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Determinants of Anxiety, Depression and Subjective Wellbeing Among Musicians in Denmark: Findings From the 'When Music Speaks' Project

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ABSTRACT

Some studies have suggested that professional musicians may suffer from elevated levels of mental ill health compared to both non-professional musicians and the general public. The aim of this study was to explore the levels of anxiety, depression, and subjective wellbeing among musicians in a country famed for high levels of wellbeing: Denmark. More specifically, we sought to evaluate the impact of age, gender, income, and subjective career status (SCS)–that is, seeing music as one's main career—on these variables. 986 musicians from a range of career stages and genres (both popular—or rhythmic as it is referred to in Denmark—and classical) completed a survey measuring anxiety and depression using the Hospital Anxiety and Depression Scale (HADS) and measuring subjective wellbeing using Cantril's self-anchoring scale. Multiple regression models were used to explore the relationship between the four independent variables and our three outcome measure scores. Additionally, the sample was split on the basis of their respective significant predictor variables combined in order to observe between-group differences. Firstly, we found that age, gender, and SCS—but not income—significantly predicted anxiety scores. Being younger, being female, and viewing music-making as one's main career all predicted higher levels of anxiety. Demographic group comparisons confirmed that younger female musicians who viewed music-making as their main career were particularly at risk in comparison to other groups. Secondly, age (younger) and gender (female) were also predictors of higher depression scores, but SCS status and income category were not. Lastly, age (younger), gender (female), and income (membership of the three lowest income categories) predicted lower scores on the subjective wellbeing measure. The fact that income did not significantly predict anxiety or depression scores suggested that elevated levels of either of these experienced by career-oriented musicians might not relate to income, or at least may not be solely income-related. Our findings contribute towards literature that seeks to better understand the determinants of elevated levels of mental ill health among musicians and towards research into mental health and wellbeing in Denmark more generally.

1 | Introduction

Research suggests that musicians as an occupational group might display elevated levels of mental ill health, notably conditions such as anxiety and depression, compared to the general population (Kegelaers et al. 2022; Vaag et al. 2016). One possible hypothesis for this prevalence concerns psychosocial stressors associated with musicians' working lives, including financial precarity (Berg et al. 2022); misogyny and the particularities of the challenges facing female musicians (McCarry

Summary

- Musicians have been seen to be an at-risk occupational group for anxiety and depression.
- A large survey of Danish musicians working in all genres ($n = 986$) revealed that levels of anxiety were significantly predicted by three factors: age (being 40 or under), gender (being female), and subjectively viewing music as one's main career.
- Group comparisons revealed that younger, female, career-oriented musicians were most at risk for anxiety.
- Findings suggest that anxiety may be related to something fundamental and existential about seeing music as one's main career and the many psychosocial stressors, which accompany this career. Musicians' incomes in our survey impacted levels of wellbeing, but not levels of anxiety or depression, suggesting that the elevated levels of anxiety seen cannot be entirely explained by musicians' low and/or precarious incomes.
- The mean score of 6.54 for wellbeing measured using Cantril's Self Anchoring Striving Scale has been suggested to represent a deviation in the Nordic context as the score is below 7.

et al. 2023); abuses within a labour market of informality (such as bullying; Jones and Manoussaki 2022); stresses and strains on interpersonal relationships (Musgrave 2023a) and the loss of earnings during the coronavirus pandemic (Musgrave 2022). Musicians have also been shown to be at elevated risk of early mortality (Bellis et al. 2012) and suicide (Kenny and Asher 2016; Stack 2009) compared to other occupational groups.

Findings such as these have also been reflected in research focused on Scandinavian musicians. In Swedish (Liljeholm Johansson and Theorell 2003), Danish (Holst et al. 2012), and Finnish orchestras (Kivimäki and Jokinen 1994), high levels of psychosocial stress have been seen to impact levels of well-being. Vaag et al. (2016) compared popular musicians' responses to an anxiety/depression symptoms questionnaire with those of 2250 members of the general Norwegian workforce, finding (after controlling for demographic, economic, and health factors) that musicians' rates of psychological distress were more than twice that of the general sample. Détári et al. (2020) reported that musicians felt less acknowledged and supported, had more work–family conflicts and less motivation, and perceived their work as more demanding than a sample of 8517 Norwegian workers. This may indicate that the general work environment coupled with personality traits, e.g., neuroticism (Aalberg et al. 2019), may affect the levels of psychological distress experienced by musicians (see also Saksvik-Lehouillier et al. 2017). Non-peer-reviewed, industry-facing contributions have highlighted a similar dynamic in Scandinavia, with high levels of self-reported anxiety documented among independent musicians in Sweden (Record Union 2019).

These findings are particularly interesting in the context of Scandinavia, given that large-scale initiatives that rank countries on happiness/wellbeing have consistently found the Nordic nations to score highly. In 2023, Finland, Iceland, and Denmark comprised the top three of the 137 countries assessed in The World Happiness Report, with Sweden and Norway sixth and seventh, respectively (Helliwell, Layard, et al. 2023). This was the fifth year in a row that Finland appeared in first place. Since the report's inception in 2012, the top spot has only been occupied by a non-Scandinavian country on one occasion, and no Nordic nation has ever been outside the top ten. A similar pattern is found on indices such as the Social Progress Index and the Human Development Index; in 2022, Norway, Denmark, and Finland made up the top three of the former (Social Progress Imperative 2022), while all five Nordic nations were at the upper end of the top-scoring group of countries in the latter (UNDP (United Nations Development Programme) 2022).

In this context of potentially elevated levels of mental ill health among musicians occurring in societies famed for high levels of 'happiness,' this paper examines the mental health and subjective wellbeing of musicians in Denmark, a country recently described as the second 'happiest country in the world' (Helliwell, Layard, et al. 2023). This is an 'imagery of Denmark' (Andersen et al. 1997), which some have suggested masks inequalities and challenges for those in the country who might be suffering, and thus living 'in the shadow of happiness' (Andreasson and Birkjær 2018); in 2019, for instance, all five Scandinavian countries were in the European Economic Area top ten for the proportion of citizens reporting chronic depressive symptoms, with Iceland and Sweden in 1st and 3rd place, respectively (Eurostat, 2022). Our initial survey was completed by 1865 musicians living and working in Denmark and set out to explore both (1) the incidences of anxiety and depression and levels of subjective wellbeing, among this population and (2) the determinants of these, focusing in particular on age, gender, income, and career status. In doing this, we contribute towards literature on both the levels of mental ill health among musicians globally and in Scandinavia and the complexities and inequalities relating to mental health and wellbeing in Denmark.

2 | Framework and Hypotheses

2.1 | Factors Impacting Mental Health and Well-Being in Scandinavia

A key determinant of mental health outcomes seen both among musicians and the wider Scandinavian public is that of age. Andreasson and Birkjær (2018) reported data taken from the European Social Survey revealing one in ten (12.3%) of a sample of 20,749 Scandinavians rated themselves as "struggling" or "suffering," as indicated by a score on Cantril's self-anchoring scale of lower than 7. Young people were disproportionately vulnerable, with a higher proportion of the 18–23 age group (13.5%) rating themselves as struggling or suffering than any other group. The University of Southern Denmark administered a range of health measures to 167,889 Danish citizens; while 17.4% of the sample achieved a "low" score on the mental health scale of the SF-12 health measure (relative threshold: scores matching the lowest 10% of an equivalent data set from Denmark's National Health Profile, 2010), age was seen to be particularly impactful (Rosendahl et al. 2022). The authors reported an overall increase of 7.4% in low mental health scores compared

with previous data from the National Health Profile (2010), with the increase particularly pronounced in 16–34year-olds, and women aged 16–24. A number of explanatory factors have been posited to account for these poorer mental health outcomes for younger people in Denmark, including higher levels of alcohol consumption, which have been observed in Danish 15 year-olds (82%) compared to the European average for this age cohort (59%) (WHO 2020; see also Pisinger et al. 2019); cyberbulling and 'negative experiences on social media' (Skogen et al. 2023); and younger men being at risk of under-treatment for mental ill health (Borg et al. 2010). In other words, studies suggest young people experience distinct stressors, particularly in adolescence, engendering increased vulnerability.

These findings concerning age echo findings from Scandinavian musicians which suggest age to be an impactful variable, with younger musicians in Sweden reporting elevated rates of negative emotions such as stress, anxiety, or depression (Record Union 2019). This group was—in comparison to other age groups—more likely to self-report both mental health difficulties and worry stemming from those difficulties and less likely to report seeking help, talking about their problems, or prioritizing their mental health. Work from elsewhere globally has reflected this too, showing younger musicians to have a greater risk of poor mental health outcomes than older musicians (Gross and Musgrave 2020; Loveday et al. 2023). Given this body of evidence, we hypothesize:

Hypothesis 1. *Age will significantly predict* (*a*) *anxiety*, (*b*) *depression, and* (*c*) *subjective wellbeing scores. Younger participants will score higher than older participants on the anxiety and depression measures and lower on the subjective wellbeing measure.*

Gender has also been seen to significantly impact wellbeing and mental health outcomes, both among musicians (in Scandinavia and elsewhere) and in the wider Scandinavian population. With reference to the latter, psychological difficulties have been observed to be more prevalent in women in a variety of contexts (e.g., Kringlen et al. 2001; Lehtinen et al. 1990), with studies also showing that the effect of gender seems to be mediated by other factors. For example, Ayuso-Mateos et al. (2001), in a large-scale study of prevalence patterns across several European regions, reported that females in Finnish urban, Norwegian urban, and Norwegian rural areas were more likely than male counterparts to experience depression, while Derdikman-Eiron et al. (2011) found Norwegian adolescent girls' heightened risk of anxiety and depression compared to their male counterparts was mediated by self-esteem, academic problems, and factors relating to social isolation. Andreasson and Birkjær (2018) showed young women were more at risk than young men in all countries except Denmark, where significantly fewer young women (2.7%) scored themselves as "struggling" than young men (7.1%).

Among musicians, women have been suggested to experience the psychosocial stressors of being a career musician more acutely than men. For example, studies have highlighted sexist attitudes within major record companies and spaces of technical music production (Wolfe 2019), challenges related to access to spaces of power (Gross 2022), sexual assault and other forms of abuse and victimization within the live music space (Fileborn et al. 2019), and poor representation from Spotify playlists to festival stages (Werner 2020). Female adolescent musicians have also been seen to be at greater risk of music performance anxiety than adolescent males (Thomas and Nettelbeck 2014). Findings such as these have been suggested to impact mental health outcomes for female musicians. In the context of Scandinavia, Vaag et al. (2016) also found that Norwegian female musicians were more likely than males to report distress, and Holst et al. (2012) found that females reported higher work demands and stress symptoms than males. Therefore, we hypothesize:

Hypothesis 2. *Gender will significantly predict* (*a*) *anxiety*, (*b*) *depression, and* (*c*) *subjective wellbeing scores. Female participants will score higher than male participants on the anxiety and depression measures and lower on the subjective wellbeing measure.*

A sizeable number of studies using Scandinavian samples have reported a link between employment precarity—and, by extension, income precarity—and heightened susceptibility to a range of negative mental health outcomes (e.g., Bernhard-Oettel et al. 2005; Byrne et al. 2004; Canivet et al. 2016; Elovainio et al. 2010; Ervasti et al. 2014; Hammarström et al. 2011; Hellgren and Sverke 2003; Hellgren et al. 1999; Liukkonen et al. 2004; Jonsson et al. 2021; Rugulies et al. 2006, 2010; Storseth 2006; Virtanen et al. 2011; Waenerlund et al. 2011). Although evidence regarding the influence of this variable has not always been clear-cut, significant negative effects have generally been reported by studies using multi-dimensional measures (see Ronnbald et al. 2019 for a review featuring Scandinavian studies). Alongside this, being a career musician is well known to be highly financially precarious (Abbing 2004; Deresiewicz 2020; Hesmondhalgh et al. 2021), with impacts observed on the health and wellbeing of musicians related to this financial precarity (Berg et al. 2022). Therefore, we hypothesize:

Hypothesis 3. *Income will significantly predict* (*a*) *anxiety*, (*b*) *depression, and* (*c*) *subjective wellbeing scores. Membership in lower-income categories will be associated with higher anxiety and depression scores and lower subjective wellbeing scores.*

Finally, the evidence cited above concerning high levels of psychosocial stress among those who pursue music as a career (as opposed to those who engage in music making for other reasons, such as for leisure, recreation, or simply personal pleasure) suggests that the career itself might be an impactful variable on health and well-being outcomes. Indeed, this delineation has been highlighted by Bonde et al. (2018), drawing on data from the Danish Health and Morbidity Survey, suggesting non-professional (or amateur) musicians to have better health than professional musicians. This 'paradox' between music-making being a source of well-being but career musicians suffering from poor mental health has been observed in the work of Musgrave (2023b), and indeed Vaag et al. (2015) in their work in Norway found that psychological risk was increased in musicians whose music careers comprised over 75% of their total working hours. Numerous studies have suggested that the stressful psychosocial working conditions experienced by career musicians might explain this relationship between professional musicians and mental ill health, for example: high levels of optimism displayed by musicians having to then confront the

reality of a highly precarious and uncertain labour market and a failure to achieve their dreams (Musgrave et al. 2024), antisocial working hours (Dobson 2011), the cultural prevalence of alcohol e.g., at live music events (Forsyth et al. 2016), bullying and harassment, particularly in the context of a freelance workforce which lacks typical employment protections (Jones and Manoussaki 2022), and experiences of racism by ethnic minority musicians (Black Lives in Music 2021).

Perhaps the clearest attempt to address the relationship between music as a career status and mental health outcomes in a methodologically discrete way is seen in work by Loveday et al. (2023). Here, in a survey of 254 musicians from 13 countries, respondents who identified music making as their 'main career' scored lower rates of wellbeing measured using the World Health Organization Wellbeing Index (WHO-5) and higher rates of abnormal depression measured using the Hospital Anxiety and Depression Scale (HADS-D), albeit with no impact on anxiety. It is worth noting, however, that in the work of Kegelaers et al. (2022), while electronic dance musicians reported elevated levels of anxiety and depression, moderate levels of wellbeing were reported, suggesting the picture may be mixed. In line with this body of work, we hypothesize:

Hypothesis 4. *Subjective career status i.e., defining music as your main career, will significantly predict (a) anxiety, (b) depression, and (c) subjective wellbeing scores. Participants who report viewing music as their main career will score higher than those who do not on the anxiety and depression measures and lower on the subjective wellbeing measure.*

Should any of the age, gender, income, or career status variables prove to have a significant effect on one or more of the mental health/wellbeing outcome measures, we will undertake a supplementary analysis of group differences based on splitting the sample into groups based on these variables in combination. This will add to the main analysis by elucidating how the patterns observed may manifest in terms of increased vulnerability to negative mental health and/or wellbeing outcomes in specific demographics. Intersectional literature highlights the need to understand the ways in which the variables explored in this study connect and overlap in complex ways. For example, young Danish women (15–24) have been seen to exhibit poorer levels of wellbeing and higher incidences of eating disorders than young men (Helweg-Larsen et al. 2007). Likewise, intersectional findings in the context of musicians specifically reveal these inequalities too e.g., Kenny et al. (2012) found anxiety and depression to be higher among female classical musicians, with younger ones particularly impacted. This data has been mirrored among musicians in the work of Gross and Musgrave (2020) based on a self-selecting sample of 2211 musicians and wider music industry professionals, where female musicians under the age of 35 were seen to be at increased risk of anxiety and depression compared to older women and younger men.

Hypothesis 5. *The patterns observed with regard to any significant effects of the three independent variables will—when the sample is split into groups according to these three variables in combination—be reflected in the observed between-group differences.*

3 | Materials and Methods

3.1 | Participant Recruitment and Inclusion

The data from this study were taken from a large-scale survey assessing the mental health and wellbeing—alongside a range of demographic and career-related variables—of career-oriented and non-career-oriented musicians (and more broadly defined music-makers, e.g., producers, composers, songwriters, etc....) working across any popular or classical music genre. The original survey, part of a project entitled 'When Music Speaks', was the largest on musicians' mental health conducted in Scandinavia to date and was completed by 1865 musicians and music-makers. All respondents worked in Denmark or the wider Kingdom of Denmark. Ethical approval was granted by the University of Westminster (28th March 2023, Application ID: ETH2223-1337). The survey was hosted (in Danish) by the data analytics company Enalyzer and was open between 30 March 2023 and 15 May 2023. The principal (though not exclusive) method of survey distribution was via the Danish royalty collection society Koda—the country's largest professional music industry organization—who shared it among 36,293 of their 50,000 (approx.) members.

For the current analysis, respondents were excluded who did not (a) provide an answer to the age, gender, and/or income questions (b) give a definitive answer (i.e., "yes" or "no") to the subjective career status (SCS) question, or (c) complete *all* of the three mental health and wellbeing measures. This left 986 respondents. Of this smaller sample, with regard to the three two-category variables of age, gender, and SCS, 653 (66.2%) were older (i.e., over 40), 758 (76.9%) were male, and 593 (60.1%) regarded music as their main career (the latter indicated by an

TABLE 1 | Breakdown of sample (ns and percentages) by age, gender, and subjective career status (SCS).

	18–40				**>40**			
Age	**333 (33.8)**				**653 (66.2)**			
Gender	**Male**		**Female**		**Male**		**Female**	
	236 (23.9)		97 (9.8)		522 (52.9)		131 (13.3)	
SCS	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
	153 (15.5)	83 (8.4)	80 (8.1)	17 (1.7)	269 (27.3)	253 (25.7)	91 (9.2)	40 (4.1)

Note: $N = 986$.
Abbreviation: SCS, subjective career status i.e., response to the question 'do you consider music to be your main/primary career?'.

affirmative answer to the relevant survey question as detailed above). With regard to the six-category variable of income, 196 participants (19.9%) responded that they were in the lowest earning category (< 100 k), 355 (36%) reported ordinarily earning 100–299,999 k, 248 (25.2%) reported earning 300–499,999 k, 121 (12.3) reported earning 500–699,999 k, 33 (3.3%) reported earning 700–899,999 k, and 33 (3.3%) reported earning over 900 k. According to the latest data from Statistics Denmark (n.d.), the average annual salary in Denmark in 2022 was 371,900 k, suggesting that at least 55.9% of our sample earned below-average incomes, and at least 19.9% of respondents earned less than half the average annual income (a method that can be used as a proxy to indicate relative poverty). Table 1 gives a full breakdown of the sample across the three two-category variables. Full geographical and genre breakdowns of the sample can be found in Appendices 1 and 2 respectively.

3.2 | Data Collection and Measures

The four independent variables of interest in the current study were age, gender, estimated annual income (including music and non-music income), and what we refer to herein as subjective career status (SCS), i.e., defining music-making as one's main career. Participants were invited to state their age and gender when completing the demographic portion of the survey. Both these items were categorical, with participants invited to indicate to which age category (18–24, 25–29, 30–35, 36–40, 41–50, > 50) and gender category (male, female, non-binary) they belonged. Both items also gave the option "prefer not to say." For the age variable, participants in the current study were divided into those between 18 and 40, and those over 40. This was done for five reasons. Firstly, music careers are well understood as being experienced differently at different ages, in particular in genres of popular music where being 'old' (however defined) can be perceived as disadvantageous with respect to marketing music to younger audiences, particularly for women (Gardner 2019). Indeed, this has been seen to confer well-being risks on female musicians of all ages who can feel pressure and anxiety around aging (Vachet 2024). Secondly, the Musicians Union (2022) in the United Kingdom recently shared a female singers toolkit for those aged over 40 to encourage them to "take back the mic", given that many musicians feel excluded from music careers after this age, suggesting 40 to be an impactful age after which building or sustaining a music career might be more challenging. Thirdly, Koda (2021)–our principal method of survey distribution—note that their organization features more musicians over the age of 40 than under 40, suggesting the age to be important. Fourthly, a study of professional orchestral musicians suggested that musicians over the age of 40 were more health conscious than those under 40 (Kenny and Ackermann 2016), suggesting this to be a suitable cut-off for analysis as an age after which musicians, in some ways, think and perhaps feel differently about their musical careers. To an extent any chosen cut-off in this way is arbitrary e.g., work by Gembris et al. (2018) in their analysis of orchestral musicians' physical and psychological problems split their analysis for the latter into 50 years old and over (older) and under 50 (younger). Gembris and Heye (2014) note that for musicians "between 40 and 50 [years old] are a time of change. During this period, musicians feel they leave their youth behind and join the older age group" (p. 371). Finally, splitting the analysis in this way simplified the presentation of findings (see Discussion for evaluation).

Participants who had answered non-binary for the gender question were excluded due to their scarcity and attendant concerns about statistical power (see Section 5 for a consideration of how empirical research involving this group may be best approached). Both these variables thus had *two* levels—younger (18–40) and older (> 40) for age, and male and female for gender. For the original survey, respondents were asked to provide their annual income. This was income from *all* sources and not only music-related income. The total income participants entered was then allocated to a response category. We originally created twelve, but this was reduced to six for the purposes of the main analysis (< 100 k, 100–299,999 k, 300 k-499,999 k, 500–799,999 k, 700–899,999 k, > 900 k). SCS was assessed with the question "do you consider music to be your main/primary career?" Participants could answer "yes", "no", or "don't know" to this item, although those who gave the latter response were excluded from the current analysis in order to minimize ambiguity. This variable thus also had *two* levels—yes and no.

The three outcome variables were anxiety, depression, and wellbeing. Anxiety and depression were measured using the Hospital Anxiety and Depression Scale (HADS; Zigmond and Snaith 1983). This measure involves fourteen items, seven related to anxiety symptoms (HADS-A) and seven related to depression symptoms (HADS-D). Each item requires participants to rate, along a four-point Likert-style scale, the frequency or severity with which a particular statement applies to them (e.g., "I get a sort of frightened feeling like something awful is about to happen," "I still enjoy the things I used to enjoy") and is scored 0–3, giving a score out of 21 for each subscale. The HADS was chosen as it has been shown to have a high level of validity, sensitivity, and diagnostic accuracy (Norton et al. 2013), with a review of 747 papers by Bjelland et al. (2002, 69) finding HADS to "perform well in assessing the symptom severity and caseness of anxiety disorders and depression in both somatic, psychiatric, and primary care patients and in the general population." HADS has also been translated into Danish (Christensen et al. 2020), with studies employing the translated version also reporting validity (e.g., Berg et al. 2019; Sibilitz et al. 2015). In the present study, reliability analyses of HADS-A scores gave Cronbach's Alpha coefficients of 0.89 for the whole sample, 0.88 for male respondents, and 0.87 for female respondents. For HADS-D scores, Cronbach's Alpha coefficients were 0.82 for the whole sample, 0.82 for male respondents, and 0.84 for female respondents.

Subjective wellbeing was measured using an item from Cantril's Self-Anchoring Striving Scale (Cantril 1965). This asks respondents to think of their lives as rungs on a ladder and to then conceptualize the quality of their life *at the present time* ("Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?"). Each participant thus awards themselves a score between 0 and 10. Although the full version of the scale invites participants to award themselves a score between 0 and 10 for both the present and where they think they will be 5 years in the future, the

current study only recorded participants scores with regard to the former, as the variable of interest was participants' *present* levels of wellbeing. Compared to larger multiple-item scales, single-item measures such as Cantril have been shown to have good levels of reliability for assessing life satisfaction (Cheung and Lucas 2014), and indeed Cantril is the measure employed by the Gallup World Poll to assess levels of 'happiness' among the wider Danish population (Helliwell, Huang, et al. 2023). In the present study, as the Cantril measure only consisted of a single item, internal reliability analyses of this measure were not possible. However, whole-sample correlational analyses revealed a moderate correlation between Cantril and overall HADS-A scores (r [984] = −0.58, $p < 0.001$), and a strong correlation between Cantril and overall HADS-D scores (r [984] = −0.66, $p < 0.001$).

3.3 | Statistical Analysis

Hypothesis testing was conducted in two steps. Firstly, in order to assess hypotheses 1–4, multiple regression models, with age, gender, income, and SCS as the four independent variables, were constructed for each of the three outcome measure scores (anxiety: HADS-A, depression: HADS-D, wellbeing: Cantril). For three of these variables, the sample was split into two groups—younger (18–40) vs. older (over 40) for age, male vs. female for gender, and answering "no" vs. "yes" on the survey question "do you consider music to be your main/primary career?" for SCS. Although there was no need to create dummy variables (with reference) given the fact that these variables each had two levels, participants were numerically coded 0 or 1 on them all before being entered into the models, with female, younger, and viewing music as the main career (i.e., the levels of each variable predicted to be associated with higher levels of mental distress) all assigned the 1 value. Income was coded according to the six-level categorization outlined above, as it was felt that reducing this variable to two levels would be overly simplistic. However, as this variable had six levels and was ordinal rather than continuous, five dummy variables—each corresponding to membership of one of the lowest five income categories—were used, with the highest category (> 900 k) as the reference. The four predictor variables were entered into the models one at a time in order to enable the inspection of R^2 change at each step. The dummy income variables were entered last into each model to simplify the step-by-step presentation of key statistics in the tables below.

Inspection of Durbin-Watson and VIF/tolerance statistics for each model showed that assumptions regarding independence of errors and multicollinearity were met. Inspection of Mahalanobis distances and Cook's values revealed no cause for concern regarding cases of undue influence in any of the three models.

As the regression analyses showed that each outcome variable was significantly predicted by *at least* one independent/predictor variable, a supplementary analysis was then carried out in order to test hypothesis 5—that the regression results for each of the three outcome variables would, when the sample was split on the basis of their respective significant predictor variables combined, be reflected in the observed between-group differences. The sample was thus split into eight groups based on the Age, Gender, and SCS variables for anxiety, four groups based on the Age and Gender variables for depression, and eight groups based on the Age, Gender, and Income variables for wellbeing (see below for details).

With regard to the supplementary analysis, significant Shapiro–Wilk tests ($ps < 0.05$) and subsequent inspection of histograms for each of the three outcome variables indicated that the assumption of normality had been violated for certain groups. For this reason, non-parametric Kruskal–Wallis analyses (with Dunn's pairwise follow-up comparisons for any significant main analyses) were used. Bonferroni corrections for multiple tests were used for Dunn's pairwise comparisons.

4 | Results

4.1 | The Effect of Age, Gender, Income, and Subjective Career Status on Mental Health and Wellbeing

Table 2 shows the means and standard deviations at each level of the four independent variables (age, gender, income, SCS), with regard to each of the three dependent variables (anxiety [HADS-A score], depression [HADS-D score], and wellbeing [Cantril score]). Note that due to the differing ways in which the measures were scored, *higher* scores on both the HADS-A and HADS-D subscales are indicative of a *higher* level of suffering, whereas on the Cantril, higher levels of suffering are indicated by *lower* scores. Looking at the clinical cutoffs for HADS, the mean score across our entire sample (7.39) falls slightly above the normal range of anxiety (indicated by a score between 0 and 7), but still below a score indicating abnormal anxiety (8 or above). However, the mean scores of those aged 18–40 (9.63), female respondents (9.83), respondents in the lowest two income categories (8.03 and 8.01), and respondents who saw music as their main career (8.17) fall in the range of abnormal anxiety (mild) (8–10). The mean score across our entire sample for levels of depression (4.40) falls in the normal range (0–7). A mean score of 6.54 for wellbeing measured using Cantril is suggested by Andreasson and Birkjær (2018, 8) to represent a "deviation" for Nordic countries given that the score is below 7, and indeed only the mean scores for the highest three income categories fell above 7.

Table 3 below shows the key statistics for the multiple regression conducted on anxiety, depression and wellbeing scores.

The overall fit of the final model was statistically significant with respect to the multiple regressions conducted for anxiety scores (F [8, 977] = 29.92, $p < 0.001$, $R^2 = 0.197$), with three predictor variables independently accounting for a significant proportion of variance. Age was the most powerful predictor, with membership in the younger group associated with higher anxiety scores ($\beta = 0.289$, $p < 0.001$). Next was gender, with membership in the female group also associated with higher scores ($\beta = 0.228$, $p < 0.001$). SCS was the third most powerful significant predictor, with membership in the "yes" group (i.e., respondents who reported viewing music as their main/primary career) also associated with higher anxiety scores ($\beta = 0.116$, $p < 0.001$). None of

TABLE 2 | Mean levels of anxiety, depression, and wellbeing by age, gender, income, and SCS.

		Anxiety (HADS-A)		Depression (HADS-D)		Wellbeing (Cantril)	
		M	**SD**	***M***	**SD**	***M***	**SD**
Age	18–40	9.63	4.38	5.63	3.73	5.98	1.90
	>40	6.25	4.47	3.77	3.56	6.83	2.09
Gender	Male	6.65	4.50	4.15	3.60	6.69	2.05
	Female	9.83	4.61	5.21	4.01	6.05	2.06
Income	1 (<100 k)	8.03	5.01	4.85	3.85	5.99	2.27
	2 (100–299,999 k)	8.01	4.91	4.64	4.01	6.33	2.06
	3 (300–499,999 k)	7.01	4.19	4.22	3.37	6.65	1.96
	4 (500–699,999 k)	6.03	4.28	3.66	3.32	7.21	1.70
	5 (700–899,999 k)	5.52	4.03	3.79	2.84	7.76	1.50
	6 (>900 k)	6.61	5.02	3.67	3.94	7.73	1.72
SCS	Yes	8.17	4.64	4.60	3.79	6.49	2.07
	No	6.22	4.59	4.08	3.60	6.63	2.06
Overall		7.39	4.71	4.40	3.72	6.54	2.07

Abbreviations: HADS-A, Hospital Anxiety and Depression Scale–Anxiety; HADS-D, Hospital Anxiety and Depression Scale—Depression; SCS, subjective career status, i.e. response to the question 'do you consider music to be your main/primary career?'.

the income dummy variables predicted a significant portion of variance ($ps > 0.05$).

With respect to depression scores, the overall fit of this final model was also statistically significant (F [8, 977] = 9.04, $p < 0.001$, $R^2 = 0.069$). This time, only two predictor variables independently accounted for a significant portion of the variance on this measure. Again, age was the most powerful predictor ($\beta = 0.218$, $p < 0.001$), with membership in the younger group associated with higher depression scores. Next was gender, with membership in the female group also a significant predictor of higher scores ($\beta = 0.089$, $p = 0.005$). Neither SCS ($\beta = 0.018$, $p = 0.563$) nor any of the income dummy variables ($ps > 0.05$) predicted a significant portion of the variance.

Finally, with respect to wellbeing scores, the overall fit of this final model was also statistically significant (F [8, 977] = 11.56, $p < 0.001$, $R^2 = 0.086$), with five predictor variables independently accounting for a significant portion of the variance. Three of these were income dummy variables, with membership of the three lowest-earning groups all predicting significantly lower wellbeing scores in comparison to the highest-earning >900 k reference group (<100 k: $\beta = -0.304$, $p < 0.001$; 100–299,999 k: $\beta = -0.301$, $p < 0.001$; 300–499,999 k: $\beta = -0.238$, $p = 0.002$). Age was also a significant predictor ($\beta = -0.150$, $p < 0.001$), with membership of the younger group associated with lower wellbeing scores. The fifth significant predictor was gender ($\beta = -0.099$, $p = 0.002$), with membership in the female group also associated with lower wellbeing scores. SCS did not predict a significant portion of the variance on this measure ($\beta = 0.015$, $p = 0.631$). Similarly, the two highest-earning dummy variable income groups did not significantly predict a change in wellbeing scores relative to the reference (500–699,999 k: $\beta = -0.097$, $p = 0.118$; 700–899,999 k: $\beta = -0.007$, $p = 0.865$).

In summary, both age and gender predicted a significant portion of the variance in scores on all three outcome measures. Hypothesis 1—that age would significantly predict (a) anxiety, (b) depression, and (c) well-being scores, with younger participants faring worse than older participants on all three measures—was fully supported. Hypothesis 2—that gender would significantly predict (a) anxiety, (b) depression, and (c) well-being scores, with female participants faring worse than male participants on all three measures—was also fully supported.

By contrast, income and SCS each only significantly predicted one outcome measure. Hypothesis 3 stated that income would significantly predict (a) anxiety, (b) depression, and (c) wellbeing scores, with lower incomes associated with worse outcomes on all three measures. As this was only observed with regard to wellbeing, but not anxiety or depression, only hypothesis 3c was supported. Hypothesis 4 stated that SCS would significantly predict (a) anxiety, (b) depression, and (c) wellbeing scores, with participants who view music as their main career faring worse on all three measures than those who do not. This was not observed with regard to depression or wellbeing in the way that was predicted but was observed with regard to anxiety. Thus, only hypothesis 4a was supported.

4.2 | Demographic Group Analysis

Supplementary analysis was conducted as the multiple regression analyses showed that each of the four independent variables predicted a significant portion of the variance on *at least* one of the outcome measures. Hypothesis 5 stated that the patterns observed would—when the sample was split into groups according to the significant predictors for each—be reflected in the between-group differences.

TABLE 3 | Multiple regressions for the effect of age, gender, income, and SCS on anxiety, depression, and wellbeing scores.

Multiple regressions for the effect of age, gender, income, and SCS on anxiety scores					Multiple regressions for the effect of age, gender, income, and SCS on depression scores					Multiple regressions for the effect of age, gender, income, and SCS on wellbeing scores				
		B	SE B	*β*			*B*	SE B	*β*			*B*	SE B	*β*
Step 1	Constant	6.25	0.17		Step 1	Constant	3.77	0.14		Step 1	Constant	6.83	0.08	
	Age	3.38	0.30	**0.34*****		Age	1.87	0.24	**0.24*****		Age	−0.85	0.14	**−0.19*****
Step 2	Constant	5.68	0.18		Step 2	Constant	3.59	0.15		Step 2	Constant	6.94	0.09	
	Age	3.13	0.29	**0.31*****		Age	1.79	0.24	**0.23*****		Age	−0.80	0.14	**−0.18*****
	Gender	2.82	0.33	**0.25*****		Gender	0.86	0.27	**0.10****		Gender	−0.56	0.15	**−0.11*****
Step 3	Constant	5.08	0.23		Step 3	Constant	3.51	0.20		Step 3	Constant	6.92	0.11	
	Age	2.97	0.29	**0.30*****		Age	1.77	0.25	**0.23*****		Age	−0.80	0.14	**−0.18*****
	Gender	2.62	0.33	**0.23*****		Gender	0.83	0.28	**0.09****		Gender	−0.56	0.16	**−0.12*****
	SCS	1.16	0.28	**0.12*****		SCS	0.16	0.24	0.02		SCS	0.05	0.13	0.01
Step 4	Constant	4.58	0.76		Step 4	Constant	2.89	0.65		Step 4	Constant	7.98	0.36	
	Age	2.88	0.30	**0.29*****		Age	1.71	0.25	**0.22*****		Age	−0.66	0.14	**−0.15*****
	Gender	2.55	0.33	**0.23*****		Gender	0.79	0.28	**0.09****		Gender	−0.49	0.15	**−0.10****
	SCS	1.12	0.29	**0.12*****		SCS	0.14	0.24	0.02		SCS	0.06	0.13	0.02
	Income					**Income**					**Income**			
	< 100 k	0.75	0.80	0.06		< 100 k	0.83	0.68	0.09		< 100 k	−1.57	0.37	**−0.30*****
	100–299,999 k	0.76	0.77	0.08		100–299,999 k	0.73	0.66	0.09		100–299,999 k	−1.30	0.36	**−0.30*****
	300–499,999 k	0.62	0.79	0.06		300–499,999 k	0.73	0.67	0.09		300–499,999 k	−1.13	0.37	**−0.24****
	500–699,999 k	0.06	0.84	0.00		500–699,999 k	0.28	0.71	0.03		500–699,999 k	−0.61	0.39	−0.10
	700–899,999 k	−0.47	1.05	−0.02		700–899,999 k	0.45	0.89	0.02		700–899,999 k	−0.08	0.49	−0.01
Total R^2				0.20	Total R^2				0.07	Total R^2				0.09

(Continues)

TABLE 3 | (Continued)

Multiple regressions for the effect of age, gender, income, and SCS on anxiety scores				Multiple regressions for the effect of age, gender, income, and SCS on depression scores			Multiple regressions for the effect of age, gender, income, and SCS on wellbeing scores		
	B	SE B	*β*		*B*	SE B	*β*	*B*	SE B	*β*
Note: ***$p < 0.001$. $R^2 = 0.12$ for Step 1, $\Delta R^2 = 0.06$ for Step 2, $\Delta R^2 = 0.01$ for Step 3, $\Delta R^2 = 0.00$ for Step 4				*Note:* ***$p < 0.001$, **$p < 0.01$. $R^2 = 0.06$ for Step 1, $\Delta R^2 = 0.01$ for Step 2, $\Delta R^2 = 0.00$ for Step 3, $\Delta R^2 = 0.00$ for Step 4			*Note:* ***$p < 0.001$, **$p < 0.01$. $R^2 = 0.04$ for Step 1, $\Delta R^2 = 0.01$ for Step 2, $\Delta R^2 = 0.00$ for Step 3, $\Delta R^2 = 0.04$ for Step 4		

Abbreviation: SCS, subjective career status, i.e., response to the question 'Do you consider music to be your main/primary career?'.

TABLE 4 | Frequencies (ns and percentages), anxiety means, and mean ranks by combined age/gender/SCS group.

Group	*n*	*M* (SD)	Mean rank
Younger female-yes	80 (8.1)	11.35 (4.09)	727.60
Younger-female-no	17 (1.7)	11.12 (3.90)	720.65
Older-female-yes	91 (9.2)	9.38 (4.53)	615.42
Younger-male-yes	153 (15.5)	9.24 (4.14)	612.80
Younger-male-no	83 (8.4)	8.40 (4.64)	556.01
Older-female-no	40 (4)	7.28 (4.86)	481.89
Older-male-yes	269 (27.3)	6.20 (4.23)	424.32
Older-male-no	253 (25.7)	5.00 (4.04)	343.10

Note: $N = 986$.

For anxiety scores, the sample was thus split into eight groups based on each possible combination of this variable's three significant predictors ($2 \times 2 \times 2$; age, gender, SCS). Table 4 shows these groups (and frequencies) in descending order, on the basis of group means and mean ranks. Note that the higher the group mean, the higher the mean rank. A Kruskal-Wallis H test showed that there was a statistically significant difference between the eight groups on this variable ($H\,[7, n = 986] = 199.74$, $p < 0.001$, $\eta^2 = 0.20$, *large* effect). It is also relevant to note that the mean scores for both younger female groups (11.35 and 11.12) fall into the moderate, and thus "clinically significant" (Hansson et al. 2009, 284), anxiety range for HADS (indicated by a score between 11 and 15).

Follow-up pairwise comparisons (with adjusted Bonferroni corrections for multiple tests) were conducted to inspect where the significant between-group differences lay (see Appendix 3 for the table). The younger-female-yes, younger-female-no, and older-female-yes groups had the highest anxiety scores. These groups did not differ significantly from each other, but *all* significantly differed from the two lowest-scoring groups, older-male-yes and older-male-no. The highest-scoring group, younger-female-yes, differed significantly from *all* four of the lowest-scoring groups (younger-male-no, older-female-no, older-male-yes, older-male-no). The two lowest-scoring groups did *not* significantly differ from each other but had significantly lower anxiety scores than *all* the other groups.

For depression scores, the sample was split into four groups based on each possible combination of this variable's two significant predictors (2×2; age, gender). Table 5 shows these groups (and frequencies) in descending order, on the basis of group means and mean ranks. A Kruskal-Wallis H test showed that there was a statistically significant difference between the four groups on this variable ($H\,[3, n = 986] = 74.57$, $p < 0.001$, $\eta^2 = 0.07$, *medium* effect). Again, follow-up pairwise Dunn's comparisons (with adjusted Bonferroni corrections for multiple tests) were conducted to inspect where the significant between-group differences lay (see Appendix 4). Younger female and younger male participants comprised the two groups with the highest depression scores. These groups did *not* significantly differ from each

TABLE 5 | Frequencies (ns and percentages), depression means, and mean ranks by combined age/gender group.

Group	*n*	*M* (SD)	Mean rank
Younger-female	97 (9.8)	5.92 (3.49)	626.61
Younger-male	236 (23.9)	5.51 (3.82)	583.57
Older-female	131 (13.3)	4.69 (4.29)	499.58
Older-male	522 (52.9)	3.53 (3.31)	426.52

Note: $N = 986$.

TABLE 6 | Frequencies (ns and percentages), wellbeing means, and mean ranks by combined age/gender/income group.

Group	*n*	*M* (SD)	Mean rank
Younger-female-low	92 (9.3)	5.58 (1.76)	343.69
Younger-male-low	202 (20.5)	5.92 (1.93)	394.83
Older-female-low	111 (11.3)	6.28 (2.26)	460.07
Older-female-high	20 (2)	6.60 (1.93)	503.50
Older-male-low	394 (40)	6.76 (2.12)	530.38
Younger-male-high	34 (3.4)	7.29 (1.53)	583.93
Younger female-high	5 (0.5)	7.40 (1.14)	597.20
Older-male-high	128 (13)	7.55 (1.68)	642.73

Note: $N = 986$.

other, but *both* had significantly higher scores than the older female and older male groups. The difference between the latter two groups did not quite reach significance.

Finally, for wellbeing scores, the sample was split into eight groups based on each possible combination of this variable's three significant predictors ($2 \times 2 \times 2$; age, gender, income). For this analysis, the six-level income category variable used in the regression analysis was recoded as a binary variable for ease of interpretation: "low" (income categories 1–3 i.e., those earning 0–499,999 k) and "high" (income categories 4–6 i.e., those earning 500 k or above). Table 6 shows frequencies, group means, and mean ranks. Note that in contrast to the previous two tables, groups are arranged in *ascending* order on the basis of group means and mean ranks; this is because a lower score on the wellbeing measure indicates a *higher* level of mental distress. A Kruskal-Wallis H test showed that there was a statistically significant difference between groups on this variable (H [7, $n = 986$] = 99.79, $p < 0.001$, $\eta^2 = 0.09$, *medium* effect).

Follow-up pairwise comparisons (with adjusted Bonferroni corrections for multiple tests) were conducted to inspect where the significant between-group differences lay (see Appendix 5). The two groups comprising younger participants on low incomes scored lowest for wellbeing, although they did not significantly differ from the two next lowest-scoring groups (older-female-low, older-female-high). Groups comprising male participants on high incomes (younger-male-high, older-male-high) both scored significantly *higher* for wellbeing than the two lowest-scoring groups. Although the younger-female-high group achieved the second highest mean wellbeing score (and mean rank), comparisons involving this group did not, due to its low number, reach a sufficient level of power.

In summary, exploratory group comparisons confirmed that specific demographics might be at increased risk of negative mental health outcomes. Younger female participants, particularly those who viewed music as their main career, were most at risk of higher levels of anxiety, while younger participants (both male and female) were most at risk of higher levels of depression. With regard to wellbeing, those most at risk of low scores were younger participants on lower incomes. As these findings were in line with the significant effects of these variables in the respective regression models, Hypothesis 5 is supported.

5 | Discussion

The regressions in this study are instructive as they begin to reveal the specific factors that are associated with particular mental health outcomes among musicians. Comparing across the four independent/predictor variables, both age and gender were seen to significantly predict all three dependent variables in our sample, which is perhaps unsurprising in some respects given extant literature for musicians (Kenny et al. 2012; Gross and Musgrave 2020), and in the Scandinavian population more widely (e.g., Derdikman-Eiron et al. 2011) and Denmark specifically (Helweg-Larsen et al. 2007). Age had the greatest association with anxiety and depression scores. Income only had a significant association with wellbeing scores. Our finding that musicians' incomes were not associated with levels of anxiety or depression lends support to recent data published by King et al. (2024), who found that work-related stress among 317 freelance, professional popular musicians (measured using the Musicians Occupational Stress Scale) was primarily driven by work insecurity even when the variable attributed to financial insecurity was controlled. Thus, both their and our studies suggest musicians' experiences of anxiety and depression cannot be entirely explained by musicians' low and/or precarious incomes—recalling here that at least 55.9% of our respondents earned under the national average annual wage in Demark, and at least 19.9% earned less than half of the average annual wage—and as seen in the studies cited in the articulation of hypotheses 3a and 3b e.g., Ronnbald et al. (2019). Instead, our findings suggest that anxiety at least—given its relationship to subjective career status (SCS) in our analysis—may be related to something more fundamental and existential about seeing music as one's main career and the many psychosocial stressors which have been seen to accompany this kind of career (Cooper and Wills 1989) e.g., misogynistic working practices and attitudes (McCarry et al. 2023), relationship breakdown and the challenges of maintaining and sustaining family life (Musgrave 2023a), and the intense competition engendered by the abundant music marketplace where being seen and heard online is increasingly difficult and unpredictable (Gross and Musgrave 2020).

Indeed, perhaps of greatest significance in the context of this study, which sought to explore the mental health of musicians specifically, is that our data indicates that viewing music as one's main career (SCS) significantly predicted higher anxiety scores (no significant relationship was found between SCS and our other two dependent variables). This finding is revealing. That is, our analysis suggests that adopting a primary career orientation towards music was associated with increased levels of anxiety for participants. Furthermore, our data demonstrates that this anxiety is not only financial in nature (given that income only had a significant effect on wellbeing) e.g., stemming from the low and/or precarious incomes of our respondents, but may relate to wider anxieties around the nature of musical career development. Group comparisons revealed that these anxieties were felt most acutely by young, female, career-oriented musicians, and this finding offers quantitative support for the aforementioned qualitative studies into gender-based psychosocial stressors facing female musicians, from feeling excluded from spaces of power and widespread experiences of misogynistic attitudes and practices, to poor representation across the music economy (Fileborn et al. 2019; Gross 2022; Werner 2020; Wolfe 2019). In this respect, while to an extent our findings concerning age and gender replicate findings from the wider Scandinavian public, our finding concerning SCS impacting anxiety does point to something specific taking place among career-oriented musicians, whereby it may be the case that SCS is acting as an additional stressor engendering anxiety above and beyond the wider societal anxieties of being young and the challenges and inequalities faced by women. Our group comparison showing young, female respondents who viewed music as their main career to be more at risk of anxiety than young, female respondents who did not, points to something specific about musical career stress as an additional negatively impacting factor, the reasons for which have been explored herein.

It is unclear why SCS only had a significant association with anxiety but not depression; this finding is the inverse of Loveday et al. (2023), who found SCS to impact depression but not anxiety. It is worth considering both why anxiety scores in our sample are so much more strongly explained by our predictor model (almost 20% of the total variance vs. 6.9% and 8.6% of depression and wellbeing scores, respectively) and which factors might account for anxiety *not* appearing to manifest in depression for musicians, given evidence suggesting that the latter might be a natural precursor to the former (Rice et al. 2004). For example, it may be the case that the relatively high investment in mental health care in Denmark may be a socially mediating factor in mitigating against this (Nordentoft et al. 2023), meaning that while Danish musicians experience some anxiety (which appears to be associated with their careers), this does not develop into depression in the way that it appears to internationally, where mental health care might be less well funded. Either way, taken together, these two studies do appear to suggest that conceptualizing music-making as one's primary career is associated with higher levels of mental ill health. That SCS did not impact wellbeing is perhaps less surprising given data showing that musicians simultaneously endure mental health challenges alongside high levels of job satisfaction that being a career musician also gives them (da Silva Henrique et al. 2023).

5.1 | Limitations and Future Research

Our group comparisons also revealed female musicians were less likely to be in the high-income groups than male musicians. Men were twice as likely to have high incomes (21.37% of male participants reported earning 500k or above) than women (10.96%). This reveals gendered inequalities in financial outcomes among our sample but also highlights a lack of statistical power around some of the group sizes in this analysis, given that only 25 women out of 288 (5 younger, 20 older) were in the "high" income groups. Given this, these group comparisons should be regarded as a preliminary exploratory analysis which—although arguably useful in beginning to elucidate potential demographic vulnerabilities to different negative mental health outcomes in Danish musicians—should be regarded with caution and used as a platform for more focused work. Further research dividing musician samples up according to these variables, preferably with larger and more equal sample sizes, is needed to see if these patterns are at least partially replicable. Finally, while we split our sample on the basis of age into 18–40 and those over the age of 40 for stated conceptual reasons and to assist in the presentation of data (notably given the complexity in presenting our group comparison tables), it is important to note that using age as a dichotomous variable from the ordinal original invites data loss (and potentially lower statistical power) and might disguise any curvilinearity not revealed in our present analysis.

However, it does appear that younger participants and younger female participants are worthy of more research attention. Not only are the wider societal patterns of younger women being more at risk of psychological distress being replicated in the music industry, but conceptualizing music-making as a career was itself associated with anxiety scores in our data. Further qualitative work with this cohort might help to reveal what aspects of the music industry might exacerbate this relationship, and within this, what factors might be considered unique to this particular professional context, and which are the same phenomena/processes that operate in wider society. Likewise, while non-binary participants were excluded from our analysis here as their small proportion of the sample meant that it was not statistically viable to include them due to concerns around statistical power, it is important that the experiences of this group of musicians are not ignored. More in-depth qualitative analysis focused on the experiences of this group would be welcome.

Finally, it is interesting to note that the overall Cantril subjective wellbeing score for our sample (6.54) was lower than the three-year 2020–22 mean score of the general Danish public on the same measure (7.586) as reported by Helliwell, Layard, et al. (2023) in the World Happiness Report 2023. Likewise, Andreasson and Birkjær (2018, 8) suggest that, in Nordic countries, a present wellbeing score below 7 measured according to Cantril represents a "deviation," a deviation seen in our sample. A further area for research would be to explore in a more focused way via the use of a control group whether or not this finding would be replicated, and indeed, informed by studies such as those by Vaag et al. (2016) and Détári et al. (2020), whether or not the anxiety, depression, and wellbeing of musicians in Denmark are distinct, and in what ways, from those of

the wider Danish population. While our findings point to anxiety and depression being elevated, a more focused comparative study is needed to more substantively interrogate levels among musicians compared to the wider Danish public.

6 | Conclusion

The findings of this survey of 986 musicians living and working in Denmark and the wider Kingdom of Denmark reflect wider demographic patterns concerning mental health and wellbeing among the Danish population and shine new light on the specific challenges facing musicians as an occupational group. While being a younger age and of the female gender were seen to predict higher levels of depression, higher levels of anxiety were significantly predicted by both of these *plus* conceptualizing music-making as a main career. This elevated anxiety of career-oriented musicians was also not solely related to level of income, given that this variable only determined wellbeing, with higher incomes, perhaps predictably, engendering higher wellbeing but not significantly influencing anxiety or depression. Our findings concerning young, female, career-oriented musicians being at particularly increased risk for mental ill health compared to men (and compared to non-career-oriented musicians) chime with studies from musicians in Australia (Kenny et al. 2012) and the United Kingdom (Gross and Musgrave 2020) confirming that across various musical territories, the challenges faced by women warrant specific focus and attention. Likewise, our finding that seeing music as one's main career was negatively associated with mental health outcomes chimes with an international survey encompassing musicians from 13 countries (Loveday et al. 2023), and our finding that musicians' anxieties are not entirely explained by low/poor incomes supports recent work from the United States (King et al. 2024). As such, what we see reflected in our findings herein are new results that lend support to an emerging body of evidence concerning the challenges faced by specific groups of career-oriented musicians around the world. At the same time, the levels of anxiety seen among young, career-oriented musicians, and particularly young, career-oriented female musicians, represent an area warranting further, more detailed qualitative inquiry to ascertain what it is about musicians' working lives that might contribute towards findings such as these and to assist in the development of targeted interventions for an occupational group demonstrated, both in this study and others—in Scandinavia and around the world—to be at risk for psychological distress.

Author Contributions

G.M. and S.A.G. contributed to the concept and research design. G.M. and S.A.G. organized and supervised the data collection. D.C. contributed to the data analysis. G.M. and D.C. contributed to writing the manuscript. All authors contributed to critically revising the manuscript for submission. All authors agreed to the submitted manuscript.

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The authors have nothing to report.

Ethics Statement

The study was granted ethical approval from the Ethics Committee of the University of Westminster (28 March 2023, Application ID: ETH2223-1337).

Consent

The authors have nothing to report.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data not available, participant consent.

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Appendix 1

Sample Breakdown by Region (descending order of frequency).

Region	*N*	%
Hovedstadsområdet	462	46.9
Midtjylland	184	18.7
Sjælland	140	14.2
Syddanmark	124	12.6
Nordjylland	53	5.4
Færøerne	10	1.0
Grønland	8	0.8
Total	981	99.5

Note: NB: 5 respondents (0.5%) did not disclose their region.

Appendix 2

Sample Breakdown by Musical Genre (descending order of frequency).

Genre	*N*	%
Pop	545	55.3
Rock	435	44.1
Folk	324	32.9
Jazz	285	28.9
Other	246	24.9
Indie	208	21.1
Classical	206	20.6
Blues	202	20.5
Country	191	19.4
Improv	187	19.0
Film Music	180	18.3
R&B	176	17.8
Soul	172	17.4
Electronica	155	15.7
Funk	150	15.2
Ambient	144	14.6
World	143	14.5
Hip-Hop	124	12.6
Metal	95	9.6
Latin	94	9.5
Fusion	90	9.1
Disco	89	9.0
House	79	8.0
Techno	72	7.3
Punk	71	7.2
EDM (electronic dance music)	65	6.6
Drum & Bass	46	4.7

(Continues)

Appendix 2 | (Continued)

Genre	*N*	%
Balkan	21	2.1
Dubstep	19	1.9

Note: NB: Overall *N* and % totals are not given, as respondents were able to select more than one genre.

Appendix 3

Pairwise Dunn's Comparisons of age/gender/SCS Groups' Anxiety Mean Rank Scores.

	YFY	YFN	OFY	YMY	YMN	OFN	OMY
Younger-female-yes							
Younger-female-no	1.000						
Older-female-yes	0.280	1.000					
Younger-male-yes	0.096	1.000	1.000				
Younger-male-no	**0.003****	0.827	1.000	1.000			
Older-female-no	**0.000*****	0.104	0.371	0.266	1.000		
Older-male-yes	**0.000*****	**0.001****	**0.000*****	**0.000*****	**0.006****	1.000	
Older-male-no	**0.000*****	**0.000*****	**0.000*****	**0.000*****	**0.000*****	0.115	**0.031***

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Bonferroni correction applied.

Appendix 4

Pairwise Dunn's Comparisons of Depression Mean Rank Scores.

	Younger-female	Younger-male	Older-female
Younger-female			
Younger-male	1.000		
Older-female	**0.005****	**0.039***	
Older-male	**0.000*****	**0.000*****	0.050

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Bonferroni correction applied.

Appendix 5

Pairwise Dunn's Comparisons of Wellbeing Mean Rank Scores.

	YFL	YML	OFL	OFH	OML	YMH	YFH
Younger-female-low							
Younger-male-low	1.000						
Older-female-low	0.092	1.000					
Older-female-high	0.592	1.000	1.000				
Older-male-low	**0.000*****	**0.000*****	0.556	1.000			
Younger-male-high	**0.001****	**0.008****	0.686	1.000	1.000		
Younger female-high	1.000	1.000	1.000	1.000	1.000	1.000	
Older-male-high	**0.000*****	**0.000*****	**0.000*****	1.000	**0.002****	1.000	1.000

Note: *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$. Bonferroni correction applied.