

# Evidence for Strong Immediate Well-being Effects of Choral Singing – With More Enjoyment for Women than for Men

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## ABSTRACT

Choral singing as a leisure activity is associated with increased well-being effects. It is also known that women engage more often in singing activities than men do. The objective of the study was to investigate how emotional states vary on pre and post measurements of a regular choral rehearsal in groups of female and male choral singers. Participants were 212 individuals (women  $n=152$ , men  $n=60$ ) from eleven choirs (amateur  $n=6$ , advanced  $n=5$ ). Results showed that in accordance with the literature on emotions and gender, women reported significantly more positive emotional states than men did related to participating in a regular choral rehearsal. However, few differences were found. Moreover, descriptive data pointed at a pattern of gender differences. Women and men reported similar levels of negative emotions, but varied more in changes of positive emotional states on pre and post measurements. The absence of gender differences might be due to the fact that this group of choral singers had been engaged in choral singing for many years and therefore, their experiences and expectations of choral rehearsals were similar.

## I. INTRODUCTION

The interest of the current study is directed towards choral singing as a leisure activity and its possible well-being effects. In Sweden, more than 1 out of 10 persons participate in choirs or group singing (Statistics Sweden, 2008). In the present study, choral singing is considered as leisure activity, and only choirs on amateur and advanced levels were included. Results on overall well-being effects associated with choral singing are reported elsewhere (Sandgren & Borg (2009). They found that choral singing is associated with strong immediate well-being effects in that positive emotional states increased and negative emotional states decreased significantly. These results confirmed previous studies on well-being benefits from choral singing (see Beck et al., 2000).

Outgoing from previous results by Sandgren & Borg (2009), it was of interest to further explore the data concerning possible gender differences. The aim of the present study is to investigate if women and men differ in their ratings of emotional states on before and after measurement of a regular choral rehearsal.

### A. Well-being effects of singing

Not long ago, anecdotal stories and claims of music educators that music contributes to the quality of life lacked scientific evidence (Gates, 1989). Today, research provides evidence of the value for musical activities for psychological well-being (Laukka, 2007), medical problems (Koger et al., 1999) and enhancing cognitive ability (Schellenberg, 2006). Group singing has gained interest as leisure activity (Clift & Hancox, 2001) and also as health promotion with positive

effects on medication usages and number of doctor visits (Cohen et al., 2007).

The first study on the effects of choral singing on emotional states was conducted by Beck et al. (2000) and the focus was on well-being effects. Results showed that the professional choristers had a mixed emotional experience during a stage performance with both positive and negative affects including a raise of stress hormones. The findings on possible positive effects on mood regulation and immune function were further elaborated in a study on choral singing by Kreutz et al. (2004) and a study on singing lessons by Grape et al. (2003). Results from both studies indicated that positive emotions states were associated with increases in immune competence. Unwin et al. (2002) compared the effect of active participation in choral singing with passive listening to choir music. Both conditions were associated with positive changes in mood. Another comparative study investigated the effects of solo singing, choral singing and swimming (Valentine & Evans, 2001) and found that all three activities led to a reduction in tense arousal, and increases in energy and hedonic tone. Yet, among the three activities, swimming had the largest impact on these emotional states.

The aspects of well-being associated with participation in choral singing was closer investigated by Clift & Hancox (2001) in a sample of a university choir. The specific well-being effects were described in six dimensions; well-being and relaxation, breathing and posture, social benefits, spiritual benefits, emotional benefits, heart and immune system. The dimension of well-being and relaxation included positive effects described as joy, mastery feeling, feeling energized and confident as well as reductions of stress and worry. This study was also the first to recognize the social benefits from singing together. Later followed three qualitative studies that examined the social dynamics in choirs with homeless men (Bailey & Davidson, 2002), middle-class singers (Bailey & Davidson, 2005), a women's prison choir (Silber, 2005) and a male choir (Faulkner & Davidson, 2006). Silber (2005) and Faulkner and Davidson (2006) underline the potential of choral singing as a forum for experiencing meaningful interpersonal relations. Singing together can be an enriching way of relating to each other and fulfilling needs of belongingness.

However, singing as amateur activity have other qualities compared to singing as professional activity that can cause considerable strain. Accounts of opera singers give evidence of work strains that appear to lead to psychological symptoms (Sandgren, 2002). The opera singers extensively worried that their singing capacity would fail and lead to unsuccessful stage performance. The act of singing was characterized by strong achievement orientation and fear of failure. Beck et al., (2006) returned to reinvestigate the strain of singing performances on health measures among future professional singers (music majors) at a conservatoire. It was found that students' immune

competence decreased after a performance if they experienced pressure due to serious plans for a professional singing career. The occurrence of occupational stress was also found among professional chorus artists (Kenny et al., 2004).

Even singing lessons appear to have a different meaning and focus for individuals with different ambitions with their singing activity, as amateur and professional singers in the classical genre differed in ratings of emotional states (Grape et al., 2003). Also physiological markers varied in the two groups. Amateurs reported higher levels of joy and elatedness, and less achievement orientation compared to professionals. For amateurs, the singing lessons was a means to experience self-actualization, personal development and releasing emotional tensions through singing, whereas professionals pointed out their efforts to improve their singing technique for professional reasons. In addition, professionals demonstrated higher cardio-physiological fitness than amateurs. This finding can be interpreted as evidence for the better trained voice among the professionals. But most interestingly, the level of oxytocin increased in both groups. Oxytocin is a physiological marker (nonapeptide) of increased social intimacy and connectedness.

### **B. Characteristics of the choral singer**

A note on demographic data in a study by Beck et al., (2000) shows that the individuals were highly committed to the choral activity, also across age spans from childhood to late adulthood. The choral singers were in average 46.4 years (range 25-62) and had been singing in choirs for in average 36.6 years (range 10-55). It is not known why these individuals pursue their interest for choral singing for a such long time.

A study by McCrary (2001) gives some examples on why individuals may join a choir. Students referred indirectly to previous singing experiences by indicating that singing had been missing in their life. Other motives were the social aspect of meeting other students, of using singing as a stress relief, but above all they valued the pure enjoyment of singing.

Moreover, the average age of choral singers appears to be relatively high. In choral societies the average age was 61 years (Clift et al., 2007) and in a professional choir 46.4 years (Beck et al., 2000).

The choice of singing as leisure activity might correspond to common gender-stereotyped preferences (Harrison, 2007). Studies indicate that more girls than boys (Ashley, 2002; Hall, 2005; Mizener, 1993), more female college students than male college students (Lind & Mijamoto, 1997 cited in McCrary, 2001) and more women than men (Gates, 1989) are engaged in singing activities.

### **C. Emotions and gender**

Previous research of gender differences in emotional experiences demonstrate inconsistent patterns of results with a few exceptions (see review Brody & Hall, 2008; Fischer, 2000; Noelen-Hoeksama & Rusting, 2003).

One line of research shows that women and men vary in how they display emotions. Women report experiencing negative emotions such as anxiety and sadness more than men do. This gender difference points at a consistent pattern and regards both the frequency and intensity of negative states. Women tend also to express negative emotions more compared to men. However,

it should be noted that men report experiencing anger and hostility more than women do. In these examples, the problem with the conceptual distinction between experienced and expressed emotions comes forward. In self-reports, the often used term is “emotional” but it is rarely explained any further. Thus, participants will have very little awareness of what is asked for.

Concerning positive emotions, research shows consistently that women express positive emotions more than men do, particularly regarding joy, love, affection, warmth and feelings of well-being in intimate relationships (Brody & Hall, 2008). There are indications, but no consistent results, that men report expressing contempt, loneliness, pride, confidence, guilt and excitement more intensively and more often than women.

Explanations for gender differences in experiencing emotions are diverse. There is little evidence for biological explanations for negative moods, and more research on positive moods is warranted (Noelen-Hoeksama & Rusting, 2003). More recently, Barrett (2006) even questions the assumption that emotions are natural kinds. Instead, the concept of emotions awaits probably the same fate as other domains, i.e. that emotions “are best understood as products of distinct but interacting psychological processes with accompanying neural systems” (p. 50).

Regarding personality explanations, women’s investment in relations explain to some extent their reporting negative moods. The social role for women tends to involve being emotionally expressive and emotionally instable, whereas for men, the social role involves being inexpressive and emotionally stable. These different social roles are suggested to lead to gender differences regarding emotional expressiveness, also in various social contexts. For example, women are expected to express positive emotions towards others (see Stoppard & Grunchy, 1993) and men are expected to display anger (see Eagley & Steffen, 1986).

Brody & Hall (2008) emphasize particularly contextual aspects as explanatory framework. The meaning of the situation and the relations involved matter for what emotions are expressed by whom, to whom and how. Both women and men tend to be more expressive in intimate relations, yet women tend to rate their interactions as more intimate than men do. Women also report being more open with their emotions than men are, with the exception of anger.

Moreover, emotional functioning is also influenced by age. Over the years, gender roles tend to be less rigid and subsequently also be revealed in gender differences in emotional functioning (Gutmann, 1987).

### **D. The aim of the study**

According to the literature (Brody & Hall, 2008; Fischer, 2000; Noelen-Hoeksama & Rusting, 2003), women and men differ in what emotions they experience in what context and how. Thus, when interpreting emotional expressions, the situation, relations (for example proximity and intimacy) and social roles have to be taken into consideration. A regular choral rehearsal can be described as a context of relative high familiarity, as the members tend to remain active in the same choir for many years (Sandgren, 2009). The rehearsal is very structured and is led by a choir conductor. The choir conductor has the responsibility for the repertoire, and he or she takes the

lead for what is to be sung and in what way. During the rehearsal, the member remains at the same place throughout the rehearsal. More direct social exchange between the members takes mainly place outside the rehearsal. However, closeness may emerge among the members while singing is a highly expressive activity of a person's ability and inner life (Grape et al., 2003; Sandgren, 2002). Lastly, choral singing is a highly feminized activity (Ashley, 2002) and may offer a context where emotions are allowed, but still second-hand to the musical (and vocal) expression.

While taking above-mentioned social contextual variables into account, it remains however difficult to state any hypothesis concerning gender differences and perceived emotions during a choral rehearsal. Therefore, the aim of the study is to explore if women and men vary in well-being effects related to choral singing.

## II. METHOD

### A. Participants

The participants constitute a convenience sample of amateurs and advanced choirs in the Stockholm area, Sweden. Thirteen choirs were contacted and 11 choirs (amateur n=6, advanced n=5) were interested to take part in the study. The size of amateur choirs was in average 30.8 individuals and of advanced choirs in average 29.6 individuals. All individuals participated on voluntary basis. Confidentiality was assured.

Altogether 330 individuals participated. However, complete data sets from two data collections were obtained from 212 individuals (women n=152, men n=60) participated in ages of 19 to 90 years (women m=51.2, sd=12.4; men n=55.7, sd=12.1) (Table 1). Overall response rate was 59%.

A majority of the individuals were cohabiting or married (61%) and had high socioeconomic status (72%). More than half of the individuals were working full time and one third (29%) was not professionally active.

Concerning previous engagement in choral singing, a majority of the women (69%) and the men (66%) had choral experiences from childhood. Around a third of them started to sing in a choir in middle adulthood; women at ages 50.8 years (SD=10.9) and men at ages 42.5 (SD=14.3). In the current choir, women had been members for in average 5.1 years (SD=5.6) and men had been members for in average 8.2 years (SD=10.2).

### B. Materials and procedure

Inclusion criteria for the choirs were that a) the choir consisted of around 20-45 members, b) the choir was a mixed choir, c) the choir rehearsed at least twice a month, d) the individuals were at least 18 years, and e) the choral singers did not receive any financial compensation for their participation in the choirs.

The definitions of amateur and advanced choirs, respectively, were as follows. Amateur choirs did not require sight seeing ability and membership was open to anybody interested in singing. Focus for the choral activity was to "sing and have fun together". The repertoire consisted mainly of popular music such from Swedish song tradition. Advanced choirs demanded good sight seeing ability and members had to pass an audition. The repertoire consisted mainly of sacred and classical music.

The rehearsals would also involve preparations for future public concerts.

Data was collected in two steps. Firstly, a questionnaire was mailed to the home address of the participants. The participants filled in items on demographic data, socioeconomic status, musical background and health status (not reported here).

Secondly, the individuals were asked to rate how they felt on a range of emotional states. They rated the intensity of single emotional states before and immediately after a regular choral rehearsal. An adjective list of positive and negative emotional states was created (n=33). Items of emotional states were selected from the literature on music and emotions; vocal expression (Grape et al., 2003; Juslin & Laukka, 2003), strong musical experiences (Gabrielsson & Lindström Wik, 2003), physical sensations (Kenny & Faunce, 2004; Pelletier, 2004), and social connectedness (Bailey & Davidson, 2005). Indicators of stress reactions were found in McEwen (2002).

The participants rated the intensity of their emotional states, stress, reactions and pain on the scale of Borg CR100 (centiMax) scale® (Borg & Borg, 2001; Borg, 2007). The Borg Scale is a verbally level-anchored ration scale with a high value for interindividual comparisons. The scales unique properties have been validated against physiological and performance criteria within the area of perceived exertion. By using a ration scaling method, it is possible to study ratios, i.e. if one stimulus is perceived as twice or half of another. The range of the scale goes from '0' to a sign indicating a peak experience (>120) combined with verbal category scales for level estimates from 'nothing at all' to 'absolute maximum' respectively.

**Table 1. Demographic data of the choral singers.**

Variables	Frequencies (%)
<b>Gender</b>	
Women	152 (72)
Men	60 (28)
<b>Family status</b>	
Single	79 (38)
Cohabiting/married	128 (61)
With parents	2 (1)
<b>Socioeconomic status</b>	
Compulsory school	13 (6)
Secondary school	27 (13)
Higher education	151 (72)
Other education	20 (9)
<b>Employment status</b>	
<i>Full time</i>	
Women	91 (43)
Men	32 (15)
<i>Part time</i>	
Women	19 (9)
Men	9 (4)
<i>Not prof. active</i>	
Women	42 (20)
Men	18 (9)

### C. Data analysis

Differences between gender and emotions were analyzed with a series of one-way ANOVAs. The initial analysis of gender differences involved mean differences calculated for the two measurements (post measurement was subtracted from pre measurement for each single emotional state) and used for the

ANOVAs. To avoid the risk of mass significance a Bonferroni correction of the alpha level was used, resulting in a corrected alpha of .002 (more precisely .00152). Then, the means of pre and post measurements, respectively, were used for descriptive purposes in order to explore possible patterns of self-ratings (considering gender) of positive and negative emotional states.

### III. RESULTS

Results indicated significant differences between womens' and mens' self-ratings of changes in positive emotional states related to a regular choral rehearsal for the following states; feeling alert ( $F(1, 211)=10.353, p<.003$ ), happy ( $F(1, 211)=13.081, p<.001$ ), and proud ( $F(1, 211)=16.963, p<.001$ ), all results with p-values  $<.002$ . Tendencies to significant results were found for feeling content ( $F(1, 211)=13.681, p<.005$ ), satisfied with myself ( $F(1, 211)=7.952, p<.005$ ) and glad ( $F(1, 211)=9.040, p<.003$ ). A few but significant increases in positive emotional states from pre to post measurement were greater for women compared to men.

Results showed also that women and men did not differ on ratings of changes of their negative emotional states. Interestingly, the means of changes of negative emotional states were lower than the means of changes in positive emotional states for both genders.

Moreover, the pattern of self-reported changes in emotional states varied between women and men. On pre measurement, women and men rated close to similar levels on negative emotional states, but on post measurements women tended to rate higher positive emotional states than men did.

### IV. CONCLUSION

The aim of the present study was to investigate if women and men would differ in their ratings of emotional states on before and after measurement of a regular choral rehearsal. The current study confirmed previous findings that women report positive emotions more than men do. However, only a few significant gender differences were found for positive emotional states and no gender differences for negative emotional states.

Although the statistical analyses yielded only few gender differences, it was interesting to find that women and men reported similar levels of negative emotions, but differed more in ratings of positive emotional states. The reasons for the similar emotional responses to a regular choral rehearsal for women and men might be that these individuals were committed to choral singing since a few years and had also remained in the current choir. Therefore, it is possible that this shared experience for satisfying choral singing through the years and together create similar singing experiences and expectations.

Some methodological concerns need to be mentioned. The application of the Borg Scale for measuring emotions is new and needs to be further developed. The scale was previously successful in measuring intraindividual differences on pre and post measurements shown in the well-being effects of choral singing (Sandgren & Borg, 2009). In the present study, significant gender differences were few, but this is not related to the scaling method as the Borg Scale has functioned well in

differentiating between women and men (Borg, 2007). However, the choice of using the Borg Scale is based on an assumed analogy between sensory intensities, namely between exertion and emotions. However, the analogy needs to be further explained theoretically and empirically. Regarding the samples of choirs, the selection was limited to the Stockholm area and to areas where the socioeconomic standard was higher than in other areas. This was shown in that more than two thirds of the individuals had completed higher education. Therefore, generalizations can only be drawn to similar choirs working in larger cities and higher socio-economic status.

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