of neuroticism as
shown in a meta-analysis (Noyes et al., 2003), yet only a few
studies report elevated levels of neuroticism among singers
(Marchant-Haycox & Wilson, 1992), female students in vocal
studies (Kokotsaki & Davidson, 2003), male opera students
(Wearden et al., 2006) and elite operatic choristers (Kenny et
al., 2004). It can therefore be argued that health anxiety cannot
primarily be a manifestation of high neuroticism among opera
singers.

In this article, data from a previous study (Sandgren, 2002)
were investigated, as the concept of health anxiety disorder has
been developed (Noyes et al., 2008). The new concept of health
anxiety appears to be highly relevant for the particular illness
worry, coping strategies and intrapersonal anxieties found
among opera singers. It might be possible that how opera
singers express their preoccupation with their vocal functioning,
i.e. as health anxiety disorder, and worry about the opinions of
significant others is related to performance anxiety. Therefore,
in the present study, associations between performance anxiety
and fore-mentioned variables were investigated. Moreover, the
variable worry about disapproval was selected for a closer
investigation, as it is associated with health anxiety and as its
conceptual resemblance with aspects of performance anxiety,
social anxiety and preoccupied attachment style. The sample was divided in two groups lower and higher level of worry about disapproval, and group differences were explored for psychological and somatic variables.

II. METHOD

The data material in the present study was obtained from a combined qualitative and quantitative study (Sandgren, 2002). The questionnaire was based on the interview data and aimed to investigate particular problems related to the professional life of opera singers. The questionnaire covered demographic data, psychological and somatic problems, health promoting strategies, specific operatic experiences (such as worry about vocal indisposition, worries about opinions of significant others, health concerns, seeking assurance) and performance anxiety. In the current study, quantitative data on performance anxiety, psychological and somatic variables. The questionnaire was based on the interview data and aimed to investigate particular problems related to the professional life of opera singers. The questionnaire covered demographic data, psychological and somatic problems, health promoting strategies, specific operatic experiences (such as worry about vocal indisposition, worries about opinions of significant others, health concerns, seeking assurance) and performance anxiety. In the current study, quantitative data on performance anxiety, psychological and somatic variables.

A. Participants

The sample consisted of 49 professionally well established opera singers (n=26 women, n=23 men) (Table 1). Most singers (44%) were in the age range of 31-40 years. Two thirds of the singers were married and one out of two singers had children. Seven singers did not fill in civil status.

The majority of the women were sopranos (41%) and the majority of the men were tenors (22%). Most singers were professionally active; 27 singers were freelancing and 20 singers were permanently employed at an opera house. Permanent employment is a position that exists at Swedish opera houses and means that an individual is employed until retirement. Seven of 20 individuals with permanent employment indicated that they were also freelancing in Sweden and/or abroad.

B. Procedure and material

The criterion for selecting participants was that the individual had to be a professionally active and well established as an opera singer. The participants were recruited by contacting persons in executive positions in the opera world, and a list of addresses to 79 individuals was compiled. The questionnaire was sent to the home addresses of the participants. No reminder was mailed. As the opera singers were public persons, caution was especially taken to ensure confidentiality and anonymity. The opera singers were not asked to fill in their exact age, but within an age range in the questionnaire. In this way, it would not be possible to identify an individual from data on vocal pitch and age. The measurement was tailored to match the experiences of opera singers. The items measured situations where performance anxiety might be debilitating, physical symptoms, cognitions, negative impact of performance anxiety and methods to cope with performance anxiety. The participants answered to what extent they had experienced performance anxiety on a 5-point Likert scale (0=not at all, 4=very much).

Somatic symptoms were assessed by 22-item checklist including for example voice fatigue, stomach problems, ulcer, and migraine. The participants answered to what extent they had experienced somatic problems on a 5-point Likert scale (0=not at all, 4=very much) during the last 4 weeks.

Psychological symptoms involved 4 items assessing signs of depression; anxiety, tiredness, concentration difficulties, and hopelessness. Another three items addressed acting out symptoms; high consumption of alcohol, food or drugs. Two items addressed doubts about the artistic competence; difficulties to perform as well as one can and doubts about one’s artistic ability. The participants answered to what extent they had experienced the psychological variables on a 5-point Likert scale (0=not at all, 4=very much) during the last 4 weeks.

Table 1. Demographic characteristics of opera singers.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency n</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Women</td>
<td>26</td>
<td>53</td>
</tr>
<tr>
<td>Men</td>
<td>23</td>
<td>47</td>
</tr>
<tr>
<td><strong>Age range</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-25 years</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>26-30 years</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>31-35 years</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>36-40 years</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>41-45 years</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>46-50 years</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>51-55 years</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>56-60 years</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Family status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>32</td>
<td>65</td>
</tr>
<tr>
<td>Partner</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>No partner</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Having children</td>
<td>22</td>
<td>45</td>
</tr>
<tr>
<td><strong>Vocal pitch</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soprano</td>
<td>20</td>
<td>41</td>
</tr>
<tr>
<td>Mezzosoprano</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Mezzo/alto</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Tenor</td>
<td>11</td>
<td>23</td>
</tr>
<tr>
<td>Baritone</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Base</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Base/baritone</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Employment status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent empl.</td>
<td>20</td>
<td>41</td>
</tr>
<tr>
<td>Freelancer</td>
<td>27</td>
<td>55</td>
</tr>
<tr>
<td>Student</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Health promoting strategies were assessed by 17 items including use of herbal products, homeopathic products, vitamins or garlic; avoidance behavior such as not going by bus or subway, visiting smoky premises or premises with high sound level, to drink alcohol, contact with persons with a cold or similar, to take taxi instead of public transportation; to engage in physical training, jogging, yoga, relaxation exercises or mental training, to have a good night’s sleep. The participants answered to what extent they used the various health promoting strategies on a 5-point Likert scale (0=never, 4=always).
Particular operatic experiences were assessed by 27 items including health anxiety (examples ‘The focus for my health concerns is how the voice functions’, ‘To be sick is very tiring for my psychological well-being, ‘I am good at taking care of me when I am sick’); vocal testing behavior (examples ‘When I awake in the morning, I immediately test the voice to feel how the voice is’, ‘I test the voice several times a day to see if the voice is there’), worry about disapproval (‘I worry that people around me will not like my performance’, ‘It does not matter how well I perform, I feel that I cannot live up to the expectations that others have on me’, ‘I am afraid of not being good enough’, ‘Bad reviews goes right into the heart and do not leave my thoughts’), competence based self-esteem (examples ‘If the voice does not function well, my self-esteem plummet’, ‘The profession as an opera singer means that your whole person is being judged’, ‘It is difficult for me to listening to a singer that is better than me’, ‘Even if I get good critics, I seldom feel content’), seeking assurance (examples ‘If nobody says anything about my performance, I believe that my performance was poor’, ‘I constantly seek confirmation’, ‘It is very important that someone comments on my performance afterwards’). The participants indicated to what extent they agreed on the items on a 5-point Likert scale (0=do not agree at all, 4=agree completely).

C. Data analysis

The scales ranged 0-4 for performance anxiety, worry about opinions of others’, worry about vocal indisposition, psychological and somatic symptoms, particular operatic experiences and health promoting strategies were transformed to the range of 1-5 for further analyses. In order to reduce data on performance anxiety and the fore-mentioned variables, a series of factor axis analyses with oblim rotation was conducted. Concerning performance anxiety, the factor analyses failed to create coherent dimensions. The items were instead summarized in five variables; PA Situation (7 items) covering various situation where performance anxiety might occur; PA Physical symptoms (12 items); PA Cognitions (12 items); PA Methods (3 items) covering the use of methods to reduce the negative influence of performance; and PA Negative impact (2 items) covering the extent of negative impact from performance anxiety. The few items concerning psychological symptoms were summarized in 3 variables and labelled ‘Depression’ (4 items), ‘Doubts about one’s ability (2 items), ‘Acting out symptoms’ (4 items). Next, factor axis analyses were performed and the following variables were created.

For items measuring particular operatic experiences, two factors accounted for 35.1% of the variance. The factors were labelled ‘Worry about disapproval’ (11 items) and ‘Worry about vocal indisposition’ (6 items) and selected for further analyses (see under ‘Measurements’ for the specific items included).

For somatic symptoms, two factors accounted for 29.6% and were labelled ‘Voice-related problems’ (6 items, hoarseness, coughing, colds, voice fatigue, noodles, pulmonary infection) and ‘Muscle skeletal problems’ (3 items, muscle tension, neck problems, back pain).

For health promoting strategies, five factors accounted for 63.9% of the variance. The factors were labelled HP Self-control techniques (5 items, mental training, relaxation techniques, yoga, meditation, homeopathic products), HP Avoid public premises (3 items, avoid premises with high sound level and smoke, avoid alcohol), HP Health products (3 items, use of health products, vitamins, do jogging), HP Mixed strategy (3 items, have a good night’s sleep, eat garlic, avoid persons with colds or similar) and HP Avoid public transportations (3 items, prefer taxi over public transportations, avoid going by bus, engage in physical training).

Pearson’s correlations between the variables were calculated. Next, the sample was divided in two groups (lower and higher levels of worry about disapproval). The mean (M=2.83, SD=1.03) of worry about disapproval was used as cut-off score. Univariate analyses (ANOVA) were conducted for differences in the variables between groups (lower (n=25) and higher (n=24) level of worry about disapproval).

III. RESULTS

C. Correlations between performance anxiety and other relevant variables

Table 2 presents Pearson’s correlations between performance anxiety, worry about disapproval, worry about vocal indisposition, psychological and somatic symptoms, and health promoting strategies. Significant positive correlations were found between the various items of performance anxiety (r=.58-.74, p<.01) with the exception for items measuring the use of methods to prevent performance anxiety. Moreover, facets of performance anxiety were significantly correlated with depression (r=.38-.65, p<.01), doubts about one’s ability (r=.43-.67, p<.01), worry about disapproval (r=.51-.80, p<.01), worry about vocal indisposition (r=.32-.51, p<.01), muscle skeletal problems (r=.38, p<.01).

It should be added, that two significant correlations were found between methods for preventing performance anxiety and health promoting strategies, namely self-control techniques (r=.64, p<.01) and avoiding public premises (r=.31, p<.05).

The variable of worry about vocal indisposition (involving indicators of testing the vocal functioning, health anxiety and decreased psychological well-being when sick) were significantly associated with a number of psychological variables; depression (r=.36, p<.01), acting out symptoms (r=.48, p<.01) and worry about disapproval (r=.49, p<.01). Significant correlations between worry about vocal indisposition and health promoting strategies were not found.

In addition, opera singers’ worry about vocal indisposition (involving indicators for testing the vocal functioning, health anxiety and decreased psychological well-being when sick) was significantly associated with a range of psychological variables; depression (r=.36, p<.01), acting out symptoms (r=.48, p<.01), doubts about one’s ability (r=.46, p<.01) and worry about disapproval (r=.49, p>.01). Significant correlations between worry about vocal indisposition and health promoting strategies were not found.

Table 2. Means (sd), F-values for performance anxiety and other relevant variables in groups of lower (n=) and higher (n=) level of worry for disapproval.
The main findings of the present study is that performance anxiety among opera singers is related to anxieties such as fear of vocal indisposition (i.e. illness worry), worry about disapproval and doubts about one’s abilities.

In the present study, of methodological concern is the use of exploratory factor analysis on a small sample size. Moreover, due to previous problems with understanding and conceptualizing the opera singers’ vocal preoccupation in the study by Sandgren (2002), new findings regarding health anxiety disorder were published (Noyes et al., 2008) and inspired to re-investigate the data material.

Table 3. Means (sd), F-values for performance anxiety and other relevant variables in groups of lower (n=) and higher (n=) level of worry for disapproval.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Lower level of worry m (sd)</th>
<th>Higher level of worry m (sd)</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance anxiety</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Situation</td>
<td>1.82 (.54)</td>
<td>2.47 (.44)</td>
<td>20.528#</td>
</tr>
<tr>
<td>Physical symptoms</td>
<td>1.53 (.35)</td>
<td>2.05 (.41)</td>
<td>21.199#</td>
</tr>
<tr>
<td>Cognitions</td>
<td>1.77 (.50)</td>
<td>2.80 (.47)</td>
<td>48.185#</td>
</tr>
<tr>
<td>Methods</td>
<td>1.53 (.51)</td>
<td>1.49 (.57)</td>
<td>.095</td>
</tr>
<tr>
<td>Negative Impact</td>
<td>1.50 (.60)</td>
<td>2.29 (.67)</td>
<td>17.739#</td>
</tr>
<tr>
<td><strong>Psych. symptoms</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worry about disapproval</td>
<td>1.72 (.78)</td>
<td>3.08(1.24)</td>
<td>21.448#</td>
</tr>
<tr>
<td>Worry about indisposition</td>
<td>2.59 (.92)</td>
<td>3.47 (.82)</td>
<td>12.521#</td>
</tr>
<tr>
<td>Depressive symptoms</td>
<td>1.65 (.54)</td>
<td>2.77 (.86)</td>
<td>29.667#</td>
</tr>
<tr>
<td>Acting out</td>
<td>1.34 (.43)</td>
<td>1.56 (.29)</td>
<td>4.057*</td>
</tr>
<tr>
<td><strong>Somatic problems</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voice problems</td>
<td>1.67 (.63)</td>
<td>1.73 (.77)</td>
<td>.081</td>
</tr>
<tr>
<td>Musculoskeletal prob.</td>
<td>2.10(1.01)</td>
<td>2.30(1.05)</td>
<td>.462</td>
</tr>
<tr>
<td><strong>Health promoting strategies</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-control techn.</td>
<td>2.07(1.07)</td>
<td>1.72 (.73)</td>
<td>1.458</td>
</tr>
<tr>
<td>Avoid public prem.</td>
<td>3.49(1.01)</td>
<td>3.22 (.90)</td>
<td>.930</td>
</tr>
<tr>
<td>Health products</td>
<td>2.63 (.99)</td>
<td>2.65 (.87)</td>
<td>.009</td>
</tr>
<tr>
<td>Mixed strategy</td>
<td>3.33 (.85)</td>
<td>3.25 (.87)</td>
<td>.098</td>
</tr>
<tr>
<td>Avoid public transp.</td>
<td>1.97 (.71)</td>
<td>1.52 (.55)</td>
<td>6.039*</td>
</tr>
</tbody>
</table>

*) p<.05, #) p<.001

Even if the results show that the level of performance anxiety was moderate, most singers were engaged in methods to reduce its negative influence, yet with no effect. Similar associations between coping strategies and their poor effects among instrumental musicians have previously been reported (Langendorfer et al., 2006; Steptoe, 2001).

In a study about elite operatic choristers (Kenny et al., 2004), occupational stress made a separate contribution to the quality of working life. Just as the opera singers worried about others’ opinions about their performance and threats to vocal functioning, the opera choristers were also very concerned with role ambiguity, for example how they were evaluated. The choristers were sensitive to the physical working environment, for example the level of dust, noise and inappropriate heat and cold. It seems as if having the voice as core instrument and means of displaying artistic skills has psychological effects in
terms of increased anxiety regarding possible threats to exhibiting the same skills.

Results indicated that opera singers with higher levels of worry for disapproval reported higher levels of performance anxiety and other psychological variables compared to opera singers with lower levels of worry for disapproval. This means that the higher level of worry about intrapersonal aspects the individual had, the more worried he or she was about vocal indisposition and suffered from depressive and acting out symptoms. No differences between the two groups of opera singers were found for the use of health promoting strategies with the exception of avoiding using public transport.

The opera singers reported relatively low levels of voice impairment. The result on low self-reported level of voice problems refutes previous studies showing high prevalence of voice problems among professional singers (Verdolini & Ramig, 2001; Williams, 2003). In addition, voice problems were moderately associated with worry about vocal indisposition and with only one facet, the negative impact of performance anxiety. These unexpected results might be due to the use of different measurements and needs to be further investigated.

The sample of the current study was unique. It was possible to come in contact with a large part of the professionally active and well established opera singers. Most singers were working in Sweden and abroad. Altogether 33 percent of the population of opera singers in Sweden was estimated to have answered the questionnaire. As the opera singers were public persons, precautions were particularly taken to ensure anonymity and confidentiality with the result that the response rate was high.

Three limitations should be pointed out. The measurements used were specially constructed for the current study. Obviously, the present study needs to be replicated with validated measurements of performance anxiety and health anxiety. Secondly, the sample consisted of a highly selected group. The opera singers were working on a very high artistic level and a majority of them were professionally established both in Sweden and abroad. It is possible that these very well-established opera singers might have certain characteristics that distinguished them from opera singers working on national level only. Thirdly, the study used a correlational design that tells us very little about the processes working on national level only. Thirdly, the study used a correlational design that tells us very little about the processes working on national level only. The results of this study serve to extend previous research on the nature of performance anxiety for opera singers. The associations between performance anxiety and psychological variables such illness worry, doubts about one’s abilities and worry about disapproval point out that opera singers suffer from a certain health anxiety related to their professional activity. This characteristic of heightened health concerns among opera singers is suggested to be an expression of work strains due to the dependence of maintaining and demonstrating a very high level of singing ability in front of an audience during a long career.

The results of the current study suggest that the reactions and symptoms of performance anxiety might be extended in time and cause impairment in the daily life of opera singers. This was revealed in that opera singers appear to constantly worry about vocal indisposition and also to take measures to prevent somatic impairment. Their emotional, cognitive, behavioral and physiological states appeared to be reactions on the coming moment when they are expected to and also wish to excel in their artistic skills on stage in front of an audience. It appears as if the characteristic of having the voice as a core instrument makes the opera singers particularly vulnerable for the exposure to others’ evaluation of their performance and may result in illness worry. Future studies are encouraged to examine the opera-specific facets of performance anxiety.

REFERENCES


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