



ARTICLE



<https://doi.org/10.1057/s41599-024-03012-6>

OPEN

Career decisions in artistic professions during the COVID-19 pandemic in Germany—an experimental study

Matthias Seitz^{1,2✉}, Ulrich Frick^{1,5}, Miles Tallon³, Karina Gotthardt³ & Katrin Rakoczy⁴

The COVID-19 pandemic has had a significant impact on the professional situation in artistic professions. Repeated lockdowns resulted in the cancellation of cultural events and exacerbated economic challenges, depriving artists and people working in the culture industry of their primary source of income. Such drastic conditions could lead to important professional decisions, including career changes. This study aimed to determine the factors that could influence career decisions among artistic professionals during a second pandemic lockdown period in Germany. To examine whether health concerns or financial struggles are more important in shaping artistic professionals' decisions to change or stay in their profession, a vignette experiment was conducted in an online survey ($n = 788$) in the winter of 2020–2021. In the experiment's 2*3-factorial randomised design, all respondents were asked to put themselves in the role of artists and make decisions about career changes under different income conditions or with different health prospects. The vignette experiment revealed that income losses related to career changes decreased the willingness to change careers, whereas health prospects (hypothetical differences in vaccine efficacy) did not affect the decisions. In addition, other variables were found to explain career decisions; female gender and signs of a depressive disorder were associated with greater willingness for career turnover, whereas a higher educational level and status of earning one's livelihood in the culture industry were associated with a diminished tendency for career turnover. The latter impact factor was interpreted as a kind of “don't give up effect” that is particularly observable among artistic professionals.

¹HSD University of Applied Sciences, Research Centre, Prüfeningerstraße 20, 93049 Regensburg, Germany. ²Catholic University of Eichstätt-Ingolstadt, Ostenstraße 28a, 85072 Eichstätt, Germany. ³HSD University of Applied Sciences, Research Centre, Waidmarkt 3 und 9, 50676 Köln, Germany. ⁴Justus Liebig University, Ludwigstraße 23, 35390 Gießen, Germany. ⁵Deceased: Ulrich Frick. ✉email: m.seitz@hs-doeper.de

Introduction

The unexpected COVID-19 pandemic has had a tremendous impact on artistic professionals, the culture and creative sectors of the economy, and people enjoying the products and events provided by the culture and creative sectors (Frick et al., 2021; Travkina and Sacco, 2020). Public health measures dedicated to controlling the spread of the new, unknown and pandemic disease hit all economic branches, but the consequences that extended beyond income and productivity losses, especially for cultural people (Warran et al., 2023), were not systematically documented over the various waves of the pandemic. Our study tried to partly fill this gap by examining artistic professionals and culturally highly interested individuals in an online setting synchronous with the sequence of external events. We selected this sample based on the specific content of our research questions on artistic professions. This historically unprecedented situation offered a unique opportunity to study the career decisions of artistic professionals, as the repeated lockdowns confronted many of them with serious problems in order to earn their livelihoods, requiring such decisions (dpa, 2020; Stoff, 2021). Against this background, we constructed a vignette experiment that should help clarify some motivational and/or cognitive mechanisms governing such individual decisions.

After giving a short introduction to what is known thus far about artistic professionals' career decisions and what is known about potential health concerns of these professions, we provide a detailed description of the rationale and methodological approach of our study. The results are introduced stepwise as causally interpretable effects of the design, followed by additional exploratory analyses. The discussion places the results in the research field and reflects on the generalisability of the experiment.

Background

Professional status of artists: precarity and uncertainty. Artistic professionals, especially artists in the visual and performing arts (dancers, actors, musicians), are characterised by particular professional conditions. The professional careers of artists are mostly dominated by comparably low and insecure incomes (Makridis, 2023), uncertain recognition and unforeseeable prospects for professional development (Middleton and Middleton, 2017). Moreover, dependencies on the way in which the culture industry is organised (Arakelyan et al., 2018; Eikhof, 2020) and rewards are allocated (Heikkinen, 1995; Bille and Jensen, 2018), as well as "ontological precarity" (i.e., social pressures for originality or competitiveness; see Duarte, 2020), might also impact artists' lives and their artistic work, but these factors are rarely taken into account. The artists' professional status displays tremendous heterogeneity in appearance and job description but shares an unclear position between freelancers and employees (Heisler, 1995; Williams and Horodnic, 2018; Baldin and Bille, 2021).

The financial success and societal reputation of artists are not only determined by their artwork but also require cooperation with, e.g., record companies, promoters, actors' agencies, or museums (e.g., Braden, 2009). Reputation must not be mixed with popularity, as it often is related to specific subcultures with differing reaches. For instance, it has been shown that the success of Dutch pop musicians depends mainly on social support, professional attitudes, and professional networks (Zwaan et al., 2010). It has also been shown that financial success can be promoted by the consciously constructed underdog status of musicians, as this increases affiliation and support for musicians (Michniewicz and Edelman, 2021). Therefore, when artists are

asked about career decisions, they should consider different lifestyles where the activity is embedded.

Whether there is an association between various personality traits and specific artistic orientations has long been the subject of empirical studies (Aghaei-Jeshvaghani et al., 2006; Cross et al., 1967; Csikszentmihalyi and Getzels, 1973; Yöndem et al., 2017) and yielded heterogeneous results. For instance, music students do not differ from other students in terms of private or public self-consciousness (Spahn and Zschocke, 2002). Similarly, Norwegian musicians exhibit greater neuroticism and openness to experience and lower degrees of conscientiousness than the general workforce (Gjermunds et al., 2020; Vaag et al., 2018). While an observational study (Hassler, 2000; Vartanian, 2022) analysing individual biographies over a period of more than 30 years revealed differential patterns and varying prevalence of personality disorders in different arts professionals (Ludwig, 1992), other research has revealed a high value of, e.g., occupational satisfaction in Swiss orchestra musicians (Dupasquier, 2004). These differences might be partly attributed to methodological reasons; while a majority of studies have used a version of the Big Five Inventory (Soto and John, 2017), other studies have used alternative measures (e.g., (Cross et al., 1967; Csikszentmihalyi and Getzels, 1973; Götz and Götz, 1979; Roy, 1996) or even ad hoc definitions.

Subsequent career patterns are characterised by an oversupply of artists and an increasing amount of artistic work that is paid on a contingent work basis for projects limited in both time and artistic autonomy. Precarity (deliberately conceded) and uncertainty (unknown chances to succeed) characterise a very ambiguous societal position, providing careers from Spitzweg's Poor Poet up to the glamorous star image of, e.g., Michael Jackson.

Health as a factor in artists' careers. Economic prospects seem to determine whether a person should enter a career as a musician or visual artist only to a limited degree. High intrinsic motivation (Mikszta et al., 2021; Parker et al., 2021) and support through art-oriented social networks (Kwon et al., 2018) provide important "stress buffers" to help one cope with career insecurity (Mikszta et al., 2021). If this resource is blocked (e.g., curfew in the early waves of the COVID-19 pandemic), artists will migrate to web-based events (Coates, 2020; Costabile et al., 2020; Parsons, 2020) and new forms of cooperation (Fram et al., 2021; Thorgeresen and Mars, 2021). Nevertheless, in numerous prepandemic studies, a higher level of mental health disorders has been reported for musicians (Loveday et al., 2022) and other artists (Burch et al., 2006; Ludwig, 1992), with affective disorders (e.g., Vaag et al., 2016, 2021) and schizotypal personality disorders (Nettle, 2006) being two prominent problems. Physical health concerns and preventive strategies seem to be of minor importance for music students (Kreutz et al., 2009; Rickert et al., 2015), except for injuries related to playing music (Guptill, 2011; Park et al., 2007). To our knowledge, comparable studies do not even exist for students in the visual arts.

The COVID-19 crisis and its impact on artistic professionals. Lockdown periods with contact restrictions (ranging from upper limits for reunions in households up to a complete curfew); the closure of schools, gyms and other sports locations; complete bans on cultural and other leisure events; and even dramatically altered working conditions (remote working, unemployment) imposed serious strain on the whole population. Policy measures had a particular impact on artistic professions (Betzler et al., 2021; Rundfunk, 2021), and the crisis further emphasised the

precarious situation of artistic professions, which already existed before the pandemic (Comunian and England, 2020). This situation led to artistic professionals temporarily changing their profession or even changing careers permanently (dpa, 2020; Stoff, 2021). Until now, however, comparable experiences have mostly been unknown in Western societies. The COVID-19 pandemic not only caused economic stress to large parts of the population but also negatively affected their mental health (Godinic et al., 2020; Hertz-Palmor et al., 2021). Well-documented increases in posttraumatic stress disorders, generalised anxiety symptoms, and major depression, as measured by validated, standardised survey questions, have been reported for Italy (Brivio et al., 2021), Ireland (Daly et al., 2021), Germany (Bäuerle et al., 2020; Hajek and König, 2021), and other non-European countries (Lakhan et al., 2020). Recent studies have pointed to heterogeneous and unequal experiences of COVID-19-forced changes in perceived socioeconomic and psychosocial adversities, especially for freelance artists (Warran et al., 2023).

The cultural and creative sectors have been shown to be among the most affected sectors in OECD countries (Travkina and Sacco, 2020); these sectors have experienced not only economic consequences for producers (Khlystova et al., 2022) but also psychological consequences for individuals who have been unable to attend cultural events due to cancellations (Frick et al., 2021; Roesse and Merrill, 2021). Several authors have also described some advantageous effects of the pandemic for artists (Howard et al., 2021; Spiro et al., 2021). Artists may have become more accustomed to an uncertain future and have developed a sense of resilience against economic crises (Caust, 2021; Pasquinelli and Sjöholm, 2015). However, studies have reported no advantages for musicianship in coping with the emotional consequences of the pandemic (Krespi Ulgén et al., 2022).

In summary, artistic professions are determined by heterogeneous working conditions, economic insecurity and social dependence for professional success. Artists do not appear to choose their profession based on economic considerations. Moreover, mental and physical health does not appear to have a major influence on artists' career decisions. However, the COVID-19 pandemic has suddenly exacerbated health and economic threats for everyone, especially for artistic professionals. The future of artistic professions was uncertain at the time of this research, and the situation was existentially threatening, as shown by reports of career changes. Can this realistic economic and health threat enable a specific examination of the artistic profession? Is the professional threat still bearable, and at what point will artistic professions be abandoned in favour of more reliable professions outside of the cultural sector?

Purpose of this study. This study addressed potential factors for the career decisions of artistic professionals in precarious situations during the COVID-19 pandemic. For this purpose, two different factors (health/financial) that could have been significant during the pandemic were examined. Is a serious health threat a stronger reason to leave the artistic profession, or does an expected loss of income motivate artistic professionals (not) to change their profession? The health factor was operationalized as varying degrees of vaccine efficacy, which was described in the vignettes as a condition for returning to public cultural events. The financial factor was given by a notional choice of an alternative job, which in the vignettes was associated with higher job security and different income levels.

Thus, the statistical hypotheses of these vignettes are as follows:

1. Artistic professionals' willingness to change their careers will increase with higher health risks that must be accepted in the future of a postpandemic society.

2. Artistic professionals' willingness to change careers will be reduced by expected financial losses.
3. The hypothesised effects of both income losses and perceived health risks will differ between artistic professionals and those who do not earn their livelihood in the cultural sector. Artistic professionals will be affected the most.

Whereas Hypotheses 1 and 2 can be tested with causal interpretation, Hypothesis 3 represents an observational association (be it correctly predicted or not) that should be interpreted with caution. Several additional questions were also formulated for exploratory analyses that are not part of the experiment but might also exert an impact on career decisions (see paragraph on measurement).

Methods and sample

Procedure. Participants for this study were recruited in three ways to address the fuzzy population of people of different cultures. First, as part of a "facility-based sampling" (Shaghghi et al., 2011), an exhaustive registry of all hosts of cultural events in two Bavarian counties, local music schools and adult education centres from the same region was used; this registry had already been completed for another study prior to the COVID-19 outbreak. Organisers were asked via email to forward a letter describing the study to their clients and potential audience using their own address files. This information leaflet also provided a link to the web page containing the items to be analysed. Second, the targeted sampling method was applied by inviting various cultural umbrella associations (e.g., Deutscher Museumsbund, Deutscher Chorverband); institutions of cultural education in music or fine arts (Munich, Regensburg, Eichstätt); various ensembles; professional orchestras; choirs (among them active and former members of the "Regensburger Domspatzen", a worldwide recognised boy choir); internet platforms; and the member distribution list of the heritage society in East Bavaria (Bezirk Oberpfalz, 2021). Third, snowball sampling was initiated from the personal networks (mainly musicians and visual artists) of the study authors. The online survey remained open from November 11, 2020, until February 14, 2021.

Sample. The recruitment procedure, which was also intended to reach cultural people, may have resulted in a mixed sample ($n = 788$) of people interested in highbrow culture (Suarez-Fernandez et al., 2020). A sample drawn from the general population may not be an appropriate control group for comparing artistic professionals' career decisions, as people not involved in either producing or viewing/hearing artistic works might not be able to imagine the intrinsic motivation for artistic professions. However, individuals who do not earn their livelihoods from artistic professions but who consume, produce or study art (either visual or auditory) can serve as a baseline against which artistic professionals can be compared in terms of their professional needs and choices beyond their joy and appreciation of the arts.

Due to the nature of our hidden population and its fuzzy boundaries, a response rate could not be ascertained. The study consisted of the second of (initially unplanned) three consecutive cross-sectional surveys conducted during pandemic-induced periods of contact restrictions in Germany (rsp. in Bavaria). Overlap with the prior survey was limited; only 25% of the first survey participants could be traced to the second survey using self-chosen pseudonyms. This study reports only on the data gathered in the second survey, which contains its own topics and items. Therefore, the sample can be regarded as a simple cross-sectional convenience sample (Kriska et al., 2013) without repeated measures taken during lockdown periods. The sampling

mechanisms described above can justify high ecological validity for the target population, which is composed of producers and recipients of high-brow culture in Germany (with an emphasis on Bavaria). It should be noted that for the causal interpretation of an experimental survey, random sampling is not necessary (Mullinix et al., 2015).

In Germany, the vaccination campaign started during this study, and data on the efficacy and effectiveness of the vaccines were either not well understood by the German public (efficacy) or unavailable (effectiveness). Thus, the real health prospects for the future of the pandemic are unclear.

Vignette experiment

Scenario. The vignette experiment began by asking respondents to place themselves in the role of a performing artist reflecting on the future situation (at that time) of spring 2021. They could plan to restart working as performing artists while accepting the risks of unknown and limited (in effectiveness and duration) vaccine protection. Potential future lockdowns were also possible. Alternatively, respondents could choose to leave their artistic profession and accept a secure, permanent job offer outside the cultural section.

Explanation. A career decision either in favour of or against an artistic profession constitutes the major study endpoint of the experiment. During the time of the experiment, the final career changes of professional artists were publicly reported (see Background), which is why the decision variable in the experiment was interpreted as a final career change rather than a temporary change. To examine health and financial factors, we constructed a 3*2-factorial design with income loss as the financial factor and vaccine efficacy as the health factor (Table 1). Accordingly, one of six different vignettes was randomly selected and assigned to the respective participants.

The health factor was operationalized as a between-subjects variable determined by the vaccination efficacy of future vaccines against SARS-CoV-2. Three different levels of vaccination were hypothesised to be effective for vaccinated people (category 1: 50%, category 2: 70%, or category 3: 90%). In Germany, the nationwide vaccination campaign started after our study period; thus, information on the efficacy and potential side effects of the vaccine was unavailable to the German public at the time of the study. As described in our scenario, cultural events restarted for vaccinated people without further restrictions.

The financial factor was operationalized as a between-subjects variable determined by the income level of an alternative job outside the cultural sector. It was integrated with two different income levels (category 1: “no financial losses” or category 2: “a twenty% income loss compared to income before the pandemic”).

This study was approved by the HSD University of Applied Sciences Ethics Committee on May 12, 2020.

Wording as presented to the participants (translated from German). Regardless of whether you actually work as an artistic professional or study music or arts, please put yourself in the shoes of a performing artist who earns your livelihood from your cultural activities.

Imagine the following situation in the forthcoming spring of 2021: an effective vaccination against SARS-CoV-2 is available that causes virtually no adverse events. However, only [...] (health factor in 3 categories: 50%/70%/90%) of the vaccinated people will receive full immunisation.

Although no compulsory vaccination is agreed upon, most hosts of cultural events require artists, as well as audiences, to provide proof of their vaccination status. Therefore, no restrictions for cultural events will occur.

Please choose one of the following alternatives

- *Having been vaccinated, I choose to restart my artistic activities to the full extent and accept the uncertainty of how long my immunisation will protect me, knowing the possibility of future lockdowns.*
- *I choose to accept a job offer from outside the cultural sector that would ensure a safe and stable workplace and [...] (financial factor in 2 categories: comparable income/a 20% lower income) compared to my prepandemic earnings.*

Measurement. In the vignette experiment, career decisions were examined under the experimental conditions of income loss and health threat. Beyond this confirmatory analysis, a list of potential confounding variables was assessed to perform additional exploratory analyses in the second step of the statistical analysis.

The respondents’ age (in decades), gender, level of education, and sociospatial type of place of residence (rural, small town, suburban, or urban) were queried as sociodemographic characteristics. Professional status in relation to the arts was divided into five categories: mere recipient of artwork, amateur status in cultural activities, student of art (mainly music education), clerical or technical staff in the culture industry (e.g., concert hosts), and artists who earned at least most of their prepandemic livelihood through artistic activities. The status of the latter group could be separated into musicians and other artists by coding an open-ended question in which respondents provided their job description.

As questions about a person’s financial income might be perceived as sensitive in Germany (only 47.6% of respondents provided their net household income), information on a respondent’s financial situation was obtained by presenting a list of 16 different potential sources of income (e.g., salary, transfer payments from social security services, support from family, income from rent, and so on). The answers to these items were divided into four categories (no current income from the respective source, receiving regular income from that source, receiving a new income source since the pandemic, and losing an income source due to the pandemic). This list enabled respondents to remember different types of financial income. It also better reflected the specific situation of artistic professionals earning their livelihoods from different sources. The sum of the answers in category four (lost income source) was considered a proxy for financial losses due to the COVID-19 pandemic.

The mental health status of the respondents was assessed due to worsening in the general population of various Western countries (Brivio et al., 2021; Hajek, Neumann-Böhme, et al., 2022; Hajek, Sabat, et al., 2022; Hajek and König, 2021). It is of interest to compare mental health status among recipients and producers of highbrow culture to that of the general population in Germany. A steep increase in the incidence of generalised anxiety,

Table 1 Vignettes.

Vignettes	Health factor			Financial factor	
	Vaccine efficacy 50%	Vaccine efficacy 70%	Vaccine efficacy 90%	Comparable income	20% lower income
Vignette 1	x			x	
Vignette 2	x				x
Vignette 3		x		x	
Vignette 4		x			x
Vignette 5			x	x	
Vignette 6			x		x

depression and posttraumatic stress disorder has been reported by numerous authors for more than 200 countries (Santomauro et al., 2021). Nevertheless, Daly et al. (2021) pointed to the transient nature of this crisis (Daly and Robinson, 2022). For this study, the mental health status of the respondents was of interest in two aspects. First, we explored whether artists had higher levels of mental health problems than did the general population. The results will be reported in detail elsewhere. Second, it has been previously shown that depression and anxiety exert an impact on decision-making under uncertainty. Therefore, potential confounding effects on the major study endpoint cannot be excluded and should be adjusted for if necessary.

Mental health status was assessed using two short screening instruments with proven validity, namely, the GAD-7 score (Löwe et al., 2008) and the PHQ-2 score for major depression (Löwe et al., 2005). Access to places with green (nature) and blue (water) environments was reported to be beneficial for mental health during lockdown periods in various countries (Corley et al., 2021; Pouso et al., 2021; Theodorou et al., 2021). Therefore, an item asking about access to a privately owned garden was incorporated into the questionnaire. COVID-19-related medical risk status (increased risk of severe illness in case of infection due to age, sex, or comorbidities) was obtained via self-assessment.

The measurement of personality traits as potential confounders was restricted to a minimum to not provoke drop-out due to tedious lengthy item lists. The strict random allocation of respondents to the described experimental conditions was regarded as a satisfactory bias-reducing measure, especially because personality traits were not at the centre of our research interests. Reports on optimistic bias and altered risk perception under pandemic restrictions (Kuper-Smith et al., 2021; Zhang and Palma, 2022) led to the incorporation of a short screening instrument for trait optimism vs. pessimism (Kemper et al., 2013). Additionally, individual resilience was measured by asking about the four items with the highest item-scale correlation (Schumacher et al., 2005). The Cronbach's alpha value for this short form was calculated at $= 0.87$.

A more specific but also very short trait measure for artists is the German translation of the Aesthetic Experience Scale (Silvia and Nusbaum, 2011). This shortened scale reached a Cronbach's alpha value of 0.887 (Gotthardt et al., 2023) in another sample and can be interpreted as a disposition to experience intensive aesthetic emotions (mostly positive) when confronted with artworks.

Statistical analysis. The willingness to change careers (acceptance of Alternative 2) was treated as a dichotomous dependent variable representing the major study endpoint of our experiment. Statistically, the log-odds of the change decisions were modelled using a logistic regression model with income loss (financial factor, categorical variable with 2 categories), vaccination efficacy (health factor, categorical variable with 3 categories) and their interaction effect as predictor variables (e.g., whether the acceptance of income losses depends on a stronger health threat). This analysis was regarded as a confirmatory test of the vignette experiment in the first step of the statistical analysis. The statistical power was calculated (post hoc, as the sample size could not be determined in advance) to reach 90% for a minimum effect size of $OR = 1.3$ or 80% for $OR = 1.25$, given that 654 participants answered the vignette experiment and that the type I error risk was set to 0.05.

Further exploratory analyses to determine the impact of various respondent characteristics on their willingness to change careers were conducted by adding each potential impact factor as a single, continuous (e.g., age) or categorical variable (e.g., place

of residence), to the regression equation. Age was incorporated into the model in two different forms: a) as a continuous predictor variable and b) as a 0/1 dichotomised variable, with people older than 60 years coded as one. This approach should reflect the skewed distribution of age and mostly describe retired people in comparison to people who are still employed. Coding of the prepandemic professional status was performed with different dummy variables (0/1) that were then incorporated separately into the regression model. Each dummy variable thus focused on a specific subgroup of our sample, with the remaining respondents forming the reference group against which the willingness for a career change was evaluated. Through these various definitions of the predictor variable for professional status, a stricter focus on specific job situations became possible. Due to the exploratory character of these analyses, no measures against inflation of type I error risk were taken.

In the analysis of our data, we included variables that approached a nominal significance level of 0.05 in their respective single-variable models in the next step of model building. We then used a multivariate logistic regression model to explore the effect sizes of these variables simultaneously. To construct a parsimonious final model, we removed any redundant variables that did not make independent contributions to predicting the decision to change professions. The resulting model included only those variables that we found to have an independent impact on the decision-making process.

Calculations were performed using SAS PROC LOGISTIC. Power calculations were performed using the package G-Power (3.0).

Results

Sample characteristics. Of the participants, 91% completed the entire questionnaire (with some variables also missing) (Table 2).

All participants were asked about their cultural activities so that they could be classified into the cultural categories of artists (13.1%), administrators (8.5%), students (6.7%), amateurs (35.3%) and recipients (36.2%). The abovementioned categories were then categorised according to income from artistic activity (artists > recipients). Therefore, participants with multiple responses were categorised into the highest category. The first two categories (artists and administrators) were considered artistic professionals (21.6%). The sample included specific subcategories such as musicians (10.2%), no personal risk status for COVID-19 (24.9%), major depression (20.1%), generalised anxiety disorder (14.8%) and real life: no job change planned (20.9%) (Appendix 1).

The gender distribution was equal among amateurs, whereas there were more female participants among recipients, students and administrators and more male participants among the artists. Accumulations were found among recipients and amateurs in older age groups, among administrators and artists in the 30–59 age group and among students in the 20–29 age group. More of the artists were urban (52.5%) or less rural (14.1%) than the sample average. While the educational level of the sample was equally distributed among the subgroups, the sample was highly educated in comparison to the general population, with 63.9% holding a university-level degree. Of the sample, 68% affirmed accessing their own private garden, indicating the high socio-economic status of our sample.

Concerning mental health, 16.9% of our probands scored above the cut-off criterion for a generalised anxiety disorder, and 22.8% qualified for probable major depression. Both disorders were strongly correlated (ϕ coefficient = 0.50).

Confirmatory analysis of the vignette experiment. Of the 788 survey participants, $n = 654$ (83%) answered the hypothetical

Table 2 Sample.

Variable	Artistic professionals		Artistic not-professionals			Total
	Artists	Administrators	Students	Amateurs	Recipients	
No. of respondents	103	67	53	278	285	788
%	13.1	8.5	6.7	35.3	36.2	100
Gender						
Female	44.7	62.7	64.2	47.7	60.7	54.4
Male	54.4	37.3	35.8	51.6	39.3	45.2
Diverse	1	0	0	0.7	0	0.4
Age						
<20 years	0	1.5	22.6	2.5	3.2	3.7
20-29 years	14.6	14.9	66	10.1	27.4	21.1
30-39 years	26.2	19.4	9.4	13	15.4	15.9
40-49 years	17.5	20.9	1.9	18.8	10.5	14.6
50-59 years	26.2	26.9	0	28.5	21.1	23.4
60+ years	15.5	16.4	0	27.1	22.5	21.1
Place of residence						
Rural (<10,000 inhabitants)	14.1	21.9	16	28.5	25.8	24.2
Provincial (<150,000 inhabitants)	25.3	39.1	30	28.8	28	29
Exurbs	8.1	7.8	0	9.7	10.9	9.1
Urban (>150,000 inh.)	52.5	31.2	54	33	35.3	37.6
Educational level						
None	1	0	1.9	0	0.4	0.4
Secondary School Leaving Certificate	1	0	0	2.5	2.1	1.8
Intermediate School Leaving Certificate	6.8	1.5	9.4	12.3	9.5	9.4
University entrance qualification	13.6	17.9	64.2	21.3	25.6	24.5
University degree (B, M, PhD etc.)	77.7	80.6	24.5	63.9	62.5	63.9

Table 3 Confirmatory logistic regression model (basic model for exploratory analyses).

Effect	Coefficient	wald.chi-square	p.value	Odds.ratio
Intercept	-1.040	132.027	<0.001	0.353
Vaccine efficacy 50% (\$)	0.178	2.001	0.157	1.194
Vaccine efficacy 70% (\$)	-0.05	0.15	0.699	0.951
Income Loss 20% §	-0.227	6.307	0.012	0.797
Interaction Income Loss * Efficacy 50%	-0.086	0.469	0.494	0.918
Interaction Income Loss * Efficacy 70%	-0.198	2.332	0.127	0.821

(\$) Reference: 90% Efficacy of the vaccination.
 § Reference: no income loss.

career decision scenario of the vignette experiment. The confirmatory analysis of the vignette experiment yielded the coefficients shown in Table 3. In total, approximately 27% of the respondents chose to change careers in response to the pandemic. While the health factor did not impact the decision to change careers, the financial factor did, i.e., the anticipated income losses (as a trade-off for gaining job security). Having to accept a reduction of 20% of one's prepandemic income reduced the willingness to change one's (real or imagined) profession as a performing artist by an odds ratio of approximately 0.80. There was no interaction effect found between income loss and vaccination efficacy.

Exploratory analysis of concomitant predictors. Table 4 (visualised in Fig. 1) provides information on an intermediate step of the statistical analysis, addressing the question of whether the professional perspective or other sociodemographic characteristics of our respondents covary with the willingness to change careers. Being female was associated with a greater willingness (OR = 1.674; 95% CI 1.169–2.414) to change careers. A probable mental health disorder (major depression or general anxiety disorder) was also associated with a greater acceptance of

a career change. While the odds ratio for generalised anxiety disorder increased (OR = 1.578; 95% CI 1.001–2.460), this could (in further analyses) be mostly attributed to the greater effect of presumed major depression (OR = 1.844; 95% CI 1.219–2.776), as both disorders coincide to a high degree. Approximately 70% of the respondents with a presumed anxiety disorder also qualified for major depression. All the other predictor variables in the upper half of Table 4 can be interpreted as being protective against career change. Older age groups chose less often to change careers, which was an effect driven by the oldest age group, i.e., those older than 60 years, in which retirees prevailed. People with higher educational levels (associated with a higher investment in professional education) accepted a career change to a smaller degree. While the group of artistic professionals (compared to artistic nonprofessionals) was more resilient against career change (OR = 0.617; 95% CI = 0.385–0.963), this effect was mostly due to administrators and artists from fields other than music. When musicians and other artists were analysed separately, only the status of being a nonmusician had a significant impact on refusing a career change (stronger rejection of the career change, OR = 0.535; 95% CI 0.295–0.922).

Notably, participants who did not possess a high risk of severe illness in the case of SARS-CoV-2 infection did not react to the

Table 4 Exploratory analyses adding a single predictor variable to the confirmatory model.

Effect	Coefficient	wald.chi-square	p.value	Odds.ratio	Lower.limit	Upper.limit
Female respondent	0.515	7.782	0.005	1.674	1.169	2.414
Age (in decades)	-0.125	4.712	0.030	0.882	0.788	0.988
Age 60+ (dichotomous)	-0.498	4.451	0.035	0.608	0.377	0.954
Level of education	-0.297	6.898	0.009	0.743	0.596	0.929
No personal risk status (for COVID-19)	-0.206	3.693	0.055	0.662	0.430	1.000
Mental health: Major depression	0.612	8.533	0.003	1.844	1.219	2.776
Mental health: General anxiety disorder	0.456	3.970	0.046	1.578	1.001	2.460
Artistic professionals (all types)	-0.483	4.293	0.038	0.617	0.385	0.963
Artistic professionals (nonmusicians)	-0.625	4.686	0.030	0.535	0.295	0.922
Real life: No job change planned (n = 165)	-0.551	7.600	0.006	0.577	0.150	0.725
Lower income level due to pandemic	-0.140	0.522	0.470	0.870	0.581	1.249
Loss of income sources due to pandemic	-0.194	0.557	0.455	0.824	0.486	1.352
Artistic professionals * Income loss	-0.439	5.514	0.088	0.645	0.378	1.049
Artistic professionals * Female	-0.189	1.004	0.690	0.828	0.329	2.124
Profession = Musician	-0.212	0.490	0.484	0.809	0.434	1.433
Sociospatial type of place of residence	-0.090	1.517	0.218	0.913	0.791	1.055
Personality trait: Optimism	-0.040	0.287	0.592	0.961	0.832	1.113
Personality trait: Resilience score	-0.036	0.291	0.589	0.964	0.846	1.102
Unsatisfying coping with second lockdown	0.087	0.968	0.325	1.091	0.917	1.297
Intensity of aesthetic experience	-0.004	0.040	0.841	0.996	0.956	1.037
Significant other's risk status	0.300	2.081	0.149	1.350	0.904	2.048
Access to privately owned garden	-0.244	1.461	0.227	0.783	0.524	1.157

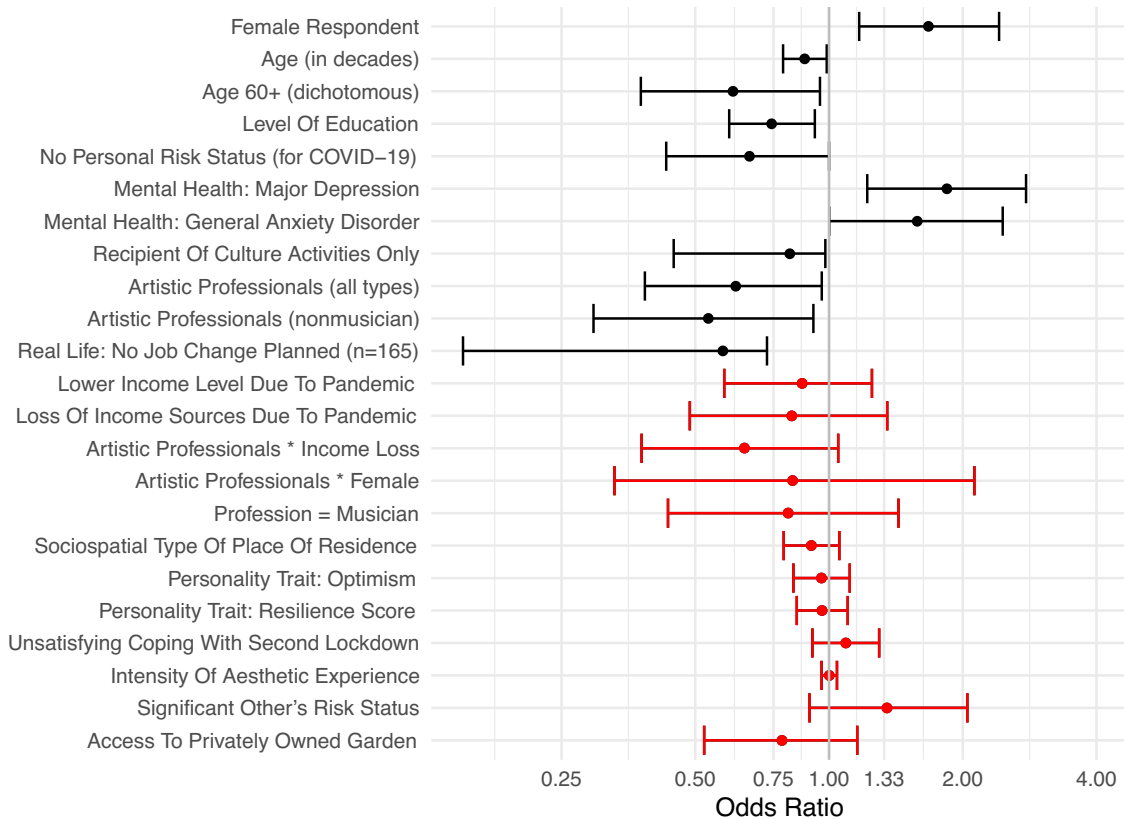


Fig. 1 Visualisation of table 4. Exploratory analyses adding a single predictor variable to the confirmatory model (odds ratios and 95% CIs).

lack of main effect for vaccine efficacy (neither direct nor interaction effect) but generally displayed a smaller acceptance of a career change (OR = 0.662; 95% CI 0.430–1.000). This means that high-risk respondents apparently responded to their risk status not by trusting greater vaccination efficacy but by choosing to leave a risky situation.

Finally, artistic professionals (either artists or administrators) more often rejected a career change, not only in our hypothetical experiment but also in real life (real life: no job change planned). The sample size for this question was smaller (the question was only offered to respondents who had declared that they had achieved their prepandemic livelihood from artistic activities or

Table 5 Final parsimonious model.

	Est	Std. err	z.value	p.value	OR	CI = 95%	
						LL	UL
(Intercept)	-0.230	0.542	-0.423	0.672	0.795	0.270	2.272
Health factor: VE 50% (§)	0.220	0.130	1.699	0.089	1.246	0.965	1.606
Health factor: VE 70% (§)	-0.090	0.134	-0.675	0.500	0.914	0.700	1.184
Financial factor: IL 20% §	-0.244	0.093	-2.620	0.009	0.783	0.652	0.940
Level of education	-0.261	0.116	-2.242	0.025	0.771	0.615	0.970
Artistic professionals (nonmusicians)	-0.653	0.296	-2.206	0.027	0.521	0.283	0.909
Mental health: Major DEpression	0.614	0.212	2.893	0.004	1.848	1.215	2.797
Female respondent	0.492	0.189	2.608	0.009	1.635	1.133	2.375
Interaction: IL 20% * VE 50%	-0.106	0.128	-0.827	0.409	0.899	0.698	1.155
Interaction: IL 20% * VE 70%	-0.233	0.133	-1.752	0.080	0.792	0.609	1.026

(§) Reference: 90% efficacy of the vaccination.
 § Reference: no income loss.

had worked in the culture industry). Despite the reduced statistical power for this specific model, the effect of remaining in the (precarious) working condition could be calculated at a considerable effect size (OR = 0.551; 95% CI 0.150–0.725), thereby making it a significant predictor.

All other variables that were tested failed to reach the nominal level (0.05) of significance. Having faced financial losses did not directly covariate with the hypothetical decisions or have an interaction with professional status. There were no gender-specific decisions made by professional artists. Living conditions (socio-spatial background and availability of a green environment) and living with people (e.g., partners and children) with increased COVID-19 risk were found to be irrelevant to decision-making. The respondents' personalities (optimism, resilience, and tendency towards a more intense aesthetic experience) did not impact the results of the vignette experiment. Finally, the participants who (according to their own judgement) insufficiently coped with the second lockdown in Germany displayed no altered decision-making in our experiment. Thus, in this thought experiment, the prospect of threats to one's economic or artistic experience was not shown to be a decisive factor in the acceptance of an alternative career that provides economic security.

The final parsimonious statistical model (Table 5) included the variables reflecting the experimental conditions of our vignette experiment (see Table 3). Apart from anticipated income losses (=experimental financial factor), only four additional variables contributed to the experiment with independent influences (observational associations). These variables were female respondents, level of education, mental health issues, and artistic professionals (nonmusicians).

- Female respondents accepted a career change more often than their counterparts (OR = 1.635; 95% CI. 1.133–2.375).
- A higher education level was associated with a lower probability of changing one's career (OR = 0.771 for each level of education gained; 95% CI = 0.615–0.970).
- Signs of mental health issues, such as major depression, were associated with a greater willingness to give up (either in real life or in a hypothetical situation) on the artistic profession (OR = 1.848; 95% CI 1.215–2.797).
- Working as an administrator or being a nonmusician artistic professional led to lower rates of virtually leaving one's profession (OR = 0.521; 95% CI 0.283–0.909).

Although all these variables were statistically significant, their joint effect size was moderate. The effect size measure, i.e., max-rescaled R-square for logistic models, which can be analogously interpreted to explain variance in linear models, was $R = 0.09$.

Discussion

The major results of the vignette experiment were twofold. First, the decision to stay in the artistic profession was shown to be independent of all the variations in perceived health risks and precautionary measures that were represented in the vignette scenarios. In contrast to our hypothesis, health concerns played no significant role in the career decisions of the respondents.

Second, career changes were rarely accepted among the respondents of our survey (only approximately 25%). The acceptance of a new job that could offer a stable income was drastically reduced (OR 0.63) when this career change was connected to an income loss of approximately 20%, as predicted by Hypothesis 2.

The exploratory analysis revealed associations of career change decisions with respondents' gender, educational level, mental health, and professional role.

The following discussion is centred on how these results corroborate or challenge existing knowledge about risky decisions and career planning.

Risk perception. The risk perception of future health hazards from COVID-19 could not be identified as a factor altering career change decisions in artistic professions.

The relative insensitivity to health risks might be attributed to different reasons. Leaving a professional career because of associated health risks requires that the future scenario of the COVID-19 pandemic be perceived as relevant for one's personal prospects. Since Weinstein's seminal article (Weinstein, 1989), health psychology has described a counterfactual tendency of people to underestimate their personal health risks. A long-standing body of research has demonstrated the power of this effect on risk perception, which has also existed during the current pandemic (Betsch et al., 2020; Kuper-Smith et al., 2021). Even if threats are enduring (new waves of SARS-CoV-2 infections have spread), this bias seems stable and either does not tip over to unrealistic pessimism (Izydorczak et al., 2022; Kuper-Smith et al., 2021) or simply decays as more information on the disease becomes available (Kuper-Smith et al., 2021).

There is evidence that musicians tolerate health-related symptoms as a side effect of intensive musical practice due to a lack of health-specific literature for musicians (Ackermann, 2021; Rickert et al., 2015). In addition, a late onset of specific preventive measures has been observed when typical symptoms, e.g., orchestral musicians' musculoskeletal pain (see Kok et al., 2016), have already appeared (Gembris et al., 2018). Thus, our results could also partly reflect the widespread health abandonment of musicians. However, singers might not be subsumed

under this tendency (Primov-Fever et al., 2020; Siqueira et al., 2021). We could not find up-to-date analogous studies dealing with hazardous materials in the arts and crafts (fine dust, vapours). However, disregarding the health risks of producing artefacts or presenting astonishing performance also seems very plausible in the fine arts.

Physiological and neurobiological differences between artists and nonartists have become an innovative branch of contemporary research in the arts (Hassler, 2000; Jung and Vartanian, 2018; Vartanian, 2022). These new pathways for research could clarify how strongly the rationale of “risk loving” versus artists’ often self-perceived “calling” could explain their career choice (see (Menger, 1999)).

Income losses. The trade-off between earning a stable income and remaining in the artistic profession (Waits and McNertney, 1984) was decided in favour of producing and performing arts for a large majority of our respondents. Similar behaviour of continuing the artistic profession can be seen among cultural workers in the studies by De Peuter et al. (2023)

It should be kept in mind that this statistical main effect also holds for artistic nonprofessionals. The decisions of the artistic nonprofessionals thus coincided with those of the artistic professionals, although their economic situation outside the experiment is certainly different from that of the artistic professionals. We do not know whether this latter group made such a decision as part of the role-playing in the scenarios. If their decisions were based on their image of an artist, then the results of the experiment may mean that artistic nonprofessionals understand the artists’ way of thinking well. An artistic profession is not only seen as a profession for earning one’s livelihood but also as a vocation for gifted persons on their artistic mission (Hall and Chandler, 2005). The self-categorisation of being an artist due to a “calling” or “inner drive” has been critically discussed as an ideology of the “art for art’s sake” thinking in the literature on artistic labour markets (Menger, 1999). However, by refusing a career change in a fictitious experiment, artistic nonprofessionals also made a decision that was in some sense based on their subjective importance for receptive or nonprofessional cultural activities and their realistic income outside the experiment. The framework of our scenario and the described content were thus of less importance to these participants but may have triggered an intense fear of losing future cultural activities.

At first glance, the strong effect of the experimental financial factor seems inconsistent with findings on artists’ lower receptivity to financial rewards (Goya-Maldonado et al., 2018), which should have prevented the heavy refusal of income losses. It has been well-documented that nonmonetary incentives are widespread in the arts industry (Longden and Throsby, 2021). However, having a closer look at the formulation of the experimental financial factor reveals a linkage between secure but diminished financial rewards (career change = gaining job security) and the (im)possibility of receiving nonmonetary incentives (almost complete loss of artistic activities). Behavioural economics has shown that subjective utilities—and only to a minor degree, objective expectations—govern human decisions in situations of uncertainty.

The respondents in our sample did not display complete independence from economic conditions. From a theoretical sociological perspective, such a result could already be postulated following Ruth Towse (2001). Furthermore, the low likelihood of career change for artistic professionals could be due to the generally precarious economic situation to which artists are accustomed (Flore et al., 2023); thus, worsening situations during the pandemic may not have played a decisive role. Empirically,

the low career change decisions of artistic professionals are in line with the findings of Alfarone and Merlone (2022) that autonomous motivation has been essential for preventing emotional exhaustion and turnover intentions during the pandemic. Moreover, they emphasised the considerable impact of objective job insecurity (e.g., length of a musician’s contract) on the subjective perception of the situation. While we are not able to differentiate between artists holding enduring contracts and those working as self-employed individuals or closing mostly short-term contracts, we assume that the professional musicians in our sample mostly have permanent employment. We conclude this based on the “targeted sampling” approach (Watters and Biernacki, 1989), by which we have accessed a large proportion of the respondents.

Reliable numbers of career turnovers leaving the culture industry are rare; however, as an exemption, da Silva Henrique et al. (2023) reported a greater probability of remaining in the musicians’ occupation for those musicians who experienced lower income reduction during the COVID-19 crisis in Bela Horizonte, Brazil. Regarding the hospitality sector, which has suffered from comparable economic threats, various studies (Bajrami et al., 2021; Bufquin et al., 2021) have pointed in the same direction. For healthcare workers, the intention for professional turnover has also been measured in numerous studies (>40 studies through 2022; see the review of Poon et al., 2022). Similar quantitative studies on economic conditions in the culture industry are difficult to perform with larger samples, especially under conditions of contact restrictions. However, artists’ ability to hold multiple jobs simultaneously or to fill income gaps between different engagements by repeatedly switching to secondary or tertiary occupations (Throsby and Zednik, 2011) is also responsible for this lack of data. Multiple jobs may at least partly compensate for losses of livelihood during a crisis such as the COVID-19 pandemic and thus contribute to the denial of career changes in our scenario.

There was no interaction effect found between the two experimental factors (health/financial), meaning that a greater willingness to accept income losses would depend, e.g., on a stronger health threat or similar threat.

Concomitant factors on career change decisions. Numerous variables were included in our online questionnaire as potential confounder variables because there have been reports in the literature on their impact on well-being or future prospects during the pandemic. For many of these variables, we could not find an impact on career decisions in our vignette experiment. Perhaps either career change was not deductible from the effects described in the literature or our method of indirectly measuring such decisions in a fictitious scenario was not adequate to replicate the influence of, e.g., personality traits on emergency decisions (see (Zhang and Palma, 2022)). Nevertheless, a third interpretation cannot be excluded; i.e., the variables under scrutiny that fell short of significance are in fact not relevant for career decisions under pandemic lockdown conditions.

When some variables (e.g., on mental health) were coded in slightly differing definitions, the variable with the closest association to the career decision was held in the final model. This was not a sign that the alternative definitions lacked any effect but rather reflected the usual principle of building a parsimonious model. To explore the potential interaction effects of predictor variables, two additional variables were introduced: artistic professional * income loss and artistic professional * female. By doing so, the questions of whether artistic professionals refused a career change, especially in vignettes with income losses, or whether their rejection of career changes was

gender specific could be answered. Both effects can be denied for our sample.

Thus, the significant and causal proven impact of income loss is accompanied by only four associations that we found for gender (females are more often willing to change their career), education (the higher the educational level is, the lower the willingness for change is), mental health (people with signs of depression change more willingly), and nonmusician artistic professional status (“don’t give up”). A greater degree of loss aversion in females has been reported in numerous studies using very different operationalizations of risk taking (Byrnes et al., 1999). Therefore, this result is not surprising. The same is true for the impact of depression on risky decisions (Cobb-Clark et al., 2022) and educational level (e.g., Wang et al., 2013).

A quite unexpected effect that seems difficult to explain arises from the impact of the variable artistic professionals (nonmusicians) on career decisions. The “don’t give up” effect in connection with musicians would seem obvious; however, the opposite is the case. However, it should be kept in mind that there were several codings concerning the professional status of the respondents. As shown in Table 4, the whole subsample of people earning their livelihood from the culture industry (artistic professionals (all types)) was also found to be significantly less willing to engage in career turnover than the remaining sample. If there were only some musicians who agreed to a career change, then this would slightly diminishes the odds ratio of the respective variable. However, the interpretation should remain the same; the high amount of resilience and persistence observed in artists due to the nature of the creative process (Daniel et al., 2021) could be the reason for the “don’t give up” effect. However, measuring resilience directly by asking specific test items does not significantly contribute to the complete model, which has not been covered by other variables. One could speculate whether the choice of an artistic career already implies this question. The resilience of artists during 2nd lockdown in Germany contrasts with the decline in resilience among the general German population since the beginning of the pandemic in the spring of 2020 (Betsch et al., 2020).

Another explanation for the “don’t give up” effect focuses on the characteristics of our sample group and the heterogeneity of the group of artists, hence the professional differences between freelancers and employees. Similarly, the higher educational level of the artist’s group could represent a selection bias by overlaying the artists’ condition with explicit clerical status. The parsimonious model of the vignette experiment shows the tendency towards a “don’t give up” effect shown by the two groups, namely, the artistic professionals group and participants with higher levels of education, which could indicate an association. On the other hand, two groups, namely, female respondents and persons with a general anxiety disorder, show an increased willingness to change careers independent of both characteristics.

Limitations

To our knowledge, our study is the first to perform a controlled experiment to test the potential impacts of the COVID-19 pandemic on artistic professionals. Career decisions for artistic professionals appear to be difficult not only during financial and health crises. The ability to analyse the alleged impact factors during an ongoing pandemic in a controlled, randomised study is a strength of the study design. Nevertheless, many presumable factors were only part of the observational measurements and were therefore subject to potential biases and dependent on the specific composition of the sample. While we argue that our recruitment strategy promises ecological validity for the classification of our sample into categories of cultural activity, we have

to concede an unknown generalisability of our results to all cultural people, even when such interpretation is restricted to Germany alone.

When the survey was opened to respondents, a broad public discussion about the so-called “system relevance” of culture for society was on the media agenda. Stakeholders and lobbyists of small businesses and freelance workers from different economic sectors intensively demanded financial support from the state for their survival as small entrepreneurs, among whom were also stakeholders from cultural organisations. Some respondents, therefore, may have systematically edited their answers in favour of gaining financial support for the culture industry. This could have biased the results of the observational variables. Therefore, we must be cautious and not overgeneralise the results of this part of our study. A replication of all the observational effects is necessary.

The method of answering vignette scenarios meant that some respondents were highly imaginative and sometimes also emotionally burdensome. Only 81% felt capable of answering the scenarios, whereas more than 90% worked through the whole questionnaire. In a free space supplied for comments to the study researchers, it was explicitly mentioned in some cases that these scenarios caused discomfort and negative feelings. Thus, if strongly concerned people abstained from answering our questions, this could have contributed to the lack of effect of health concerns by alleviating perceived differences in vaccination efficacy effects. The effect of income losses might have also shrunk but nevertheless reached considerable effect sizes.

Vignette experiments measure not actual behaviour but rather the intention to behave in a certain manner, which is provided in a hypothetical scenario. Intention, as a necessary prerequisite for health behaviour, has become a standard in all theoretical models governing research and interventions in the fields of health promotion (Sulat et al., 2018) and career intentions (Arnold et al., 2006). Insofar, asking for career intentions seems well justified. A sufficient capacity to imagine the described scenario is a necessary prerequisite for obtaining valid results. Given that all the respondents were closely related to cultural activities and shared the experience of being restricted to virtual cultural events (web exhibitions, streaming of performances over the internet) and that all respondents were at risk of acquiring SARS-CoV-2 infection, it might be taken for granted that this prerequisite was fulfilled. The pandemic played a major role in the scenarios presented to the respondents and therefore can be regarded as a strong aid to help achieve “experimental realism” (Frick and Rehm, 2016) for the decision framework of the vignettes. However, the pandemic was not investigated as an experimental condition in the vignette experiment.

The usual gap between behavioural intentions and factual behaviour, which has been well-documented in a multitude of studies (Sheeran, 2002; Sheeran and Webb, 2016), might represent an important limitation for estimating the incidence of career change decisions. The intention is realised only occasionally, even in a labour market with as scarce a supply of qualified staff as that found in the IT industry (Maier et al., 2015). Self-employed artistic work, on the other hand, seems to be connected with turnover intentions to a low degree, as was reported by (Elstad, 2015) in a comparison of journalists and jazz musicians. Even when there is an excess supply of other musicians, most jazz musicians do not plan to leave their artistic work. The central reason for this stability is intrinsic motivation. As we have demonstrated, this also holds in times of serious economic and health threats. In judging these possible biases from our experiment, it is important to take into account that the true incidence of turnover intentions might be overestimated and should not be interpreted as an exact prognosis of the proportion of career

changes in artistic work. However, the accelerating and decelerating factors seem to be validly deductible from our results.

Conclusion

The shortest way to formulate the take-home message of this study on artistic professions might already have been formulated in two well-known songs, namely, “The Show Must Go On” released by Queen in 1991 (see also (Alfarone and Merlone, 2022)) and “Don’t Give Up” released by singer Peter Gabriel in 1986. Both songs stylize an artist’s career with the mindset of an unrelenting hero on a specific mission, i.e., the artistic perfecting of the creator’s ideas. Analogous self-stylisations in other branches of the culture industry serve the same narrative of “don’t give up” (for the film industry, see Richards and Pacella, 2022). Although more aspects of self-reflection (think of van Gogh’s self-portrait) are conveyed by artists in fine arts, there is nevertheless a paradigm that transforms an “I will” attitude into an “I must” conviction. This tendency seems to prevail, especially in hard times of economic pressure and newly emerged health threats.

Data availability

The data generated and analysed in the current study is available in the Harvard Dataverse repository. <https://doi.org/10.7910/DVN/TMSJWU>.

Received: 22 June 2023; Accepted: 2 April 2024;

Published online: 13 April 2024

References

- Ackermann B (2021) Health issues for those participating in musical activities. In: Creech A, Hodges DA, Hallam S (eds.) *Routledge International Handbook of Music Psychology in Education and the Community*. Routledge. pp. 286–300
- Aghaei-Jeshvaghani A, Jalalvand L, Zavari G-A (2006) A comparison of personality traits of artists and ordinary people. *Radoša Personība Zinatnisko Rakstu Krājums* 4:63–74
- Alfarone I, Merlone U (2022) The show must go on: pandemic consequences on musicians’ job insecurity perception. *Psychol Music* 50(6):1976–2000. <https://doi.org/10.1177/03057356221081553>
- Arakelyan S, Morstatter F, Martin M et al. (2018) Mining and forecasting career trajectories of music artists. In: *Proceedings of the 29th on hypertext and social media. HT '18, Association for Computing Machinery, Baltimore, MD, USA*, pp. 11–19. <https://doi.org/10.1145/3209542.3209554>
- Arnold J, Loan-Clarke J, Coombs C et al. (2006) How well can the theory of planned behavior account for occupational intentions? *J Vocat Behav*. 69(3):374–390
- Bajrami DD, Terzić A, Petrović MD et al. (2021) Will we have the same employees in hospitality after all? the impact of COVID-19 on employees’ work attitudes and turnover intentions. *Int J Hospit Manag* 94:102754. <https://doi.org/10.1016/j.ijhm.2020.102754>
- Baldin A, Bille T (2021) Who is an artist? heterogeneity and professionalism among visual artists. *J Cult Econ* 45:527–556. <https://doi.org/10.1007/s10824-020-09400-5>
- Bauerle A, Teufel M, Musche V et al. (2020) Increased generalized anxiety, depression and distress during the COVID-19 pandemic: a cross-sectional study in germany. *J Public Health* 42(4):672–678. <https://doi.org/10.1093/pubmed/fdaa106>
- Betsch C, Korn L, Felgendreff L et al. (2020) German COVID-19 Snapshot Monitoring (COSMO)-Welle 10 (05.05. 2020). *PsychArchives*. <https://doi.org/10.23668/PSYCHARCHIVES.2900>. Accessed 5 April 2023
- Betzler D, Loots E, Prokúpek M et al. (2021) COVID-19 and the arts and cultural sectors: investigating countries’ contextual factors and early policy measures. *Int J Cult Policy* 27(6):796–814. <https://doi.org/10.1080/10286632.2020.1842383>
- Bezirk Oberpfalz (2021) *Heimatspflege, Kultur & Bildung—Bezirk Oberpfalz*. <https://www.bezirk-oberpfalz.de/heimat-kultur-bildung>. Accessed 14 May 2021
- Bille T, Jensen S (2018) Artistic education matters: survival in the arts occupations. *J Cult Econ* 42(1):23–43. <https://doi.org/10.1007/s10824-016-9278-5>
- Braden LE (2009) From the armory to academia: careers and reputations of early modern artists in the United States. *Poetics* 37(5–6):439–455. <https://doi.org/10.1016/j.poetic.2009.09.004>
- Brivio E, Oliveri S, Guidi P et al. (2021) Incidence of PTSD and generalized anxiety symptoms during the first wave of covid-19 outbreak: an exploratory study of a large sample of the Italian population. *BMC Public Health* 21(1):1158. <https://doi.org/10.1186/s12889-021-11168-y>
- Bufquin D, Park J-Y, Back RM et al. (2021) Employee work status, mental health, substance use, and career turnover intentions: an examination of restaurant employees during covid-19. *Int J Hospit Manag* 93:102764. <https://doi.org/10.1016/j.ijhm.2020.102764>
- Burch GSJ, Pavelis C, Hemsley DR et al. (2006) Schizotypy and creativity in visual artists. *Br J Psychol* 97(2):177–190. <https://doi.org/10.1348/000712605X60030>
- Byrnes JP, Miller DC, Schafer WD (1999) Gender differences in risk taking: a meta-analysis. *Psychol Bull* 125(3):367. <https://doi.org/10.1037/0033-2909.125.3.367>
- Caust J (2021) Sustainability of artists in precarious times; how arts producers and individual artists have adapted during a pandemic. *Sustainability* 13(24):13561. <https://doi.org/10.3390/su132413561>
- Coates T (2020) As pandemic strikes, pop culture migrates to streaming sites | wired. <https://www.wired.com/story/coronavirus-streaming-pop-culture/>. Accessed 31 July 2020
- Cobb-Clark DA, Dahmann SC, Kettlewell N (2022) Depression, risk preferences, and risk-taking behavior. *J Hum Resour* 57(5):1566–1604. <https://doi.org/10.3368/jhr.58.1.0419-10183R1>
- Comunian R, England L (2020) Creative and cultural work without filters: COVID-19 and exposed precarity in the creative economy. *Cult Trends* 29(2):112–128. <https://doi.org/10.1080/09548963.2020.1770577>
- Corley J, Okely JA, Taylor AM et al. (2021) Home garden use during COVID-19: associations with physical and mental wellbeing in older adults. *J Environ Psychol* 73:101545. <https://doi.org/10.1016/j.jenvp.2020.101545>
- Costabile I, Kallegias A, Robins JC (2020) The Corona Decade: the transition to the age of hyper-connectivity and the fourth industrial revolution. In: Barberio, M, Colella, M, Figliola, A, Battisti, A (eds.) *Architecture and design for industry 4.0. Lecture notes in mechanical engineering*, 2195–4356. Springer Cham. pp. 169–183
- Cross PG, Cattell RB, Butcher HJ (1967) The personality pattern of creative artists. *Br J Educ Psychol* 37(3):292–299. <https://doi.org/10.1111/j.2044-8279.1967.tb01944.x>
- Csikszentmihalyi M, Getzels JW (1973) The personality of young artists: an empirical and theoretical exploration. *Br J Psychol* 64(1):91–104. <https://doi.org/10.1111/j.2044-8295.1973.tb01331.x>
- Daly M, MacLachlan M, Maguire R et al. (2021) Changes in ptsd, depression, and generalized anxiety before and during the covid-19 pandemic in ireland. *J Affect Disord Rep* 5:100184. <https://doi.org/10.1016/j.jadr.2021.100184>
- Daly M, Robinson E (2022) Depression and anxiety during Covid-19. *Lancet* 399(10324):518. [https://doi.org/10.1016/S0140-6736\(22\)00187-8](https://doi.org/10.1016/S0140-6736(22)00187-8)
- Daniel E, Henley A, Lang M et al. (2021) Balancing precarity and resilience: the experience of the self-employment during the COVID pandemic. In: *Institute of small business and entrepreneurship. The Open University, Cardiff*
- De Peuter G, Oakley K, Trusolino M (2023) The pandemic politics of cultural work: collective responses to the COVID-19 crisis. *Int J Cult Policy* 29(3):377–392. <https://doi.org/10.1080/10286632.2022.2064459>
- dpa (2020) Clueso in großer Sorge um die Konzertbranche. *Mitteldeutsche Zeitung*, 3151352 Accessed 29 January 2024
- Duarte AM (2020) Artists’ precarity in the context of their social integration. In: Rachwal T, Hepp R, Kergel D (eds.) *Precarious places: social, cultural and economic aspects of uncertainty and anxiety in everyday life*. 2509–3266. Springer VS Wiesbaden. pp 19–39
- Dupasquier S (2004) *Der Arbeitsplatz des Orchestermusikers—Belastungen und Ressourcen*. Master-thesis. Universitäten Basel, Bern und Zürich
- Eikhof DR (2020) COVID-19, inclusion and workforce diversity in the cultural economy: what now, what next? *Cult Trends* 29(3):234–250. <https://doi.org/10.1080/09548963.2020.1802202>
- Elstad B (2015) Freelancing: cool jobs or bad jobs? *Nordisk Kulturpolitisk Tidsskr.* 18(1):101–124. <https://doi.org/10.18261/ISSN2000-8325-2015-01-07>
- Flore J, Hendry NA, Gaylor A (2023) Creative arts workers during the Covid-19 pandemic: social imaginaries in lockdown. *J Sociol* 59(1):197–214. <https://doi.org/10.1177/14407833211036757>
- Fram NR, Goudarzi V, Terasawa H et al. (2021) Collaborating in isolation: assessing the effects of the covid-19 pandemic on patterns of collaborative behavior among working musicians. *Front Psychol* 12:674246. <https://doi.org/10.3389/fpsyg.2021.674246>
- Frick U, Rehm J (2016) Can we establish causality with statistical analysis? The example of epidemiology. In: Wiedermann, W, von Eye, A (eds.) *Statistics and causality: methods for applied empirical research*. Wiley series in probability and statistics, John Wiley, Hoboken, NJ, pp. 409–430
- Frick Ulrich, Tallon M, Gotthardt K et al. (2021) Cultural withdrawal during Covid-19 lockdown: impact in a sample of 828 artists and recipients of highbrow culture in Germany. *Psychol Aesthet Creat Arts* 17(3):369–381. <https://doi.org/10.1037/aca0000389>

- Gembris H, Heye A, Seifert A (2018) Health problems of orchestral musicians from a life-span perspective: results of a large-scale study. *Music Sci.* 1:1–20. <https://doi.org/10.1177/2059204317739801>
- Gjermunds N, Brechan I, Johnsen S et al. (2020) Personality traits in musicians. *Curr Issues Personal Psychol* 8(2):100–107. <https://doi.org/10.5114/cipp2020.97314>
- Godinic D, Obrenovic B, Khudaykulov A (2020) Effects of economic uncertainty on mental health in the COVID-19 pandemic context: social identity disturbance, job uncertainty and psychological well-being model. *IJIED* 6(1):61–74. <https://doi.org/10.18775/ijied.1849-7551-7020.2015.61.2005>
- Gothardt KA, Rakoczy K, Tallon M et al. (2023) Can the arts cure pandemic hearts?—cultural activity during the COVID-19 pandemic and its consequences for psychological well-being. *Empir Stud Arts* 41(1):3–30. <https://doi.org/10.1177/02762374221103989>
- Götz KO, Götz K (1979) Personality characteristics of successful artists. *Percept Mot Skills* 49(3):919–924. <https://doi.org/10.2466/pms.1979.49.3.919>
- Goya-Maldonado R, Keil M, Brodmann K et al. (2018) Reactivity of the reward system in artists during acceptance and rejection of monetary rewards. *Creat Res J* 30(2):172–178. <https://doi.org/10.1080/10400419.2018.1414994>
- Guptill CA (2011) The lived experience of professional musicians with playing-related injuries: a phenomenological inquiry. *Med Probl Perform Artists* 26(2):84–95. <https://doi.org/10.21091/mppa.2011.2013>
- Hajek A, König H-H (2021) The prevalence and correlates of probable major depressive disorder and probable generalized anxiety disorder during the COVID-19 pandemic. results of a nationally representative survey in Germany. *Int J Environ Res Public Health* 18(23):12302. <https://doi.org/10.3390/ijerph182312302>
- Hajek A, Neumann-Böhme S, Sabat I et al. (2022) Depression and anxiety in later covid-19 waves across Europe: new evidence from the European COVID survey (ECOS). *Psychiatry Res* 317:114902. <https://doi.org/10.1016/j.psychres.2022.114902>
- Hajek A, Sabat I, Neumann-Böhme S et al. (2022) Prevalence and determinants of probable depression and anxiety during the covid-19 pandemic in seven countries: longitudinal evidence from the European COVID survey (ECOS). *J Affect Disord* 299:517–524. <https://doi.org/10.1016/j.jad.2021.12.029>
- Hall DT, Chandler DE (2005) Psychological success: when the career is a calling. *J Organ Behav* 26(2):155–176. <https://doi.org/10.1002/job.301>
- Hassler M (2000) Die Musikerpersönlichkeit aus neurobiologischer Sicht. In: Behne, K-E, Kleinen, G, de la Motte-Haber, H (eds.) *Musikpsychologie. Jahrbuch der deutschen Gesellschaft für Musikpsychologie. Band 15. vol Musikpsychologie Bd. 15. Hogrefe.* pp. 47–59
- Heikkinen M (1995) Evaluating the effects of direct support on the economic situation of artists. *J Cult Econ* 19(3):261–272. <https://doi.org/10.1007/BF01074054>
- Heisler PK (1995) A theoretical comparison of certified piano teachers' claim to professional status with the sociological definition of profession. *Int Rev Aesthet Sociol Music* 26(2):239–249. <https://doi.org/10.2307/837002>
- Hertz-Palmor N, Moore TM, Gothelf D et al. (2021) Association among income loss, financial strain and depressive symptoms during covid-19: evidence from two longitudinal studies. *J Affect Disord* 291:1–8. <https://doi.org/10.1016/j.jad.2021.04.054>
- Howard F, Bennett A, Green B et al. (2021) It's turned me from a professional to a "bedroom DJ" once again: covid-19 and new forms of inequality for young music-makers. *Young* 29(4):417–432. <https://doi.org/10.1177/1103308821998542>
- Izidorczak K, Antoniuk K, Kulesza W et al. (2022) Temporal aspects of unrealistic optimism and robustness of this bias: a longitudinal study in the context of the covid-19 pandemic. *PLoS ONE* 17(12):e0278045. <https://doi.org/10.1371/journal.pone.0278045>
- Jung RE, Vartanian O (eds.) (2018) *The Cambridge Handbook of the Neuroscience of Creativity.* Cambridge University Press. Cambridge
- Kemper CJ, Beierlein C, Kovaleva A et al. (2013) Entwicklung und Validierung einer ultrakurzen Operationalisierung des Konstrukts Optimismus-Pessimismus. *Diagnostica* 59(3):119–129. <https://doi.org/10.1026/0012-1924/a000089>
- Khlystova O, Kalyuzhnova Y, Belitski M (2022) The impact of the COVID-19 pandemic on the creative industries: a literature review and future research agenda. *J Bus Res* 139:1192–1210. <https://doi.org/10.1016/j.jbusres.2021.09.062>
- Kok LM, Huisstede B, Voorn V et al. (2016) The occurrence of musculoskeletal complaints among professional musicians: a systematic review. *Int Arch Occup Environ Health* 89(3):373–396. <https://doi.org/10.1007/s00420-015-1090-6>
- Krespi Ulgen MR, Kupana MN, Altunbek HB (2022) COVID-19 pandemic: does musicianship matter? *Psychol Music* 51(3):030573562211093. <https://doi.org/10.1177/03057356221109322>
- Kreutz G, Ginsborg J, Williamson A (2009) Health-promoting behaviours in conservatoire students. *Psychol Music* 37(1):47–60. <https://doi.org/10.1177/0305735607086047>
- Kriska SD, Sass MM, Fulcomer MC (2013) Assessing limitations and uses of convenience samples: a guide for graduate students. *American Statistical Association. JSM Proceedings, Section on Statistical Education.* pp. 2828–2834
- Kuper-Smith BJ, Doppelhofer LM, Oganian Y et al. (2021) Risk perception and optimism bias during the early stages of the COVID-19 pandemic. <https://doi.org/10.1098/rsos.210904>
- Kwon H, Kim S, Yang J (2018) What makes them dream on? the influence of social and psychological assets on young musicians' decision to stay in the profession. *Dev Soc* 47(3):371–400. <https://doi.org/10.21588/dns/2018.47.3.003>
- Lakhan R, Agrawal A, Sharma M (2020) Prevalence of depression, anxiety, and stress during covid-19 pandemic. *J Neurosci Rural Pract* 11(04):519–525. <https://doi.org/10.1055/s-0040-1716442>
- Longden T, Throsby D (2021) Non-pecuniary rewards, multiple job-holding and the labour supply of creative workers: the case of book authors. *Econ Rec* 97(316):24–44. <https://doi.org/10.1111/1475-4932.12577>
- Loveday C, Musgrave G, Gross S-A (2022) Predicting anxiety, depression, and wellbeing in professional and nonprofessional musicians. *Psychol Music.* <https://doi.org/10.1177/03057356221096506>
- Löwe B, Decker O, Müller S et al. (2008) Validation and standardization of the generalized anxiety disorder screener (gad-7) in the general population. *Med Care* 46(3):266–274. <https://doi.org/10.1097/MLR.0b013e318160d093>
- Löwe B, Kroenke K, Gräfe K (2005) Detecting and monitoring depression with a two-item questionnaire (phq-2). *J Psychosom Res* 58(2):163–171. <https://doi.org/10.1016/j.jpsychores.2004.09.006>
- Ludwig AM (1992) Creative achievement and psychopathology: comparison among professions. *Am J Psychother* 46(3):330–354. <https://doi.org/10.1176/appi.psychotherapy.1992.46.3.330>
- Maier C, Laumer S, Eckhardt A et al. (2015) Who really quits? A longitudinal analysis of voluntary turnover among it personnel. *ACM Sigmis Database: Database Adv Inf Syst* 46(4):26–47. <https://doi.org/10.1145/2843824.2843827>
- Makridis CA (2023) The labor market returns of being an artist: evidence from the United States, 2006–2021. *J Cult Econ.* <https://doi.org/10.1007/s10824-023-09490-x>
- Menger P-M (1999) Artistic labor markets and careers. *Annu Rev Sociol* 25(1):541–574. <https://doi.org/10.1146/annurev.soc.25.1.541>
- Michniewicz KS, Edelman LL (2021) Underdog status yields support for musicians. *Musica Sci* 25(2):176–188. <https://doi.org/10.1177/1029864919859625>
- Middleton JC, Middleton JA (2017) Review of literature on the career transitions of performing artists pursuing career development. *Int J Educ Vocat Guid* 17(2):211–232. <https://doi.org/10.1007/s10775-016-9326-x>
- Miksza P, Evans P, McPherson GE (2021) Motivation to pursue a career in music: the role of social constraints in university music programs. *Psychol Music* 49(1):50–68. <https://doi.org/10.1177/0305735619836269>
- Mullinix KJ, Leeper TJ, Druckman JN et al. (2015) The generalizability of survey experiments. *J Exp Polit Sci* 2(2):109–138. <https://doi.org/10.1017/XPS.2015.19>
- Nettle D (2006) Schizotypy and mental health amongst poets, visual artists, and mathematicians. *J Res Personal* 40(6):876–890. <https://doi.org/10.1016/j.jrp.2005.09.004>
- Park A, Guptill C, Sumsion T (2007) Why music majors pursue music despite the risk of playing-related injuries. *Med Probl Perform Artists* 22(3):89–96. <https://doi.org/10.21091/mppa.2007.3021>
- Parker SL, Jimmieson NL, Amiot CE (2021) Persisting with a music career despite the insecurity: when social and motivational resources really matter. *Psychol Music* 49(1):138–156. <https://doi.org/10.1177/0305735619844589>
- Parsons C (2020) Music and the internet in the age of COVID-19. *Early Music* 48(3):403–405. <https://doi.org/10.1093/em/caaa045>
- Pasquinelli C, Sjöholm J (2015) Art and resilience: the spatial practices of making a resilient artistic career in London. *City Cult Soc* 6(3):75–81. <https://doi.org/10.1016/j.ccs.2015.04.001>
- Poon Y-SR, Lin YP, Griffiths P et al. (2022) A global overview of healthcare workers' turnover intention amid covid-19 pandemic: a systematic review with future directions. *Hum Resour Health* 20(1):1–18. <https://doi.org/10.1186/s12960-022-00764-7>
- Pouso S, Borja Á, Fleming LE et al. (2021) Contact with blue-green spaces during the covid-19 pandemic lockdown beneficial for mental health. *Sci Total Environ* 756:143984. <https://doi.org/10.1016/j.scitotenv.2020.143984>
- Primov-Fever A, Roziner I, Amir O (2020) Songbirds must sing: how artistic voice users perceive their voice in times of COVID-19. *J Voice* 36(4):S0892199720302782. <https://doi.org/10.1016/j.jvoice.2020.07.030>
- Richards S, Pacella J (2022) We need to keep making stuff, regardless of what the situation is: creativity and the film festival sector during COVID-19. *Arts Mark.* 13(1):20–32. <https://doi.org/10.1108/AAM-11-2021-0061>
- Rickert DL, Barrett MS, Ackermann BJ (2015) Are music students fit to play? a case study of health awareness and injury attitudes amongst tertiary student cellists. *Int J Music Educ* 33(4):426–441. <https://doi.org/10.1177/0255761415582343>
- Roesse NA, Merrill J (2021) Consequences of the covid-19 lockdown in Germany: effects of changes in daily life on musical engagement and functions of music. *Int J Environ Res Public Health* 18(19):10463. <https://doi.org/10.3390/ijerph181910463>
- Roy DD (1996) Personality model of fine artists. *Creat Res J* 9(4):391–394. https://doi.org/10.1207/s15326934crj0904_10
- Rundfunk B (2021) Pianist Igor Levit zu Corona-Lockdown: "Es wird suggeriert: Kultur ist Gefahr" BR-Klassik. <https://www.br-klassik.de/aktuell/news-kritik/>

- pianist-igor-levit-interview-kritik-kultur-corona-lockdown-kunst-musik-100.html. Accessed 29 Jan 2024
- Santomauro DF, Herrera AMM, Shadid J et al. (2021) Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. *Lancet* 398(10312):1700–1712. [https://doi.org/10.1016/S0140-6736\(21\)02143-7](https://doi.org/10.1016/S0140-6736(21)02143-7)
- Schumacher J, Leppert K, Gunzelmann T et al. (2005) Die Resilienzskala—Ein Fragebogen zur Erfassung der psychischen Widerstandsfähigkeit als Persönlichkeitsmerkmal. *Z für Klinische Psychologie Psychiatr und Psychotherapie* 53(1):16–39
- Shaghghi A, Bhopal RS, Sheikh A (2011) Approaches to recruiting ‘hard-to-reach’ populations into research: a review of the literature. *Health Promot Perspect* 1(2):86–94. <https://doi.org/10.5681/hpp2011.009>
- Sheeran P (2002) Intention—behavior relations: a conceptual and empirical review. *Eur Rev Soc Psychol* 12(1):1–36. <https://doi.org/10.1080/14792772143000003>
- Sheeran P, Webb TL (2016) The intention—behavior gap. *Soc Pers Psychol Compass* 10(9):503–518. <https://doi.org/10.1111/spc3.12265>
- da Silva Henrique J, Machado AF, Antigo MF (2023) Work satisfaction and job permanence in artistic careers: the case of musicians in belo horizonte, brazil. *J Cult Econ* 47(4):693–718. <https://doi.org/10.1007/s10824-022-09467-2>
- Silvia PJ, Nusbaum EC (2011) On personality and piloerection: individual differences in aesthetic chills and other unusual aesthetic experiences. *Psychol Aesthet Creat Arts* 5(3):208. <https://doi.org/10.1037/a0021914>
- Siqueira LTD, dos Santos AP, da Silva Vitor J et al. (2021) Vocal self-perception of singers during covid-19 pandemic. *J Voice* 38:96–104. <https://doi.org/10.1016/j.jvoice.2021.06.032>
- Soto CJ, John OP (2017) The next big five inventory (bf1-2): developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *J Personal Soc Psychol* 113(1):117. <https://doi.org/10.1037/pspp0000096>
- Spahn C, Zschocke I (2002) Selbstaufmerksamkeit als Persönlichkeitsmerkmal von Musikern. In: Behnen, K-E, Kleinen, G, de la Motte-Haber, H (eds). *Musikpsychologie. Jahrbuch der deutschen Gesellschaft für Musikpsychologie. band 16: Wirkungen und kognitive Verarbeitung in der Musik.* 16 Hogrefe, Göttingen, Deutschland, pp. 30–44
- Spiro N, Perkins R, Kaye S et al. (2021) The effects of COVID-19 lockdown 1.0 on working patterns, income, and wellbeing among performing arts professionals in the United Kingdom (April–June 2020). *Front Psychol*. 11:594086. <https://doi.org/10.3389/fpsyg.2020.594086>
- Stoff F (2021) Situation freischaffender Musikerinnen und Musiker in Berlin. Landesmusikrat Berlin. https://www.landemusikrat-berlin.de/fileadmin/presse/2021/2021-01-25_Pressemitteilung_Umfrage_und_Konferenz_Freischaffende.pdf. Accessed 29 Jan 2024
- Suarez-Fernandez S, Prieto-Rodriguez J, Perez-Villadoniga MJ (2020) The changing role of education as we move from popular to highbrow culture. *J Cult Econ* 44(2):189–212. <https://doi.org/10.1007/s10824-019-09355-2>
- Sulat JS, Prabandari YS, Sanusi R et al. (2018) The validity of health belief model variables in predicting behavioral change: a scoping review. *Health Educ* 118(6):499–512. <https://doi.org/10.1108/HE-05-2018-0027>
- Theodorou A, Panno A, Carrus G et al. (2021) Stay home, stay safe, stay green: the role of gardening activities on mental health during the COVID-19 home confinement. *Urban Forestry Urban Green*. 61:127091. <https://doi.org/10.1016/j.ufug.2021.127091>
- Thorgersen KA, Mars A (2021) A pandemic as the mother of invention? collegial online collaboration to cope with the Covid-19 pandemic. *Music Educ Res* 23(2):225–240. <https://doi.org/10.1080/14613808.2021.1906216>
- Throsby D, Zednik A (2011) Multiple job-holding and artistic careers: some empirical evidence. *Cult Trends* 20:9–24. <https://doi.org/10.1080/09548963.2011.540809>
- Towse R (2001) Partly for the money: rewards and incentives to artists. *Kyklos* 54(2–3):473–490. <https://doi.org/10.1111/1467-6435.00165>
- Travkina E, Sacco PL (2020) Culture shock: COVID-19 and the cultural and creative sectors. Organisation for Economic Co-operation and Development (OECD). <https://apo.org.au/node/308392>. Accessed 5 Apr 2023
- Vaag J, Bjerkeset O, Sivertsen B (2021) Anxiety and depression symptom level and psychotherapy use among music and art students compared to the general student population. *Front Psychol* 12:607927. <https://doi.org/10.3389/fpsyg.2021.607927>
- Vaag J, Bjørngaard JH, Bjerkeset O (2016) Symptoms of anxiety and depression among norwegian musicians compared to the general workforce. *Psychol Music* 44(2):234–248. <https://doi.org/10.1177/0305735614564910>
- Vaag J, Sund ER, Bjerkeset O (2018) Five-factor personality profiles among Norwegian musicians compared to the general workforce. *Musica Sci* 22(3):434–445. <https://doi.org/10.1177/1029864917709519>
- Vartanian O (2022) Neuroscience of artistic creativity. In: Skov, M, Nadal, M (eds.) *The Routledge International Handbook of Neuroaesthetics.* Routledge, pp. 507–525
- Waits CR, McNertney EM (1984) An economic model of artistic behavior. *J Cult Econ* 8(1):49–60. <https://doi.org/10.1007/BF01574442>
- Wang Y, Zhou W, Chang K-C (2013) Effect of decision makers’ education level on their corporate risk taking. *Soc Behav Pers Int J* 41(7):1225–1229. <https://doi.org/10.2224/sbp.2013.41.7.1225>
- Warran K, May T, Fancourt D et al. (2023) Understanding changes to perceived socioeconomic and psychosocial adversities during covid-19 for UK freelance cultural workers. *Cult Trends* 32(5):449–473. <https://doi.org/10.1080/09548963.2022.2082270>
- Watters JK, Biernacki P (1989) Targeted sampling: options for the study of hidden populations. *Soc Probl* 36(4):416–430. <https://doi.org/10.2307/800824>
- Weinstein ND (1989) Optimistic biases about personal risks. *Science* 246(4935):1232–1233. <https://doi.org/10.1126/science.2686031>
- Williams CC, Horodnic IA (2018) Evaluating the prevalence and distribution of dependent self-employment: some lessons from the European working conditions survey. *Ind Relat J* 49(2):109–127. <https://doi.org/10.1111/irj.12206>
- Yöndem S, Yöndem ZD, Per M (2017) Personality traits and psychological symptoms of music and art students. *J Educ Train Stud* 5(7):53–59. <https://doi.org/10.11114/jets.v5i7.2431>
- Zhang P, Palma MA (2022) Stability of risk preferences during COVID-19: evidence from four measurements. *Front Psychol* 12:702028. <https://doi.org/10.3389/fpsyg.2021.702028>
- Zwaan K, ter Bogt TFM, Raaijmakers Q (2010) Career trajectories of Dutch pop musicians: a longitudinal study. *J Vocat Behav* 77(1):10–20. <https://doi.org/10.1016/j.jvb.2010.03.004>

Acknowledgements

Special thanks to Tobias Appl (Kultur und Heimatpflege Oberpfalz) and Marcus Weigl (Regensburger Domspatzen) for their support with field access. This study was supported by a grant from the German Federal Ministry of Education and Research (Grant 01JKL1908).

Author contributions

All the authors contributed to the study conception and design and read and approved the final manuscript.

Funding

Open Access funding enabled and organized by Projekt DEAL.

Competing interests

The authors declare no competing interests.

Ethical approval

This study was approved by the HSD University of Applied Sciences Ethics Committee on May 12, 2020.

Informed consent

All participants provided informed consent before commencing the study.

Additional information

Supplementary information The online version contains supplementary material available at <https://doi.org/10.1057/s41599-024-03012-6>.

Correspondence and requests for materials should be addressed to Matthias Seitz.

Reprints and permission information is available at <http://www.nature.com/reprints>

Publisher’s note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article’s Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article’s Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

© The Author(s) 2024