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# Music as a resource for psychological health for music professionals: A Nordic survey

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## Abstract

**Purpose:** Interest in the health relevance of music has been growing rapidly, yet few studies have addressed the protective role of music for music professionals themselves. In the current study, we investigated music professionals' (music teachers, music therapists, musicians and academics) health, particularly their uses of music as a resource for their psychological health.

**Design:** An online survey (N = 504) for music professionals was conducted across four Nordic countries. Participants responded to questions on music as a resource for psychological health and assessed their general levels of health and health behaviors. Their self-reported health was compared to similar prior data from the general Danish population (N = 14,022).

**Findings:** Music professionals demonstrated high levels of self-reported health and health behaviors and approved of the idea of music as a resource for their psychological health. The most important psychological function of music for them was that music provided affective experiences. Music also provided feelings of belonging and supported mood regulation, but did not really offer relaxation or help to concentrate. Music teachers and therapists reported significantly higher use of music as a personal resource for psychological health than musicians and academics.

**Value:** The results provide new insights into music playing a dual role – professional and personal resource – for different types of music professionals. The findings have relevance for how to address music in the training of musicians and create grounds for dialogue about the role of music for music professionals in comparison to laymen.

## Keywords

music professionals, psychological functions of music, health, health resources

## Background and purpose

### Music as a health resource

Globally, we have seen an upward trend in interest regarding the relationship between music and health. Over the last twenty years, a number of music and health research centers have emerged (Centre for Research in Music and Health CREMAH at the Norwegian Academy of Music, the Grieg Academy Music Therapy Centre GAMUT, Cambridge Institute for Music Therapy Research CIMTR). This has strengthened the profession of music and health as a discipline. These moves suggest that there is a strong link between music and health and that we need to explore it further to understand the wide range of potential benefits of music, both for the health of the individual and society at large.

The World Health Organization report on the evidence base for arts and health interventions (Fancourt & Finn, 2019) was recently launched in Helsinki, Finland. The report includes over 900 references, many of which refer specifically to the very latest publications in music therapy research. In line with the WHO report from 1964 (WHO, 1964), this report refers to health as a state of physical, mental and social well-being. It further reflects how health is shaped by the “cultural constructs within which it is situated and how it can be promoted at both an individual and a society level” (Fancourt & Finn, 2019, p. 2). Here, music activities are considered complex and multimodal health-promoting interventions comprised of multiple components. Such interventions can involve aesthetic engagement, involvement of the imagination, sensory activation, evocation of emotion and cognitive stimulation. The findings in the report, which are based on quantitative data with qualitative research from the social sciences and broader health humanities, demonstrate that music can have an impact on both mental and physical health. According to the report, this impact can be realized in relation to both prevention and promotion, and management and treatment. In the current paper, we focus on music as prevention and promotion: as a self-perceived resource for supporting mental/psychological health and well-being among music professionals.

Investigations into the protective effects of music have started to yield significant insights. In his latest book, Even Ruud (2020) refers to music as a “cultural immunogen”. He defines this concept by defining music as a healthy lifestyle and a way of living associated with longer life and lower risk of illness:

Within the field of medicine or immunology, an immunogen is a specific type of antigen, or a substance that is able to provoke an adaptive immune response if injected on its own. In health psychology, then, a ‘behavioral immunogen’ must be understood in a metaphorical sense, as a sort of protective behavior, as opposed to a behavioral pathogen – that is, a harmful behavior that is damaging your health (smoking, excessive drinking, driving without a safety belt, and so on). (Ruud, 2020, *in press*).

Ruud explores four major musically induced cultural immunogens, which are 1) vitality (emotional regulation), 2) agency, 3) connectivity (music as a social resource) and 4) meaning making.

Lars Ole Bonde (2011) provides a synthesized overview of the ways in which music may serve as a beneficial health factor. He lists the following components as being important: 1. Individual use of music’s regulatory functions; 2. The formation and development of identity through music making; 3. The development of communities and values through music-making (or “musicking”, as he calls it); 4. Community music, community music therapy

as well as music-making with health prospects going on in choirs, orchestras and bands. Further exploring the relationship between music and social health, Bonde also recognizes how the shaping and sharing of musical environments calls attention to how music is a part of our larger soundscapes: how noise and our sound environment affect our health (Bonde, 2011).

Music supports health and a good quality of life in many ways: it can be a tool for mood regulation, can increase connectedness to others, and is a resource for constructing one's identity (Ruud, 1997, 2013, 2020; DeNora, 2001; Laiho, 2004). Music psychology studies have addressed the different psychological functions of music, but the main focus has been on music listening. For instance, Schäfer, Sedlmeier, Städtler & Huron (2013) reported that people listen to music to regulate arousal and mood, to achieve self-awareness, and as an expression of social relatedness. Regarding the different health-related functions of music in people's life, Saarikallio's (2011) cross-cultural literature review identified at least three functions that music serves across cultures – emotional, mental, and social functions: 1. Emotional elements: music reflects and evokes emotions, enables expression, experience, and regulation of emotions. 2. Mental elements: music facilitates introspection, mental work, and personal growth, often in relation to altered states of consciousness and spiritual experiences. 3. Social elements: music strengthens social bonding, belonging, and unity, and strengthens group cohesion and identity.

Over the last decade we have seen a variety of studies on music and health (MacDonald, Kreutz & Mitchell, 2012; Gabrielsson, 2011; Theorell & Horwitz, 2019), but the focus has rarely been on the health of musicians themselves. We therefore know little about whether musicians relate to music as a health resource for themselves. A recent Danish study (Bonde, Juel & Ekholm, 2018) has documented significant differences between professional musicians, amateur musicians and non-musicians in self-rated health (personally feeling healthy) and self-reported health behaviors (such as amount of smoking, binge eating). Active amateur musicians reported better health behaviors than both professionals and non-musicians. However, although professional musicians reported a number of health problems, their self-rated health was significantly higher than those of the other two groups. This study opens the door to closer investigation of musicians' health, but interestingly the Danish study did not address the use of music itself as a health resource for musicians. There also appears to be a lack of epidemiological studies on this topic.

### Music and health in the lives of music professionals

When we refer to 'music professionals' in the present study, we indicate trained musicians in the broadest sense, including those who work as professional artists, those who work in music education (from basic to the highest levels), and those who work in therapy/health settings. It could be argued that professional musicians are challenged by high expectations and suffer from the demands of performing, teaching, working with users with health issues, playing in orchestra while also being involved in freelance activities. We shall review some of the related studies below.

Some studies indicate that musicians have been identified as a population living at high risk of developing different health issues, as seen for example in a lifetime prevalence of occupational injuries being higher than 80% (Kok, Huisstede, Voorn, Schoones & Nelissen, 2016). Young musicians also experience high rates of musculoskeletal problems, which indicate that this is a public health problem starting in early childhood (Ranelli, Straker & Smith, 2008). We often lack sufficient knowledge with which to make recommendations and decisions regarding healthy behaviors and a healthy lifestyle for musicians (Wijsman & Ack-

erman, 2018). One element of this problem may be that few music institutions emphasize health education in the training of musicians (Norton, 2016).

Although many professional music performers report that they struggle with physical pain from playing instruments and performance anxiety, many musicians also report overall satisfaction with their health (Ekholm, Juel & Bonde, 2016). Trondalen (2016), in a study about musicians and health, describes the apparent paradox in the following way:

In spite of documented health challenges at a physical and mental level, musicians go on playing. This may be because the problem is also the solution – though music performance makes many demands and takes its toll, musicians benefit from music as a means of self-care at the same time, using music to regulate and improve health and develop personal strength, professional identity and creativity. (*Trondalen, 2016, pp. 2–3*)

Trondalen suggests that due to their training, musicians have differential responses to music both physically and psychologically. They may be more sensitive to music and respond more intensely to it than non-musicians. This might indicate that musicians’ “response to music may heighten the effectiveness of music as a therapeutic modality for example to treat performance anxiety in musicians” (Trondalen, 2016, referring to Maranto, 1989, p. 278).

The profession of musician has been identified to be highly rewarding, yet stressful (Araújo et al., 2017). Araujo and colleagues reported higher levels of well-being and lower levels of fatigue among British conservatoire musicians compared to age-matched members of the broader higher education student population. Nonetheless, in comparison to the age-matched student population, music students’ attitudes and behaviors toward health and healthy living were less optimal: their engagement in health responsibility and stress management was lower, and they demonstrated higher perfectionistic strivings, poorer sleep quality, and lower self-rated health.

Music professionals, including music teachers who engage children in music making, choir conductors who gather people together to sing, musicians who enable us to enjoy concerts and recorded music, or music therapists who help us to rehabilitate through music, are key facilitators for the wider public to enjoy the benefits of music as a health resource. But for musicians themselves there appears to be a more ambivalent relationship between music and health outcomes. In the following study, we ask how music might serve as a health resource for musicians themselves, particularly in relation to their psychological health.

### Aim of the current study

The present study was conducted in order to develop knowledge on whether and how music functions as a health resource for music professionals. We focused particularly on aspects of psychological health: music for relaxation and energy, for affective experiences and mood regulation, for belonging, personal growth, and concentration. We compared different types of music professionals in their self-perceived use of music for such psychological goals. In addition, we investigated the general level of health of music professionals in comparison to the general population. Thus, our main research questions were: 1. Do music professionals consider music to be a health resource, and if so, which health-related functions does music serve in their lives? 2. Do music professionals in different arenas (teachers, therapists, musicians, academics) differ from each other in this? 3. How healthy, in terms of self-reported health behaviors, are music professionals in comparison to the general population?

## Method

### Participants

We conducted an online survey of music professionals in four Nordic countries (Denmark,  $N = 236$ ; Finland,  $N = 131$ ; Norway,  $N = 98$ ; and Sweden,  $N = 22$ ). Participants were recruited through professional associations, social media and via direct email. Ethical procedures and data protection guidelines of the University of Jyväskylä were carefully followed, informed consent was acquired from all participants prior to any data collection as part of the online form, names and other identifying information were not collected, and results were reported anonymously at group level.

The total number of respondents was 504, with 32% men, 68% women, with a mean age of 46 years ( $SD: 12.5$ ). Each participant was asked to report all their professions, but for the analyses conducted in the current study we categorized them based on their primary profession. They were grouped into 1) teachers  $N = 165$  (instrument teachers and schoolteachers of music), 2) therapists  $N = 129$ , 3) musicians  $N = 72$  (musicians and church musicians), and 4) academics  $N = 41$  (higher education in music). In general, the sample was comprised of relatively experienced professionals: 73% of the participants had worked more than 10 years as music professionals, 10% had worked for 6–10 years, and 14% had worked less than 5 years. The academics were somewhat older (mean age: 53 years,  $SD: 14.5$ ) than individuals in the other three groups (mean age: approx. 45 years in all three groups). Furthermore, the group of academics had an almost equal number of men (53%) and women (47%). In the remaining three groups there were more women than men (teachers: 73%, therapists: 75%, musicians: 60%).

Comparison data were obtained from the Danish Health and Morbidity Survey in 2013 (Jensen, Ekholm, Davidsen & Christensen, 2019). In that study, self-administered questionnaires were sent to a nationally representative, random sample of 25,000 Danish adults ( $\geq 16$  years or older). In all, 14,022 individuals (56%) completed the questionnaire. The sample in the present study was restricted to individuals in the same age band as in the study population of Nordic professional musicians (i.e. 19–82 years). The primary aim of the Danish Health and Morbidity Survey program is to describe and analyze the status and trends in health and morbidity in the adult Danish population and in the factors that influence health status. The survey design has been described in detail elsewhere (Jensen et al., 2019). In 2013, questions on musical behavior and health were included for the first time. The respondents were, among other things, asked if they have ever voluntarily sung in a choir or sung or played a musical instrument in a band, orchestra or a musical ensemble. The possible response categories were: *Yes, sing or play now*, *Yes, previously* and *No*. Those individuals who answered affirmatively were then asked: “Have you ever sung or played as professional musician?” with the following possible response categories: *Yes* and *No*. The respondents were categorized into three mutually exclusive groups based on their responses: “Professional musician (active or former)”, “Amateur musician (active or former)” or “Non-musician (never voluntarily sung in a choir or sung or played a musical instrument in a band, orchestra or a musical ensemble)”.

### Measures

Our first set of questions addressed music as a health resource in participants' lives. Participants responded to a general question “Do you feel that music helps to maintain health?” with answer options *Yes, definitely*, *Yes, to some extent*, *No* and *I don't know*. They then rated whether music served health purposes that are more specific in their lives, rating the following: *relaxation*, *boosting energy*, *knowing more about oneself as human being*, *experiences*

of fellowship and belonging, affective experiences, regulating moods/feelings, and better concentration. These were answered on a 5-point scale ranging from *not at all* to *strongly*. A second group of questions addressed music as a hobby (the amount of music listening, playing, going to concerts during free time) and music as a profession (work-related motivations, typical groups to work with).

The final group of questions addressed general health variables. Self-rated health was assessed by a single item question in both surveys. Hence, respondents were asked: "In general, would you say that your health is *excellent*, *very good*, *good*, *fair* or *poor*?". Self-rated health was later grouped into 'good' (*excellent*, *very good* or *good*) and 'other' (*fair* or *poor*) health. Physical fitness was also assessed by a single item question: "How do you rate your physical fitness?" with five possible response categories: *Excellent*, *good*, *fair*, *not so good*, *poor*. *Excellent* and *good* responses were grouped into 'good health'. Current smokers include both daily and occasional smokers. Heavy episodic ('binge') drinking of alcohol was assessed by the question: "How often do you have five or more drinks on one occasion?" with the response categories: *daily or almost daily*; *weekly*; *monthly*; *less than monthly*; *never*. The following question was used to determine healthy dietary habits: "How healthy are your dietary habits?" The response categories *Very healthy* and *healthy* were categorized into 'Healthy dietary habits' and the other categories were categorized as 'Other'. Sedentary leisure time physical activity was assessed by the following question: "If you look back at the past year, what would you say best describes your leisure activities?" with the following possible answer categories: *heavy exercise and competitive sports regularly and several times a week*; *exercise or heavy gardening at least four hours a week*; *walking, biking or other light exercise at least four hours a week*; *reading, watching TV or other sedentary activity*. Respondents in the latter category were categorized as 'sedentary'. Finally, respondents in both surveys were asked if they have tinnitus, since this would likely have an effect on their engagement with, and enjoyment of, musical activities.

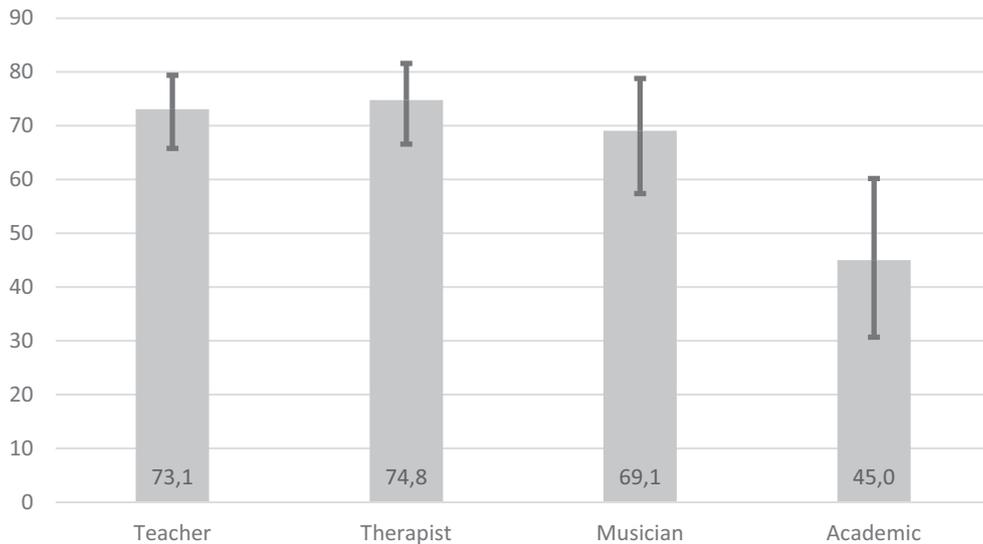
## Analyses

Cross-tabulation with Chi-square test was used to assess whether different types of music professionals (teachers, therapists, musicians and academics) differed from each other in their attitude towards music as a health resource. Repeated measures ANOVAs were calculated to assess the comparative prevalence of different types of health functions of music (e.g. relaxation, belonging, mood regulation), with profession as a between-subject factor. ANOVAs were then used to compare different music professionals in each of the function types. Percentages for confidence intervals were calculated using the Wilson Score method (Wilson, 1927; Newcombe, 1998). Multiple logistic regression models were applied to examine the associations between the two study populations (professional musicians in the Nordic countries) and various health-related outcomes. Furthermore, a multiple logistic regressions model was used to examine the association between different types of professional and belief that music activities and music experiences can help to stay healthy in the Nordic study population. The results are presented as odds ratios (OR) with 95% confidence intervals (CIs).

## Results

Overall, participants of the Nordic survey with music professionals showed high agreement with the claim that music helps to maintain health: 69% of the participants answered *Yes, definitely* and 29% answered *Yes, to some extent*. The four different types of music professionals (teachers, therapists, musicians and academics) differed significantly from each

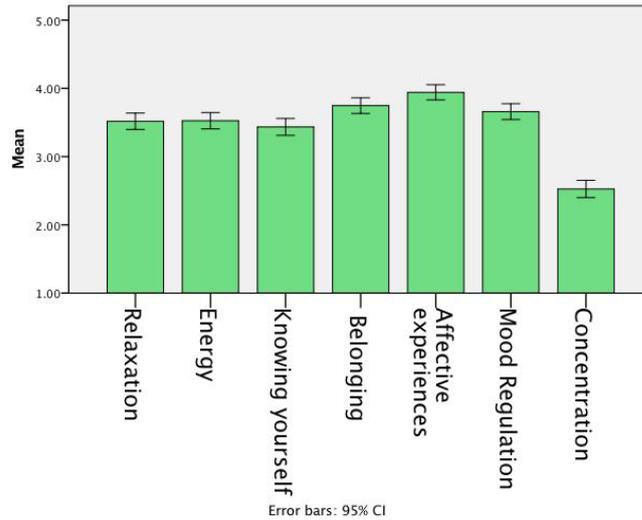
other in their responses (Chi-square = 15.87,  $df = 6$ ,  $p = .014$ ). Figure 1 shows that the proportion of those who definitely believed that music activities and music experiences can help to stay healthy, was considerably lower among academics than in the other three groups. This difference persisted even after adjustment for sex and age. For example, academics had 0.28 (95% CI: 0.13-0.62) times lower odds of believing that music activities and music experiences can help to stay healthy than instrument teachers.



**Figure 1.**

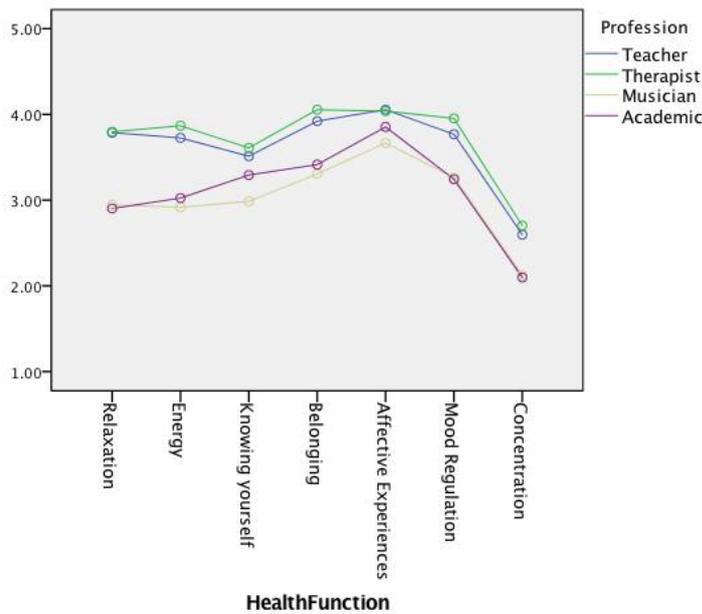
Percentage (95% confidence intervals) of those respondents who definitely feel that music helps to maintain health by different professionals

Repeated measures using ANOVA showed significant difference between the different types of health-relevant functions of music in the life of music professionals ( $F(6, 493) = 78.84$ ;  $p < .001$ ). Mean scores of the different functions are presented in Figure 2. The most prevalent function was *Affective experiences*, which was rated significantly higher than all other functions (mean differences ranging from .19 to 1.42; all  $p$ -values  $< .001$ ). The top two and three functions were *Belonging* and *Mood Regulation*, which did not significantly differ from each other, but did differ from the other functions (mean differences ranging from .13 to 1.22,  $p$ -values ranging from .000 to .03). The least prevalent function was *Concentration*, which showed significantly lower mean scores than all other functions (mean differences ranging from 1.42 to .91; all  $p$ -values  $< .001$ ).



**Figure 2.**  
Mean scores of different health-relevant functions of music in daily life

When entering *Music Profession* as a between-subject variable, a significant main effect of *Profession* was observed ( $F(3) = 12.77; p < .001$ ). Music teachers and Music therapists reported significantly higher scores than Musicians and Academics in their use of music for health-relevant functions. Subsequent ANOVAs comparing the four professions further demonstrated that the difference was significant for *Relaxation* ( $F(3, 401) = 12.43; p < .001$ ), *Energy* ( $F(3, 401) = 19.38; p < .001$ ), *Belonging* ( $F(3, 401) = 11.46; p < .001$ ), *Mood regulation* ( $F(3, 401) = 10.36; p < .001$ ), *Concentration* ( $F(3, 401) = 7.87; p = .007$ ), and almost significant also for *Knowing yourself* ( $F(3, 401) = 6.73; p = .015$ ). Meanwhile, *Affective experiences* did not differ between the profession groups.



**Figure 3.**  
Mean scores of the health-relevant functions of music by profession

The ratings of music professionals differ significantly from the reported use of music in everyday life in the Danish adult population (Ekholm, Juel & Bonde, 2016; Ekholm & Bonde, 2018). In all Danish age groups, the use of music for *Relaxation* was rated the highest (average 65.2%), followed by *Mood regulation* (49.8%) and gaining *Energy* (41.2%). The lowest-rated function was using music for *Knowing yourself* (9.9%) – demonstrating a very different pattern from the music professionals.

**Table 1.** Prevalence of various health-related outcomes among professional musicians and in the general Danish population

	Teacher	Therapist	Musician	Academic	All (Danes)	Professional musician	Amateur musician	Non- musician	All	OR*	95% CI	p-value
Definitely feel that music helps to maintain health	73.1	74.8	69.1	45.0	<b>69.7</b> (71.0)	66.5	46.6	31.4	<b>37.9</b>	3.67	(2.99-4.47)	<0.0001
Self-rated good health	84.7	94.5	91.7	95.1	<b>90.0</b> (87.4)	93.3	88.5	84.4	<b>85.7</b>	1.57	(1.15-2.12)	0.0054
Good physical fitness	54.9	56.6	48.6	65.9	<b>55.0</b> (47.5)	39.8	38.4	37.2	<b>37.6</b>	2.28	(1.89-2.73)	<0.0001
Current smoker (daily or occasional)	7.4	6.3	11.3	7.5	<b>7.9</b> (11.6)	31.9	21.6	23.0	<b>22.8</b>	0.29	(0.21-0.41)	<0.0001
Binge drink at least once a month	20.4	25.8	26.4	26.8	<b>24.7</b> (27.1)	47.4	30.1	28.3	<b>29.4</b>	0.93	(0.75-1.16)	0.5117
Good dietary habits	50.9	64.3	52.8	85.4	<b>59.3</b> (62.1)	45.1	46.5	40.1	<b>42.3</b>	1.98	(1.65-2.38)	<0.0001
Leisure-time sedentary behavior	16.2	9.5	13.9	4.9	<b>11.5</b> (8.8)	10.7	12.4	16.8	<b>15.3</b>	0.75	(0.57-0.99)	0.0485
Tinnitus	25.9	19.5	23.6	19.5	<b>22.0</b> (24.4)	19.4	10.6	12.3	<b>12.0</b>	2.46	(1.96-3.10)	<0.0001
No. of respondents	165	129	72	41	407 (182)	369	4 089	8 532	12 990			

\* Sex- and age-adjusted odds ratios (95% confidence intervals) of various health-related outcomes for musicians compared to the general Danish population

The various health-related outcomes among professional musicians and in the general Danish population are displayed in Table 1. The table also shows the prevalence estimates among professional musicians in Denmark to rule out that the observed differences between the two populations are not due to differences in population's health and health behavior (i.e. the generally higher smoking prevalence in Denmark compared to the other countries). Overall, professional musicians in the Nordic countries reported better health status and health-related behaviors compared to the general Danish population on all aspects, except tinnitus. For example, the prevalence of smoking was considerably lower (7.9%) among music professionals in the Nordic countries than in the Danish general population (22.8%). The prevalence of smoking among music professionals in Denmark in the Nordic study was higher (11.6%) than in the other countries, but still clearly lower than in the general Danish population. Even after adjusting for sex and age, music professionals in the four Nordic countries had 0.29 (95% CI: 0.21-0.41) times lower odds of smoking than individuals in the general Danish population.

## Discussion

Music professionals showed high agreement with the proposition that music maintains good health. Their self-reported levels of health and health behaviors were also relatively high. However, when addressing the particular types of health-relevant psychological functions of music, their use of music appeared relatively different from what we know about general population. The most typical function for music professionals was *Affective experiences*, while *Relaxation* and *Concentration* were something that the music professionals really do not seem to draw from music at all. This is in high contrast to the general (Danish) population and also to prior studies identifying relaxation as one of the most typical functions of music in daily life (Van Goethem & Sloboda, 2011). The findings are in line with previous findings about laymen rather than music professionals drawing mood-regulatory gratifications of revival, distraction, and entertainment from music (Saarikallio, Nieminen & Brattico, 2013). Even if music is not the daily relaxation tool for the musicians, evaluations on the audience after music performances could show enhanced relaxation, concentration and motivation mood (LeBlanc, Jin, Ober & Siivola, 1997; Baker & MacDonald, 2013), and a happy audience may not only make the musicians play better, but also more concentrated (Theorell & Horwitz, 2019). This is reinforced by public acknowledgment, which may enhance the performers self-confidence (O’Grady, 2009).

Furthermore, different types of music professionals differed from each other: music therapists and music teachers reported higher scores than musicians and academics in almost all health-related functions of music. Why do the professions differ? Is music more of a “tool” for growth and health for therapists and teachers and more an ambitious performance goal in itself for the musicians? Is there a transition of attitudes taking place in music education about music not being so much of an aesthetic ambition but more of an existential resource? Over the last few years the health-promoting effects of singing and playing have been observed in the public debate on music education – which is the area for music educators and therapists more than it is for musicians.

Taking care of the health and wellbeing of professional musicians themselves has received far less attention. Although we have seen health education programs becoming more prominent in the core curriculum for music performance studies, examples can be found at the Royal College of Music in Stockholm, Turku University of Applied Sciences, King’s College London and Trinity College Dublin, very few of these programs have been systematically evaluated (Matei, Broad, Goldbart & Ginsborg, 2018). One reason for this could be that health education courses vary in a number of ways, one of which is that some are compulsory, and some are elective (Matei et al., 2018). To be able to facilitate better health promotion, we need to empower individuals and look at health promotion as a process in which people can increase their control over their health (Rootman, Goodstadt, Potvin & Springett, 2001). American drama teacher and orchestra coach Bud Beyer (2013a, 2013b) has analyzed some of the reasons that may lie behind the problems of professional musicians, in particular classical musicians. He does not focus on health *per se*, but on performance quality and empowerment of the musician; nevertheless, his ideas are transferable to a health promotion context: his work asserts that musicians need to improve their communication skills and develop awareness of the relationship between performer and audience – and its many qualities. Having “ownership” of the performance is the key to communication with the audience, both physically as well as psychologically. It is also important to feel comfortable and safe on stage. Memorizing the music, described as knowing the music with body and mind, is perhaps the most controversial element in this performance enhancing strategy – and would be so also of a health-promoting strategy that draws on these principles. This points to the importance

of a much more integrated training of musicians at the music schools and academies that account for the body and mind as interrelated and interdependent elements. Our findings show that the most relevant health-relevant function of music for the musicians is the affective experiences. This type of gratification can be strong, meaningful, and deeply rewarding, thus making music an important health resource, even if not in the same way than for the laymen. Our findings encourage multi-disciplinary future research to address the psychodynamic aspects of music professionals' experienced health, deepening our understanding of the dual role of music, which can simultaneously be the content of one's work and a meaningful – even narcissistically charged – part of one's identity.

Some limitations of the current study must be noted. The sample was somewhat unbalanced concerning the number of respondents from different Nordic countries, preventing us from conducting direct country comparisons. However, this might not have been an interesting question anyway since Nordic countries represent a relatively coherent population in terms of cultural and socio-economic aspects. There was a particularly small number of respondents from Sweden in relation to the other Nordic countries, but this may be mitigated by the fact that Swedish professional musicians, therapist and teachers work across all the Nordic countries and could therefore be interpreted as part of a more general, mobile Nordic population. Another limitation pertains to the representation of the different professions: In this study, we have chosen to identify each participant with their primary profession, but many participants reported that they have several professions.

As a whole, our study provides new insights into music professionals' health and particularly the role of music in it. The results demonstrate music professionals as a healthy subgroup of the Nordic population, rejecting ideas of music professionals living an unhealthy life. The results provide knowledge on the types of health functions that are more prevalent and less prevalent in the lives of different music professionals, enriching our understanding of how music can simultaneously function as a profession and a health resource. This also provides advice for addressing these issues in our education programs for music performers, educators, and therapists.

## References

- Araújo, L.S., Wasley, D., Perkins, R., Atkins, L., Redding, E., Ginsborg, J. & Williamon, A. (2017). Fit to Perform: an investigation of higher education music students' perceptions, attitudes and behaviors toward health. *Frontiers in Psychology*, 8, 1558. DOI: <https://doi.org/10.3389/fpsyg.2017.01558>
- Baker, F. A. & MacDonald, R.A. (2013). Flow, identity, achievement, satisfaction and ownership during therapeutic songwriting experiences with university students and retirees. *Musicae Scientiae*, 17(2), 131–146. DOI: <https://doi.org/10.1177/1029864913476287>
- Beyer, B. (2013a). *Sirkelen sluttet: bevisstgjøring og endring i formidling av musikk* / Bud Beyer; oversatt av Tone Margaret Anderssen. – Oslo: Universitetsforlaget.
- Beyer, B. (2013b). *Smile, you have an audience*. Vimeo recording. Universitetet i Bergen. Video available at: <https://vimeo.com/65284945>
- Bonde, L.O. (2011). Health Musicking – Music Therapy or Music and Health? A model, empirical examples and personal reflections. *Music and Arts in Action*, 3(2), 120–140. Retrieved from: <http://musicandartsinaction.net/index.php/maia/article/view/healthmusicingmodel>
- Bonde, L.O., Juel, K. & Ekholm, O. (2018). Associations between music and health-related outcomes in adult non-musicians, amateur musicians and professional musicians – results from a nationwide Danish study. *Nordic Journal of Music Therapy*, 27(4), 262–282. DOI: <https://doi.org/10.1080/08098131.2018.1439086>

- DeNora, T. (2001). Aesthetic agency and musical practice: new directions in the sociology of music and emotion. In P.N. Juslin & J.A. Sloboda (Eds.), *Music and Emotion: Theory and Research* (pp. 71–104). New York: Oxford University Press.
- Ekholm, O., Juel, K. & Bonde, L.O. (2016). Associations between daily musicking and health: Results from a nationwide survey in Denmark. *Scandinavian Journal of Public Health*, 44(7), 726-732. DOI: <https://doi.org/10.1177/1403494816664252>
- Ekholm, O. & Bonde, L.O. (2018). Music and health in everyday life in Denmark. Associations between the use of music and health-related outcomes in adult Danes. In L.O. Bonde & T. Theorell (Eds.), *Music and Public Health – A Nordic Perspective* (pp. 15–31). New York: Springer. DOI: [https://doi.org/10.1007/978-3-319-76240-1\\_2](https://doi.org/10.1007/978-3-319-76240-1_2)
- Fancourt, D. & Finn, S. (2019). *What is the evidence on the role of the arts in improving health and well-being? A scoping review*. Health Evidence Network Synthesis Report 67. World Health Organization (WHO). Regional office for Europe: Copenhagen.
- Gabrielsson, A. (2011). *Strong experiences with music: Music is much more than just music*. Oxford University Press. DOI: <https://doi.org/10.1093/acprof:oso/9780199695225.001.0001>
- Jensen, H.A.R., Ekholm, O., Davidsen, M. & Christensen, A.I. (2019). The Danish Health and Morbidity Surveys: study design and characteristics. *BMC Medical Research Methodology*, 19, 91. DOI: <https://doi.org/10.1186/s12874-019-0733-9>
- Kok, L.M., Huisstede, B., Voorn, V., Schoones, J.W. & Nelissen, R. (2016). The occurrence of musculoskeletal complaints among professional musicians: a systematic review. *International Archives of Occupational Environmental Health*, 89, 373–396. DOI: <https://doi.org/10.1007/s00420-015-1090-6>
- Laiho, S. (2004). The psychological functions of music in adolescence. *Nordic Journal of Music Therapy* 13(1), 47–63. DOI: <https://doi.org/10.1080/08098130409478097>
- LeBlanc, A., Jin, Y.C., Ober, T.M. & Siivola, C. (1997). Effect of audience on music performance anxiety. *Journal of Research in Music Education*, 45(3), 480–496. DOI: <https://doi.org/10.2307/3345541>
- MacDonald, R., Kreutz, G. & Mitchell, L. (2012). What is music, health and wellbeing and why is it important? In R. Macdonald, G. Kreutz & L. Mitchell (Eds.), *Music, Health and Wellbeing* (pp. 3–12). Oxford: Oxford University Press. DOI: <http://dx.doi.org/10.1093/acprof:oso/9780199586974.003.0001>
- Matei, R., Broad, S., Goldbart, J. & Ginsborg, J. (2018). Health education for musicians. *Frontiers in Psychology*, 9, 1137. DOI: <https://doi.org/10.3389/fpsyg.2018.01137>
- Newcombe, R.G. (1998). Two-sided confidence intervals for the single proportion: Comparison of seven methods. *Statistics in Medicine*, 17(8), 857–872. DOI: [https://doi.org/10.1002/\(sici\)1097-0258\(19980430\)17:8<857::aid-sim777>3.0.co;2-e](https://doi.org/10.1002/(sici)1097-0258(19980430)17:8<857::aid-sim777>3.0.co;2-e)
- Norton, N. (2016). Health promotion for musicians: Engaging with instrumental and vocal teachers. *Arts and Humanities in Higher Education*, 15.
- O’Grady, L. (2009). *The therapeutic potentials of creating and performing music with women in prison: A qualitative case study* (Doctoral dissertation). The University of Melbourne. DOI: <http://hdl.handle.net/11343/35313>
- Ranelli, S., Straker, L. & Smith, A. (2008). Prevalence related musculoskeletal symptoms and disorders in children learning instrumental music. *Medical Problems of Performing Artists*, 23(4), 178–185.
- Rootman, I., Goodstadt, M., Potvin, L. & Springett, J. (2001). A framework for health promotion evaluation. In I. Rootman, M. Goodstadt, B. Hyndman, D. McQueen, L. Potvin, J. Springett & E. Ziglio (Eds.), *Evaluation in Health promotion Principles and Perspectives* (pp. 13–40). PMID: 11729789

- Ruud, E. (1997). Music and Identity. *Nordic Journal of Music Therapy* 6(1), 3–13. DOI: <https://doi.org/10.1080/08098139709477889>
- Ruud, E. (2013). Can music serve as a “cultural immunogen”? An explorative study. *International Journal of Qualitative Studies on Health and Well-being*, 8(1). DOI: <https://doi.org/10.2307/3345541>
- Ruud, E. (2020, in press). *Toward a Sociology of Music Therapy – Musicking as Cultural Immunogen*. Dallas TX: Barcelona Publishers.
- Saarikallio, S. (2011). Cross-cultural approaches to music and health. In R. MacDonald, G. Kreutz & L. Mitchell (Eds.), *Music, Health and Wellbeing*. Oxford University Press.
- Saarikallio, S., Nieminen, S. & Brattico, E. (2013). Affective reactions to musical stimuli reflect emotional use of music in everyday life. *Musicae Scientiae*, 17(1), 27–39. DOI: <https://psycnet.apa.org/doi/10.1177/1029864912462381>
- Schäfer, T., Sedlmeier, P., Städtler, C. & Huron, D. (2013). The psychological functions of music listening. *Frontiers in Psychology*, 4, 511. DOI: <https://doi.org/10.3389/fpsyg.2013.00511>
- Theorell, T. & Horwitz, E.B. (2019). Emotional effects of live and recorded music in various audiences and listening situations. *Medicines*, 6(1), 16. DOI: <https://doi:10.3390/medicines6010016>
- Trondalen, G. (2016). Resource-oriented Bonny Method of Guided Imagery and Music (R-oGIM) as a creative health resource for musicians. *Nordic Journal of Music Therapy*, 25(1), 5–31. DOI: <https://doi.org/10.1080/08098131.2014.987804>
- Van Goethem, A. & Sloboda, J. (2011). The functions of music for affect regulation. *Musicae Scientiae*, 15(2), 208–228. DOI: <https://doi.org/10.1177/1029864911401174>
- WHO (1964). Preamble to the Constitution of WHO as adopted by the International Health Conference, New York, 19 June – 22 July 1946 (Official Records of WHO, no. 2, p. 100).
- Wijsman, S. & Ackerman, B.J. (2018). Educating Australian musicians: are we playing it safe? *Health Promotion International Journal*, 34(4), 869–876. DOI: <https://doi.org/10.1093/heapro/day030>
- Wilson, E. B. (1927). Probable inference, the law of succession, and statistical inference. *Journal of the American Statistical Association*, 22(158), 209–212. DOI: [10.1080/01621459.1927.10502953](https://doi.org/10.1080/01621459.1927.10502953)