

Choir Singers Without Rehearsals and Concerts? A Questionnaire Study on Perceived Losses From Restricting Choral Singing During the Covid-19 Pandemic

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Summary: Background. Choir singing is an activity that engages individuals all over the world with a broad demographic representation. Both qualitative and quantitative studies have examined the benefits of the activity but very few have examined the effects when someone loses access to it and stops singing.

Objectives. Examining the governmental and organisational responses precipitated by the COVID-19 pandemic, we asked what happens when a choir singer loses all of their routines associated with regular participation in choir singing.

Materials and Methods. One national choir organization in Sweden (n = 3163) and one in Norway (n = 1881) were approached with a short survey. This comprised questions relating to the issue “what do you as a choir singer miss the most?” Each participant was asked to rate the importance of a number of elements that pertain to the experience of choir singing.

Results. The social aspect of singing emerged as having the strongest weight in terms of perceived loss that is, it was the element that the participants missed the most. Professional singers report that they miss the aesthetic experiences, flow, and all the physical aspects (physical training, voice training, and breathing training) to a greater degree as compared to reports from the amateurs. The importance of aesthetic experiences and physical components appeared to rise with increasing number of years that an individual had engaged with choir singing.

Conclusion. In the Scandinavian setting, the social aspect has a stronger weight than the other components and this seemed to be more significant in Norway compared to Sweden.

Key Words: Aesthetic experience—Choir singing—Covid-19 pandemic—Experiencing flow—Perceived losses—Social factor.

INTRODUCTION

Choir singing is a popular activity in many countries. This activity engages individuals with wide representation (age, gender, education, and religion). Several qualitative studies have examined the perceived benefits of choir singing.^{1–4} Patients with specific medical conditions such as mental illness⁵ and chronic obstructive pulmonary disease⁶ have been reported to benefit from participating in choir singing, but choir singing also has a more general role in public health.

Presently, due to the ongoing Covid-19 pandemic, almost all activities in choirs and choral groups have stopped. For some of the singers the consequences can be very material – loss of income – but for most singers the loss hits other domains of life. The aim of the present study is to find out how Swedish and Norwegian choir singers perceived the loss of choir singing in the beginning of the societal partial lockdown during the Spring (March to May) 2020. We decided to focus on components in choir singing that have been discussed in the scientific literature.

- 1) *Social bonding.* One of the most consistent findings in the literature is that singing stimulates social bonding. There has even been a discussion regarding oxytocin stimulation as a possible physiological correlate of this.^{7,8} Kreutz (2014)⁹ showed that oxytocin excretion is stimulated by singing but not by group talking in the same group. In a recent study,¹⁰ this finding could not be confirmed, however. Other physiological expressions of strengthened togetherness have been discussed in the literature. In slow uncomplicated wordless singing in group, coordination of breathing and heart beat between individuals has been observed.¹¹ However, when the choir singing becomes more complicated (different voices, text, complicated rhythms etc) this coordination is not seen.¹² More long-lasting hormonal effects have also been reported in people who start choir singing.^{13,14} Thus, there is some evidence showing that singing in a group is correlated with physical expressions. But regardless of these biological findings, there is overwhelming evidence for cohesion as a strong component in choir singing. Loss of the social component is, therefore, an important dimension in the exploration of perceived losses experienced during the lockdown of choir singing.
- 2) *Something to look forward to.* For many people weekly occurring choir rehearsals and preparations for concerts may be one of the few activities that are perceived as meaningful, loss of choir life could have existential importance.^{1–4}

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- 3) *Flow*. The possibility to experience « flow », effortless attention,^{15,16} has been described as a strong emotion that could be experienced for instance during singing in a choir. Csikszentmihalyi who in 1990 introduced the concept in science stated: *When in flow, a person is highly concentrated and absorbed in an ongoing activity – yet, there is no subjective feeling of mental effort*. Physiologically there is evidence during flow of high heart rate, stimulated laughing muscles in the face and at the same time deep slow breathing. Since flow experiences contribute to good psychological health, even independently of genetic factors,¹⁷ such experiences may belong to the key elements and therefore of importance in the search for important losses in this examination.
- 4) *Aesthetic experiences*. Powerful aesthetic experiences could be overwhelming during choir singing.¹⁸ Such experiences are important since in the brain they processed more rapidly than cognitive experiences, and they could therefore redirect cognitive processes and even trigger redirections in life.¹⁹ Longing for such strong aesthetic experiences could be one of the driving forces for choir singers and longing for them could be an important component in the loss of choir activity.
- 5) *Physical exercise*. There are physical components in the regular participation in choir singing. Large muscle groups (intercostal muscles and the diaphragm) are engaged and this means physical training in the same way as regular participation in sports.
- 6) *Breathing training*. As in meditation and several other forms of Eastern and Western relaxation techniques-controlled singing requires breathing awareness and training. The use of deep diaphragm breathing stimulates the vagal activity which is slowing down sympathetic arousal. Training this function could be of benefit in individual stress management¹⁹ and is also possibly a function that choir singers should perceive as important.
- 7) Finally, the voice training itself is a necessary part of the choir rehearsals. An improved voice function could be an important impetus for choir singers.^{20,21}

Although choir singing may be an amplifier of social bonding, few studies have examined whether or not this activity has a stronger socioemotional effect than other intense activities performed in groups. Maury and Rickard (2020)²² recently published a direct comparison between the socioemotional effects of participation in a choir group and those of participation in an exercise group. The effects on emotional wellbeing and social connection tended to be stronger in the choir than in the exercise group although the findings were only borderline significant.

Some choirs have started virtual activities as a replacement for real presence in a choir rehearsal. Interestingly, a study was performed of the effects on socioemotional variables of virtual singing (compared to physical singing) before the pandemic had started.²³ Although emotion regulation strategies were used to a lesser extent by the singers who participated in the virtual choir the authors conclude that

... “as the difference in use of ERSs is relatively modest, virtual musical experiences may still have a role to play in supporting those who cannot engage in live experiences such as people who are socially isolated.” Thus, the use of electronic presence in choir rehearsals during the pandemic may be of help but is unlikely to compensate for the lack of physical presence. However, we need to know more exactly how choir singers rate the importance of the different components in choir singing when they are forced to abstain from physical presence.

The aim of the present study was to illuminate the question *What happens when the choir singer loses all the routines associated with regular participation in choir singing due to the ongoing pandemic?* Which components are perceived as more important than others? Do the respective components have different significance for different subgroups of choir singers?

MATERIALS AND METHODS

The two national choir organizations in Sweden and Norway were approached. Church choirs organized by the Swedish (previous) State Church were not included. The participating organizations have mixed member lists, of individual choir singers and of whole choirs whose leaders received the electronic questionnaire. The questionnaire first of all contained questions about demographics (age, gender, number of years as choir singer, amateur/professional status, genre [Classical music, gospel, Jazz, pop, folk music, mixture of a couple of or all of these genres, other not listed]). With regard to genre, the alternatives were mutually exclusive. Some subjects (in fact the largest group) reported that their choir activity comprised several genres, but for all the other alternatives one genre clearly dominated their choir life. This made it possible to explore different genres in a more systematic way. After having filled out these general questions the participant was asked to rate the importance of each one of the following aspects of choir singing:

- Social bonding
- Something to look forward
- Possibility to experience flow
- Aesthetic experiences
- The “physical exercise” inherent in singing
- Breathing training
- Voice training

The question was formulated in the following way: *Now, when you are not allowed to participate in choir singing, what is it that you miss the most? Rate your answer from 1 (missing the least) to 5 (missing the most)*. This question was repeated for all the seven components of choir singing listed above.

All the dependent variables showed a skewed distribution with a higher percentage of participants reporting “missing the most” than of other response alternatives. In the analytical statistics, we therefore, decided to dichotomise the dependent variable. This resulted in comparisons between

the response alternative “missing the most” and the other response alternatives grouped together.

Multivariate analyses

Since there could be considerable overlap between different subcategories of choir singers, it was necessary to perform multivariate analyses in which the independent statistical contribution of different explanatory variables could be established. For instance, many years of choir singing may be associated with increased likelihood of professional status as a choir singer. This could mean that a relationship between number of years as a choir singer and one of the outcomes could be explained by the fact that those with a long experience are more likely than others to be professional singers. Multivariate analysis is helpful in identifying the variable that is likely to be the “real” statistically explanatory factor. Multiple logistic regression analyses were therefore performed with the use of the combined Swedish and Norwegian dataset. Such an analysis was performed for each one of the seven outcomes.

The following variables were considered as explanatory factors:

1. *Norwegian/Swedish* nationality with Swedish nationality as reference category.
2. Number of years as choir singer (“*duration*”, three categories, <5 years/5–50 years, >50 years, with oldest category as reference)
3. *Age* (three categories, <40 years, 41–65 and >65 years of age). This variable was strongly correlated with number of years as choir singer and was therefore excluded from the multivariate analyses.
4. *Gender*. Men were used as reference category.
5. *Amateur/professional* status, with professionals as reference category.
6. *Genre* (classical music, “other”, mixture of several genres, folk music, gospel, jazz, and pop) with classical music as reference category.

RESULTS

There were altogether 3163 Swedish and 1881 Norwegian participants (Table 1). A total of 51% of the Swedish and 77% of the Norwegian participants reported a mixture of genres. A total of 31% of the Swedish and 14% of the Norwegian participants reported classical music, while 7% of

TABLE 1.
The Table Shows the Descriptive Statistics of the Total Amount of Data Collected in Relation to Demography and Base-line/Background Characteristics

		Count	Column N %
Gender	Women	3869	76.8%
	Men	1169	23.2%
	Total	5038	100.0%
Singers status	Amateur	4677	92.5%
	Professional	377	7.5%
	Total	5054	100.0%
Genre	Classical	1266	25.0%
	Other	205	4.1%
	Mixed	3073	60.7%
	Folkmusik	54	1.1%
	Gospel	241	4.8%
	Jazz	7	0.1%
	Pop	215	4.2%
	Total	5061	100.0%
	Active in choir training after corona outbreak	Missing	23
Yes		4704	92.6%
No		352	6.9%
Total		5079	100.0%
Number of years in choir	–5	587	11.6%
	6–50	3915	77.5%
	50+	549	10.9%
	Total	5051	100.0%
Age group	–30	350	7.0%
	31–65	3309	66.0%
	66+	1356	27.0%
	Total	5015	100.0%
Land	Sverige	3198	63.0%
	Norge	1881	37.0%
	Total	5079	100.0%

the Swedish and 2% of the Norwegians reported gospel. Pop was reported by 5% of the Swedish and 3% of the Norwegian participants.

There was female dominance, in Sweden 20% men versus 80% women and in Norway 29% men and 71% women. The female dominance was more pronounced in choirs doing folk music, gospel, and pop compared to those doing classical music. Years singing in a choir (duration) ranged from 1 year to 75 in Sweden and from 1 year to 65 in Norway. It was the same for men and women. Age ranged from 14 to 92 among women and from 16 to 92 among men in Swedish participants and from 14 to 84 among women and from 21 to 87 among men in Norwegian participants.

The *social component* (Table 2) was the component most frequently reported as “missing the most” (44% in Sweden and 54% in Norway). In Norway the aspects “something to look forward to” (38%) and “voice training” came second and third with regard to “missing the most.” The pattern is slightly different in the Swedish participants since the three areas “aesthetic experiences,” “possibility to experience flow,” and “something to look forward to” were equally rated with regard to “missing the most” (between 40% and 42%). Only 23% missed “breathing training the most,” both in Sweden and in Norway.

Table 3 shows the results for the first four outcomes *social component*, *flow*, *something to look forward to* and *aesthetic experience*. Number of years in choir, age group, gender, professional/amateur status, and country (Norway, Sweden) as well as genre is explanatory variables. The statistical associations are presented as odds ratios with 95%

confidence limits as well as *P*-values (two-tailed). For each outcome the univariate analysis is presented at first and the multivariate analysis after that. In the multivariate analysis, all explanatory variables are included (except age) and the associations indicate which variables that contribute statistically to the prediction of the dependent variable independently of the other explanatory variables. In the text that follows OR (odds ratio) when specified within parentheses refers to univariate analyses.

With regard to the *social component* the univariate analysis shows (only statistically significant findings will be mentioned) that a short period as a choir singer is associated with elevated likelihood that the participant misses the social component the most (OR = 1.51 after 1–5 years OR = 1.24 after 6–50 years, both compared to more than 50 years' experience). Age showed no relationship with the social component. Women were slightly more likely than men to be in this category (OR = 1.15) and amateurs clearly more often than professionals (OR = 1.29). Norwegian singers were also more likely than Swedish participants to report the social component as particularly important (OR = 1.46). With regard to genre, the singers who were singing classical music were less likely than all the others to miss the social component the most, and the findings were statistically significant (with classical music as reference) for gospel (OR = 2.41), pop (OR = 1.86), mixed music (OR = 1.86), and other (OR = 1.77). In the multivariate analysis, both number of years in a choir and status as amateur or professional lost their statistical significance. Variables with remaining statistically significant power were gender,

TABLE 2.
The Table Shows the Descriptive Statistics of the Total Amount of Data Collected in Relation to Outcome Variables

		Count	Column N %
Social Component	Misses Less	2611	52.1%
	Misses the most	2400	47.9%
	Total	5011	100.0%
Something to look forward to	Misses less	3036	60.8%
	Misses the most	1955	39.2%
	Total	4991	100.0%
Possibility to experience flow	Misses less	3079	63.6%
	Misses the most	1761	36.4%
	Total	4840	100.0%
Aesthetic experience	Misses less	3114	63.5%
	Misses the most	1791	36.5%
	Total	4905	100.0%
Physical training	Misses less	3480	70.7%
	Misses the most	1439	29.3%
	Total	4919	100.0%
Voice training	Misses less	3177	64.1%
	Misses the most	1777	35.9%
	Total	4954	100.0%
Breathing training	Misses less	3719	76.9%
	Misses the most	1115	23.1%
	Total	4834	100.0%

TABLE 3.

Shows Results of the Univariate and Multivariate Logistic Analyses of “Missing the Most” - the Social Component, Flow, Something to Look Forward to and Aesthetic Experience - in Relation to Number of Years in Choir, Age, Gender, Amateur/Professional Status, Country and Genre

	n (%)	Social Component			Flow				Något att se Fram emot				Estetisk Upplevelse				
		Univariate	Multivariate	P-value	Univariate	Multivariate	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value	OR (95% CI)	P-value
4,995																	
Number of years in choir																	
1–5 years	577	1.51 (1.19–1.91)	0.001	1.16 (0.90–1.49)	0.232	0.73 (0.57–0.93)	0.012	0.78 (0.60–1.02)	0.077	0.96 (0.76–1.22)	0.787	0.91 (0.71–1.17)	0.480	0.42 (0.33–0.54)	<0.001	0.59 (0.45–0.77)	<0.001
6–50 years	3878	1.24 (1.03–1.49)	0.018	1.07 (0.88–1.29)	0.477	0.78 (0.64–0.94)	0.010	0.85 (0.70–1.04)	0.119	0.90 (0.75–1.08)	0.291	0.88 (0.73–1.06)	0.201	0.62 (0.52–0.75)	<0.001	0.73 (0.60–0.88)	0.001
51+ years	540	1		1		1		1		1		1		1		1	
Age group																	
15–30 years	349	1.10 (0.86–1.39)	0.427			0.95 (0.77–1.27)	0.951			1.05 (0.82–1.33)	0.684			1.58 (1.24–2.02)	<0.001		
31–65 years	3280	0.90 (0.79–1.02)	0.103			1.21 (1.05–1.39)	0.006			0.85 (0.75–0.97)	0.020			1.18 (1.03–1.35)	0.017		
66+ years	1.332	1		1		1		1		1		1		1		1	
Gender																	
Men	1159	1		1		1		1		1		1		1		1	
Women	3823	1.15 (1.01–1.31)	0.038	1.17 (1.02–1.34)	0.023	2.52 (2.15–2.95)	<0.001	2.37 (2.02–2.78)	<0.001	1.66 (1.44–1.92)	<0.001	1.64 (1.42–1.89)	<0.001	1.64 (1.42–1.90)	<0.001	1.63 (1.41–1.90)	<0.001
Status																	
Amateur	4634	1.29 (1.04–1.60)	0.021	1.09 (0.87–1.36)	0.449	0.79 (0.63–0.98)	0.038	0.91	0.421	0.94 (0.76–1.17)	0.613	0.93 (0.75–1.17)	0.581	0.52 (0.42–0.64)	<0.001	0.67 (0.54–0.84)	0.001
Professional	364	1		1		1		1		1		1		1		1	
Country																	
Norway	1863	1.46 (1.30–1.64)	<0.001	1.37 (1.21–1.55)	<0.001	0.57 (0.50–0.64)	<0.001	0.61 (0.53–0.70)	<0.001	0.92 (0.82–1.04)	0.194	0.96 (0.84–1.09)	0.555	0.55 (0.48–0.62)	<0.001	0.66 (0.58–0.76)	<0.001
Sweden	3148	1		1		1		1		1		1		1		1	
Genre																	
Classical	1,230	1		1		1		1		1		1		1		1	
Other	201	1.77 (1.31–2.39)	<0.001	1.73 (1.28–2.35)	<0.001	1.38 (1.01–1.87)	0.039	1.34	0.067	1.26 (0.93–1.70)	0.135	1.24 (0.91–1.69)	0.162	0.56 (0.41–0.77)	<0.001	0.59 (0.43–0.82)	0.002
Mixed	3025	1.86 (1.62–2.13)	<0.001	1.68 (1.45–1.93)	<0.001	0.97 (0.84–1.12)	0.718	1.11	0.163	1.21 (1.05–1.39)	0.006	1.21 (1.05–1.40)	0.008	0.49 (0.43–0.56)	<0.001	0.56 (0.49–0.65)	<0.001
Folk Music	54	1.51 (0.87–1.6)	0.137	1.39 (0.80–2.42)	0.234	0.51 (0.25–1.01)	0.054	0.58	0.126	0.75 (0.41–1.40)	0.378	0.77 (0.41–1.44)	0.424	0.39 (0.21–0.73)	0.003	0.45 (0.24–0.86)	0.016
Gospel	237	2.44 (1.84–3.23)	<0.001	2.41 (1.81–3.20)	<0.001	1.36 (1.02–1.81)	0.034	1.23	0.155	1.63 (1.23–2.15)	0.001	1.56 (1.17–2.07)	0.002	0.61 (0.46–0.82)	0.001	0.59 (0.43–0.79)	<0.001
Jazz	7	2.34 (0.52–10.51)	0.266	1.98 (0.43–9.00)		0.70 (0.13–3.66)	0.681	0.83	0.835	1.36 (0.30–6.13)	0.684	1.32 (0.29–5.99)	0.711	0.17 (0.02–1.44)	0.105	0.19 (0.02–1.65)	0.135
Pop	210	1.86 (1.38–2.49)	<0.001	1.73 (1.27–2.36)	<0.001	1.16 (0.861.57)	0.316	1.18	0.291	1.23 (0.91–1.66)	0.167	1.20 (0.87–1.63)	0.250	0.34 (0.24–0.48)	<0.001	0.39 (0.27–0.55)	<0.001

country, and genre. For those latter variables both the magnitude and the statistical significance of the associations were approximately the same as in the univariate analysis.

For the possibility of *experiencing flow*, the univariate analysis showed that in subjects with a shorter experience of choir singing, the OR was significantly lower than in those with a long experience to rate this as being the most missed – OR = 0.73 among those with 1–5 years and R = 0.78 among those with 6–50 years compared to those with more than 50 years' experience as choir singers. With regard to age, those in the middle category (31–65 years) rated this as more important than those in the oldest group (OR = 1.21). Women rated this as much more important than men (OR = 2.52). Amateurs rated the loss of possibility to experience flow as less important than professionals (OR = 0.79), and Norwegian participants rated this as less important than Swedish (OR = 0.57). Choir singers in the “other” music category and gospel singers rated the loss of flow experiences as more important than did those in the classical music category (OR = 1.38 and 1.36, respectively). In the corresponding multivariate analyses, the findings for duration of choir singing as well as the difference between amateurs and professionals became nonsignificant. The difference between genres also became nonsignificant. The results for country and gender were not changed in the multivariate analyses, so both in univariate and multivariate analyses, women and Swedes missed flow more than Norwegians and men.

With regard to “*something to look forward to*,” this component was not related to duration of choir singing, neither in univariate nor multivariate analysis. Age showed a significant but nonlinear association in the univariate analysis; those in the middle category (31–65) were statistically significantly less likely to rate this as important as those in the oldest category (OR = 0.85). There was no difference with regard to this outcome variable between amateurs and professionals and between Swedes and Norwegians, neither in univariate nor in multivariate analyses. Women were more likely than men to rate this as important (OR = 0.85) and this was confirmed in multivariate analysis. Singers in the mixed category as well as gospel singers rated this as more important statistically than did singers in the classical music category (OR = 1.21 and 1.63, respectively) and these results remained significant and were almost identical in the multivariate analysis.

In the univariate analysis of *aesthetic experience*, those participants who had had the longest experience of choir singing (>50 years) rated this as statistically significantly more important than the others (1–5 years compared to >50 years OR = 0.42 and 6–50 years compared to >50 years OR = 0.62). Compared to the oldest (referent) group (>65), both the youngest (15–30 years, OR = 1.58) and the medium age group (31–65 years, OR = 1.18) statistically significantly more frequently considered this aspect most crucial. Women missed this aspect statistically significantly more often than men (OR = 1.64) and Norwegian participants rated it to be less important (OR = 0.55) than Swedish. With regard to genre, participants singing classical music considered this aspect to be more important than all

other groups. The ORs corresponding to this aspect for the nonclassical music group in comparison to the classical music group (as referent group) were all statistically significant and ranged from 0.34 to 0.61 with one exception – the jazz group. The OR for participants in this group was 0.17 but did not reach statistical significance. In the multivariate analysis of the aesthetic component, all the results were unchanged by the inclusion of competing variables.

Table 4 shows the results from the analyses of the three components related to the physical aspects of singing, *physical exercise*, *voice training*, and *breathing training*. Number of years in choir singing was statistically significantly associated in a successive way – the more years the higher rating – with all the three physical aspects of singing. Those who had been singing in a choir for more than 50 years (our reference group) rated these three aspects higher than the other groups and in a similar way for the three aspects with OR ranging from 0.55 to 0.65 in beginners (univariate) with no more than 5 years in a choir and from 0.68 to 0.77 in the middle group with 6–50 years in a choir compared to the most experienced group. The introduction of competing variables in the multivariate analysis did not change this, the results were almost exactly the same as in the univariate analyses. The univariate analyses of the effect of age provided results that were similar to the analyses of duration. In comparison to men, women rated the general physical training aspect of choir singing particularly high (OR = 2.03) but also voice training (OR = 1.52) and breathing training was rated higher by women than by men (OR = 1.74). These findings were unchanged in multivariate analyses. Amateurs rated the voice training aspect as less important than professionals (OR = 0.65), and similar findings were made for physical training and breathing training. Multivariate analyses showed unchanged results in the comparison between amateurs and professionals. With regard to country there were no significant findings between Swedish and Norwegian participants except for one solitary finding; in the multivariate analysis the Norwegian participants considered the general physical training aspect to be a greater importance than did the Swedish participants (OR = 1.18). In the comparisons between genres, the classical music group served as reference group. There were scattered significant findings. The findings were very similar in the univariate and multivariate analyses. The “other” and “mixed” groups rated the physical training aspect as more important than the classical music group (OR = 1.42 and 1.22, respectively). Furthermore, participants in the “mixed group” rated the breathing training aspect as more important (OR = 1.27) than participants in the classical music group. The gospel and pop groups (OR = 0.71 and 0.53, respectively) rated voice training as less important than did the classical music group (Figure 1).

DISCUSSION

The findings in the present study show that in the Scandinavian setting the social aspect has a stronger weight than the

TABLE 4.

Shows the Results of the Univariate and Multivariate Logistic Analyses of Effects of the Three Components Related to the Physical Aspects of Singing (Physical Exercise, Voice Training and Breathing Training) in Relation to Number of Years in Choir, Age Group, Gender, Status, Country and Genre

	n (%)	Univariate OR (95% CI)	P-value	Multivariate OR (95% CI)	P-value	Univariate OR (95% CI)	P-value	Multivariate OR (95% CI)	P-value	Univariate OR (95% CI)	P-value	Multivariate OR (95% CI)	P-value
4995													
Number of years in choir													
1–5 years	577	0.59 (0.46–0.77)	<0.001	0.54 (0.41–0.71)	<0.001	0.65 (0.51–0.83)	0.001	0.72 (0.55–0.93)	0.013	0.55 (0.42–0.74)	<0.001	0.56 (0.41–0.75)	<0.001
6–50 years	3878	0.69 (0.57–0.83)	<0.001	0.64 (0.53–0.78)	<0.001	0.77 (0.64–0.92)	0.005	0.77 (0.64–0.93)	0.008	0.68 (0.55–0.83)	<0.001	0.67 (0.54–0.83)	<0.001
51+ years	540	1		1		1		1		1		1	
Age group													
15–30 years	349	0.34 (0.25–0.47)	<0.001			0.85 (0.66–1.09)	0.215			0.52 (0.38–0.71)	<0.001		
31–65 years	3,280	0.72 (0.63–0.83)	<0.001			0.94 (0.82–1.08)	0.423			0.78 (0.67–0.91)	0.001		
66+ years	1332	1				1				1			
Gender													
Men	1159	1		1		1		1		1		1	
Women	3823	2.03 (1.73–2.39)	<0.001	2.06 (1.75–2.44)	<0.001	1.52 (1.32–1.76)	<0.001	1.56 (1.35–1.81)	<0.001	1.74 (1.46–2.07)	<0.001	1.73 (1.45–2.07)	<0.001
Status													
Amateur	4634	0.76 (0.60–0.95)	0.017	0.72 (0.57–0.91)	0.006	0.65 (0.53–0.81)	<0.001	0.66 (0.53–0.82)	<0.001	0.76 (0.59–0.96)	0.027	0.75 (0.58–0.96)	0.024
Professional	364	1		1		1		1		1		1	
Country													
Norway	1863	1.07 (0.95–1.22)	0.238	1.18 (1.03–1.35)	0.016	1.05 (0.93–1.18)	0.384	1.13 (0.99–1.29)	0.053	0.97 (0.85–1.12)	0.751	1.01 (0.86–1.17)	0.919
Sweden	3148	1		1		1		1		1		1	
Genre													
Classical	1230	1		1		1		1		1		1	
Other	201	1.42 (1.03–1.96)	0.031	1.55 (1.11–2.15)	0.009	0.87 (0.63–1.18)	0.381	0.90 (0.66–1.24)	0.544	1.26 (0.88–1.80)	0.204	1.33 (0.92–1.92)	0.119
Mixed	3025	1.22 (1.05–1.42)	0.008	1.23 (1.05–1.44)	0.009	0.92 (0.80–1.05)	0.246	0.93 (0.80–1.07)	0.339	1.27 (1.08–1.50)	0.003	1.35 (1.13–1.60)	0.001
Folk Music	54	0.69 (0.34–1.40)	0.315	0.72 (0.35–1.47)	0.367	0.91 (0.51–1.61)	0.746	0.94 (0.52–1.67)	0.833	1.07 (0.54–2.11)	0.846	1.15 (0.58–2.30)	0.676
Gospel	237	1.13 (0.82–1.54)	0.436	1.13 (0.82–1.55)	0.452	0.71 (0.52v0.96)	0.028	0.72 (0.53–0.97)	0.036	1.02 (0.72–1.44)	0.910	1.04 (0.73–1.48)	0.803
Jazz	7	1.11 (0.21–5.77)	0.897	0.95 (0.18–4.99)	0.957	1.22 (0.27v5.47)	0.795	1.09 (0.24–4.93)	0.911	0.64 (0.07–5.41)	0.689	0.61 (0.07–5.17)	0.657
Pop	210	0.95 (0.68–1.34)	0.808	1.06 (0.74–1.51)	0.733	0.53 (0.38–0.75)	<0.001	0.56 (0.40–0.80)	0.002	0.74 (0.49–1.10)	0.145	0.83 (0.55–1.27)	0.407

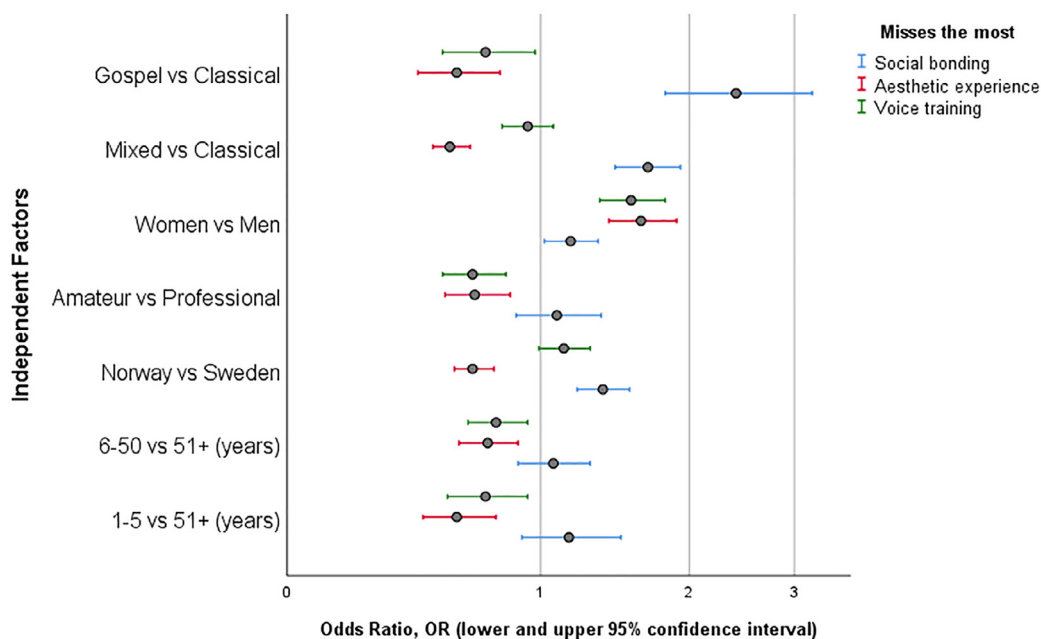


FIGURE 1. The Figure presents the graphical presentation of results from multiple logistic regression analyses; demographic variables in relation to the "most missed" factor; social bonding, aesthetic experience and voice training. Odds ratios with 95% confidence limits.

other components and this seems to be particularly true in Norway compared to Sweden. Professional singers report that they miss the aesthetic experiences, flow and all the physical aspects (physical training, voice training, and breathing training) more than the amateurs. The importance of aesthetic experiences and physical components rises with increasing number of years that an individual has engaged in choir singing. The social aspect seems to be particularly important among gospel singers. That the social aspect is particularly important in gospel singing perhaps indicates that this kind of choir singing has a strong embedded social framework. Gospel has a strong spiritual component and physical movement is important. Both in the gospel and the pop groups, the loss of voice training was considered to be less statistically important by the participants. An explanation may be that voice quality is often not trained in the same way in these genres as in the classical genre and that in gospel and pop, voices are allowed to be individual and not conforming as in classical music. Voice and breathing exercises belong to the routine start of all choir rehearsals in choirs doing classical music.

It should be pointed out that we have tried to separate the different genres in our questionnaire. Accordingly, there is a large group (61% of the participants) who reported that they had experienced more than one genre. The alternatives were mutually exclusive which means that participants who identified themselves as belonging to other groups are likely to have almost exclusively experienced singing in that particular genre.

There were several differences between Swedish and Norwegian participants. The social aspect of choral singing was perceived as more important among Norwegian participants whereas the aesthetic and flow aspects were reportedly

more important in Sweden. Part of these differences may be accounted for in language differences, as the word "flow" is not used as commonly in Norway. It was therefore translated ("komme i flytsonen") and it is possible that this wording was differently perceived in Norway than in Sweden. The use of the word aesthetic is also less common in Norway than in Sweden so there may be a further influence from language on the results for this element. The word aesthetic may be a word that belongs more to the vocabulary of classical music performance than to other kinds of music making. The participants were not given definitions of the words used so the responses reflect their own definitions. It should be pointed out, that although aesthetics and flow had lower ratings in Norwegian than in Swedish participants, the relative positions of these concepts compared to other concepts were similar in the two countries. The difference in attitude to the social dimension, on the other hand, is unlikely to have been influenced by language differences. The social role of choir singing for instance in the form of community singing is likely stronger in Norway than in Sweden as a result of the high prestige that community singing has in Norway, as indicated by previous research.^{24,25} Another factor that could potentially affect the difference is that stricter social distancing rules were implemented in Norway during the worst parts of the COVID-19 pandemic, as compared with in Sweden.²³ This could have contributed to a stronger experience of the social loss associated with closure of choir activities in Norway.

Limitations

The representativeness of the participants is unknown in terms of demographics and type of choir. The number of

participants constitutes only a small percentage of the Swedish and Norwegian choir singers. The study was conducted with full anonymity, so it is not possible to analyze whether some subgroups had a higher relative representation compared with others. It should also be emphasized that the study is cross-sectional: this means that singers who favor the social aspect might be more likely to stop their choir singing earlier than those who are driven by aesthetic experiences. In addition, singers who experience greater success toward the beginning of their choir career are probably more likely to continue as choir singers for a long period of time, and are more likely to become professional singers, than are those who are less successful at the start. Finally, due to practical constraints, it was not possible, but would have been beneficial, to have followed the singers through the different phases of the pandemic.

CONCLUSIONS

In this Scandinavian choir setting the social aspect has a stronger weight than the other components on perception of loss during the changes to choral singer routines in response to the COVID-19 pandemic. Professional singers report that they miss the aesthetic experiences, flow, and all the physical aspects of choral singers more than amateurs do. The importance of aesthetic experiences and physical components rises with increasing number of years that an individual has engaged in choir singing. The social aspect of choral singing seems to be particularly important among gospel singers. In sum, choir singers have been affected by the COVID-19 pandemic aesthetically, emotionally, and physically.

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