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Benefits of choral singing for social and mental wellbeing: qualitative findings from a cross-national survey of choir members

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Abstract

Purpose – *The aim of this study is to explore the benefits of choral singing for mental wellbeing and health as perceived by a cross-national sample of amateur choral singers.*

Design/methodology/approach – *Data consisted of written responses to open-ended questions. These were derived from 169 participants selected from a larger dataset reporting high and low levels of emotional wellbeing on the WHOQOL-BREF questionnaire. A majority of participants were female and aged over 50. A thematic analysis was followed by a content analysis and Pearson chi square analyses. Comparisons were made between different ages, genders and nationalities and participants with high and low reported emotional wellbeing.*

Findings – *The analysis revealed multiple themes covering perceived benefits in social, emotional, physical, and cognitive domains. There were no significant differences in frequency of themes across any of the participant sociodemographic and wellbeing categories. The results indicate that benefits of singing may be experienced similarly irrespective of age, gender, nationality or wellbeing status.*

Research limitations/implications – *Implications for further research include future use of validated instruments to measure outcomes and research into the benefits of singing in other cultures. The results of this study suggest that choral singing could be used to promote mental health and treat mental illness.*

Originality/value – *This study examines a cross-national sample which is larger than previous studies in this area. These findings contribute to understanding of the complex and interacting factors which might contribute to wellbeing and health, as well as specific benefits of singing.*

Keywords *Choral, Singing, Music, Wellbeing, Mental health, Mental illness*

Paper type *Research paper*

In many cultures and times, music has been understood to have a beneficial impact on health (Gouk, 2000; Horden, 2000). Group singing may have particular and specific benefits for health over other forms of music-making and music listening, as it involves using the body to produce sound in a synchronised and coordinated way with other people.

The extent and nature of community singing varies with cultural traditions from country to country. Countries in northern Europe tend to have a strong choral tradition, whereas in some southern European countries, such as Greece, choral singing is uncommon (Durrant and Himonides, 1998). Scandinavian and Baltic states have relatively high-participation rates in choirs, and in Estonia, for instance, community singing represented a substantial factor in the country's struggle for independence from the Soviet Union in the late 1980s (the so-called "Singing Revolution", www.singingrevolution.com/).

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In the USA, choral singing is the most common form of active participation in music-making (Chorus America, www.chorusamerica.org/), and community choirs and choral societies are found in most towns and cities across the UK (Making Music, www.makingmusic.org.uk). The UK has seen a recent growth of interest in choral singing, prompted by several television programmes (e.g. Last Choir Standing). The potential community development and public health dimensions of choral singing are especially apparent in Malone's "Unsung Town" project (www.garethmalone.com/programmes/unsung-town). There are also an increasing number of "singing for health" projects in the UK, with a focus on mental health (Clift *et al.*, 2011), Parkinson's disease (Evans *et al.*, 2012) and chronic respiratory illness (Lord *et al.*, 2010).

Theories contributing to the area

Given the early stage of development of research on singing and wellbeing, there is currently no comprehensive model which might explain how singing might lead to benefits for health. However, there are several social and psychological theories which are useful in suggesting potential mechanisms linking singing to possible health benefits.

Antonovsky's (1987) salutogenic sense of coherence (SOC) model argues that individuals can achieve health if they have the necessary resources and strategies to cope with the demands of life. Measures of SOC have shown a reliable relationship with measures of health, particularly mental health (Eriksson and Lindstrom, 2006). It could be argued that choral singing may contribute to health through strengthening some of these components in singers by improving social and individual resources, reducing stress and meeting spiritual needs.

Group singing might, for example, help to enhance "social capital" with consequent benefits for wellbeing and health. Social capital refers to the engagement of the individual in community, personal and formal social networks, and the development of trust and reciprocity within those networks (Putnam, 1993, 2001). A systematic review into the impact of social capital on mental health found that there was strong evidence that high social capital is associated with fewer common mental health problems (de Silva *et al.*, 2005).

Involvement in activities which are meaningful, such as goal-focussed group singing, has also been linked to positive mental health and wellbeing by several authors (Antonovsky, 1993; Seligman, 2002). The experiential state linked to involvement in activities which are meaningful is "motivation". Ryan and Deci's (2000) self-determination theory proposes that engaging in activities which induce a sense of motivation results in increased psychological wellbeing and social development. The authors link motivation to increased determination, higher quality performance and creativity (Deci and Ryan, 1991), leading to increased self-esteem (Deci and Ryan, 1995) and wellbeing (Ryan *et al.*, 1995). Choral singing may increase feelings of motivation through being with others, feeling in charge of one's learning, mastery of singing technique and positive feedback from audiences in performance events.

Choral singing is an activity which can engage and challenge participants. Potential health and wellbeing benefits of being involved in such activities have been outlined by Csikszentmihalyi's (1996) concept of "flow". He argues that when people perform challenging activities, they can achieve a state of "flow", where time seems to stop, they become fully engaged, and all concentration becomes focussed on the activity. To enable flow to occur an activity must have a clear set of goals, a balance between perceived challenges and perceived skills providing a sense of competence, and clear and immediate feedback on performance. There is evidence to indicate that flow is more powerful in social situations compared to experiences of flow when alone (Walker, 2010). Choral singing is an activity which may provide optimal conditions for flow experiences to arise. The concept of flow is similar to "Mindfulness", where people learn to focus their attention on the present moment to avoid negative thinking and to cope with powerful emotions. This is now a popular and evidence-based intervention for mental health problems (Segal *et al.*, 2002).

Seligman (2002), in his theory of happiness, argues that one of three central strands essential to gaining happiness is experiencing positive emotion and pleasure, which is generally a salient feature of choral singing. Positive emotion and happiness have also been linked to good health (Siahpush *et al.*, 2008; Diener and Biswas-Diener, 2008). Any elicitation of positive

emotion in choral singing could be linked to processes in the brain. It has been argued that an evolutionary prosodic mechanism allowing communication of emotional states may be located in the right hemisphere (Panksepp and Bernatsky, 2002), which is where emotional reactions to music tend to occur (Peretz, 1990). Research has shown that music can induce both positive and negative emotion (Blood *et al.*, 1999; Mitterschiffthaler *et al.*, 2007). The reporting of “chills”, an autonomic emotional response to moving music, particularly surprising dynamic or melodic shifts, is widespread (Sloboda, 1991), and has recently been linked to dopamine release in the striatum region of the brain associated with emotional experience (Salimpoor *et al.*, 2011).

The evidence base for singing, wellbeing and health

There have been two large-scale epidemiological studies in Sweden and Finland in which participation in choral singing, amongst multiple other factors, has been examined in relation to population health outcomes, but neither found evidence of significant relationships (Bygren *et al.*, 1996; Hyppä and Mäki, 2001). In reviewing these studies Clift, Hancox, Staricoff and Whitmore (2008) and Clift *et al.* (2008) identify considerable methodological difficulties, including the crudity of measures of participation in choral singing and the outcome measures used, together with the relatively low proportions of choral singers included in the samples. As a result, studies were not sufficiently precise to identify any potential association between group singing and health on a population level and in consequence their negative findings are not damaging to the basic hypothesis that group singing is potentially beneficial for wellbeing and health.

There is, indeed, a growing body of smaller scale qualitative and experimental research which does suggest positive benefits of engagement in group singing for health. Singing has been found to result in higher levels of positive feelings and lower levels of negative mood compared to listening to music (Kreutz *et al.*, 2004; Unwin *et al.*, 2002). Singing has also been found to reduce perceived levels of anxiety and depression, boost perceived confidence, improve subjective self-esteem, provide a sense of achievement and increase a sense of self-control (Bailey and Davidson, 2002, 2005; Cohen *et al.*, 2006; Silber, 2005). Clift and Morrison (2011) have recently shown that regular group singing can substantially improve wellbeing among people with a history of enduring mental health problems. Studies looking at singers' experiences have found that the cognitive effort involved in singing can serve to distract from worries and focus the mind on achieving a group product (Bailey and Davidson, 2002, 2005; Clift, Hancox, Staricoff and Whitmore (2008) and Clift *et al.* (2008); Clift and Hancox, 2010).

Choral singers have also reported social benefits of singing, including building friendships, improving bonding and co-operation, and creating a sense of belonging (Clift and Hancox, 2001; Bailey and Davidson, 2002, 2005; Cohen *et al.*, 2006, 2007; Silber, 2005). In addition, benefits of singing have been found on physiological and physical levels, including effects on immune response, oxytocin levels, heart rate and breathing (Beck *et al.*, 2000; Clift *et al.*, 2009; Grape *et al.*, 2003; Valentine and Evans, 2001).

How and why does singing contribute to health and wellbeing? A need for further investigation

Despite the growing evidence-base supporting the value of singing for health, most studies are small in scale and little attention has been given to the potential mechanisms underlying the relationship between singing and wellbeing. A large-scale cross-national study was conducted by Clift *et al.* (Clift *et al.*, 2008a, b, 2010; Clift and Hancox, 2010) to address these limitations. A sample of 1,124 choral singers from Australia, England and Germany completed a questionnaire consisting of a series of statements describing possible effects of choral singing, with which participants could agree or disagree. It also included the World Health Organisation (WHO) Brief Quality of Life scale (WHOQOL-BREF) (Power *et al.*, 1999). The questionnaire additionally incorporated open-ended questions on how singers perceived the contribution of singing to their quality of life, wellbeing and health.

Respondents generally agreed with positive statements on the questionnaire, and preliminary qualitative analysis of the open-ended responses indicated a wide range of subjective

benefits. Clift, Hancox, Staricoff and Whitmore (2008) and Clift *et al.* (2008) proposed that a systematic thematic analysis was needed of the qualitative data gathered, to explore potential differences associated with nationality, gender and age, and with reported mental wellbeing. In addition, the qualitative data could be used to identify perceived mechanisms underlying the effects of singing on wellbeing and health. The purpose of this paper is to report on the outcomes of such a systematic qualitative analysis undertaken on a sub-sample of participant accounts.

The present study

The present study reports findings from a systematic qualitative analysis of accounts of the effects group singing provided by participants of different nationality, gender and age and with different levels of reported psychological wellbeing. The study also explores the self-perceived mechanisms through which singing may benefit social and mental wellbeing. There were three primary research questions: First, in what ways do amateur choral singers believe that choral singing has benefitted their wellbeing and health? Second, what do singers believe are the mechanisms or processes underlying the relationship between choral singing, wellbeing and health? Finally, do such beliefs vary according to participant characteristics (nationality, age, gender and reported wellbeing)?

Method

Participants

Clift, Hancox, Staricoff and Whitmore (2008) and Clift *et al.* (2008) conducted a survey in which 1,124 choral singers were recruited from Australia, England and Germany. For the analysis reported in this study, a sub-sample of participants was selected to include those participants in the original survey who reported particularly high or low psychological wellbeing. This was done for two reasons: first to focus on individuals within the sample showing maximal contrast in reported mental wellbeing and second to render the qualitative analysis manageable given the very substantial amount of written material produced by the total sample.

The two wellbeing groups were identified using the scores from the WHOQOL-BREF (Power *et al.*, 1999). This is a cross-nationally validated instrument measuring health-related quality of life in which individuals are asked to respond to 26 statements relating to four domains of life quality with reference to their experiences over the previous two weeks. Question 26 on the WHOQOL-BREF specifically concerns clinical aspects of psychological wellbeing and asks: "How often do you have negative feelings such as blue mood, despair, anxiety, depression?" Research has shown that single item measures of quality of life and mental health can effectively discriminate between different groups in a reliable and valid manner (de Boer *et al.*, 2004; McKenzie and Marks, 1999).

Participants who scored 1 (Never) on question 26 of the WHOQOL-BREF were included in the high mental wellbeing group. Participants who scored 5 (Always) and 4 (Very often) were included in the low mental wellbeing group. Two lower end scores were included as there were fewer participants falling into the lower wellbeing category. This resulted in 178 participants in total. Nine cases were excluded as no qualitative information was written on the forms (three from the low mental wellbeing group and six from the high mental wellbeing group). The total number of participants in the analysis was 169 of which 113 (66.9 per cent) were in the high mental wellbeing group and 56 (33.1 per cent) were in the low mental wellbeing group. Demographics of the sample mirrored those of the larger sample of 1,124 participants, where the sample was mainly female (33.5 per cent male, 64.5 per cent female), and older (22.5 per cent less than 49 years, 21.3 per cent aged 50-59, 39.6 per cent aged 60-69, 16.6 per cent aged 70-95). There were greater numbers of UK singers (42 per cent) followed by German (33.7 per cent) then Australian (24.3 per cent).

The research was approved by the University Ethics Committee. Participants were given information sheets prior to taking part, and were given the opportunity to ask questions and

decline to participate. Informed consent was assumed if participants completed the questionnaires.

Whilst participants were not formally asked about current or previous mental health difficulties on the survey, there were much greater numbers that included such disclosures in the low mental wellbeing group compared to the high mental wellbeing group, making it more likely that this was a group experiencing poorer mental wellbeing over two weeks prior to the survey. A Pearson χ^2 test indicated that the difference between these two groups in reports of mental health problems was statistically significant, $\chi^2(1, n = 169) = 45.9, p \leq 0.001$. The participants identified as having low mental wellbeing represented just over 5 per cent of the total sample of choral singers in the original survey (not reported here) (Table I).

Design

This research analysed only the written qualitative accounts in response to open questions about the effects of singing (see below), which were part of a larger survey as described above. An inductive thematic analysis was conducted on the written responses, followed by a content analysis. Quantitative analyses were undertaken to further investigate whether there were significant differences in the frequency of themes across the socio-demographic and wellbeing variables used to structure the sample of accounts considered.

Measures

The qualitative section of the survey consisted of three open-ended questions:

1. What effects, if any, does singing in a choir have on your "quality of life"?
2. What effects, if any, does singing in a choir have on your psychological and social wellbeing?
3. What effects, if any, does singing in a choir have on your physical health?

Written answers to these questions were analysed, as well as answers to a question asking for final reflections. The German questionnaires were translated into German by a German-English bilingual research associate from the original study, and accuracy checks were made by an independent German linguist.

Procedure and analysis

Thematic analysis. An inductive thematic analysis (Boyatzis, 1998) was conducted. This methodology was chosen as the research questions sought to explore participant experiences with an assumption that the written word directly connected to experience, and was appropriate given the exploratory character of the study.

Braun and Clarke (2006) suggest a process for thematic analysis consisting of five phases: becoming familiar with the data, generating initial codes, searching for themes, reviewing themes and naming themes. The initial responses were read to gain familiarity with the data. Codes were then generated by breaking down the responses of participants into text units and grouping the units which were judged to have the same meaning. Semantic categories were developed by sorting the different codes into potential subthemes. These were reviewed several times, and eventually merged to create 36 new subthemes. Finally, the subthemes were merged into eight themes. These were then defined and named, and are described in the results section.

Table I Proportion of participants with mental health difficulties by wellbeing status

Mental wellbeing status	Number of individuals who declared mental health difficulties	Proportion of wellbeing category (%)	Proportion of entire sample (%)
High ($n = 113$)	2	1.7	1.2
Low ($n = 56$)	23	41.1	13.6

Content analysis

Development of code book. After conducting the thematic analysis, a code book was developed in order to guide the subsequent content analysis. The emergent subthemes elicited from the thematic analysis constituted the majority of the codes. However, after conducting a full literature review, some additional codes suggested by previous research in the area and related theory were added. This was in order to further test whether themes identified in the wider literature were also found in this data set. The additional a priori codes were *Sense of Individuality and Autonomy* (Clift, Hancox, Staricoff and Whitmore (2008) and Clift *et al.* (2008); Ryan and Deci, 2000), *Increased Trust and Respect for Others* (Silber, 2005), *Improved Mastery and Self Control* (Cohen *et al.*, 2006) and *Improved Coping with Stress* (Antonovsky, 1993).

Reliability checks

In order to ascertain the reliability of the codes, a reliability coefficient was calculated. A data set containing 90 coding units was coded separately by LL (first coder) and IM (second coder). The first coder had developed the themes for the coding strategy but the second coder was initially unfamiliar with the themes. Therefore, detailed descriptions of each of the codes were given and correspondence over e-mail was conducted to ensure the second coder felt competent and familiar with the coding strategy. Cohen's kappa was calculated for the coding of the overarching main themes and reached a value of 0.9, showing a high level of agreement. Cohen's kappa was then calculated for the subthemes where a value of 0.76 was obtained. Although it could be argued that this is an acceptable coefficient value considering Cohen's kappa is a conservative test, the coders decided to review each code. Differences were found to be mainly due to misunderstandings due to grammatical error or mistyping of words, which resulted in ambiguous meaning in some cases. These were all resolved through discussion. It was also found that there was an overlap between coding for "motivation" and "purpose in life" therefore these two codes were combined, which was in agreement with current theory. Complete agreement was reached, therefore, it was decided that the coding strategy showed good reliability enabling the content analysis to be conducted.

Analysis

Once the reliability of the themes had been ascertained, a full content analysis was conducted. The analysis was carried out as defined by Krippendorff (2004). The data set was again divided into text units and each unit was assigned to one of the eight broad themes and to a subtheme. Counts were made for the number of participants citing each theme and subtheme. Counts were identified for different levels of the gender, age group and nationality categories and for those high and low in reported wellbeing. This process was used to check the initial codes developed in the thematic analysis, and also gave information about frequency of themes.

Additional tests were conducted in SPSS in order to assess whether the number of responses in different categories across participant characteristics differed from the distribution expected by chance. A two-tailed Pearson X^2 test was selected as the most appropriate test to examine this categorical data. Three contingency tables had cells with an expected frequency less than five, therefore Fisher's exact test was used in these cases, as this test does not make an assumption of a large sample size (Clark-Carter, 2010).

Results

Thematic analysis

Table II reports the themes extracted from the initial inductive analysis. Frequencies are not reported here as this initial analysis was intended to be purely qualitative.

Social benefits

Participants felt the social aspects of being in a choir were helpful to them. Singers commented that choirs enabled them to make social contacts, enabling connections with

Table II Themes emerging from initial inductive analysis

Theme	Subtheme
Social benefits	<p><i>Social networking.</i> Meeting new friends, meeting different types of people, meeting people with similar interests, keeping social contacts, socialising</p> <p><i>Sense of belonging/group.</i> Having a sense of being part of a group, belonging, identity, a feeling of "team", being valued, sense of community</p> <p><i>Social inclusion.</i> Accessible to different parts of society, e.g. older people/people with mental health difficulties, also accessing other choirs</p>
Physiological benefits	<p><i>Health-seeking behaviours.</i> Encourages singers to engage in activity beneficial to health, e.g. walking, doing breathing exercises</p> <p><i>Respiratory/vocal health.</i> Improves breathing or provides other benefits in this area such as reducing snoring</p> <p><i>Physical stress reduction.</i> Perception that it lowers heart rate, releases muscle tension, etc.</p> <p><i>Perceived hormonal changes.</i> Perceived changes in hormones such as cortisol, adrenaline, etc.</p> <p><i>Cardiovascular.</i> Perception of increased blood oxygenation, blood circulation, improved metabolism</p> <p><i>Mobility benefits.</i> Greater flexibility, posture, etc.</p> <p><i>Fitness work-out.</i> Provides a form of exercise</p> <p><i>Distraction from pain.</i> Reduces experience of pain by distraction onto other things</p> <p><i>Immunity.</i> Perceived benefits to the immune system</p> <p><i>Other.</i> Physiological benefits not adhering to above categories, general benefits</p>
Mood regulation	<p><i>Induce positive affect.</i> Creates happiness, enjoyment</p> <p><i>Reduces negative affect.</i> Resolves/counteracts depression, low mood</p> <p><i>Catharsis and self-expression.</i> Processing and/or experiencing powerful feelings, way of communicating feelings and states.</p> <p><i>Calming/relaxation.</i> Induces a sense of calm, relaxes</p> <p><i>Anticipation.</i> Sense of excitement, looking forward to something</p> <p><i>Energising.</i> Uplifting, a boost, gives energy to carry on, thrilling</p>
Cognitive	<p><i>Improves outlook.</i> Things seem better, brighter, change in perspective</p> <p><i>Raises self-confidence and self-esteem.</i> Feeling better about oneself, more confidence</p> <p><i>Provides a sense of balance in life.</i> Provides balance, something to do other than working</p> <p><i>Distraction and challenge.</i> Providing an intellectual challenge, change of environment/activity/physical location which distracts from worries of everyday life</p> <p><i>Improves concentration and memory.</i> Perceived improvements in this area</p> <p><i>Brain work-out.</i> Exercises brain, mental faculties</p>
Singing and music	<p><i>Knowledge, skills and competence.</i> Learning new pieces of music, improving skills in technique, sight-reading, becoming good at something</p> <p><i>Uniqueness of singing.</i> Singing provides benefits over and above listening to music or playing an instrument, singer is the instrument</p> <p><i>Joy of music.</i> Love of music, appreciation of music</p>
Providing meaning and purpose to life	<p><i>Adding value/purpose to life.</i> Sense of doing a meaningful activity, doing something important, having status, making a difference, giving motivation, reason to get up, to give of one's best, provide sense of identity. Enhances quality of life</p> <p><i>Discipline and structure.</i> Providing a regular activity in the week, a commitment</p> <p><i>Rewarding.</i> Sense of achievement</p> <p><i>Spiritual.</i> Religious feelings, aesthetic beauty, transcendence from everyday worries, not the mundane</p>
Holistic health	<p><i>Mind-body link.</i> Acknowledging reciprocal effects on mind and body, singing improves mind and physical health, and one begets the other</p> <p><i>Therapeutic.</i> Makes one feel better, heals mind and body</p>
Negative effects	<p><i>Pressure.</i> High stakes, pressure to perform</p> <p><i>Negative physical effects.</i> Strain on voice, tiring</p>

similar people ("it provides an opportunity to meet people with similar interests") and different people ("socialising with people from all walks of life").

Singers also commented that singing provided a regular social opportunity, for example, "I have made many friends with whom I have regular social contact". A noticeable subtheme running through the data was the concept of belonging to a group, and the value of this in

terms of a sense of togetherness and support. For example: “choral singing unites”; “[it provides a] sense of community, a sense of ‘we’”.

A subtheme that was not mentioned frequently was the idea that choral singing facilitated social inclusion. However, when it did appear it was arresting and felt particularly central to those in the low mental wellbeing group as a way of being with other people. For example: “I am pathologically shy therefore singing gives me a way of mixing with others I can manage” and “I have depression. [The choir] encourages me to mix with other people, in other circumstances I would not make the effort to do so.”

Physiological benefits

Participants identified several physiological benefits gained from choral singing. A conspicuous theme mentioned by participants was perceived benefits to breathing. This is unsurprising as the much of the activity involves practicing breathing control. One singer stated “good for my breathing – it helped me on my walking trip to Peru”. Singing also appeared to motivate some people to take care of their health in order to preserve their singing voice. This is a finding which has not been highlighted in the previous literature. For example, one singer explained: “[...] because you need good breath volume and diaphragm muscles to sing well, you are more likely to avoid smoking and being overweight.”

Mood regulation

Perceived improvements and control over mood were also important benefits identified by participants. Many singers felt that the singing elicited positive affect and was energising and exciting (“Thrilling, exhilarating”; “makes me feel elated”). Singing was also seen to counteract or reverse negative feelings, and this appeared to be more significant for singers in the low wellbeing group, and was not discussed in the same way in the high wellbeing group. One singer in the low wellbeing group explained: “Singing can bring about a change of mood – from the depressed to the more positive”.

Catharsis was also talked about by singers. Participants felt that singing enabled them to process and rid themselves of negative feelings. For example; “[singing provides] a great sense of release at times of personal difficulty, notably bereavement”; “[singing can] release bad feelings”.

Cognitive benefits

Benefits in terms of self-concept were raised, where singers stated that singing with their choir improved their confidence and self-esteem (“I have a sense of being valued in the choir”).

Another common perceived benefit was a sense that the challenge of singing distracted from worry, improving psychological wellbeing, for example: “I can forget about the stresses and strains of everyday life as the music is challenging and takes complete concentration”.

Singing and music

Singers talked about the intellectual satisfaction that gaining a new skill, or improvement in technique brought them: “to learn to listen is a special experience”; “I am introduced to and study music I would not otherwise have known.” However, this was expanded on to a greater extent by singers in the high wellbeing group and felt less important for the low wellbeing group.

Singers rarely commented on unique beneficial elements of singing over and above other activities, but it was notable when it was discussed. For example: “choral singing is a wonderful opportunity to make music actively, rather than listening”. A clear, powerful benefit identified by singers was the joy and pleasure that singing gave them beyond the specific meetings of their choir, for example: “the songs accompany me through everyday life and make me feel elated”.

Adding meaning and purpose to life

Perhaps the most remarkable and noticeable benefit outlined by participants was the highly important and validating role that choral singing played in their lives. This appeared to be the most striking benefit as singers were so compelling and expressive when describing the impact singing had upon them. Some of the many comments include: “a highlight of my week”; “A life without music and singing is unthinkable for me”; “the most important aspect of my life”; “something would be missing in my life if I couldn’t sing”; “wonderful experiences and memories”.

Some of this value appeared to be gained from providing a direction and focus to people’s lives (“It provides a structure in the week”) and the benefits this provided to retired people in particular were mentioned. Participants found singing rewarding and described a sense of achievement (“I feel special and privileged to sing with this choir”). A less discussed but none-the-less salient subtheme was the experience of spirituality and transcendence from the ordinary and mundane routines of daily life. For example: “the beauty of the music fills me with enthusiasm and elevates me above normality” and “to make music is for me an aesthetic and freeing experience”.

Holistic health

Singers felt that there was a link between mental and physical health, and that singing had reciprocal benefits on both aspects of wellbeing (“can have a healing effect on your psyche and body”; “provides a means of integrating mind, body and spirit”). This appeared more obvious among participants in the German choirs. Linked to this were discussions on how singing improves health, cures illness and is generally therapeutic (“improves your mental health”; “helps me manage my chronic asthma”).

Negative effects

Perceived negative effects were rare, but when they were mentioned they appeared slightly more prominent in the lower wellbeing sample, and consisted of comments regarding the stress involved in performing to a high standard, and physical strain on the vocal chords and body.

Content analysis

In order to compare the frequencies of themes across different groups, a content analysis was conducted, using the code book compiled from the themes developed during the thematic analysis and also using a priori themes.

Frequencies across the sample

Across the entire sample, it appeared that the most frequently cited benefits were social benefits, closely followed by those gained through mood regulation and then those within the theme of providing meaning and purpose to life (Table III). The most infrequently mentioned theme was negative effects of singing.

These findings were also reflected in the data when frequencies were broken down by subthemes, where the most frequent subtheme overall was “Induces Positive Affect”, then the next was “Social Networking”, followed by “Adding Value and Purpose to Life”. Table III indicates the frequency of subthemes within each theme.

Frequency by demographic variables and wellbeing category

In order to examine whether frequency of reported themes was affected by gender, age group or nationality, the proportion of participants stating each theme was calculated for each of these categories. They were broadly similar within each of the categories.

In order to explore potential differences in frequency of cited themes between wellbeing groups, the percentage of participants citing each theme was calculated for each of the wellbeing groups. Proportions of participants who cited each theme appeared to be globally similar across the high wellbeing and low wellbeing groups, although there appeared to be

Table III Frequency of themes

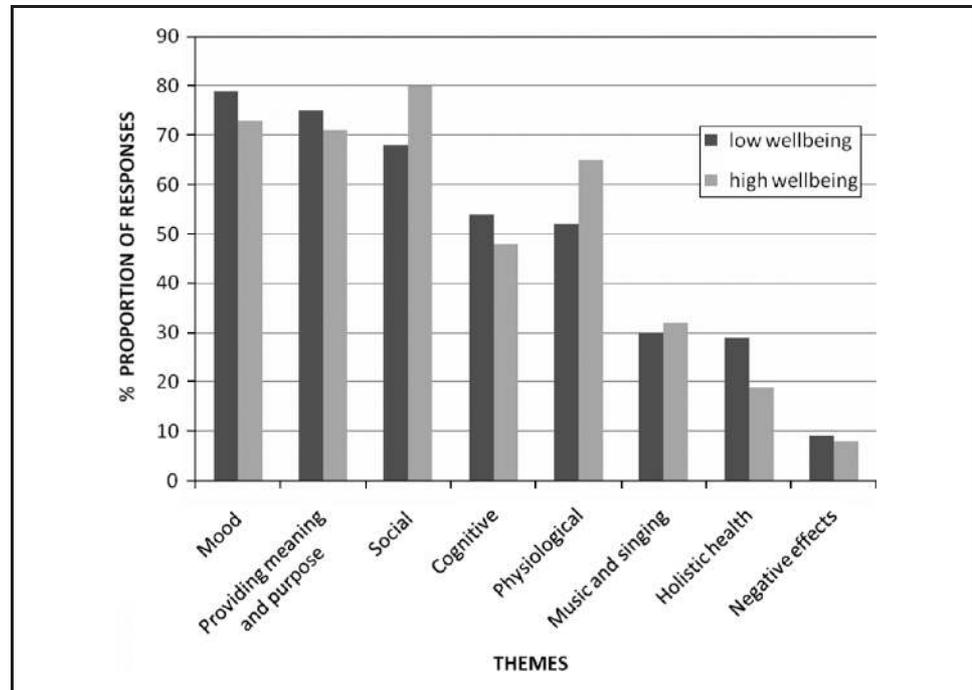
<i>Theme (number of participants citing theme)</i>	<i>Subtheme</i>	<i>Number of participants citing subtheme</i>	
Social (128)	Social networking	100	
	Sense of belonging	52	
	Social inclusion	25	
	Sense of individuality	11	
	Increased trust and respect	8	
Benefits to mood (127)	Induces positive affect	101	
	Energising	35	
	Calming/relaxation	32	
	Reduces negative affect	20	
	Anticipation	16	
Adding meaning and purpose to life (122)	Catharsis and self-expression	11	
	Adding value/purpose to life	85	
	Rewarding	45	
	Discipline and structure	25	
	Spiritual	18	
Physiological benefits (103)	Respiratory/vocal health	66	
	Other	19	
	Cardiovascular	13	
	Health-seeking behaviours	11	
	Physical stress reduction	10	
	Mobility benefits	9	
	Fitness work-out	6	
	Immune benefits	4	
	Perceived hormonal changes	1	
	Distraction from pain	1	
	Cognitive benefits (84)	Distraction and challenge	41
		Increases confidence and self-esteem	16
		Brain work-out	15
Improves outlook		14	
Provides a sense of balance in life		12	
Improves concentration and memory		9	
Makes it easier to cope with life/stress		6	
Improve mastery and self-control		5	
Singing and music (53)	Knowledge, skills and competence	31	
	Joy of music	28	
	Uniqueness of singing	9	
Holistic health (38)	Therapeutic	31	
	Mind-body link	10	
Negative effects (14)	Negative physical effects	10	
	Pressure	5	

some potentially minor differences, particularly in social and physiological domains (Figure 1).

Further analyses

Although overall, the frequency of themes cited were broadly similar between the sub-groups compared, there appeared to be differences in the proportion of responses for some themes. Therefore, statistical analyses were conducted to examine whether participant groups differed significantly in the frequency of themes according to nationality, age, gender and wellbeing. Pearson χ^2 and Fisher's exact tests were conducted to compare the number of participants who responded to those who did not for each theme. It was thought prudent to conduct all potential comparisons as this was an exploratory study. In order to avoid a Type I error due to multiple comparisons, tests were conducted using Bonferroni adjusted alpha levels of 0.0063 (0.05/8). None of the results reached significance. This result indicated that individuals in the different nationality, age and gender categories, and those high and low in wellbeing had similar proportions of responses to each theme.

Figure 1 Proportional frequency of total responses by wellbeing status



Discussion

This study sought to investigate whether a cross-national sample of amateur choral singers believed that choral singing had benefitted their mental and physical health. It also sought to examine what singers believed were the mechanisms or processes underlying the relationship between choral singing, wellbeing and health. In both areas, attention was given to whether these beliefs differ by nationality, age, gender and wellbeing status categories.

Results of this study suggest that there are multiple perceived benefits gained from choral singing. This study has identified benefits which have not been found in previous research, such as promoting health-seeking behaviour, and has given indications of the relative frequency of the benefits found within and across different groups. The frequency of reporting each of these benefits also appears to be unaffected by nationality, gender, age or wellbeing status. Although frequency of reporting does not necessarily correspond to perceived importance, this may imply that different groups assign similar levels of importance to certain benefits.

The key areas where singing had a perceived benefit to health were social benefits, emotional benefits, and adding meaning and purpose to life. These were reported the most frequently and could be considered to be the most salient benefits to singers. The way in which these benefits might be understood and generated warrants further discussion.

Potential mechanisms

Social benefits

Some of the benefits could be understood in terms of social capital. Research suggests that increased social capital is related to positive mental health (de Silva *et al.*, 2005). Therefore, benefits of choral singing identified by participants such as building social networks and making bonds with all types of people may contribute to mental health by increasing sense of support and community. The social benefits could also contribute to other potential mechanisms described below.

Emotional benefits

Eliciting positive emotion may be linked to various pleasurable experiences including social encounters. However, the joy and pleasure experienced may have been stimulated by music itself. The music may have impacted on emotion centres in the brain, particularly in the right hemisphere, which are important for the communication of emotional states (Peretz, 1990), causing the changes in emotion as described by participants. Elicitation of negative emotional states (Blood *et al.*, 1999; Mitterschiffthaler *et al.*, 2007) and “chills” (Sloboda, 1991; Salimpoor *et al.*, 2011) have also been found with music. This stimulation of emotional experience through the music may, therefore, also account in part for reports of catharsis and perceived spiritual experiences. Therefore, singing may benefit mental and physical health through having a beneficial effect on mood, by eliciting positive mood states or aiding the processing of negative emotions through catharsis. Positive emotion is seen to be necessary for happiness in life (Seligman, 2002), therefore, this eliciting of positive mood may have huge benefits.

Adding meaning and purpose to life

It has been argued having a sense of meaning in life is essential for wellbeing (Seligman, 2002) and many of the singers credited choral singing for providing this. The sense of extrinsic and intrinsic motivation in the comments included within this theme reflects the experience of engaging in something meaningful. Ryan and Deci's (2000) self-determination theory states that the needs of competence, relatedness and autonomy must be met in order to achieve motivation for life, leading to wellbeing, psychological and social development. Competence is achieved through a sense of reward and accomplishment. Singers found that singing increased their sense of competence, and discussed how they felt praised by others and a sense of achievement. Singers also spoke of relatedness in their relationships with others and some spoke of a sense of autonomy in their success. Therefore, choral singing may allow attainment of the needs essential for motivation and meaningfulness, leading to improved wellbeing.

Antonovsky's (1987, 1993) SOC model also provides a useful framework for understanding these findings. Three components of his model, which are cited as important for achieving health, address the psychological and social resources achieved through choral singing, along with the reported meaningfulness achieved through this activity.

Other benefits

Csikszentmihalyi's theory of flow may also contribute to the understanding of these findings. Distraction from daily concerns was the most frequently mentioned subtheme in the cognitive benefits. Research has shown that many cortical left hemisphere areas appear to be involved in intellectual appreciation of music, and also the competences required in performing music (Peretz, 1990). Therefore, choral singing may provide cognitive, cerebral stimulation, providing the ideal environment for flow experiences to occur. There is also research which indicates that music stimulates systems linked to estimating the passage of time (Ikemoto and Panksepp, 1999; Meck, 1996), leading to a sense of “time having lapsed”, and this might be another way in which singing contributes towards an experience of flow. If choral singing does allow a state of flow to be experienced, this may explain the feelings of wellbeing and competence outlined by participants.

The contributions to physical health identified in this study were purely subjective. Nevertheless, it appears there are subjective benefits to physical health achieved through the gentle physical exertion and breathing techniques involved in singing, and singing appears to promote a healthier lifestyle. These benefits may also enhance one's mental health. Research shows that emotional wellbeing and mental health has a significant impact on many areas of physical health such as immunity and cardiovascular function (Prince *et al.*, 2007). Therefore, it seems plausible that the social, mental and physical benefits of choral singing may interact to positively affect health and wellbeing.

Limitations and future research

The present study focuses on choral singers and has added to the understanding of benefits that choral singing may provide. From a qualitative perspective, the category system created is grounded in the written accounts provided by a much larger sample than in most previous studies of singing and wellbeing. In addition, comparisons within the sample showed that the themes were expressed consistently irrespective of nationality, sex, age and wellbeing status. Whether the same themes would emerge among non-singers who might be encouraged to take up singing deserves to be researched further, but previous studies of choirs set up for people with little experience of singing, such as those studied by Bailey and Davidson (2005) and Clift and Morrison (2011), suggest that this would be the case.

The identification of individuals with high and low wellbeing was accomplished via a single question on the WHOQOL-BREF. Whilst the self-reporting of mental health difficulties supported the fact that this method of separation did identify a group with poorer mental health and a group with better mental health, further research is needed to explore this issue with validated instruments.

Further understanding about the importance of choral singing on health and wellbeing over time could be achieved by longitudinal and randomised controlled studies of people in choirs. In addition to self-report measures and interviews, gathering data on health service utilisation would provide important corroborative data and help determine the health economic benefits of this activity (see Skingley *et al.*, 2011, for a community singing randomised controlled trial protocol which includes an assessment of cost effectiveness).

Although this study did compare across countries, it could be argued that culturally, choral singing, and especially singing in the Western classical tradition, will be similar around the world. Other forms of group singing in different cultures would also provide interesting fields for further research to discover whether the findings from this study are replicated.

It would also be informative to explore whether it would be possible to isolate beneficial elements that are specific to choral singing and elements that can be found in other creative and leisure activities, and the relative benefits of each. For example, comparing choral singing to participation in visual and performing arts (Camic, 2008) or other leisure activities such as gardening, yoga and sports.

This study has contributed to providing some ideas about potential mechanisms which might underlie the benefits to wellbeing and health provided by choral singing. Systematic testing of some of these mechanisms would further contribute to an understanding of the social and psychological factors contributing to wellbeing. More research evidence is also needed to discover how long these effects last, as they may only last for the duration of the practice, or may contribute to significant long-term changes. Measuring tools sensitive enough to measure small but important changes need to be identified or developed.

Conclusion

This study has shown that there are multiple benefits to health and wellbeing from choral singing as perceived by amateur choral singers. These benefits were found in three Western nationalities and appear to be minimally affected by gender, age or mental wellbeing status. There may be specific mechanisms through which these benefits occur, which can be understood through theoretical perspectives on health and wellbeing. Although there remains much to be done in this area, the findings from this project indicate that choral singing is an activity which involves many of the factors cited as important in different models of health and wellbeing. These findings contribute to our understanding of the complex and interacting factors which might contribute to wellbeing and health. In addition, group singing could be used to develop preventative health care, to add to clinical treatment packages and provide post-intervention, community-based support and for people in recovery from acute episodes of physical or mental ill-health (Clift, 2010; von Lob *et al.*, 2010; Clift and Morrison, 2011). In these various ways, choral singing could make an increasingly important contribution to the promotion of public mental health.

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