Can the Arts Cure Pandemic Hearts? - Cultural Activity During the COVID-19 Pandemic and its Consequences for Psychological Well-Being

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Abstract
Cultural activities might serve as a buffer to the negative effects of the COVID-19 pandemic on mental health. Frequencies of participants’ cultural activities in terms of participation in digital cultural offerings or self-initiated cultural activities during the pandemic are examined, and whether prior cultural engagement and valuing of culture have an impact on this participation. It is explored whether both forms of cultural activities are directly connected with psychological well-being, namely, optimism concerning COVID-19, and whether this relationship is mediated by autonomy, relatedness and aesthetic experience. Regression and mediation analysis were calculated (N = 398). Both cultural activities were related to increased aesthetic experience and perceived autonomy, but only participation in digital cultural offerings was connected to increased perceived relatedness. Relatedness, in turn, was connected to increased optimism. The results reflect the protective function of cultural activities on psychological well-being, demonstrating the importance of cultural life in times of adversity.

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Introduction

COVID-19, Psychological Well-Being and the Role of Cultural Activities

The current study highlights that engaging in cultural activities, despite the forced closure of cultural institutions, might serve as a buffer against the negative effects of the COVID-19 pandemic on mental health. The first cases of the new Coronavirus disease (COVID-19) were reported in December 2019 in Wuhan, China and declared to be a pandemic on March 11th, 2020 (World Health Organization [WHO], 2020). During the pandemic, everyday life was upended, and the resulting restrictions had drastic consequences for some (Wilke et al., 2021) causing severe repercussions on mental health. Brodeur, Clark, Fleche, and Powdthavee (2020) analyzed Google searches for words such as loneliness, sadness, and worry. They discovered an increase in these searches during the period of restrictions in the US and Europe and concluded the restrictions impacted severely on mental health. Moreover, they found there was almost no difference regardless of whether the countries in question imposed a full or partial lockdown (Brodeur et al., 2020). During the first week of the restrictions in March 2020, calls to German telephone crisis help-lines increased by 20% compared to the previous year. Again, the extent of the restrictions did not have a significant influence, with the effect only being slightly more pronounced in those federal states with more severe restrictions (Armbruster & Klotzbücher, 2020). Being quarantined during the pandemic had negative effects on mental health due to stressors such as fear of infection, boredom, false information and financial worries (Brooks et al., 2020). An analysis of COVID-19 related worries showed that in spring 2020, German citizens worried mostly about health and medicine, followed by worries about politics, the economy, and their social lives (Lengning, Rakoczy, Jenisch, Opwis, & Schmidt, 2020).

Much of German cultural life collapsed due to the pandemic-related restrictions that came into effect in March 2020. These restrictions included, among other things, closure of gastronomy, museums, theaters, cinemas, and other cultural establishments, as well as a reduction in social contact. It was forbidden to meet more than one other person not belonging to one’s household in public spaces and parties were considered unacceptable (Landesregierung Nordrhein-Westfalen, 2020; Presse- und Informationsamt der Bundesregierung, 2020a). Furthermore, restrictions were subject to change according to the continued spread of the disease (e.g., Presse- und Informationsamt der Bundesregierung, 2020b). 97,1% of European museums were closed in April, according to respondents of an analysis by the International Council of Museums (ICOM, 2020).
Between the 14th of May until 15th of June, artists reported having to cancel roughly one and a half (active) cultural events per week, equating to a cancelation of six events per month. Regarding visits to cultural events, artists and consumers generally reported cancelation of one event every second week (Frick, Tallon, Gotthardt, Seitz, & Rakoczy, 2021). With these closures and restrictions, the ability to participate in cultural activities was heavily limited. In the present paper we specify cultural activities according to the UNESCO definition, as activities that “embody or convey cultural expressions, irrespective of the commercial value they may have” (UNESCO, 2009, p. 23). In their framework for cultural statistics, UNESCO proposes several cultural domains which represent cultural activities. In the present paper we examine cultural activities from every cultural domain including “performance and celebration” (music, dance and theater), “books and press” (literature), “visual arts and crafts” (art), “cultural and natural heritage” (cultural educational events), “audio-visual and interactive media” (film) and “design and creative services” (creating something) (UNESCO, 2009, p.24).

The loss of cultural activities during the COVID-19 pandemic is unfortunate since cultural activities might serve as a buffer to the pandemic’s negative effects on mental health. Studies have shown that engagement in receptive and creative cultural activities are related to better physical and mental health, as well as overall life satisfaction (Cuypers et al., 2012). Correspondingly, Fancourt and Steptoe (2019a) found that adults above the age of 50, who frequently engaged in cultural activities, were less likely to experience depression. The positive effect of cultural activities on mental health also applies to children. It was shown that children at the age of seven to eleven, who showed high creativity during cultural activities as reported by their teachers, were less likely to show behavioral or social maladjustments (Fancourt & Steptoe, 2019b). The authors therefore concluded that enhancing cultural activities in children might reduce the risk of developing these maladjustments. A more causal link between cultural activities and mental health can be drawn from an experimental study which showed that mothers with moderate-severe postnatal depression who engaged in group singing workshops showed a faster reduction in symptoms, compared to mothers who did not engage in this type of cultural activity (Fancourt & Perkins, 2018). Likewise, engagement with culture can be seen as an intentional activity, which has been shown to sustain happiness over a long period of time (Lyubomirsky, Sheldon, & Schkade, 2005). Cultural activities positively impact well-being in the workplace (Tuisku, Pulkki-Råback, Ahola, Hakanen, & Virtanen, 2012), help with work-related stress management (Iwasaki, Mackay, & Mactavish, 2005) and are even associated with a decrease in mortality, including mortality due to external causes (Väänänen et al., 2009).

While cultural institutions were forced to close their doors, cultural life developed quickly in other areas. Many cultural producers moved their content into the digital world (ICOM, 2020) with 16% of Museums increasing their online exhibitions during the pandemic-related restrictions and 11% starting an online-exhibition. In addition, 48% of museums reported an increase in social
media services after the restrictions (ICOM, 2020). This increase in online-content indicates that there has been an opportunity for the emergence of new means for cultural producers to communicate with their recipients. Apart from engaging in the digital cultural space, individuals could continue to be culturally active on their own during the pandemic. Thus, this paper focuses on two types of cultural activity during the restrictions: being culturally active through engaging in digital cultural offerings, or being culturally active on one’s own. Here, the difference between engaging in digital cultural offerings or being culturally active on one’s own is that the former requires an external offer, while the latter does not. To engage in digital cultural activities in the realm of music, for example, there must be a digital platform providing these cultural activities, such as a platform to stream live concerts. Because these types of external offerings are required to engage in these activities, this engagement is hereafter referred to as engaging in digital cultural offerings. Conversely, being culturally active on one’s own does not require these types of external digital offerings. The simple act of making music does not require an external platform that allows you to do so. The individuals themselves can initiate the process of being culturally active. Therefore, these types of cultural activities are referred to as self-initiated cultural activities. If participants in the current study stated that they participated in digital cultural offerings during the restrictions, an increase compared to participation in 2019 was assumed. On the one hand, this is due to the aforementioned increase in the number of digital offerings (ICOM, 2020). On the other hand, this is due to a study that measured the consumption of digital cultural offerings analogous to those measured in the current study (such as music, film, literature, theater, art) not only during, but also before the pandemic in 2019 (Creative Industries Policy & Evidence Centre, August 2020). The study found a significant increase in engagement in these offerings during COVID-19-related restrictions. Since no such data were available for self-initiated cultural activities, we asked participants to describe their self-initiated cultural activities during the pandemic compared to the pre-pandemic period in the present study. Therefore, meaningful conclusions for the development of both types of cultural activities due to the pandemic can be drawn.

Who is Culturally Active in the Scope of Possibilities During the COVID-19 Pandemic?

Individuals differences regarding cultural engagement during the pandemic include values individuals hold for cultural activities and their prior cultural engagement. First, as regards the impact of values, Kröner and Dickhäuser (2009) found that intrinsic values regarding cultural activities explained 39% of variance in a student’s “receptive high-brow cultural activity” (p.53). This is in line with expectancy-value theory (Eccles, 1983), more specifically, situated expectancy-value theory (Eccles & Wigfield, 2020), which suggests that people’s choices depend not only on their expectancy of how well they will manage an activity, but on how much they value the
activity. Values were found to be particularly important for freely selectable behavior, such as in cultural activities (Wigfield & Eccles, 2000). Besides intrinsic values, attainment and utility values are assumed to be important for cultural activities, with attainment values mirroring the importance of an activity, and utility values displaying the usefulness of the activity (e.g. Eccles, 1983). Therefore, people who value culture are likely to resort to engaging in self-initiated activities and/or digital cultural offerings to maintain their cultural activity during the pandemic if their individual circumstances allow.

Second, individuals who chose to spend lots of time on cultural activities prior to the pandemic-related restrictions are likely to aspire to also doing so during the restrictions by engaging in self-initiated activities and/or digital cultural offerings.

**How Does the Positive Effect of Cultural Activity on Psychological Well-Being Emerge?**

Previous studies hint at the possibility that cultural activities might enhance psychological well-being during the pandemic, either through enhancing aesthetic experience or through basic need satisfaction.

First, research in the field of aesthetic experience helps describe how the positive effects of cultural activities might come about. Marković (2010) defined aesthetic experience “as an exceptional state of mind in which a person is focused on a particular object, transcending its everyday uses and meanings and losing the awareness of surroundings and even of himself/herself; in this state a person can have an exceptional emotional experience, that is a feeling of unity with the object” (Marković, 2010, p.58). He later proposed a model of aesthetic information processing. In this model, aesthetic emotions are affective evaluations. Silvia and Nusbaum (2011) divided aesthetic experience into three dimensions: “Touched”, “Absorption” and “Chills”. Aesthetic emotions have a strong positivity bias (Menninghaus et al., 2019), meaning that most of the time, aesthetic emotions are positive emotions. In line with the broaden-and build-model (Fredrickson, 2013), which suggests that positive emotions increase individual resources, people high in cultural participation, who frequently experience these positive aesthetic emotions, should develop increased resources such as resilience, mindfulness and social closeness. Thus, they may experience more psychological well-being when being confronted with a challenging situation such as a global pandemic.

Second, Self-determination Theory (SDT) (Deci & Ryan, 2012) suggests that the support of three basic needs leads to an increase of “high quality” or intrinsic motivation: the needs for autonomy, competence, and relatedness. If these needs are supported, individuals perceive themselves to act volitionally, effectively, and in connectedness with others. The need for autonomy is met when individuals perceive themselves to have choices regarding the activities they pursue (Niemiec & Ryan, 2009). An example in the cultural activity context would be someone visiting a virtual gallery, not because their friends like her/him to do so and the individual
feels pressured to, but because they want to pursue this activity volitionally. The need for competence is met when individuals feel they can effectively meet the requirements regarding the activity they want to pursue (Niemiec & Ryan, 2009). The individual visiting the virtual gallery would need to feel capable of understanding the paintings in this gallery for their need for competence to be met. Lastly, the need for relatedness is met when the individual feels liked and valued by those surrounding them (Niemiec & Ryan, 2009). Therefore, the individual in the virtual gallery should feel some sort of connection to the other potential visitors for the need for relatedness to be met. Moreover, basic need satisfaction positively impacts psychological well-being, and activities that satisfy basic needs create an environment for better performance, creativity, and persistence (Deci & Ryan, 2012). For example, Schrooyen et al. (2021) showed that parents whose basic needs (in relation to their parental role) were satisfied during the COVID-19 pandemic experienced less stress and more happiness when dealing with their children. Activities that thwart basic need satisfaction have a negative impact on psychological well-being, leading to need frustration and negative consequences such as depression or aggression (Vansteenkiste & Ryan, 2013). The COVID-19 related restrictions created an environment where basic need satisfaction was heavily restricted. Particularly, perceived autonomy and relatedness should have been threatened in a time dominated by restraints, rules and social distancing, where many decisions could not be made by individuals themselves (thus threatening autonomy), and when it was difficult to plan and conduct joint experiences (threatening relatedness). The pandemic-related restrictions may also have threatened competence. As we were interested in a wide range of cultural activities (from listening to music and watching movies to taking part in cultural education) during the pandemic, which differed greatly in the extent to which they potentially promoted the experience of competence, we decided to only focus on the positive impact on perceived relatedness and autonomy in our study.

It has been shown that volitional activities might mitigate basic need frustration that emerges in other areas. For example, Weinstein, Khabbaz, and Legate (2016) showed that refugees with low need satisfaction might win back some need satisfaction by engaging in activities that support those needs, simultaneously decreasing indications of stress and depression. In a similar vein, an intervention study has analyzed the impact of activities that satisfied basic needs, subjective vitality, and perceived stress during the COVID-19 pandemic (Behzadnia & FatahModares, 2020). Participants under experimental conditions were given the opportunity to engage in basic need-enhancing activities for a period of ten days, including some creative activities. Compared to the control condition, participants in the intervention group showed an increase in basic need satisfaction and vitality, and a decrease in perceived stress. Engaging in activities that enhance basic need satisfaction, particularly perceived autonomy and relatedness, might therefore counteract the negative impacts caused by basic need restriction due to the pandemic, hence enhancing psychological well-being. Cultural activities can be considered as activities that have the potential to render individuals’ feelings of perceived autonomy and relatedness. For instance,
Koehler and Neubauer (2020) found that, in a sample of hobby musicians, participants reported higher basic need satisfaction, and lower need dissatisfaction, on days where they were making music, compared to days where they were not making music. Thus, during the pandemic-related restrictions, cultural activities may have given individuals an opportunity to perceive themselves acting volitionally by deciding to engage in digital or self-initiated cultural activities. Moreover, engagement in digital cultural offerings might give individuals the feeling of acting in connectedness with others. This is in line with findings that show that the use of narrative media (Sherrick, Hoewe, & Ewoldsen, 2021) or communication via digital technologies (Manago, Brown, Lawley, & Anderson, 2020) can increase perceived relatedness or closeness.

The pandemic-specific aspect of psychological well-being examined in the present study is optimism (Lengning et al., 2020). Optimism regarding the pandemic includes seeing the positive sites of the situation, a new found appreciation for things that were previously taken for granted, optimism towards the development of vaccines, trust in politics, being optimistic that people will support one another, being optimistic towards being able to keep in touch with loved ones, and being optimistic that Germany will survive the crisis well (Lengning et al., 2020).

Purpose of the Present Study and Research Questions

The present study investigates who is culturally active in the scope of possibilities during the pandemic, and whether cultural activity during the pandemic has a positive impact on psychological well-being, namely pandemic-related optimism. In particular, the following three research questions were investigated. While research question 1 was investigated exploratively, hypotheses for research questions 2 and 3 were formulated based on the theoretical background mentioned above:

1. How frequently have individuals been participating in digital cultural offerings and realizing different kinds of self-initiated cultural activities during the COVID-19 pandemic?
2. Who is culturally active during the pandemic-related restrictions? It is expected that individuals who took part in many cultural activities prior to the pandemic-related restrictions and who place a high value on cultural activities attempt to substitute for lost cultural events by participating in digital cultural offerings or self-initiated cultural activities.
3. Does the participation in digital cultural offerings and self-initiated cultural activities have an impact on psychological well-being during the COVID-19 pandemic via perceived autonomy and relatedness, and via aesthetic experience (Figure 1)?
   (a) Individuals who participate in digital cultural offerings and increase their self-initiated cultural activities are expected to report more optimism regarding the pandemic (total effect).
   (b) It is expected that participation in digital cultural offerings is connected to higher perceived autonomy and relatedness, and more aesthetic experiences.
An increase in self-initiated cultural activities is expected to be connected to higher perceived autonomy and aesthetic experience.

(c) Higher perceived autonomy and relatedness and more aesthetic experiences are expected to increase optimism during the COVID-19-pandemic.

(d) Indirect effects of both forms of cultural activity on optimism are assumed. Specifically, individuals who participate in digital cultural offerings and self-initiated cultural activities are expected to experience more perceived autonomy and aesthetic experiences, as well as relatedness in the case of digital cultural offerings. In turn, they are expected to be more optimistic about the outcomes of the pandemic.

Methods

The present study is part of the project “Cultural education in rural areas: Investigation of person-related, social space-related and supply-related influencing factors”, funded by the Federal Ministry of Education and Research¹ and conducted by a team at HSD University of Applied Sciences.

Sampling

Data were collected in an online questionnaire which was distributed along with another, yet unrelated, online questionnaire (Frick et al., 2021). Therefore, a similar sampling procedure was applied. First, using “facility-based sampling” (Shaghaghi, Bhopal, & Sheikh, 2011), cultural organizations and institutions (galleries, museums, choirs…) in several counties in North Rhine-Westphalia were contacted via E-mail. Moreover, two Facebook-groups that deal with the cultural scene in Germany posted the link. Furthermore, cultural operators in Bavaria, that had been previously singled out for other research questions in the project, were contacted by our research team regarding the other aforementioned online-questionnaire (Frick et al., 2021). 34% of participants were sampled using this sampling method. Second, a convenience sample was used. The link to the study was distributed via the website of the meta-research project, a
project comprising all research projects with the same funding guidelines as the present project. Moreover, the platform “SurveyCircle” (SurveyCircle, 2021) was used, where researchers can submit their online-questionnaires, as well as participate in other online-questionnaires. Students from the university of the research project were also recruited as participants in return for credit points. 22% of participants belong in this convenience sample. Third, using a snowball sampling procedure, the researchers contacted individuals in their own social networks, who then further distributed the survey. Using the snowball sampling method, 39% of participants were recruited. 5% of participants indicated that they received the online-questionnaire through “other” channels of communication. Due to these different channels of distribution, the sample might have obtained ecological validity (for details, see results of Sociodemographic Variables).

501 participants started the questionnaire, with \( N = 371 \) (74.1%) finishing it. The cut-off score for including cases was set at page 13 (of 17 pages) of the questionnaire, amounting to \( N = 398 \) (79.4%) participants. For an overview of the different cultural activities during the pandemic-related restrictions, the cut-off score was set after the indication of cultural activities. This sample size was deemed appropriate for the calculation of a complex mediation analysis. A medium effect (0.39) was expected for the influence of the two cultural activities on the mediators. Moreover, a medium effect was also expected for the influence of the three mediators on the dependent variable. According to Fritz and Mackinnon (2007), a simple mediation, using bias-corrected bootstrapping, with medium-sized expected effects for the a and b paths, requires a sample size of \( N = 71 \). We were confident that the sample size requirements for a complex mediation was satisfied by using a sample size that is almost six times larger than the required sample size for a simple mediation. Moreover, bias-corrected bootstrapping is the test-method that results in the highest power compared to other tests for mediation (Fritz & Mackinnon, 2007).

**Procedure**

The survey was made available via “SoSci Survey” (Leiner, 2019) and was online from the 13th of May 2020 until 15th of July 2020, when pandemic-related restrictions applied in most regions of Germany. The survey was in German. Informed consent was given by every participant, the data was obtained anonymously, and IP addresses or GPS tracking were not collected. The Ethics Committee approved the study on the 12th of May, 2020.

Participants were asked several demographic questions, including gender, age, federal state of residence, if they are currently in education, living environment, if they were an essential worker, living conditions, feeling burdened by one’s living conditions and being at high-risk for COVID-19. A memory anchor was used as a reminder of the date when the pandemic-related restrictions came into effect. This memory anchor displayed the date of the announcement of the pandemic-related restrictions. Since every federal state in Germany announced restrictions at different times, the date was adjusted according to the subject’s federal state of residence.
Participants were asked to indicate the day that they first personally felt the impact of the restrictions. They could either choose the date displayed by the memory anchor or could specify dates prior or after the date. Subsequently, subjects were asked to indicate cultural events they canceled due to the restrictions. Intrinsic and attainment/utility values were assessed, and participants indicated their optimism during the COVID-19 pandemic. The memory anchor was displayed once again, and participants were asked to report their cultural activity during the pandemic-related restrictions: They indicated their participation in digital cultural offerings and their self-initiated cultural activity during the pandemic-related restrictions. Subjects reported the amount of basic need-fulfillment they experienced whilst engaging in cultural activities during pandemic-related restrictions, as well as their aesthetic experience during these cultural activities. The items were answered in the described order. The average time spent on the online questionnaire was 18 min (mean: 1092 s; SD: 399 s).

Measurements

Gender. Gender was measured on a scale from zero to one, with zero representing women and one representing men.

Cultural activities prior to the COVID-19 pandemic. To measure cultural activities prior to the pandemic-related restrictions, canceled cultural events were assessed: participants indicated the number of cultural events they had to cancel due to restrictions. Events included concerts, cinema visits, exhibitions, theater and/or ballet and opera, cabaret and educational events. In an open format, subjects could also type in additional events and the number of times they canceled said events. During the analysis, these additional events were then differentiated between cultural and social events, where cultural events were counted and social events not counted. If participants indicated the frequencies of the additional events, these were directly coded. If there was no frequency given, it was estimated. For example, rehearsals were thought to occur once a week, therefore it was coded by taking the integer value of dividing (perceived) duration of the pandemic-related restrictions by seven. The perceived duration of the restrictions was computed by calculating the number of days between the day of the completion of the questionnaire and the day the participants felt the impact of the restrictions. A scale was constructed by dividing the amount of the subject’s canceled cultural events by the perceived duration of the restrictions in weeks (Frick et al., 2021).

Value of cultural engagement. The utility of cultural engagement might be closely related to attaining personal goals such as professional or character development, indicating a link between the attainment and utility value regarding cultural engagement (Eccles & Wigfield, 2020). Moreover, attainment values are often empirically inseparable from other value components (e.g. Cambria, Brandt, Nagengast, & Trautwein, 2017; Trautwein et al., 2012). Therefore, we chose to measure attainment and utility
values in one indicator called “attainment/utility value”. In order to measure attainment/utility values regarding cultural activities, participants were asked to imagine being an employee who is allowed to attend a free workshop during a paid educational leave, prior to the COVID-19 pandemic. They were asked which three of eleven hypothetical workshops they would choose in order to achieve personal as well as professional development. Moreover, the three workshops had to be ranked regarding their priority. Five of the workshops comprised cultural activities, for example, “improvisation on stage”, and six of the workshops involved non-cultural activities, for example “management 101”. A scale was built by adding the numbers of rankings given to cultural activities, one (third place), two (second place) or three (first place) and dividing it by six. The mean for workshops comprising cultural activities was 0.405 and the standard deviation was 0.331. Intrinsic values regarding cultural activities were measured by asking participants to imagine picking three fun leisure activities to do on a free day prior to the COVID-19 pandemic. Six of the eleven leisure activities consisted of cultural activities, such as reading or visiting a gallery, the rest consisted of non-cultural activities, for example eating out or shopping. An indicator was constructed by summing up the number of times a subject chose a cultural activity and dividing this number by three. The mean is 0.428 and the standard deviation is 0.264.

**Cultural activities during the COVID-19 pandemic.** Two indicators for cultural involvement during the pandemic were assessed, namely digital and self-initiated cultural engagement. Participation in digital cultural offerings during the pandemic-related restrictions was determined by asking participants to indicate the amount of digital cultural offerings they participated in since the beginning of the pandemic-related restrictions on a 5-point Likert scale, including the options “never”, “once – and I plan on using it again”, “once – and I do not plan on using it again”, “every now and then” and “regularly”. The two different options available for “once” were asked to indicate which digital offerings were well received and which were not. For the analysis, the measurement was reduced to a 4-point Likert scale, by comprising the two “once-...” - options and the “every now and then” - option into one category, indicating that an offering was used once or more. Digital cultural offerings included the realms of music (for example streaming live concerts, streaming past concerts, and sofa-sessions), dance (for example streaming live or past dance performance), literature (for example poetry-slams, book clubs, readings), art (for example digital galleries and tours, VR galleries), theater (for example live-streaming and past theater performances), film (for example streaming of cinema movies at home, streaming on online-platforms), cultural education (for example musical education online, choir practice online) and an open format. Cronbach’s alpha indicated adequate reliability (α=.650). The scale was built by calculating the mean of all items.

Self-initiated cultural activities during the pandemic-related restrictions were measured on a 4-point Likert scale, including “I engage less since COVID-19”, “I engage the same amount since COVID-19” and “I engage more since COVID-19”, with an
additional option for “I don’t participate at all”. Therefore, an increase in these activities during the pandemic-related restrictions was assessed. The activities included making music, dancing, painting, writing, reading, meditating, creating something (for example sewing), as well as an open format. To ensure the assessment of an increase in activities, responses from participants who indicated that they did not participate in any of the self-initiated activities were not included in the calculations (n = 7). The scale showed moderate reliability (α = .571). A scale was constructed by calculating the mean of all items.

The means and standard deviations of the indicators for cultural activities prior to the pandemic and during pandemic-related restrictions can be found in Table 1 of the results section.

**Psychological well-being.** Optimism regarding the COVID-19- pandemic was measured by a scale developed by Lengning et al. (2020). The scale mean was 3.520 with a standard deviation of 0.643. Cronbach’s alpha indicated good internal consistency (α = .752). We focused on measuring optimism regarding pandemic-related restrictions rather than a measurement that indicates overall psychological well-being, in order for the data to particularly speak to the pandemic-related restrictions.

**Basic needs.** Perceived autonomy and relatedness were measured by two scales. Perceived autonomy was measured with a scale by Brown and Ryan (2003). In the current study, the five items were translated into German and adapted to the cultural content. Cronbach’s alpha indicated good reliability in the current sample (α = .813), with a mean of 3.484 and a standard deviation of 1.122. Perceived relatedness was measured using the German version of the Basic Psychological Need Satisfaction and Frustration Scale (BPNSFS) (Heissel et al., 2018). The wording of the items was slightly altered. One item was not considered due to its repetitiveness (Item 9). Cronbach’s alpha indicated good reliability (α = .730), with a mean of 3.781 and a standard deviation of 0.653.

**Aesthetic experience.** In order to measure aesthetic experience, the Aesthetic Experiences Scale (Silvia & Nusbaum, 2011) was used. The English version was translated into German. In the current sample Cronbach’s alpha indicated very good reliability for the whole scale (α = .906), with a mean of 2.142 and standard deviation of 0.774.

In the introduction to all of the basic needs items and to the assessment of aesthetic experience, the participants were asked to refer to their cultural activities during the pandemic-related restrictions when answering the questions.

**Statistical Analysis**

For the computations, MPlus was used (Version 8.5; Muthén & Muthén, 1998–2017). Descriptive statistics were computed to gain an overview of cultural activities performed during the pandemic to answer research question 1. For research question 2 (predictors for cultural activity), two regression analyses were computed.
Both analyses included intrinsic and attainment/utility values, as well as canceled events due to pandemic-related restrictions as independent variables. Participation in digital cultural offerings was included as the dependent variable in Model 1, and increased engagement in self-initiated cultural activities during the pandemic-related restrictions was included as the dependent variable in Model 2. As gender was shown to be an important predictor for cultural activities (Katz-Gerro, 2002; Upright, 2004), it was included in both analyses. To investigate research question 3, a mediation analysis was conducted (Figure 2). As gender was shown to be an important factor regarding optimism during the pandemic (Lengning et al., 2020), the impact of gender on optimism was controlled for. Since the analyzed indirect effects are products of direct paths and since the distribution of product terms is only asymptotically normal (e.g., Mackinnon, Lockwood, & Williams, 2004), the significance test was based on a bootstrapping procedure, using 1000 bootstrap samples and 95% confidence intervals (CIs). CIs are reported for all effects of the mediation analysis, with the null hypothesis being rejected when zero is not included in the CI.

Results

Sociodemographic Variables

72% of participants were female, 28% were male. The age distribution showed that 4.5% of the participants were under 20 years old. 21.6% of the participants were between 20 and 29 years old, 15.3% participants were between 30 and 39 years old. Likewise, 15.3% of the participants were between 40 and 49 years old. 23.4% of the participants were between 50 and 59 years old and 19.8% of the participants were over 60 years old. 19% of participants were currently in education, 65% of the sample had some form of university degree, and 65% of the sample were employed.

![Figure 2. Mediation analysis research question 3 a-d.](image-url)
What Kind of Cultural Activities Are Frequently Performed or Engaged During the Covid-19 Pandemic? (Research Question 1)

Means and standard deviations of the two cultural activity measurements during the COVID-19-pandemic as well as of the canceled cultural events due to the pandemic can be found in Table 1. As mentioned above, the scale for canceled cultural events was constructed by dividing the amount of the subject’s canceled cultural events by the perceived duration of the restrictions in weeks (Frick et al., 2021).

### Table 1. Means and Standard Deviations (SD) of the Indicators for Cultural Activities Prior to the Pandemic and During Pandemic-Related Restrictions.

| Activity                                                                 | Mean  | SD    | Answering format       | Answering Options                                                                 |
|-------------------------------------------------------------------------|-------|-------|------------------------|----------------------------------------------------------------------------------|
| Participation in digital cultural offerings during the pandemic-related restrictions | 0.521 | 0.339 | 4-point Likert Scale   | never- once or more- every now and then- regularly                                |
| Engagement in self-initiated cultural activity during the pandemic-related restrictions | 1.166 | 0.550 | 4-point Likert scale   | I engage less since COVID-19 - I engage the same amount since COVID-19 - I engage more since COVID-19, -I don’t participate at all |
| Canceled cultural events due to the pandemic-related restrictions        | 0.644 | 0.782 | Open format            |                                                                                   |

Note: Calculation of open format: amount of canceled events divided by duration of the pandemic-related restrictions in weeks.

Figure 3 gives an overview of frequencies of participation in digital cultural offerings with the digital offering most frequently used (every now and then and regularly) being movies (64.8%), followed by music (39.1%), cultural education (27.3%), theater (13.5%), literature (11.3%), art (11%) and dance (9.7%). Most participants who indicated that they used an offering once and were not planning on using it again did so with music (11.8%), followed by theater (7.3%), art (7.3%), dance (4.5%), cultural education (4.3%), literature (3.5%), and lastly movies (2%). Digital offerings in the music sector were at the same time the activity which most of the participants wanted to use again (14%) and the activity most of the participants did not want to use again (11.8%).

Figure 4 gives and an overview of which self-initiated cultural activities were increased during the pandemic-related restrictions. Reading was performed most often, since participants were either reading more, or the same, during the pandemic-related restrictions.
Dancing was the activity which most participants performed less often than before (28.1%), closely followed by making music (25.4%).

Figure 3. Digital cultural activities performed most often during the pandemic-related restrictions.

Note: The labels given to the activities in this figure are only representative for their realm of digital offerings. Refer to the measurement section for more examples.

Figure 4. Increase in self-initiated cultural activities during the pandemic-related restrictions.

(summing up to 89%). Dancing was the activity which most participants performed less often than before (28.1%), closely followed by making music (25.4%).

Who is Culturally Active During Pandemic-Related Restrictions (Research Question 2)?

Two regression analyses were run, including valuing of culture and canceled planned cultural activities prior to the COVID-19 pandemic as independent variables, with
participation in digital cultural offerings (Model 1), and increased self-initiated cultural engagement (Model 2) as the outcome variables, controlling for gender in both models (Table 2).

Concerning participation in digital cultural offerings (Model 1), attainment/utility value had a significant impact, indicating that participants who appreciate cultural activities for their own development and psychological well-being were more likely to participate in digital cultural offerings during the pandemic-related restrictions. Intrinsic values had a significantly positive impact on participation in digital cultural offerings, indicating that participants with intrinsic values were more likely to participate in digital cultural offerings, when controlled for attainment/utility value. Moreover, the amount of canceled cultural events prior to the pandemic had a significant impact on participation in digital cultural offerings. Gender did not have a significant impact.

Attainment/utility values showed a significant impact on self-initiated cultural engagement (Model 2), indicating that participants who appreciate cultural activities for their own development and psychological well-being were more likely to engage in self-initiated cultural activities. Intrinsic value and the number of canceled planned cultural events had no significant impact on increased engagement in self-initiated cultural activities. This indicates that participants with high intrinsic values for culture and participants with a high amount of canceled cultural events did not increase their self-initiated cultural activities during the pandemic. Gender had a significant impact on self-initiated cultural activities, implying that women engage in more self-initiated activities during the pandemic, when controlled for attainment/utility and intrinsic values, and canceled planned cultural events.

Table 2. Two Regression Analysis, with Attainment/Utility Values, Intrinsic Values, Canceled Planned Cultural Events and Gender as the Independent Variables, and Participation in Digital Cultural Offerings or Increased Engagement in Self-Initiated Cultural Activities as the Outcome.

| Dependent                          | Participation in digital cultural offerings (model 1) | Engagement in self-initiated cultural activities (model 2) |
|------------------------------------|-----------------------------------------------------|----------------------------------------------------------|
| **Independent**                    | β         | SE        | t       | p-value | β         | SE        | t       | p-value |
| Attainment/Utility Values          | 0.140     | 0.049     | 2.859   | 0.004** | 0.205     | 0.048     | 4.234   | 0.000*** |
| Intrinsic Values                   | 0.155     | 0.050     | 3.116   | 0.002** | 0.015     | 0.050     | 0.308   | 0.758   |
| Canceled planned cultural events   | 0.100     | 0.049     | 2.021   | 0.043*  | 0.071     | 0.049     | 1.441   | 0.150   |
| Gender                             | 0.021     | 0.049     | 0.428   | 0.669   | −0.171    | 0.048     | −3.531  | 0.000*** |

Note. *p < .05. **p < .01. ***p < .001.
Does the Participation in Digital Cultural Offerings and Self-Initiated Cultural Activities Have an Impact on Psychological Well-Being During the COVID-19 Pandemic via Perceived Autonomy and Relatedness, and via Aesthetic Experience (Research Question 3)?

A mediation analyses was carried out (see Table 3, Figure 5) to investigate whether participation in digital cultural offerings and increased engagement in self-initiated cultural activities can increase optimism during the COVID-19 pandemic via aesthetic experience and perceived relatedness and autonomy. The fit of the model was good ($\chi^2 = 3.143$, df = 3, $p = .3701$; RMSEA = 0.011, 90% CI [.000,.087], $p = .708$; CFI = 0.999; SRMR = .013).

As regards to hypothesis 3a, there was a significant total effect of increased engagement in self-initiated cultural offerings on optimism, but not for digital cultural offerings on optimism. Moreover, no direct effect of participation in digital cultural offerings and increased engagement in self-initiated cultural activities on optimism was observed, when controlling for the mediators aesthetic experience, relatedness and autonomy, and gender.

Regarding hypothesis 3b, participation in digital cultural offerings significantly predicted all three mediators, aesthetic experience, perceived relatedness and perceived autonomy. Increased engagement in self-initiated cultural activities predicted the mediators aesthetic experience and perceived autonomy significantly, but not perceived relatedness. This indicates, in line with hypothesis 3b, that participation in digital cultural offerings as well as increased engagement in self-initiated cultural activities were connected with higher perceived autonomy and higher aesthetic experience. As expected, perceived relatedness was only connected to participation in digital cultural offerings. Moreover, the three mediators in the model were significantly correlated with each other (autonomy with

![Figure 5. Standardized estimates ($\beta$) of the mediation analysis. Note: * $p < .05$. **$p < .001$.](image)
Table 3. Standard Error (S.E.) and Confidence Interval (C.I.) of the Mediation Analysis.

| Mediator           | Effect of digital offerings on mediator (b) | 95% CI          | Effect of self-initiated activities on mediator (b) | 95% CI          | Unique effect of mediators (c) | 95% CI          | Specific Indirect Effect of digital offerings via mediator (d) | 95% CI          | Specific Indirect Effect of self-initiated activities via mediator (d) | 95% CI          |
|--------------------|--------------------------------------------|-----------------|------------------------------------------------------|-----------------|--------------------------------|-----------------|---------------------------------------------------------------|-----------------|------------------------------------------------------------------------|-----------------|
| Aesthetic Experience | 0.050                                      | 0.153 0.350     | 0.046                                                | 0.151 0.333     | 0.055                          | −0.067 0.147     | 0.014                                                          | −0.018 0.038     | 0.014                                                                  | −0.017 0.037     |
| Relatedness        | 0.050                                      | 0.097 0.295     | 0.055                                                | −0.066 0.149    | 0.053                          | 0.157 0.365      | 0.017                                                          | 0.017 0.085      | 0.015                                                                  | −0.019 0.040     |
| Autonomy           | 0.044                                      | 0.148 0.321     | 0.040                                                | 0.156 0.312     | 0.053                          | −0.005 0.203     | 0.013                                                          | −0.003 0.049     | 0.013                                                                  | −0.002 0.048     |

| Independent Variable | Total effect on optimism | 95% CI | Direct Effect on Optimism | 95% CI | Total Indirect Effect | 95% CI |
|----------------------|---------------------------|--------|---------------------------|--------|------------------------|--------|
| Digital offerings    | 0.054                     | −0.071 0.143 | −0.157 0.058   | 0.022  | 0.042 0.127          |       |
| Self-initiated activities | 0.055                  | 0.001 0.216 | −0.045 0.176   | 0.022  | 0.000 0.087          |       |
relatedness $\beta = 0.300$, S.E. = 0.044, 95% CI [0.214, 0.387], autonomy with aesthetic experience $\beta = 0.371$, S.E. = 0.044, 95% CI [0.285, 0.457], and relatedness with aesthetic experience $\beta = 0.158$, S.E. = 0.055, 95% CI [0.051, 0.266]).

Hypothesis 3c can be partially maintained, with the mediator perceived relatedness significantly predicting the outcome variable optimism. However, there was no significant effect of perceived autonomy and aesthetic experience on the dependent variable, indicating that only perceived relatedness increased optimism during the pandemic, when the other two mediators are controlled for.

In the path model, the relationship between participation in digital cultural offerings and optimism was significantly mediated by all three mediators (total indirect effect), which can be mostly attributed to the (statistically significant) specific indirect effect of perceived relatedness. There were no significant specific indirect effects of aesthetic experience and perceived autonomy, when all three mediators are included simultaneously. This implies that hypothesis 3d concerning digital cultural offerings is met. Individuals who participate in digital cultural offerings experienced more perceived autonomy and relatedness and aesthetic experiences, and, in turn, were more optimistic about the outcomes of the pandemic, which can mostly be attributed to perceived relatedness.

The relationship between increased engagement in self-initiated cultural activities and optimism was not significantly mediated by the three mediators (total indirect effect), although trending towards significance. There was no specific indirect effect of either aesthetic experience, perceived relatedness or perceived autonomy.

**Discussion**

The current study aimed to investigate cultural activities during the first pandemic-related restrictions of the COVID-19 pandemic in 2020 in Germany. It examined the use of digital cultural offerings and the increased engagement with self-initiated cultural activities during the pandemic with regard to three research questions: (1) Which kind of cultural activities are performed how frequently during the COVID-19 pandemic? (2) Who is culturally active during pandemic-related restrictions? (3) Does the participation in digital cultural offerings and self-initiated cultural activities have an impact on psychological well-being during the COVID-19 pandemic via perceived autonomy and relatedness, and via aesthetic experience?

Firstly, regarding the frequency of cultural activities during the pandemic-related restrictions, considering all possible self-initiated activities, most participants reported reading more often than before the pandemic. This was followed by producing or creating something. Dancing was the activity that most participants engaged in less often, followed by making music.

These findings mirror the nature of the pandemic-related restrictions, with participants reporting performing the two activities that are typically performed in a group (making music and dancing) less often, indicating that participants did not refer to
engaging in these activities alone. In contrast, activities that can be performed alone were predominantly performed equally frequently or more often.

As regards digital offerings, those associated with movies were used most often, reflecting findings from the Creative Industries Policy & Evidence Centre (August 2020) that found film consumption had the highest increase during the pandemic-related restrictions. Importantly, music and movies were the only two digital offerings that more participants reported using than not using. This indicates that there is clearly an opportunity to strengthen the attractiveness or expand current digital cultural offerings.

As expected in hypothesis 2, participants with high attainment/utility value for cultural activities increased their self-initiated activities and participated in more digital cultural activities during the pandemic. This coincides with the expectancy-value theory (Eccles, 1983), indicating that participants who think of cultural activities as being important and useful still try to engage in these activities during the pandemic. However, intrinsic value of culture did not have any impact on self-initiated cultural engagement but rather influenced participation in digital cultural offerings. This shows that participants who experience lots of enjoyment during cultural activities were more likely to engage in digital cultural offerings, possibly indicating that these participants enjoy cultural activities so much that they actively tried to engage in them in the digital space. For instance, a person that really enjoys going to a specific museum might follow this museum on social media platforms and is therefore more likely to notice and use digital offerings from said museum.

In a similar vein, participants with lots of canceled cultural events also participated in more digital cultural offerings when controlled for intrinsic and attainment/utility value, as well as gender. This hints at the possibility that prior high cultural engagement might be transferrable into the digital space. For instance, participants that planned a number of museum visits before the start of the pandemic might opt to visit digital museums instead. Therefore, these participants availed of cultural offerings in the same way as before COVID-19, only digitally. In contrast, it appears that most participants did not see participation in self-initiated activities as a good substitute for canceled cultural events. A possible reason for these differential findings is explained below in connection to the findings of relatedness and digital cultural offerings.

Gender had a significant effect on self-initiated activities. This is in line with previous studies. For instance, Upright (2004) found that men’s cultural engagement depends on their wives’ characteristics, while women’s cultural engagement does not dependent on their husbands. Moreover, highbrow culture is more often consumed by women than men (Katz-Gerro, 2002). The reason that gender has no influence on digital cultural offerings could be that these types of cultural activities may be too new to create such an impact, suggesting that everyone is experimenting equally with the relatively new medium.

With regard to research question 3, we found that increased self-initiated cultural activities were altogether connected with more optimism regarding the pandemic, indicated by the expected significant positive total effect, while the total effect for
participation in digital cultural offerings unexpectedly failed significance (3a). The finding for self-initiated activities is in accordance with the literature suggesting that cultural activity results in higher life satisfaction (Cuypers et al., 2012) or sustained happiness (Lyubomirsky et al., 2005). The lack of a total effect for participation in digital offerings can be explained by a (non-significant) negative direct effect from digital offerings on optimism.

Furthermore, as predicted (3b), increased engagement in self-initiated cultural activities led to high aesthetic experience and perceived autonomy and did not increase perceived relatedness. Participation in digital offerings, in contrast, increased aesthetic experience, perceived autonomy and perceived relatedness. This illustrates that aesthetic experiences and basic need satisfaction during the pandemic-related restrictions were possible, either due to self-initiated cultural engagement, or due to digital cultural experiences. The finding that participants report aesthetic experiences while participating in digital cultural offerings has an important implication for cultural players; it shows that their digital offerings still managed to affect people. Moreover, it may be worth consideration for cultural players that have yet to transfer some offerings into the digital space. As an example, 50% of museums reported having no online offerings whatsoever in the first months of the pandemic (ICOM, 2020). The results concerning the impact of both forms of cultural activities on perceived autonomy supports our suggestion that engaging in cultural activities might restore some sort of freedom to choose one’s activities according to one’s preferences, this being a freedom that the pandemic-related restrictions took away from most people. Previous research has shown that individuals who are autonomously motivated to adhere to the pandemic related restrictions show more compliance to the rules (Guay, Bureau, Boulet, & Bradet, 2021; Morbée et al., 2021). Therefore, providing citizens with opportunities to perceive themselves acting autonomously, for example by providing digital alternatives to common leisure-time activities, might help to ensure that more people adhere to the restrictions.

The distinct results for perceived relatedness, in that it was only increased by digital cultural participation, but not self-initiated activities, demonstrate the connectedness that digital offerings might offer. Although mostly consumed alone, digital cultural offerings allow a connection with other people in a safe, socially distanced way. For instance, live-streaming a band concert connects the viewer in real time not only with the band itself, but also with other viewers as in, for example, via a live-comment section. Correspondingly, Manago et al. (2020) found that communication via digital devices can lead to social stimulation. This is also in line with the finding that students who felt lonely during the pandemic, and thus formed para-social relationships through narrative media, were able to fulfill their needs for relatedness (Sherrick et al., 2021). As mentioned above, the findings regarding relatedness and digital cultural offerings might also explain the differential findings regarding canceled planned cultural events (research question 2). Participants’ canceled cultural activities might have been connected to some sort of social happening. Participants with a lot of canceled events due to the pandemic might not regard self-initiated cultural activities
as a substitute for this sort of social happening. Therefore, they rather engage in digital cultural activities, which might entail some sort of social interaction.

Perceived relatedness, in contrast to aesthetic experience and perceived autonomy, increased optimism in participants (3c). This special impact of relatedness on optimism is in line with the finding that, after ten hours of social isolation, the brain craves social interaction similar to craving for food after ten hours of fasting (Tomova et al., 2020). Consequently, participation in digital cultural offerings was connected to more optimism via increased feelings of relatedness (3d), while no specific indirect effects via perceived autonomy or aesthetic experience could be shown. However, as predicted, participation in digital cultural offerings increased optimism indirectly via a common increase of aesthetic experience, perceived autonomy and relatedness (total indirect effect). The findings regarding the impact of digital cultural offerings on optimism mediated by perceived relatedness and autonomy (and aesthetic experiences) are in line with Koehler and Neubauer’s (2020) findings which suggest that music making increases positive affect through an increase in the three basic needs autonomy, relatedness and competence. Increased engagement in self-initiated cultural activities, on the other hand, did not result in higher optimism when all three mediators were increased during cultural activities (total indirect effect).

**Limitations and Future Directions**

Future studies should consider several areas/factors. First, digital cultural offerings and self-initiated activities should be more clearly divided into active and receptive culture (Cuypers et al., 2012). Generally, in the current study, digital offerings included more receptive activities, while self-initiated engagement was more focused on active activities. A clear distinction into receptive and active culture, or an equal distribution of active and receptive culture, might result in more distinctive results, for instance by assessing digital cultural offerings that require an active participation. Second, participants should be asked why they chose not to engage in a digital offering ever again. This might allow for the drawing of inferences about the drawbacks of some digital offerings. Third, we asked about relatedness, autonomy and aesthetic experience in relation to both digital offerings and self-initiated engagement. Future studies may find it more beneficial to ask about relatedness, autonomy and aesthetic experience separately regarding each offering to gain a more precise overview about which offerings influence which mediators. Moreover, the three mediators overlap to some degree, theoretically and statistically: Theoretically, they share some similarities, for example both aesthetic experience and the basic need satisfaction have been linked to the notion of flow (e.g. Wanzer, Finley, Zarian, & Cortez, 2020 for the former; Ilies et al., 2017 for the latter). Statistically, they correlate significantly in our sample. Fourth, the questionnaire was online between 13th of May 2020 until 15th of July 2020. It is important to note that during this time frame, some lockdown restrictions in Germany were relaxed. For example, museums and other cultural institutes reopened from the 30th April 2020 onwards (Presse- und Informationsamt der Bundesregierung, 2020b).
Nevertheless, as mentioned above, relatedness, autonomy and aesthetic experience were asked in relation to digital cultural offerings and self-initiated activities. Therefore, an increase in these items is unrelated to possible physical cultural activities. Large-scale events such as concerts were still forbidden. Fifth, as regards representativeness, sample characteristics revealed that the current sample was predominantly female, middle-aged or older, and highly educated. Specifically, the unequal distribution of male and female participants should be taken into account when interpreting the results, as some of the findings may be particularly true for women. Therefore, the sample might not be representative of the whole population. Lastly, the data was obtained using a cross-sectional design, therefore it would be interesting to see future studies that allow for causal inferences.

**Conclusion**

The results of the present study show that participation in digital cultural offerings as well as self-initiated cultural activities can fulfill individuals’ need for autonomy and relatedness (only when engaging in digital cultural offerings) and can be connected to aesthetic experience. So can the arts cure pandemic hearts? The most efficient buffer regarding worries during the pandemic was the feeling of connectedness to other people in the form of relatedness during digital cultural offerings. These findings advocate for the importance of staying connected to others during national pandemic-related restrictions, and show that engagement in digital cultural offerings might be a small antidote to the social cravings during a worldwide pandemic.

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