THE SIGNIFICANCE OF SOLO SINGING ON THE WELLBEING OF FINNISH SINGING MAJORS

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Tiivistelmä – Abstract

Singing plays an important role in a vocal musician's wellbeing. Literature on singing training focuses more on the prevalence of performance anxiety and voice science. On the other hand, therapy case studies often do not include assessments specific to the voice and singing. Focusing on MPA of singers may overlook aspects of singing that are as pertinent in therapy. The present study aimed to explore the feelings and attitudes of Finnish singing majors towards solo singing, which may need to be addressed in therapy. Four validated Likert questionnaires relating to perceptions of singing from the fields of psychology and voice medicine were compiled to assess vocal musicians' perspectives more thoroughly. Invitations were sent to the 8 Polytechnic universities in Finland offering the degree Musiikkipedagogi AMK. Thirty students responded to the survey. Comparison of means and correlations were performed and discussed. Intrinsic and identified motivations correlated with the perceived psychological benefits from singing and vocal image. Perceived vocal fatigue correlated with vocal image. Further investigations may elucidate the positive and negative aspects of solo singing in the Finnish culture. Standardized questionnaires specific to singing revealed the involvement of vocal function and vocal image in a trained singer's wellbeing state. Further studies are warranted to formulate an extensive questionnaire suitable for solo singers undergoing therapy.

Asiasanat – Keywords

Musician wellbeing, Singer, Finnish students, Music Psychology, Psychotherapy, Questionnaire, Standardized instruments

Säilytyspaikka – Depository	
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CONTENTS

1 INTRODUCTION

Wellbeing is broadly defined as the positive state of a person's body and mind. However, achieving and maintaining psychological wellbeing is more complicated than it seems. Wellbeing is influenced by numerous variables. Physiologic, safety, belongingness, and self-esteem needs all determine a person's state of wellbeing. Unmet needs can compromise one's sense of wellbeing, therefore, optimal functioning. A prolonged negative state of wellbeing is considered undesirable and is ideally arrested by immediate psychological aid.

Wellbeing is a serious concern among performers, including musicians. Performers go through a great deal of pressure in their profession. In New York, for example, a center was built to cater specifically to musicians in distress. Sessions for musicians' wellbeing range from physical rehabilitation to psychological therapies. Majority of published studies on musicians' psychological state deal with music performance anxiety (MPA). Consequently, case studies on musicians' psychological therapies often focus on anxiety, usually linked to childhood issues due to psychotherapy's roots in psychanalysis.

Vocal musicians' concerns are allegedly quite distinct from other musicians. Professional musicians own musical instruments whose sound quality remains consistent. Vocalists on the other hand use their voices to make music. Their sound and music depend on the condition of two membranes in their voice box and the muscles supporting them. Moreover, criticisms to the sound quality, particularly of the solo singer, heads straight to the producer of the sound rather than any musical instrument. As a result, vocal image becomes an essential aspect of a trained solo singer's identity. This warrants exploration in psychological therapy as well, particularly in tailoring one on one therapy to the vocal musician's needs.

This paper begins with a literature review on the reciprocal relationship between the voice and the psyche, specifically to solo singers. This is followed by the description of the aims of the study, based on the gaps in the literature. Then, the chosen method of investigation is explained. Results of statistical analyses are reported and discussed. Finally, conclusions and recommendations are made.

2 RELATED LITERATURE

2.1 The psyche and the voice

2.1.1 Unobstructed singing

Respiration is an important process to supply the body with an important element for organs to function. In speaking and singing, normal respiration is deliberately controlled (Tortora & Derrickson, 2009). Respiration during vocalization not only supplies the lungs with air, but also regulates airflow sent through a partially closed glottis to produce a continuous sound. Instead of immediate exhalation once adequate inspiratory volume and lung pressure are achieved, exhalation is prolonged or delayed to regulate vocal pitch and volume. To accomplish this, muscles used in inhalation are maintained contracted even after inhalation (Kayes, 2014). For more difficult vocal tasks, the effort to alter respiratory reflexes is even greater.

Phonation occurs when air passes through the adducted vocal folds. The degree of adduction plays a role in the power of the voice produced, due to subglottic pressure from the air within the respiratory tract the closed glottis withstands. The volume increases as the air pressure under the vocal folds increases (Tortora & Derrickson, 2009). However, increasing pressure both raises pitch and increases volume of the voice, and the result depends on the laryngeal adjustments that accompany the change in subglottic pressure (Welch & Sundberg, 2002). Pitch is adjusted through the small muscles controlling the membranes of the glottis. This shorteners are called thyroarytenoids, commonly used in speech, and the stretchers are called cricothyroids (Dayme, 2009; Kayes, 2004; Welch & Sundberg, 2002).

Once the intention to sing is made, the brain sends signals to the speech muscles in preparation for the activity (Wykes in Dayme, 2009). With adequate air supply, the singer closes the glottis, sends air through the closed glottis, configure the articulators, and emit the sound mainly by muscle proprioception, supported by the corresponding subglottic pressure (Welch & Sundberg, 2002).

2.1.2 Tense singing

The larynx works to control the inhalation and exhalation of air; to prevent entry of particles into the lungs; to enable air pressure buildup for heavy lifting, defecating, and vomiting; and to produce vocal sounds (Raphael, Borden, & Harris, 2011). These largely occur involuntarily, but, as the case in speech, they can also involve conscious control. Nevertheless, involuntary functions override conscious control of the respiratory system. For instance, when primal sounds occur while speaking or singing, the steady vocal stream will be interrupted. Primal sounds refer to vocal sounds that are produced reflexively along with certain emotions or activities. These include grunting, sobbing, moaning, sighing, yawning, squealing, humming, cooing, giggling, and yelling (I. R. Titze & Verdolini Abbott, 2012). Similarly, the vocal quality can be affected by intense emotions like sadness and anxiety.

Physical and emotional stress trigger a sympathetic response in the body (Tortora & Derrickson, 2009). Anxiety, tremors, weakness, and sweating may come with this fight or flight response. "Anticipation of activity or emotional anxiety may stimulate the limbic system, which then sends excitatory input to the DRG (dorsal regulatory group), increasing the rate and depth of breathing," (ibid.). Singing teachers have described how anxiety impedes singing and even vocal training (E. W. Jones, 1989; Reid, 1975). The voice was also found to have increased tremors in states of psychological stress (Brenner, Shipp, Doherty, & Morrissey, 1985; Giddens, Barron, Byrd-Craven, Clark, & Winter, 2013), impairing optimal vocal performance desired by professionals (Merritt, Richards, & Davis, 2001). However, this is type of vocal inhibition is temporary, and usually disappears 'in the bathroom,' where singing is relaxed. On the other hand, studies have described more permanent vocal problems caused by continuous psychological stress. Although the mechanism is not quite clear, chronic stress has been linked to conditions such as migraine headaches, depression, and anxiety (Tortora & Derrickson, 2009). Psychiatric conditions may in turn cause alterations in one's usual vocal quality (Butcher, Elias, Raven, Yeatman, & Littlejohns, 1987; Storm, 2016). Sometimes, psychological problems can even lead to psychogenic vocal disorders (Rubin & Greenberg, 2002; Spahn & Voltmer, 2011), or vocal problems that have no physiologic cause. "Chronic muscular contraction within the respiratory tract brought by anxiety arrests free movement, and

this condition seriously impairs the muscular adjustments [in voice training]," (Reid, 1975). Continuing to sing with tensions from stress may even lead to injury (Smith & Sataloff, 2006).

2.1.3 Singing and mental health

Singing can have positive and negative effects to the psyche. Group singing not only improves breathing patterns, but also fosters social bonding among participants (S. M. Clift & Hancox, 2001; Kreutz, 2014). On the other hand, voicework is said to change psychological patterns associated, as specific vocal qualities suppressed in a person are freed (Newham, 1998).

Public singing can also have a negative impact on people. "Speakers can freeze as they move towards singing, losing all flexibility in their voices and not knowing how their singing voices will come out,"(Rodenburg in Gates, 1998). Studies have shown that trauma derived from singing in childhood lasts until adulthood (Abril, 2007; Knight, 2010; Oddy, 2001). In fact, when voice use is associated to a negative memory, such as silencing and censorship, vocal patterns may be inhibited indefinitely (Linklater, 2006; Newham, 1998; Rodenburg, 2005).

> "When we say that a person becomes frightened at the prospect of self-expression through singing or speaking, we are saying that past experiences with people, places, things, andor events related to singing and speaking 'taught' that person a well documented physiochemical reaction that has been given several word labels such as threat, fear, stage fright, performance anxiety," (Thurman & Welch, 2000).

Singing is a complicated task activating multiple sensory and motor sites in the brain (Kleber, Birbaumer, Veit, Trevorrow, & Lotze, 2007; Kleber, Zeitouni, Friberg, & Zatorre, 2013). When certain memories are charged with intense emotions, especially negative ones, the emotions greatly affect the memory operations. Intense feelings may not only impair memory functions but also diminish one's focus. Studies suggest that a person's anxiety state influences how their amygdala allocates attention (Ousdal, Andreassen, Server, & Jensen, 2014). Attention is essential for optimal performance, to concentrate on just one set of stimuli and inhibit the unrelated stimuli. When an activity is associated to a negative emotion during storage, negative emotions can also be triggered as information is retrieved. Therefore, as object recognition instantly triggers emotion centres in the brain, information processing is altered by the excess or stress hormones. If, for example, a task such as singing is associated to a stressful memory,

the stress may be re-experienced as the skill is performed. This stress may impair memory operations and concentration (A. Jones, 2014) and also trigger the bodily responses that accompany the emotions and the memory, thus, compromising muscular control. The presence of trauma may remain unnoticed and dormant, only to be revived when the amygdala is activated enough for implicit memories to resurface (Renn, 2012).

It is believed that music enhances wellbeing except for professional musicians (Ascenso, Williamon, & Perkins, 2016), hence, many studies highlight the benefits of recreational music and point out threats to wellbeing among professional musicians. Despite the increasing reports of anxiety among singers (D. T. Kenny, Davis, & Oates, 2004; Spahn, Echternach, Zander, Voltmer, & Richter, 2010), there are very few studies on singing and coping (Gick, 2010). In general, musicians coping strategies amidst the pressures of the music business is fairly unclear (Pecen, Collins, & MacNamara, 2018). The following sections seek to elaborate on the positive and negative aspects of singing to trained singers.

2.2 Psychological benefits of singing

Questionnaires for singers tend to deal with vocal dysfunction and music performance anxiety. Research involving trained singers' mental health investigates MPA (Kokotsaki & Davidson, 2003; Larrouy-Maestri & Morsomme, 2014) and health fears (Kwak, Stasney, Hathway, Minard, & Ongkasuwan, 2014; Sandgren, 2009), restricted to the hazards of the profession (Ascenso et al., 2016). Enjoyment of singing practices among professional singers is diminished by technical goals (Grape, Sandgren, Hansson, Ericson, & Theorell, 2003). Due to the sociocultural nature of singing (Merriam, 1964; Welch & Sundberg, 2002), reactions from those who witness the performance may be inevitable.

Individual singing has been reported to be beneficial when done in a safe environment (Casals, Vilar, & Ayats, 2011; Newham, 1998). Singing and rapping were found useful in music therapy for emotional regulation among teens (Uhlig, Dimitriadis, Hakvoort, & Scherder, 2017). Furthermore, voicework has been reported to cause liberation of one's true self as an individual

goes beyond conditioned vocal behaviors (Johnson, 2009; Linklater, 2006; Newham, 1998). Individual singing is utilized in Jungian-oriented vocal music therapy as an effective means of catharsis (Austin, 2008; Newham, 1998). Furthermore, singing is highly encouraged in one on one music therapy as a form of expression, regardless of skill level.

Therapeutic benefits from singing investigated in earlier research, however, occur mostly in a group context (e.g. Clark & Harding, 2012; S. Clift, 2012; S. M. Clift & Hancox, 2001; Eells, 2014; Kingley & Vella-Burrows, 2010; Mellor, 2013), where groups support each other's growth. Group singing could owe the therapeutic benefits to the social bonding fostered by collective music-making (Kreutz, 2014), or the recreational nature of no-audition choirs (Stewart & Lonsdale, 2016), more than to singing itself. Singing outside therapy on the other hand can have varied impacts.

The effect of singing to singers in research have focused on music performance anxiety and stress, but positive psychology reveals the benefits of music making to musicians (Ascenso et al., 2016). "Singers appear to experience health benefits from singing,… feelings of well being and relative lack of concern with artistic identity…may not only maintain their enjoyment of singing, but may also improve their immunocompetence in response to health risks." (Beck, Gottried, Hall, Cisler, & Bozeman, 2006). In the end, the result seems to depend on one's purpose for singing.

> "Those who enjoy singing use it to meet diverse idiosyncratic needs, including emotional, social, existential, and spiritual needs. On the other hand, some participants are uncomfortable about singing in front of other people, or do not enjoy singing at all. Either they are very conscious of other people's judgments or have negative perceptions of their own voice." (Chong, 2010).

Chin and Rickard (2013) agree that the effect of musical tasks being positive or negative depends the emotional regulation strategy intended.

2.3 Professional solo singers' wellbeing

The music business is an inherently stressful field (D. T. Kenny & Ackermann, 2009). Singing has always been judged by its beauty in relation to the era's standards (Callaghan, Emmons, &

Popeil, 2012; E. W. Jones, 1989; Potter, 1998; Sadolin, 2012). Professional singers stand in front of big crowds, so they also face the scrutiny of large numbers of people. A display of advanced singing skills would definitely earn admiration and praises (E. W. Jones, 1989), but errors in singing may also be heavily criticized. Excellent singing skills appear inadequate to guarantee pleasant experiences. As early as their formative years in the conservatoire, singers confront harsh criticisms from examination panels, despite above average skills in singing required upon entry (Davidson & Da Costa Coimbra, 2001). "Transition into conservatoire was marked by severe psychological challenges, disorders and trauma," (Pecen et al., 2018), possibly related to enforcement of skill efficiency excessively that hurts beginning musicians deeply (Lehtonen, 2000). Hence, as vocal training begins, "… what had been a spontaneous and happy form of self-expression is subject to excruciating forms of critical disapproval," (E. W. Jones, 1989).

Singers focus on technique more than any other musician (Burwell, 2006). "Because the singers are soloists, they carry much responsibility of the performance outcome …The individual might experience embarrassment and shame for incompetence and guilt for causing a poor performance." (Sandgren, 2005). Since demands to singers have become more unreasonable than ever (Melton, 2007; Salaman, 1989), solo singers are under more of pressure when performing. Overly criticizing their own performances may later lead to health consequences (Maxfield, 2015). Some develop generalized anxiety after years in the profession (Bellon, 2006; Sandgren, 2009). Amateurs may find the level of anxiety unfounded. because they are not exposed to the career threats, loss of jobs, cancellation of commitments exclusive to professional singers (Loiola-Barreiro & Silva, 2016).

Musicians' wellbeing has been explored in psychology (Ascenso et al., 2016; D. Kenny, Driscoll, & Ackermann, 2014), music education (Kokotsaki & Davidson, 2003; Kimmo Lehtonen & Shaughnessy, 2008), and even music therapy publications (Bruscia, 2012; Scheiby, 2005). "Since music is often a musician's means of livelihood, and is strongly associated with feelings of self-worth and/or self-hate, it can often be a source of problems for a musician," (Loewy & Quentzel, 2011). Although psychotherapy and counseling are

recommended for individuals having difficulty sorting out the challenges of the profession, help sought by musicians remains restricted to physical concerns (Pecen et al., 2018).

Singers are encouraged to seek psychosocial support when needed (Spahn et al., 2010) especially for MPA that gets in the way of earning a living, or worse, feeling well. For the processing to be thorough, the voice may need to be part of the discussion. The voice adds an extra dimension to a vocal musician's mental health. Singers are the only musicians without a tangible musical instrument. Singers tend to be more sensitive to changes in their voices (Rosen & Murry, 2000). Slight changes in the voice make singers nervous. They worry about the negative reviews that may come with errors in a performance (Sârbescu & Dorgo, 2014).

The singer's voice becomes a part of the self-image (Newham, 2000; Reid, 1975), yet attitudes towards one's voice is rarely assessed (Nusseck, Richter, Echternach, & Spahn, 2014). In addition, studies on the mental health impact of solo singing to singers are sparse (e.g. Borland, 2011; Grape, Sandgren, Hansson, Ericson, & Theorell, 2003; Sandgren, 2002, 2005). Mental health is rarely given attention in singing training, despite its crucial involvement (LeBorgne, 2014). "…it is suggested that singers be thoroughly characterized in future studies so that they can understand the relation of their vocal use in a professional context and the various generating and/or influencing aspects of these difficulties," (Loiola-Barreiro & Silva, 2016).

3 AIMS

3.1 Research aims

Literature on vocal musicians' wellbeing focus on MPA in the professional setting in English speaking countries, with very little on singers' perceptions of their singing. This study aimed to explore feelings and attitudes of Finnish university vocal majors towards singing that can be processed in therapy. This study utilized validated questionnaires to elicit the perceived psychological benefits from and motivations for singing solo. Perceptions and attitudes towards solo singing were also investigated for a comprehensive review of the vocalist's background information.

3.2 Research questions

- How does solo singing affect Finnish university singing majors' wellbeing?
- What are Finnish singing majors' attitudes towards solo singing?
- What aspects of singing should be addressed in music and psychological therapies for trained solo singers?

4 METHODOLOGY

Research involving trained singers' wellbeing tends to employ quantitative methods and essentially focuses on MPA (Kokotsaki & Davidson, 2003; Larrouy-Maestri & Morsomme, 2014) and health fears (Kwak et al., 2014; Sandgren, 2009). Musicians are generally excluded in studies on wellbeing benefits of music (Ascenso et al., 2016). To understand singers, aspects of singers and singing must be explored more objectively. To fill the gap in literature, more neutral or positive questionnaires were included in this study.

Previous studies on music therapy with singers adopted a case study design (Bosco, 2011; Scheiby, 2005). The clients sought therapy mainly for their singing but ended up working on their childhood issues in sessions. No assessments specific to singing and singers were noted in the case studies. Assessments were less systematic and more free-associative like traditional psychoanalytic assessments. While issues may be rooted in childhood issues, it will also be useful to be aware of the singers' patterns through guided self-reports.

This masters' study attempts to explore the significance of singing to trained solo singers at the university level, using standardized assessment tools. It may inform therapy practitioners of other vocal concerns plaguing solo singers that also need attention in therapy. An inquiry into singing majors' wellbeing perspectives involving singing could also contribute to the literature on music students (Burt & Mills, 2006) that can be adopted in the practice of education and therapy.

4.1 Research design

The study adopted a cross-sectional survey design to answer the research questions. Cross-sectional surveys efficiently take a snapshot of people's attitudes at one point in time (Ruel, Wagner, & Gillespie, 2016). Although causality cannot be established with this design, it is good for describing the trends in the sample's responses. When factors relating to the research

question have already been analyzed in earlier qualitative studies or when standardized tools already exist, survey designs are an excellent choice (Creswell, 2012).

Studies on the psychology of singing also utilize survey designs to compare singers' and nonsingers' gains from singing (i.e. Grape et al., 2003; Stewart & Lonsdale, 2016), and these served as the inspiration for this masters' research. Hence, questionnaires from voice rehabilitation and mental health were borrowed, to conduct a multidisciplinary assessment of the impact of singing on singers' mental health.

Distribution of questionnaires depends on the intentions of the study. Modern technology allows surveys to collect more "information far more accurately than a traditional pen-and-paper mail survey, or even a telephone survey, would feasibly allow," (Ruel et al., 2016). Since data storage is automatic, encoding is no longer necessary, making online surveys less expensive, more flexible, and more efficient than traditional survey methods (ibid.). In the current age, online surveys seem to be the best option for the internet savvy (Creswell, 2012; Ruel et al., 2016). Universities in Finland provide internet access inside campuses and almost all students have smartphones. However, web-surveys come with limitations. Since links to survey webpages are easily accessible, verification of subjects is difficult in web-surveys (Ruel et al., 2016). Thus, for this study, invitations were sent to university email addresses through college program coordinators. This option adheres to ethical standards of confidentiality, while ensuring that links are only available to enrolled students. Moreover, the survey only requires a codename on top of their age, educational institution, degree program, and year level, so anonymity of respondents is guaranteed after honestly listing previous medical and psychiatric diagnoses. Instead of requesting email addresses for clarification and minimizing duplication, programming of the online survey was simply done more meticulously.

4.2 Instruments

"A questionnaire is a tool to collect information from respondents" (Ruel et al., 2016). Designing questionnaires involves a complicated process of question phrasing, option

selection, and factor analysis (Creswell, 2012). To save on time and resources, utilizing standardized and validated survey tools for data collection can be opted.

4.2.1 Validated questionnaires

Databases were searched, and four recently validated instruments seemed to relate well with the goal of the study. For the present study, questionnaires designed and validated by Phyland et al. (2013), Nusseck et al. (2014), and Stewart and Lonsdale (2016) will be replicated to determine the psychological risks and benefits that solo singers encounter when singing, along with the perceptions that contribute to them. Since publications on the benefits of singing involving singers are sparse and psychological studies on singers focus on performance anxiety, this study could objectively gather preliminary information on the psychological aspects of solo singing relevant to singers. Performance anxiety was not assessed in this study to explore other factors fueling the more observable anxiety.

Vocal function perception (VF)

Phyland and others (2013) intended to construct an instrument sensitive enough to assess singers' vocal function concerns. Items were derived from focus group discussions and qualitative surveys with professional music theater singers. The initial 95 items were reduced to 42 after a review; then the questionnaire's validity and reliability were evaluated. Exploratory factor analysis identified two main clusters for the final 20 questions: vocal fatigue and edema (mucosal changes). The tool is supposed provide supporting information to help singers determine their performance fitness, thus, confidence.

Vocal concept (VC)

Nusseck and others (2014) argued that questionnaires relating to the voice focus on function and fail to take into account the psychological aspects affecting the voice. The article validated the German questionnaire consisting of 17 questions sorted into 3 headings namely, relationship to one's own voice, awareness in dealing with one's own voice, and voice and emotions. Item, factor, and test-retest analyses were performed along with correlation. As previously mentioned, perceptions of singers are rarely examined, yet perceptions unique to

vocalists may mediate the psychological benefits experienced when singing. The translation and backtranslation of this tool to English is explained in the next subsection.

Wellbeing

Stewart and Lonsdale (2016) modifield several well-being questionnaires to evaluate benefits derived from recreational activities, including solo singing. Among them, tools on Self-regulation (Ryan & Connell, 1989) (SR) and benefits of singing (S. M. Clift & Hancox, 2001) were adopted to suit solo singing. The questionnaires will be administered to identify singing majors' rationale for singing. The positively biased instrument on the benefits of singing (ibid) could balance the negatively biased responses expected from solo singers.

4.2.2 English translation of the German instrument

One questionnaire was only available in German, so translation to English was necessary to make use of the instrument. The correspondent of the original article was informed of the plan before help was sought. A native German speaking postdoctoral researcher translated the 20 lines of the questionnaire to English. It was then sent to another native German speaker for backtranslation. The backtranslation was compared to the original, and changes to the English version were made.

4.2.3 Survey programming

Permissions for the reuse of instruments were secured from Richard Ryan, Stephen Clift, Manfred Nusseck, Debra Phyland, and Nick Stewart before data collection. The survey was designed and encoded in SoSci Survey. "Skillful survey programming can reduce survey fatigue and increase accuracy of data collection," (Ruel et al., 2016). The interface was first explored, then encoding of questions was initiated (Figure 1). The programming restricted skipping questions to minimize invalid questionnaires by omission. The survey begins with background information about the respondent. Codename, birth year, sex, educational institution, degree program, year level, as well as emotional responses to specific genre of music were included.

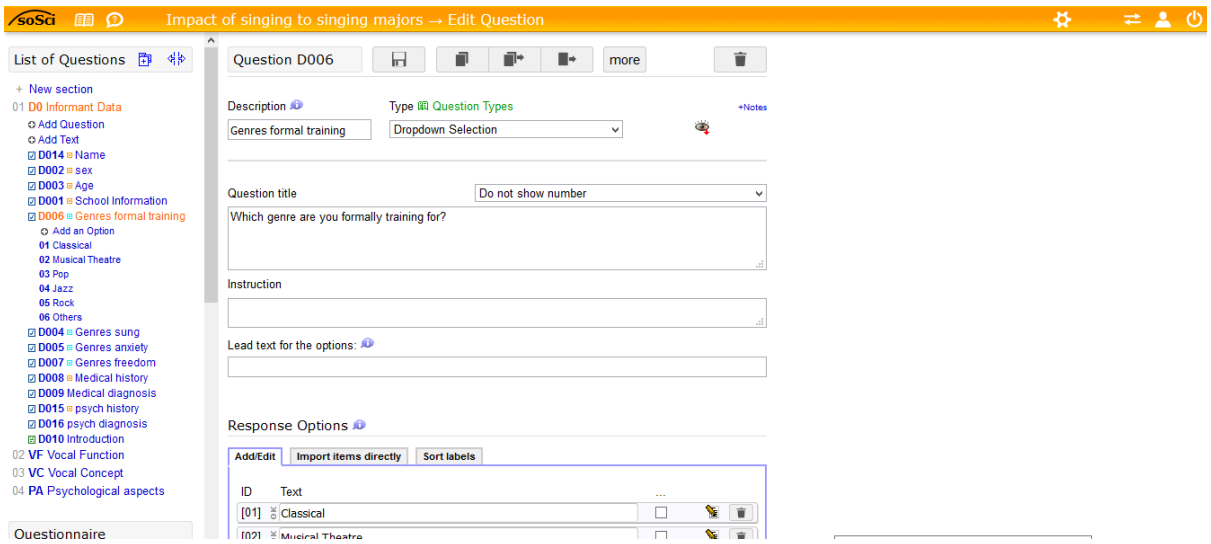


FIGURE 1. Question encoding in SoSci Survey (https://www.soscisurvey.de).

Once all the questions were stored, the layout of the four questionnaires was planned (Figure 2). The vocal function questionnaire follows to explore the respondents' perceived vocal ability. Then, the nonphysiologic perceptions about the respondents' voice are assessed through the vocal concept questionnaire. Lastly, the psychological aspects of singing are evaluated in terms of motivation and perceived benefits of singing.

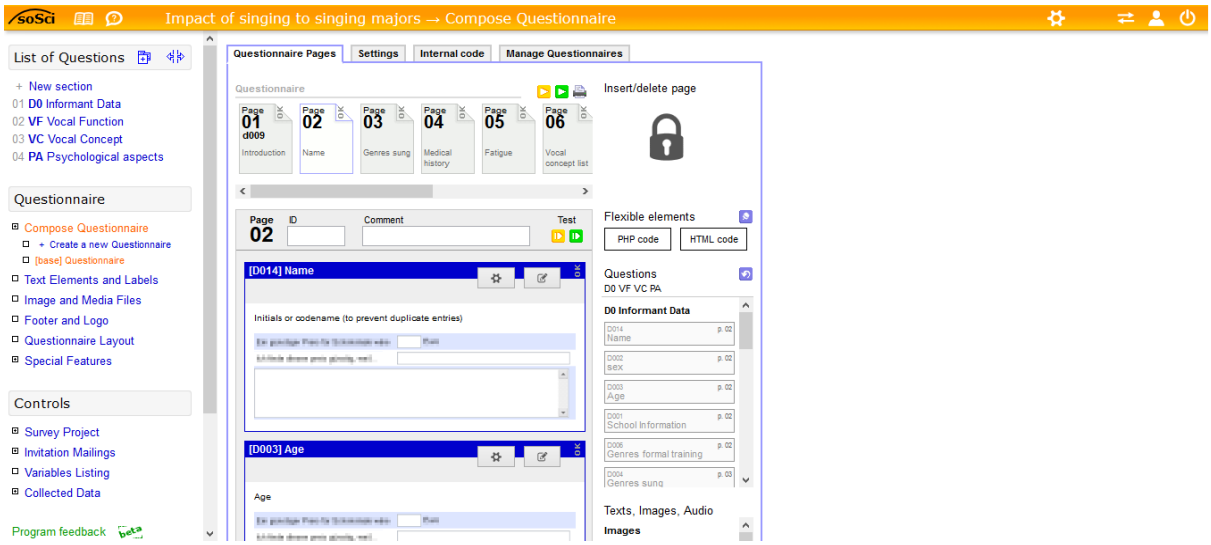


FIGURE 2. Questionnaire layout, SoSci Survey (https://www.soscisurvey.de).

4.3 Participants

Finland is well known for its excellent education system (Sahlberg, 2012). Since studies on MPA found were from the USA and Germany, an investigation in Finland may prove to be fruitful. Finnish students are entitled to free education up to the masters' level, regardless of specialization. Personal visits to primary schools and conservatories in Tampere and Jyväskylä revealed that students who pass the music examinations can attend additional music classes starting at fourth grade and students can avail of one on one tuition for approximately 700 euros per year. University students who pass the auditions for degree programs in music receive one on one weekly music lessons from music professors for free on top of their free university tuition.

Full funding and early training can definitely lead to a different outlook in comparison to college musicians who pay 100-250 USD weekly for one hour singing lessons, with no guarantees of a chance to return to school for another degree, which Finnish students also have. No study exploring Finnish singers' wellbeing or mental health was found during the literature search, although articles in Finnish may have been missed. The experience of Finnish singing students with these privileges may deviate from the American students in previous studies. Inquiring from Finnish undergraduate singers may shed more light on their positive and negative singing experiences.

4.4 Data collection

4.4.1 Pretest

The completed survey was first administered to three Bachelor of Music graduates majoring voice for structural, content, and semantic issues. Since pretesters ideally match the background of the intended sample without decreasing the potential respondents from the sample (Ferketich, Phillips, and Verran in Ruel et al., 2016), recent graduates from programs outside Finland were selected.

No bugs were reported, but some questions were deemed vague. One tester felt that Motivation question number 16—because I think singing solo is a useful way to keep well—was not easy to understand. This item was revised by Stewart and Lonsdale (2016) from its original "because feeling healthier is an important value for me," so it was kept as it was. Another tester noted that the extra demographic questions seemed random, and those were omitted after some contemplation. She added that the lack of a closing note made the ending too abrupt, so the ending as well as the cover letter was revisited and revised. The survey was reviewed a few more times before generating the link.

4.4.2 Cover letter

Cover letters that are short, specific, clear, and understandable can help persuade respondents to take time out of their precious break to fill-out the survey form (Ruel et al., 2016). These typically contain three major parts: respondent's importance and confidentiality, details about the research, logistic concerns such as time and access link (ibid.). Fortunately, the letter was patterned after a fairly decent letter of invitation that contained all the elements mentioned above.

Snippets from the proposal was put together to form a cohesive letter for the survey. However, terms seemed too abstract and alienating to more practical singers. To make the letter sound more conversational and friendly, neutral but too academic terms were sacrificed. For instance, impact of solo singing was revised to 'if solo singing is therapeutic" in the letter (Appendix 2).

4.4.3 Sampling

All universities in Finland offering the degree Musiikkipedagogi AMK were sent an invitation to the study. A complete list of the institutions is found in Table 1. Institutional emails ensure that links are clicked from official emails of Finnish university students. Due to ethical issues in obtaining student records, links to the survey were disseminated through AMK music coordinators by email in the beginning of September 2017. The total number of singing students was requested from the coordinators for the calculation of response rates, but three

attempts failed to elicit the numbers from 2 universities. Nonresponse is quite common in survey studies, so reminders are generally sent to increase participant cooperation (Ruel et al., 2016). A second circulation was requested from the school coordinators in October 11, 2017, in case the first email was not read by the students. Data collection was closed December 6, 2017. The webpage was opened for a total of 108 times. Out of more than 211 invitations sent, a total of 32 students filled-out the survey, but 2 were unable to complete the last page/s. Thirty valid cases were analyzed using SPSS version 22.

TABLE 1. Number of invitations and responses per institution.

Institution	Invitations	Responses
Helsinki	59	11
Tampere AMK	25	3
Jyvaskyla AMK	40	6
Turku AMK		3
Oulu AMK	45	5
Centria		1
Savonia AMK	24	0
Novia UAS	18	1
Total	211+	30

Sample size for large and small survey studies is calculated using standard formulae, but interval data and scale data use different formulae. Assuming the total number of emailed students is approximately 250, the response rate is a mere 12%. Threshold for respondent representativeness is at 70% (Ruel et al., 2016). Even for "population sizes for which the assumption of normality does not apply," the minimum response rate is 50% (Rea & Parker, 2014). Calculated sample size at 95% confidence interval ±5 percent margin of error indicated an even higher number at 150 respondents.

Nonresponse bias suggests the potential inaccuracy of the estimates due to a lack of response from select members of the sample. For instance, respondents from Helsinki account for one third of the respondents, and Savonia is not represented in the sample. "A significant nonresponse bias can convert a randomly selected sample into one that is nonrandom in actual participation and respondent distribution," (Rea & Parker, 2014).

Reaching the entire population of enrolled singing majors was attempted for this online survey in Finland, but without representativeness and normality, the actual data resembles a nonprobability sample more than a random sample. Error margins cannot be calculated in nonprobability samples, so any generalization beyond the sample will be unfounded (Rea & Parker, 2014; Ruel et al., 2016). However, nonprobability samples are still useful in understanding key issues underpinning the phenomenon in question (Rea & Parker, 2014).

4.5 Data analysis

Data sets were downloaded from SoSci survey as an SPSS file. Scores of items reversed for reliability were first recoded. To ensure reliability, Cronbach alpha and item-total correlation were checked for each subscale. Once the items with item-total correlation of less than 0.1 were excluded, new variables were created for means and totals of each subscale. Likert scales involve ordinal data, and the median is the most suitable measure of central tendency for ordinal data; however, using the arithmetic mean and viewing data as interval data have been accepted and recommended to allow identification of significant patterns using the means (Rea & Parker, 2014). For this study, responses to the four Likert questionnaires were tallied and analyzed as interval variables. Means were calculated and utilized in T-tests and Pearson r correlations, since the minimum case numbers of 10 and 30 respectively were met.

5 RESULTS

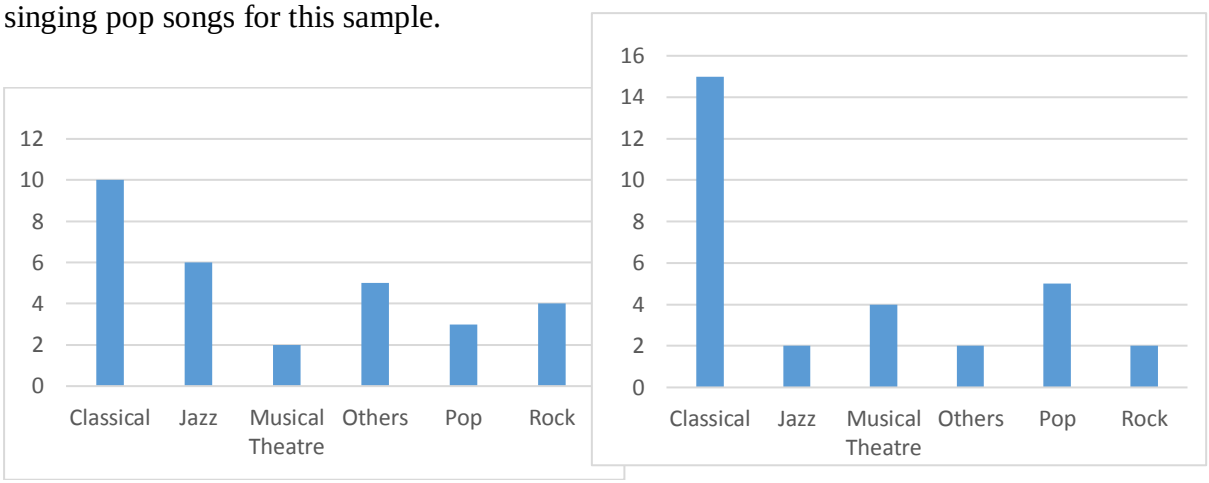
5.1 Demographics

Data sets were downloaded as SPSS syntax file from SoSci Survey and opened in SPSS v22. A total of 30 responses were valid. The highest number of responses came from Helsinki, followed by Jyvaskyla then Oulu. Only 4 of the 30 were males; 26 were females. Ages ranged from 20 to 35, with the mode at 24. One third of the participants were given a psychiatric diagnosis (such as depression, anxiety or PTSD).

TABLE 2. Participant background.

Codename	Sex	Age	Genre of formal training
LG	Female	24	Classical
A. A.	Male	25	Classical
Sv	Female	24	Classical
en	Female	20	Pop
AK	Female	25	Pop
S.I.R.	Female	27	Musical Theatre
Maana	Female	25	Classical
Rm	Female	32	Jazz
JK	Female	32	Classical
TK	Female	25	Jazz
r.l.	Female	24	Pop
Sofia S	Female	21	Classical
L.K.	Female	24	Classical
banaani	Female	26	Pop
Saaka	Female	28	Classical
Ep	Female	28	Others
V-P	Male	35	Classical
vni	Male	30	Classical
M-L	Female	29	Classical
E.R	Female	20	Classical
HM24	Female	23	Pop
Jevi	Female	35	Pop
E-M H	Female	26	Classical
M.A	Female	24	Classical
PA	Female	32	Classical
Ale	Female	34	Classical
E M	Female	24	Classical
laulaja	Female	28	Classical
EG	Female	25	Classical
AN	Male	27	Classical

Two-thirds of the respondents are formally training for classical singing, and half of the respondents feel most free singing classical music. More respondents feel anxious about rock and jazz songs than respondents who feel free singing them (Figure 3). The opposite is true in singing pop songs for this sample.



(a) (b)

FIGURE 3. Graph of genres causing (a) anxiety and (b) feelings of freedom.

Six respondents feel anxiety and freedom when singing the genre they are training for (Figure 4). On the other hand, six feel most free and most anxious with genres different from the genre they are formally studying.

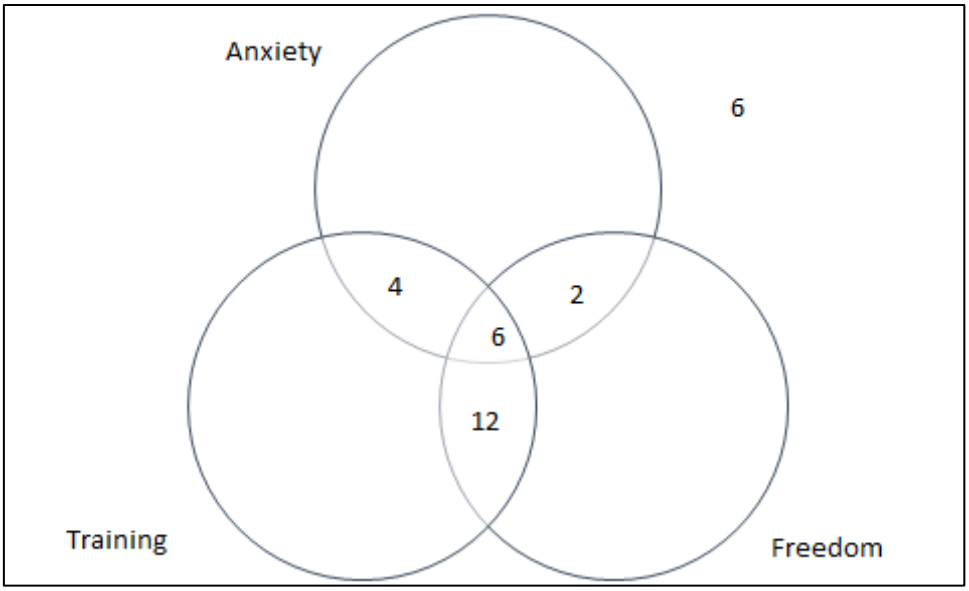


FIGURE 4. Genre intersections.

5.2 Questionnaires

Validated questionnaires were utilized in this study. Scores of items reversed for reliability were first recoded. To ensure reliability, Cronbach alpha and item-total correlation were checked for each subscale. Cronbach alpha values were less than 0.7 for 4 subscales, indicating that the subscale internal consistency could be weak. Internal consistency tests are summarized in Table 3.

TABLE 3. Summary of internal consistency values.

Questionnaire	Subscale	No. of items	Cronbach α
Vocal Function	Fatigue	10	0.781
	Edema	10	0.758
Vocal Concept	Relationship to one's voice	6	0.814
	Awareness in dealing with one's voice	6	0.706
	Voice and emotion	5	0.463
Self-regulation for singing	External motivation	4	0.744
	Introjected motivation	4	0.661
	Identified motivation	4	0.61
	Intrinsic motivation	4	0.667
Psychological benefits of singing	Psychological benefits	12	0.863

Items with item total correlation of less than 0.1 were excluded in the calculation of subscale means to enhance subscale reliability. One item from VC Voice and emotions: 'I am aware when my voice worsens' with an item-total correlation of 0.047 was excluded. One item from VF Vocal Fatigue: 'My top notes are breathy' was excluded for an item-total correlation of 0.047. Two items from VF Vocal Edema: 'Today I am having difficulty with my high notes' and 'Singing is hard work' yielded item-total correlations of 0.004 and -0.16 respectively.

Questionnaires were first analyzed individually. Using the Rasch conversion table in Phyland et al. (2013), vocal function (VF) scores were scaled. A mean score of 25.48/100 was obtained from the converted scores. Highest total ratings were given to items: 'Singing is hardwork' (79), 'I am having difficulty changing registers' (63), and 'My throat muscles are feeling overworked' (59).

The vocal concept questionnaire (Nusseck et al., 2014) was also tallied. 'I can express with my voice exactly what I want to' was the lowest and 'I can use my voice to affect other people' was the highest in the VC relationship to one's voice subscale. 'I am careful not to overuse my voice' yielded the lowest and 'I have been working on and reflecting on how my voice sounds' the highest in the VC awareness in dealing with one's own voice subscale. For the VC voice and emotion subscale, the four items obtained mean values between 3.3-3.8.

The arithmetic mean of the self-regulation for solo singing (SR) (Ryan & Connell, 1989) subscales and psychological benefits of singing (S. M. Clift & Hancox, 2001) are summarized in Table 4. In the psychological benefits questionnaire, 'I find solo singing helps me to relax and deal with the stresses of the day' received the lowest total rating and 'Solo singing improves my general emotional wellbeing' received the highest.

TABLE 4. Self-regulation/Motivation for solo singing and benefits of singing scale arithmetic mean.

Subscale	Min	Max	Mean	Std. Deviation
SR External motivation	4.00	20.00	7.0333	3.77362
SR Introjected motivation	4.00	22.00	13.2333	5.21062
SR Identified motivation	14.00	28.00	22.5000	3.84842
SR Intrinsic motivation	17.00	28.00	24.7000	3.38506
Psychological Benefit	35.00	60.00	48.9667	6.70298

Mean of the raw scores for each subscale was calculated (Table 5). Correlations were also calculated to check the relationship between the subscales related to singing. Correlation of the means of all subscales revealed moderate correlations between several subscales, summarized in Table 6.

TABLE 5. Summary of subscale means.

Subscale	Minimum	Maximum	Mean	Std. Deviation
VF Fatigue	1.00	2.44	1.5778	0.39838
VF Edema	1.00	3.13	1.6375	0.51940
VC Relationship to one's own voice	2.33	5.00	3.7722	0.69959
VC Awareness in dealing with one's own voice	2.50	5.00	3.9889	0.58874
VC Voice and emotion	2.50	5.00	3.5417	0.76306
SR External motivation	1.00	5.00	1.7583	0.94341
SR Introjected motivation	1.00	5.50	3.3083	1.30266
SR Identified motivation	3.50	7.00	5.6250	0.96211
SR Intrinsic motivation	4.25	7.00	6.1750	0.84626
Psychological benefits	2.92	5.00	4.0806	0.55858

TABLE 6. Summary of significant Pearson r values.

Subscale	Subscale	df	Pearson's r	Significance
Vocal fatigue	Voice and emotion	28	0.517	.003
Intrinsic motivation	Relationship to one’s voice	28	0.473	.008
Identified motivation	Relationship to one’s voice	28	0.424	.02
Identified motivation	Awareness in dealing with one's voice	28	0.421	.02
Psychological benefits	Identified motivation	28	0.473	.008
Psychological benefits	Intrinsic motivation	28	0.533	.002
Psychological benefits	External motivation	28	-0.485	.007
Vocal fatigue	Intrinsic motivation	28	-0.467	.009
Vocal fatigue	Relationship to one’s voice	28	-0.595	.001
Vocal edema	Relationship to one’s voice	28	-0.625	.001

Furthermore, participant backgrounds could be sorted into two groups for two demographic information: genre of training and previous psychiatric consultation. Since two-thirds of the sample trained in classical singing, data were regrouped into classical and nonclassical singers.

Classical singers' subscale means were compared with nonclassical singers' means (Table 7) in an independent T-test. Results showed significant differences in SR intrinsic motivation $t(28)=1.913$, $p<.07$ and VF vocal fatigue $t(28)=-2.458$, $p<.02$ between the two groups. Similarly, one-third of the sample reported a history of consulting a psychiatrist. To check if mental health condition affected their vocal and singing perceptions, subscale means of diagnosed singers were compared with singers with no mental health diagnoses (Table 8) and examined in another T-test. T-tests showed significant differences between the two groupings only in the VF subscales: vocal fatigue $t(28)=2.049$, $p<.05$ and vocal edema $t(28)=1.843$ $p<.08$.

TABLE 7. Subscale means and standard deviations of classical and nonclassical singers.

Subscale	Genre	N	Mean	Std. Deviation	Std. Error Mean
Psychological Benefit Total	Classical	20	49.1000	7.08520	1.58430
	Nonclassical	10	48.7000	6.21915	1.96667
SR External motivation mean	Classical	20	1.7875	1.00419	0.22454
	Nonclassical	10	1.7000	0.85635	0.27080
SR Introjected motivation mean	Classical	20	3.4375	1.33740	0.29905
	Nonclassical	10	3.0500	1.25720	0.39756
SR Identified motivation mean	Classical	20	5.7875	0.84400	0.18872
	Nonclassical	10	5.3000	1.14139	0.36094
SR Intrinsic motivation mean	Classical	20	6.3750	0.70009	0.15655
	Nonclassical	10	5.7750	1.00312	0.31721
VC Relationship to one's own voice	Classical	20	3.9083	0.68500	0.15317
	Nonclassical	10	3.5000	0.68041	0.21517
VC Awareness in dealing	Classical	20	4.0250	0.68029	0.15212
with one's own voice	Nonclassical	10	3.9167	0.36218	0.11453
VC Voice and emotion	Classical	20	3.4750	0.67814	0.15164
	Nonclassical	10	3.6750	0.93579	0.29592
VF Fatigue mean	Classical	20	1.4611	0.32499	0.07267
	Nonclassical	10	1.8111	0.44460	0.14059
VF Edema mean	Classical	20	1.5375	0.48174	0.10772
	Nonclassical	10	1.8375	0.55917	0.17683

TABLE 8. Subscale means and standard deviations of singers with or without psychiatric consultation.

Subscale	Psychiatric consultation	N	Mean	Std. Deviation	Std. Error Mean
Psychological Benefit Total	Yes	10	49.9000	6.36745	2.01357
	No	20	48.5000	6.97741	1.56020
SR External motivation mean	Yes	10	1.6750	0.74582	0.23585
	No	20	1.8000	1.04378	0.23340
SR Introjected motivation	Yes	10	3.4500	1.39344	0.44064
mean	No	20	3.2375	1.28625	0.28761
SR Identified motivation	Yes	10	5.8250	0.95779	0.30288
mean	No	20	5.5250	0.97299	0.21757
SR Intrinsic motivation mean	Yes	10	5.9250	1.16100	0.36714
	No	20	6.3000	0.63660	0.14235
VC Relationship to one's own	Yes	10	3.5333	0.62756	0.19845
voice	No	20	3.8917	0.71793	0.16053
VC Awareness in dealing	Yes	10	4.0333	0.53171	0.16814
with one's own voice	No	20	3.9667	0.62735	0.14028
VC Voice and emotion	Yes	10	3.7250	0.85351	0.26990
	No	20	3.4500	0.71910	0.16080
VF Fatigue mean	Yes	10	1.7778	0.48290	0.15271
	No	20	1.4778	0.31654	0.07078
VF Edema mean	Yes	10	1.8750	0.53684	0.16976
	No	20	1.5188	0.48033	0.10740

6 DISCUSSION

This research aimed to explore trained Finnish student singers' feelings and attitudes towards singing. A cross sectional survey compiling validated questionnaires focused on singing was administered to vocal majors in Finnish universities. The first two questionnaires sought objective (functional) and subjective perceptions of the voice. The latter two questionnaires assessed the psychological factors before and after singing.

No respondent was experiencing vocal pathology at the time of data collection, and vocal fatigue and edema subscales yielded mean ratings of 1.58 and 1.64 out of 4. On the other hand, self-regulation survey scored lowest in extrinsic motivation- mean of 1.76 out of 7 and highest in intrinsic motivation- mean of 6.175 out of 7. SR intrinsic motivation inversely correlated with VF fatigue at r = -0.467. Furthermore, psychological benefits resulted to a mean rating of 4.1 out of 5. Psychological benefits also inversely correlated with SR extrinsic motivation at r = -0.485, and positively with SR intrinsic motivation at r = 0.533. However, no correlation was found between VF vocal fatigue and psychological benefits. These results seem to imply that intrinsic motivation go hand in hand with psychological benefits from singing, and an indirect relationship between vocal fatigue and intrinsic motivation, for this group of Finnish singing majors.

The vocal concept questionnaire was composed of three subscales, with mean scores of 3.5-4 out of 5. SR intrinsic and identified motivations correlated with both VC relationship to one's voice and awareness in dealing with one's voice subscales. Relationship to one's own voice was inversely correlated with both VF vocal fatigue (r = -0.6) and edema (r = -0.62). These could imply that personal goals and enjoyment correlate with low ratings of vocal symptoms and strong relationship to one's voice. Drawing connections between these patterns in singers may prove useful in understanding a singer's wellbeing state prior to therapy.

One-third of the respondents experienced psychiatric consultation. In addition, two-thirds of the singing majors in the study sing classically. These numbers could reflect the situation in Finnish conservatoires and universities, but the sample is too small to generalize this. Furthermore, T-tests showed significant differences for both in vocal fatigue ratings.

6.1 Psychological impact of singing to singers

For this study on Finnish solo singers, psychological benefits the arithmetic mean of 48.97 (s.d. 6.7) is fairly consistent with previous findings. Finnish solo singers have similar scores to British solo singers 48.8 (s.d. 7.47), lower than British recreational singers 50.25 (s.d. 6.8) in one study (Stewart & Lonsdale, 2016). These values support previous claims that trained singers enjoy practicing singing less than nonsingers (Grape et al., 2003). However, Finnish singing students appear to still enjoy singing, supporting the view that musicians still gain wellbeing benefits from their source of livelihood (Ascenso et al., 2016; Loewy & Quentzel, 2011). Finnish singing students may enjoy singing more than their British (Davidson & Da Costa Coimbra, 2001; Stewart & Lonsdale, 2016) and American counterparts (Barefield, 2012; Beck et al., 2006) due to a distinct singing culture (Merriam, 1964) in Finland which allows Finnish singers to continue to enjoy professional solo singing.

Self-ratings of 25% in vocal function (VF) issues in this study could demonstrate the neuroticism observed among female voice students in a previous study (Kokotsaki & Davidson, 2003). Singers' frequent vocalizations are allegedly a type of checking behavior rather than effective muscular warm-up, out of worries of vocal malfunction and a poor performance (Sandgren & Ericsson, 2007). Accordingly, 'Singing is hard work' had the highest total rating of 79 in the entire vocal function questionnaire, which could imply that the statement holds true for the respondents of the study even in the absence of physiologic problems in the vocal tract. Ratings for the item were high despite low ratings for other vocal dysfunction-related items, possibly due to singers' increased sensitivity to changes in their vocal quality (Rosen & Murry, 2000).

Recreational singers may mind their vocal quality less when singing, thus, increasing their fulfillment from singing. Moreover, career threats, loss of jobs, and cancellation of commitments are external factors absent in amateur singers' experience of singing (Loiola-Barreiro & Silva, 2016), and the moderate negative correlation between external motivations and psychological benefits of singing could explain the higher ratings of enjoyment of amateur singers than trained singers in previous studies (i.e. Grape et al., 2003; Stewart & Lonsdale, 2016).

6.2 Attitudes towards singing

Musicians not only experience MPA, but they also worry about incurring disabilities that threaten to end their careers (Žuškin et al., 2005). Musicians may suffer from musculoskeletal disorders (Zaza & Farewell, 1997), specific to the type of musical instrument they play, thus, causing anxiety disorders (Jabusch, Müller, & Altenmüller, 2004). However, singers seem to be the only musicians documented to suffer from health anxiety, especially in the absence of any symptom (Sandgren, 2009). Singers' patterns of checking their voices multiple times before a performance and worrying about their health, respiratory health in particular can allegedly be traced to the beginnings of formal vocal training. Prior to vocal training, singing supposedly triggered much less worries (E. W. Jones, 1989; Sandgren & Ericsson, 2007).

Solo musicians train to make music flawlessly. They carry the burden of the entire musical performance. In the absence of an instrument, vocalists are vigilant with the condition of their voice, to successfully perform written vocal music as accurately as instrumental music. Vocal image is said to play a much bigger role in a singer's life than other voice professionals (Reid, 1975). Thus, perceptions of the voice eventually become a vital aspect of a singer's mental health. An achievement orientation has also been noted among performing vocalists (Sandgren & Ericsson, 2007), usually measured by external feedback. However, respondents in the study rated items under external motivation the lowest and intrinsic motivation the highest, contrary to earlier reports. Vocal quality concerns that plague singers were also low among respondents.

Singers in the current study recorded higher means in all three factors of vocal concept, in comparison to nonsingers in the original article (Nusseck et al., 2014). Furthermore, the highest rated and the lowest rated items in each subscale varied between singers and nonsingers as well, possibly indicating that singers and nonsingers (teachers) value different things about their vocal image. For example, Finnish singing students know their voice better and affect other people more through their voice. Singers also care more about how their voice appears to others, and about the simultaneous changes in their voice-emotion bodymind-complex. However, singers have more difficulty than teachers in expressing themselves through their voice.

There may be a need to shift the musician's learned (external) musical behavior to his/her intrinsic or innate ability to engage with music (Montello, 2003), for singing to be as enjoyable as it once was. As play and creativity become the focus, the result-oriented approach in ambitious music making becomes more expressive. Furthermore, an understanding of a singer's image of his/her voice may be an important element in therapy for singers. Since vocal concept subscales seem correlated with identified and intrinsic motivations, addressing the underlying motivation behind singers' vocal concept or image may be necessary in therapy processes.

6.3 Therapy for singers

Mental health tends to be affected by singing training (LeBorgne, 2014). Certain personality traits have also been associated to solo singers (D. T. Kenny et al., 2004; Markel, Phillis, Vargas, & Howard, 1972; Sandgren, 2005), and these could be predisposing factors in developing anxiety disorders (Sandgren, 2009; Spahn et al., 2010). Therapy has been recommended for singers when the stress caused by singing far exceeds its benefits. Since classical singers may comprise the majority of the singing students in Finland, considerations for classical singing may be important in therapy. Classical singers relate to their voices differently than popular singers due to their emphasis on training and refinement (Loiola-Barreiro & Silva, 2016) and vocal hygiene (Dassie-Leite, Duprat, & Busch, 2011). Additionally, male opera singers were found to exhibit high levels of neuroticism (Sandgren & Ericsson, 2007). Classical singers in the sample seemed to also have the most conflicting feelings toward the genre they have chosen. Classical singing requires consistent vocal quality more than any other genre (Callaghan et al., 2012), and this may contribute to the anxiety among classical singers. Therapy for classical singers may have distinct features that should be taken into account by therapists.

Vocal musicians' wellbeing has been successfully addressed by music therapy (Bosco, 2011; Scheiby, 2005). In previous studies, assessments were less systematic and more free-associative like traditional psychoanalytic assessments. While issues may be rooted in childhood issues, it will also be useful to be aware of the singers' patterns through guided self-

reports. Structured instruments could add a new dimension to occasionally sluggish and less detailed qualitative assessments (O'Kelly, 2016), especially regarding unconscious patterns connected to the voice. The present study showed that standardized assessments may help clarify singers' perceptions. The items with the lowest and highest scores seem to provide clues to beginning solo singers' thoughts when singing. Solo singing may not always help singers in relaxation and in dealing with stress, although music therapy models have been built around singing (Austin, 2008; Newham, 1998). Instead, the respondents of the survey focus on the hardwork required to sing with smooth register transitions without tiring the throat. Despite this, they still feel improvements in their general emotional wellbeing when singing. For example, several classical singers in the sample sang only one genre and drew anxiety and joy from the same repertoire.

Validated questionnaires can assist in verifying the negative bias co-occurring with anxiety problems (Amin, Foa, & Coles, 1998), such as MPA among singers, which leads to underestimation of one's vocal quality (Lundh et al., 2002). Literature of professional singers and musicians have focused on performance anxiety (Ascenso et al., 2016) and unfortunately, this paints an inaccurate picture of professional singers' feelings towards singing. As noted in the present study, singers may have mixed feelings about singing at times, but a number still find joy in singing.

7 CONCLUSION

Wellbeing is a growing concern in the field of professional singing and singing training. Quantitative studies on singers focus on the negative impact of singing on singers' wellbeing, and studies on Finnish trained singers' wellbeing was not found. Very few studies investigate the perceptions of vocal image and motivations for singing of solo singers quantitatively. In the therapy setting, case studies appear to focus more on childhood issues for solutions than attitudes and feelings towards the singing voice. This study adopted a survey design aimed to utilize available validated instruments to identify solo singers' singing concerns that may be pertinent in the therapy process.

Solo singing seems to be a source of joy and anxiety, expected feelings towards one's job. Vocal function correlated with vocal image, and psychological benefits correlated with motivations for singing. Finnish singing majors tend to care a lot about how their voice appears to others when singing solo, so they are also more aware of their vocal quality and the changes in their voice compared to nonsingers. The goal to sing challenging songs beautifully (alone) then could prevent the association between singing and relaxation/coping. However, the Finnish singing students claimed to still notice improvements in their emotional wellbeing through singing, although at a lesser degree than recreational singers.

This study showed that MPA should not be the only focus of studies on singing students' and professional singers' wellbeing. The questionnaires were able to identify perceptions about the voice specific to training solo singers. More comprehensive instruments may uncover concerns regarding singing that trained singers may have difficulty articulating and identifying these can help make the therapy process more efficient. When processed in a hypnotic or somatic therapy, these salient concerns may lead singers to the solutions for their symptoms more effectively.

The study is a nonprobability survey, so the findings are not generalizable to more experienced singers in Finland and to countries where education and social systems are drastically different from Finland. Further studies are also warranted to thoroughly investigate the prevalence of anxiety and depression in this population group in Finland.

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Appendix

Questionnaire

Greetings!

Singing has been shown to be therapeutic, but research is limited to amateur singing. Literature on professional or solo singing tends to focus on performance anxiety and examination fears. This master's project aims to investigate if solo singing is therapeutic to singers at the beginning stage of their career. This online survey will gather data from undergraduate music students majoring in singing. It is composed of four short questionnaires rated from 1 to 4, 5, or 7.

It would take approximately 15 minutes to complete. I hope you can find time for this short survey; your participation will enhance the generalizability of the results. Please note that your completion of this survey will serve as your consent to participate in this research study. Thank you very much!

Initials or codename:
Age
Sex

University
Degree program
University Year level
Genre of program
Number of years taking voice lessons

Genres sung: Classical, Pop, Jazz, Rock, Musical Theatre, Others
Genre anxiety
Genre relaxed

History of medical consultation for vocal disorder. Y N
Vocal Diagnosis

History of psychiatric consultation Y N
Mental Diagnosis

Vocal function perception
(Phyland et al., 2013) EASE

Items	Not at All 1	Mildly 2	Moderately 3	Extremely 4
Factor 1- fatigue				
My voice is husky				
My voice is dry/scratchy				
My throat muscles are feeling overworked				
My voice feels good*				
My top notes are breathy				
The onsets of my notes are delayed or breathy				
My voice sounds rich and resonant*				
My voice is ready for performance if required*				
My voice is tired				
My voice is worse than usual				
Factor 2- edema etc.				
My voice cracks and breaks				
My voice is breathy				
I am having difficulty with my breath for long phrases				
My voice is cutting out on some notes				
I am having difficulty changing registers				
Today I am having difficulty with my high notes				
I am having difficulty projecting my voice				
I am having difficulty singing softly				
Singing is hard work				
I am having difficulty sustaining long notes				

ADDITIONAL COMMENTS:

Vocal concept
(Nusseck et al., 2014)

(Not true) 1 2 3 4 5 (very true)

Relationship to one's own voice

I like my voice. 15
I can express with my voice exactly what I want to. 10
My voice fits me well as a person. 9
I can alter my voice in various ways. 16
I can use my voice to affect other people. 12
I know my voice very well. 5

Awareness in dealing with one's own voice

I pay attention to the way my voice appears to others. 6
It is important to me how my voice appears to others. 8
I have been working on and reflecting on how my voice sounds. 1
I use my voice consciously. 13
I am careful not to overuse my voice. 4
My voice is as important as my appearance. 11

Voice and emotion

For me, voice and mood are closely intertwined. 17
Stressful situations are also reflected in my voice. 2
When my voice changes, I also feel different as a person. 14
I feel uncomfortable in others' company when my voice worsens or sounds hoarse. 7
I am aware when my voice worsens. 3

ADDITIONAL COMMENTS:

‘Motivation for solo singing’ self-regulation scale (adapted SRQ-Exercise)
(Ryan and Cornell in Stewart and Lonsdale, 2016)

Please indicate how true each of the following reasons is for why you sing solo.

I sing solo on a regular basis…

(Not true) 1 2 3 4 5 6 7 (Very true)

… because I would feel bad about myself if I did not (1)
... because others would be angry at me if I did not (2)
... because I enjoy singing solo (3)
... because I would feel like a failure if I did not (4)
... because I feel like it's the best way to help myself (5)
... because people would think I'm a weak person if I did not (6)
... because I feel like I have no choice about singing solo; others make me do it (7)
... because it is a challenge to accomplish my goal (8)
... because I believe singing solo helps me feel better (9)
... because it's fun (10)
... because I worry that I would get in trouble with others if I did not (11)
... because it feels important to me personally to accomplish something (12)
... because I feel guilty if I do not sing solo regularly (13)
... because I want others to acknowledge that I am doing what I have been told I should do (14)
... because it is interesting to see my own improvement (15)
... because I think singing solo is a useful way to keep well (16)

*External Regulation subscale: 2, 7, 11, 14
Introjected Regulation subscale: 1, 4, 6, and 13
Identified Regulation subscale: 5, 9, 12, and 16
Intrinsic Motivation subscale: 3,8,10, and 15

Benefits of singing
(Clift and Hancock in Stewart and Lonsdale, 2016)

Please indicate how much you agree or disagree with the effects of solo singing.

(Strongly disagree) 1 2 3 4 5 (Strongly Agree)

Solo singing is something that helps to make me feel a lot happier in myself afterwards (1)
Solo singing helps to give me a more positive attitude to life (2)
I feel that solo singing has helped to improve my general sense of wellbeing and health (3)
Solo singing usually helps to release any negative feelings I have hanging around from the day (4)
Solo singing doesn't give me the kind of 'high' some people talk about (6)*
Solo singing helps to make me a happier person (5)
Solo singing makes a positive contribution to my quality of life (7)
I find solo singing helps me to relax and deal with the stresses of the day (8)
For me, solo singing doesn't serve as a way of releasing negative feelings about other aspects of my life (9)*
Solo singing can help to make my mood more positive than it has been during the day (10)
Solo singing doesn't really help to improve my general emotional wellbeing (11)*
I enjoy solo singing but it is not something that has a deep significance for me compared with other things that are important in my life (12)*

Invitation

Is solo singing therapeutic to singers?

Greetings!

Singing has been shown to be therapeutic, but research is limited to amateur singing. Literature on professional or solo singing tends to focus on performance anxiety and examination fears. This master's project aims to investigate if solo singing is therapeutic to singers at the beginning stage of their career. This online survey will gather data from undergraduate music students majoring in singing. It is composed of four short questionnaires rated from 1 to 4, 5, or 7.

It would take approximately 15 minutes to complete. I hope you can find time for this short survey; your participation will enhance the generalizability of the results. Please note that your completion of this survey will serve as your consent to participate in this research study. Thank you very much!

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