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## Who engages in the arts in the United States? A comparison of three types of engagement using data from the General Social Survey

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## Abstract

Engaging in the arts is a health-related behavior that may be influenced by social inequalities. While it is generally accepted that there is a social gradient in arts participation, previous studies of arts engagement in the US have not used comprehensive measures of engagement and often focus on single demographic or socioeconomic predictors of engagement rather than simultaneously testing a range of factors that may be related to one another. Using cross-sectional data from the General Social Survey (GSS) in the US, we examined which demographic, socioeconomic, residential, and health factors were associated with attendance at arts events, participation in arts activities, and membership of creative groups. We combined data from 1993 to 2016 in three analytical samples with a sample size of 8,684 for arts events, 4,372 for arts activities, and 4,268 for creative groups. Data were analysed using logistic regression. More education was associated with increased levels of all types of arts engagement. Parental education demonstrated a similar association. Being female, compared to male, was also consistently associated with higher levels of engagement. Attendance at arts events was lower in participants with lower income and social class, poorer health, and those living in less urban areas. However, these factors were not associated with engagement in arts activities or creative groups. Overall, we found evidence for a social gradient in attendance at arts events, which was not as pronounced in engagement in arts activities or creative groups. Given the many benefits of engagement in the arts for education, health, and wider welfare, our findings demonstrate the importance of identifying factors to reduce barriers to participation in the arts across all groups in society.

**Keywords:** arts, culture, social gradient, wellbeing, health, United States

## Introduction

There are many known social inequalities in health, including differences in healthy life expectancy and mortality (Bleich et al., 2012; Zaninotto et al., 2020). These disparities may be partially explained by a social gradient in a variety of health behaviors, including diet, obesity, physical activity, alcohol consumption, and smoking (Harper and Lynch, 2007; Scholes and Bann, 2018; Stringhini et al., 2010). Health behavior norms may be learnt within the socioeconomic context, with social determinants influencing behavior throughout the life course (Singh-Manoux and Marmot, 2005). Engaging in the arts is a health-related behavior that has been gaining increasing attention and may also demonstrate social inequalities related to age, sex, race, education, income and other factors (Lamont et al., 2014; Mak et al., 2020a). However, this topic and its implications for health and social inequalities remain under-researched.

Arts engagement typically refers to different types of creative activity, from actively engaging in the arts (e.g. dancing, singing, acting, painting, reading) to more receptive cultural engagement (e.g. going to museums, galleries, exhibits, performances and the theater; Fancourt and Finn, 2019). It can also encompass broader creative activities that, whilst not always labelled as 'arts', share similar properties of creative skill and imagination (e.g. gardening, cooking, and hobby or book groups; Fancourt et al., in press). In 2019, the World Health Organization identified more than 3000 studies showing the beneficial impact of arts engagement on mental and physical health and social determinants of health, from education to social cohesion and welfare (Fancourt and Finn, 2019).

Despite growing awareness of the benefits of engaging with the arts, there is a social gradient in arts participation. Several recent reports have found that arts engagement in the United States (US) may differ according to socioeconomic status, education, and income (National Endowment for the Arts, 2019, 2013; Stallings and Mauldin, 2016). Similar factors are associated with inequalities in access to health care and health and social outcomes (Mays et al., 2007; Nguyen et al., 2014; Singh, 2003; Williams et al., 2016). Varying engagement in the arts may further contribute to health and social inequalities (Lamont et al., 2014). However, the literature on this topic is limited by a number of factors.

First, many previous studies have focused on single demographic or socioeconomic predictors of arts engagement without taking into account other factors that may be related to one another. From these studies, the most consistent predictors of increased arts engagement are higher levels of education and income (Blume-Kohout et al., 2015; National Endowment for the Arts, 2019; Ostrower, 2005; Peterson et al., 2000; Robinson, 1993; Seaman, 2006; Stallings and Mauldin, 2016; Welch and Kim, 2010). Education is likely the most important factor (Robinson, 1993; Seaman, 2006), but it is unclear whether income influences arts engagement independently or solely through its association with education. Further, self-

identified social class may be a larger determining factor of engagement than income or education (Blume-Kohout et al., 2015). Other demographic factors have also been studied in isolation. For example, there is evidence for lower rates of engagement in Black than White racial/ethnic groups (Borgonovi, 2004; DiMaggio and Ostrower, 1992; National Endowment for the Arts, 2019; Robinson, 1993; Welch and Kim, 2010). However, it remains unclear whether race/ethnicity has a strong association with engagement after other factors, particularly education and income (as interconnected systems that contribute to structural racism), have been taken into account (Borgonovi, 2004; Egede and Walker, 2020; Robinson, 1993; Seaman, 2006; Welch and Kim, 2010).

Additionally, there are other factors that could be associated with arts engagement that have not been investigated in the US to date. In the UK, there are geographical differences in participation independent of individual demographic and socio-economic backgrounds (Mak et al., 2020b). Further, living alone is associated with fewer perceived opportunities to engage in the arts and those with poorer physical and mental health may experience more barriers to engaging (Fancourt and Mak, 2020). As many previous studies of the arts engagement in the US are based on the Survey of Public Participation in the Arts (SPPA; National Endowment for the Arts), which does not collect data on physical and mental health, these factors have not been investigated.

Moreover, in the US, most research on predictors of arts engagement has measured engagement with 'benchmark' arts activities, as defined in the SPPA. These activities include attending jazz, classical music, opera, musical or non-musical plays, ballet performances, and art museums or art galleries. Although these activities are not intended to be comprehensive (Novak-Leonard et al., 2011), they have repeatedly been used as a metric of engagement in the arts. This has led to the perception that arts participation is declining in the US (National Endowment for the Arts, 2013; Rabkin and Hedberg, 2012; Welch and Kim, 2010). However, when defined more broadly, including other types of arts activities, participation is not declining and the way in which people participate may instead be changing (Jackson et al., 2003; Stallings and Mauldin, 2016). There may be a growing gap between arts participation metrics and the ways in which people participate, and this could be affecting our understanding of the predictors of engagement (Novak-Leonard et al., 2015).

Therefore, to grow the current evidence base, we used a large nationally representative sample of adults in the US (the General Social Survey; GSS) to investigate predictors of different types of arts engagement. Specifically, we were interested in whether there are social inequalities in engagement in the arts, as found in other health-related behaviors. To do this, we tested which demographic, socioeconomic, residential, and health factors were associated with attendance at arts events, participation in arts activities, and membership of creative groups. Further, we examined whether engagement changed across time, from 1993 to 2016, and whether associations between demographic and socioeconomic factors and

engagement changed over these two decades. Finally, in order to differentiate between non-attendance due to a lack of interest versus non-attendance due to barriers or a lack of opportunities, we investigated whether similar factors were associated with being interested in, but not attending, arts events.

## Methods

### Sample

Participants were drawn from the General Social Survey (GSS); a repeated cross-sectional and rotating panel study of adults aged 18 and over in the US (Smith et al., 2019). Each survey year was an independently drawn sample of English-speaking individuals living in non-institutional arrangements. From 2006 onwards, Spanish-speakers were added to the target population. Full probability sampling was employed, and surveys sub-sampled non-respondents from 2004 onwards.

We used data from GSS waves at which arts outcomes were measured between 1993 and 2016. Each wave included a unique sample of individuals so we were able to combine data across waves. We used three indicators of arts engagement (arts events, arts activities, and creative groups), each measured in different waves of the GSS. Arts events were measured in 1993, 1998, 2002, 2010 and 2016, arts activities were measured in 1993, 1998, and 2002, and creative groups were measured in 1993, 1994, 2004, and 2010. We therefore identified three samples, one for each outcome. When combining samples across all relevant years, the total number of participants was 14,890, 7,203 and 12,311 for arts events, activities, and creative groups respectively. We then restricted the sample just to participants with complete data on arts variables, which produced a final sample size of 8,684 for arts events, 4,372 for arts activities, and 4,268 for creative groups (see Supplementary Table 1 for further details).

All participants gave informed consent and this study has Institutional Review Board approval from the University of Florida (IRB201901792) and ethical approval from University College London Research Ethics Committee (project 18839/001).

### Arts engagement outcomes

#### *Arts events*

Participants were asked whether they had attended arts events in the last 12 months, not including school performances. In 1993, attendance at three events was measured as the following: a) art museum or gallery, b) ballet or dance performance, and c) classical music or opera performance. In 1998 and 2002, two additional events were added to this list: d) popular music performance, and e) non-musical stage play performance. In 2012 and 2016, attendance at two types of event was measured; a) music, theatre, or dance performance, and b) art exhibit (including paintings, sculpture, textiles, graphic design, or photography). Due to these differences in measurement across years, we collapsed all responses into a

binary variable indicating attendance at any event in the last 12 months (0=none, 1=one or more). As this does not entirely account for the changes in question style, we tested whether the changing definition of arts events altered our findings in sensitivity analyses (outlined below). For full details of the questions asked in each wave, see Supplementary Table 2.

#### *Arts activities*

Participants self-reported whether they engaged in any kind of arts activity in the last 12 months, including: a) making art or craft objects, b) taking part in music, dance, or theatrical performance, and c) playing a musical instrument (Supplementary Table 2). This was coded as a binary variable (0=none, 1=one or more), and was measured consistently in 1993, 1998, and 2002.

#### *Creative groups*

Participants were asked about the groups or organizations of which they were a member in 1993, 1994, 2004, and 2010. The creative groups were hobby or garden clubs and literary, art, discussion, or study groups (Supplementary Table 2). A binary variable was created indicating membership in either of these group types (0=none, 1=one or more).

#### *Interested non-attendees*

In the 2012 and 2016 GSS, participants who responded to the arts event questions were also asked if there was an arts event during the last 12 months that they had wanted to go to but did not attend (0=no, 1=yes). In 2012, only participants who had not attended an event during the last 12 months were asked this question. In 2016, all participants who were asked about arts event attendance were also asked whether there was an event that they had wanted to go to but did not attend.

### **Exposures**

We examined whether a range of demographic, socioeconomic, residential, and health factors were associated with arts engagement. Demographics included age, sex (male/female), race/ethnicity (White/Black/Other) and marital status (married, separated/divorced/widowed, or never married). Socioeconomic factors included total number of years of education (0-20 years), parental years of education (highest reported maternal or paternal education; 0-20 years), employment status in the last week (employed, unemployed or not currently working, retired, keeping house, or other), total household income before taxes and from all sources in the last year (\$0 to \$9,999, \$10,000 to \$24,999, or \$25,000+), subjective satisfaction with financial situation (not satisfied at all, more or less satisfied, or pretty well satisfied), and a subjective rating of social class (lower class, working class, middle class, or upper class).

Residential factors included level of urbanicity (medium to large city with 50,000 people or more; suburb of a medium to large city; unincorporated area of a medium to large city; small

city, town or village of 2500 to 50,000 people; and smaller areas or open country), number of people living in the household (1 to 10), and whether there was an area within a mile of their home where they would be afraid to walk alone at night (yes vs no).

Finally, we included a general health rating (excellent, good, fair, or poor).

### **Statistical analyses**

We used logistic regression models to test cross-sectional associations between demographic, socioeconomic, residential, and health exposures and binary arts engagement outcomes. Where there was evidence of a non-linear association between age and arts engagement, we included a quadratic age term. As a number of similar exposures were included, multicollinearity was assessed to ensure that Variance Inflation Factors were less than 10 (Thompson et al., 2017). All analyses were weighted to account for the sub-sampling of non-respondents and the number of adults in the household using weights supplied by the GSS (Smith et al., 2019).

For participants with missing data on exposures, we imputed data using multiple imputation by chained equations (MICE; White et al., 2011). We used linear, logistic, ordinal, and multinomial regression and predictive mean matching according to variable type, generating 50 imputed data sets (maximum missing data ranged from 10% to 34% in each sample; Supplementary Table 3). The imputation model included all variables used in analyses, auxiliary variables, and the survey weights. Auxiliary variables were split ballot group, interviewer's rating of the respondent's attitude toward the interview and understanding of questions, respondent's rating of their family income (relative to other Americans), and geographic mobility since age 16. Imputations were performed separately according to survey year. For creative groups, several exposures (satisfaction with financial situation, general health rating, and feeling afraid in neighborhood) and an auxiliary variable (relative income) were missing for all participants in some years so were not included in the imputations or analyses. All other variables were successfully imputed. The results of analyses did not vary between complete cases and imputed data sets (Supplementary Tables 4-5), so findings from the imputed data are reported. All analyses were performed using Stata 16 (StataCorp, 2019).

### *Supplementary analyses*

We tested whether there was any evidence that associations between arts engagement outcomes and age, race, class, income, and sex differed over time. We included an interaction term between each exposure and survey year in separate logistic regression models. Where there was evidence for an interaction, we examined the association between the exposure and arts engagement separately in each survey year.

We also used logistic regression to test whether demographic, socioeconomic, residential, and health exposures were associated with being an "interested non-attendee". This was

defined as participants for whom there was an arts event during the last 12 months that they had wanted to go to but did not attend. This analysis included all participants in the 2012 and 2016 GSS who were asked this question ( $n=2,799$ ). Missing data on exposures were imputed using MICE. In 2016 (but not 2012), those who attended an arts event were asked if there was another event for which they were an interested non-attendee. We therefore performed a sensitivity analysis limiting this analysis to participants from 2012 and 2016 who did not attend any arts events (Supplementary Table 6).

Finally, in another sensitivity analysis, we tested whether the changing definition of arts event attendance altered our findings. In this analysis, we used the most homogenous measures of arts events, those included from 1998 to 2016. We therefore repeated the main analysis excluding participants from 1993 (which used a narrower definition of arts events) and examined whether similar factors were associated with arts event attendance in this subsample ( $n=7094$ ; Supplementary Table 7).

## Results

### Arts events

In total, 8,684 participants provided data on attendance at arts events, 53% of whom were female and 78% were White (Table 1). These participants ranged in age from 18 to 89 years, with a mean age of 46.6 ( $SD=17.0$ ). Overall, 56% had attended an arts event in the last 12 months, although this varied across years (1993: 48%, 1998: 62%, 2002: 66%, 2012: 46%, 2016: 50%).

In the logistic regression model, there was evidence for associations between several demographic factors and attending arts events (Table 2). Females had 22% higher odds of attendance than males (95%  $CI=1.09-1.37$ ). In comparison to White participants, Black participants had 35% lower odds (95%  $CI=0.54-0.77$ ) of attendance. Participants who had never been married had 1.29 times higher odds (95%  $CI=1.08-1.54$ ) of attendance than those who were married.

There was evidence that several socioeconomic factors were associated with attendance. Participants with a household income of \$25,000 and above had 1.65 times higher odds (95%  $CI=1.31-2.08$ ) of attendance than those with a household income of less than \$10,000. Subjective rating of social class was also associated with attendance, with higher classes associated with increasing odds. Each additional year of education was associated with 1.20 times higher odds (95%  $CI=1.17-1.23$ ) of attendance. Parental education was similarly associated with increased odds of attendance, although the estimated odds ratio was smaller ( $OR=1.06$ , 95%  $CI=1.04-1.08$ ).



There was evidence that only one residential factor was associated with attendance. Compared to those living in medium to large cities, the odds of attendance reduced with decreasing level of urbanicity. The odds of attendance were lowest in smaller areas or open country. Participants who rated their health as fair (OR=0.68, 95% CI=0.56-0.83) or poor (OR=0.47, 95% CI=0.33-0.66) were less likely to attend events than participants who rated their health as excellent.

Finally, the results suggested that event attendance varied across survey years, although there was no clear time trend. In comparison to 1993, the odds of attendance were higher in 1998 and 2002 but did not differ in 2012 or 2016. In a sensitivity analysis, limiting our sample to the most homogenous definitions of arts event attendance did not substantially alter our findings (Supplementary Table 7).

### **Arts activities**

Overall, 4,372 participants reported whether they had engaged in arts activities. These participants ranged in age from 18 to 89 years, with a mean age of 44.8 (SD=17.0). About 53% were female and 81% were White (Table 1). On average, 54% reported engaging in at least one arts activity in the last 12 months, and this was relatively stable across time (1993: 55%, 1998: 51%, 2002: 55%).

Fewer factors were associated with engagement in arts activities than with attendance at arts events (Table 2). Females had 1.71 times higher odds (95% CI=1.46-2.01) of engaging than males. Both Black (OR=0.49, 95% CI=0.39-0.61) and participants of Other races/ethnicities (OR=0.70, 95% CI=0.51-0.96) were less likely to report engaging than White participants. Those who were unemployed or not working had higher odds of engaging than those working (OR=1.46, 95% CI=1.08-1.98). As with attending arts events, increased years of education (OR=1.08, 95% CI=1.05-1.11) and parental education (OR=1.05, 95% CI=1.02-1.07) were both associated with higher odds of engaging in arts activities. There was no evidence that any other factors were associated with engagement.

### **Creative groups**

Membership of creative groups was reported by 4,268 participants, who were similar demographically to participants who reported other arts outcomes (Table 1). Membership in creative groups was lower than attendance at events or participation in activities. Overall, 19% of participants reported being a member of a creative group, and this may have decreased over time (1993: 20%, 1994: 16%, 2004: 18%, 2010: 17%).

Despite a lower proportion of participants being members of creative groups, membership was associated with similar factors to arts events and activities (Table 2). Females had 1.33 times higher odds (95% CI=1.08-1.64) of membership than males. Those who were never married had 1.57 times higher odds (95% CI=1.17-2.10) of membership than married

participants. In contrast to arts events and activities, the odds of membership increased with age (OR=1.01, 95% CI=1.00-1.02). There was also evidence that the odds of membership increased with more education (OR=1.15, 95% CI=1.10-1.20) and parental education (OR=1.04, 95% CI=1.01-1.08). Finally, there was evidence that membership decreased over time, with the odds decreasing by 35% (95% CI=0.51-0.83) from 1993 to 2010.

### **Supplementary analyses**

#### *Change across survey years*

We tested whether associations between arts engagement outcomes and age, sex, race, class, and income differed over time. There was no evidence for interactions between survey year and any exposures on participation in arts activities or membership of creative groups. There was also no evidence for interactions between survey year and age, class, or income on arts event attendance.

However, there was evidence for an interaction between survey year and sex on event attendance. There was no linear time trend, as females had higher odds of attendance than males in 1993 and 2002, but there was no evidence for sex differences in other survey years (Figure 1). There was also evidence for an interaction between survey year and race on event attendance. Black participants had lower odds of attending than White participants, and this difference increased over time (Figure 1).

#### *Interested non-attendees*

Overall, 2,799 participants reported whether there was an arts event that they had wanted to go to but did not attend, 35% of whom were interested non-attendees. In 2012, 28% of participants who had not attended an arts event in the last year were interested non-attendees. In 2016, 42% of participants were interested non-attendees, regardless of whether they had attended an arts event.

Participants who had attended an arts event had 2.32 times higher odds (95% CI=1.71-3.13) of being an interested non-attendee than those who had not (Table 3). As with attendance at arts events, there was evidence that being an interested non-attendee was associated with race, marital status, and household income. Other ethnicities had lower odds of being an interested non-attendee than White participants (OR=0.55, 95% CI=0.37-0.82), and participants who were never married had higher odds of being an interested non-attendee than married participants (OR=1.41, 95% CI=1.02-1.96). The odds of being an interested non-attendee increased with income, with the highest odds in those with a household income of \$25,000 or more. However, those who were more or less satisfied with their financial situation had lower odds than those who were not satisfied at all (OR=0.69, 95% CI=0.54-0.88). Finally, as with event attendance, the odds of interested non-attendance increased with participants' level of education (OR=1.09, 95% CI=1.04-1.14). In contrast to event attendance,

there was no evidence that being an interested non-attendee was associated with gender, social class, parental education, general health rating, or level of urbanicity.

We then limited this analysis to only participants who had not attended an arts event in the last year, 29% of whom were interested non-attendees. This did not substantially alter our findings (Supplementary Table 6).

## Discussion

In this study, we examined whether there are social inequalities in engagement in the arts, as found in other health-related behaviors (Harper and Lynch, 2007; Scholes and Bann, 2018; Stringhini et al., 2010). Our findings provide novel insights into the rates of arts engagement in the US, predictors of this engagement, how predictors of engagement have varied in the past two decades, and whose engagement has been limited by structural and other barriers. Some of our findings are consistent with previous research and reports demonstrating that a number of demographic and socioeconomic factors are associated with engagement in the arts (Stallings and Mauldin, 2016). Our findings further advance previous research by taking into account the relationships among factors associated with arts engagement and by using a broader definition of arts to more accurately reflect the breadth of engagement in the US.

Between 1993 and 2016, approximately half of our sample reported attending arts events, and a similar proportion engaged in arts activities. Another one third of participants since 2012 were interested non-attendees, who had been interested in attending an event in the last year but had not gone to it. Fewer participants were members of creative groups, with approximately one fifth reporting group membership. This finding is novel as previous studies have not generally examined the prevalence of creative group participation in comparison to other forms of engagement.

Several demographic factors were consistently associated with engagement in the arts. For example, participation was higher in females than males, consistent with previous evidence (Christin, 2012; DiMaggio, 2004; Schmutz et al., 2016). Similarly, our results replicated findings that married individuals were less likely to engage than those who had never married (Lewis and Seaman, 2004; Montgomery and Robinson, 2010; Peterson et al., 2000). Engagement in arts events and activities also differed according to race/ethnicity, although group membership did not. Race/ethnicity was more strongly associated with participation in arts activities than events, as shown previously (Welch and Kim, 2010). This association was independent of socioeconomic factors, so is unlikely to be explained by over-representation of ethnic minorities in lower socioeconomic status groups (Semega et al., 2020). A report that also used GSS data found that lower engagement in arts events by racial/ethnic minorities may be a result of barriers such as being unable to get to the venue and not having anyone to go with (Blume-Kohout et al., 2015). These individuals were also more likely to state

celebrating their cultural heritage as a reason for attending events than White participants (Blume-Kohout et al., 2015; Dwyer et al., 2020). A lack of cultural equity, cultural relevance and inequalities in access are therefore likely to contribute to the racial/ethnic differences in engagement.

Different socioeconomic factors showed mixed associations with the three types of arts engagement. Higher levels of education was consistently associated with increased engagement. These findings support previous evidence that education is most strongly associated with engagement in the arts (Blume-Kohout et al., 2015; National Endowment for the Arts, 2019; Ostrower, 2005; Peterson et al., 2000; Robinson, 1993; Seaman, 2006; Stallings and Mauldin, 2016; Welch and Kim, 2010). Education may increase participation by helping to cultivate cultural tastes and preferences, raising awareness of activities, and increasing cognitive capacity to engage (Bourdieu, 1986). Arts education specifically may also contribute to this association, as it is strongly associated with both level of education and arts engagement (Borgonovi, 2004; Elpus, 2018; Novak-Leonard et al., 2014; Ostrower, 2005; Rabkin and Hedberg, 2012). We found a similar association with parental education, independent of the individual's own education, although the magnitude of association was smaller. This indicates that childhood socioeconomic status continues to influence engagement in the arts throughout the lifecourse. Children of parents with more education may benefit from increased access to the arts during development and may be more likely to receive arts education in childhood (e.g. learning to play an instrument; Rabkin and Hedberg, 2012). These individuals may therefore have more training and experience, enabling them to participate in more highly skilled arts activities (e.g. orchestras).

Consistent with previous evidence for a social gradient in arts participation, we found that attendance at arts events decreased with lower income and social class, poorer health, and less urban areas. As being an interested non-attendeer was not associated with most of these factors, they are likely to be barriers specifically to attendance. Individuals across the range of social classes, health, and levels of urbanicity were interested in attending events at similar rates, but actual attendance differed according to these factors. There was also evidence that those who were not satisfied with their financial situation were more likely to be interested non-attendeers. Financial situation was not associated with any of the measures of actual engagement and could indicate a group who are interested in engaging the arts, but do not feel financially able to do so. However, individuals with the highest income were more likely to be interested non-attendeers, and interest increased with education, indicating that there was still a social gradient in interest in arts events. In previous reports, individuals with lower household income and social class were more likely to report barriers to attending events of cost and difficulty of getting to a venue, as well as a lack of time (Blume-Kohout et al., 2015; Dwyer et al., 2020). Other research has demonstrated that individuals with poorer physical health may experience more barriers affecting their perceived capabilities to engage (Fancourt and Mak, 2020). Areas that are more urban, such as cities, are likely to have a larger

range of arts events on offer, including at a variety of times and costs as well as appealing to a broader audience, and events may be more geographically dispersed or easier to attend using public transport. In contrast to arts events, we found no evidence that race/ethnicity, income, social class, health, or urbanicity were associated with participation in arts activities and groups. These types of engagement may be more widely available, include more diverse activities, be cheaper to participate in, and often do not require attendance at a specific venue, which may be hard to reach or not generally attended by certain groups.

This study also investigated changing patterns in arts engagement. There has been concern that arts participation is decreasing in the US (National Endowment for the Arts, 2013; Rabkin and Hedberg, 2012; Welch and Kim, 2010). We found some evidence that event attendance changed over time, but this was likely a result of changes in the measure of event attendance, as there was no linear trend. In contrast, group membership decreased over time. Additionally, the racial disparity in event attendance, with fewer participants of racial/ethnic minorities attending events than White participants, increased from 1993 to 2016. These increasing racial/ethnic inequalities in arts event attendance were independent of other socioeconomic factors such as income and education. However, given the nature of structural racism, this finding should be interpreted cautiously and requires replication in studies with consistent measures of arts engagement.

Our findings have implications for understanding health and social inequalities in the US. A number of the factors that we have identified as associated with arts engagement are also associated with inequalities in access to health care and health outcomes (Mays et al., 2007; Nguyen et al., 2014; Singh, 2003; Williams et al., 2016). This could be because arts engagement is a correlate of health, with both representing a form of capital that can be obtained by individuals with more material resources, such as income, and non-material resources, such as social support (Bourdieu, 1986). Consistent with this, we found evidence that poorer self-reported health was associated with lower attendance at arts events, although it was not associated with interest in attending events or participation in arts activities. Arts engagement could also represent a health behaviour that leads to improved health outcomes. There is growing evidence that engagement with the arts can lead to a range of health benefits, independent of demographic and socioeconomic factors (Fancourt and Finn, 2019; Fancourt and Steptoe, 2019). It is thus concerning that we have found evidence for differential participation in the arts. Future research should further explore why engagement is lower in these groups, in particular males, ethnic minorities, and those with lower education and lower parental education. This could then support the development of interventions to promote engagement in the arts, and test whether this leads to improvements in health outcomes.

This study has a number of strengths. The GSS was a large nationally representative sample and we included several measures of arts engagement. We tested a range of factors that may

be associated with arts engagement, and mutually adjusted for these variables in our models. Using multiple imputation means that missing data should not have influenced our findings. However, this study also has a number of limitations. We tested cross-sectional associations and thus cannot rule out the possibility of inverse causality. There are some factors, such as health, which may have a bidirectional association with arts engagement. Additionally, the GSS did not measure attendance at arts events consistently across waves, which is likely to explain the association we found between event attendance and survey year. A broader definition of arts events was used in later years. However, when limiting our analyses just to this broader definition, our findings were consistent. Although our measures of arts engagement were more inclusive than in many previous studies, they were likely still too narrow. Standard arts engagement questions are not able to capture arts engagement in some immigrant communities (Novak-Leonard et al., 2015), and also typically do not cover engagement in digital or electronic arts activities such as graphic design, photography, film-making, and music production. This could have contributed to our findings of lower arts engagement in participants who were not White and under-represented arts engagement amongst younger generations. Future research should aim to measure diverse aspects of arts engagement, particularly as the US moves towards a majority-minority society, in which the non-Hispanic white population will no longer form the majority of the US population (U.S. Census Bureau, 2018).

Given the potential importance of engagement in the arts for health and wellbeing (Fancourt and Finn, 2019), Americans should be provided with equal opportunities to participate. Our findings indicate that social determinants may influence engagement in the arts throughout the life course. Encouraging arts activities and creative group membership may provide one way of widening participation and reducing social inequalities in arts engagement. It will also be important to recognize that lack of participation may not merely be due to a lack of interest or motivation but may be influenced by structural barriers, such as racism, or a lack of opportunities. Indeed, the nature of many arts activities that take place in well defined arts spaces are rooted in white supremacy, creating a foundational barrier for Black, Indigenous and other people of color (BIPOC) groups. Future research is needed to identify what these are and how they can be removed. This is particularly important in the wake of COVID-19, given the closure of many arts venues and the disproportionate effect on BIPOC individuals and those of lower socioeconomic status (Bowleg, 2020; Brown and Ravallion, 2020; Dorn et al., 2020; Egede and Walker, 2020).

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### **Declaration of interest**

All authors report no conflicts of interest.

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### **Author contributions**

JKB, FB, and DF designed the study. JKB conducted the analysis and drafted the manuscript. JKB, FB, MF, EP, JKS, and DF contributed to the writing, made critical revisions, and approved the final manuscript.

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**Table 1** Demographic characteristics of the samples, with data combined across all included survey years.

	Events n=8684	Activities n=4372	Groups n=4268
	<b>Percentage</b>		
Female	53%	53%	56%
Race/ethnicity			
White	78%	81%	81%
Black	14%	12%	12%
Other	8%	7%	7%
Marital status			
Married	55%	56%	60%
Separated/divorced/widowed	21%	21%	20%
Never married	24%	23%	20%
Work status			
Employed	63%	65%	62%
Unemployed/not working	6%	5%	6%
Retired	15%	13%	14%
Keeping house	10%	11%	12%
Other	6%	6%	6%
Household income			
\$0 to \$9999	9%	11%	10%
\$10,000 to \$24,999	20%	23%	18%
\$25,000 and up	71%	66%	72%
Satisfaction with financial situation			
Pretty well satisfied	28%	27%	-
More or less satisfied	44%	44%	-
Not satisfied at all	28%	29%	-
Social class			
Lower class	7%	5%	6%
Working class	46%	45%	43%
Middle class	44%	46%	48%
Upper class	3%	4%	3%
General health rating			
Excellent	28%	31%	-
Good	47%	48%	-
Fair	19%	16%	-
Poor	6%	5%	-
Level of urbanicity			
Med-large city (50,000+)	31%	31%	29%
Suburb	35%	36%	33%
Unincorporated area	13%	9%	15%
Small city or town	11%	14%	11%
Smaller areas or country	10%	10%	12%
Feels afraid in neighborhood	34%	38%	-
	<b>Mean (SE)</b>		
Age	46.61 (0.23)	44.80 (0.33)	45.92 (0.34)
Years of education	13.44 (0.05)	13.20 (0.07)	13.55 (0.06)
Parental years of education	12.07 (0.06)	11.85 (0.08)	12.11 (0.09)
Household size	2.85 (0.02)	2.84 (0.03)	2.88 (0.03)

*Note.* Results based on 50 multiply imputed data sets. Events includes participants from survey years 1993, 1998, 2002, 2012, and 2016. Activities includes participants from 1993, 1998, and 2002. Groups includes participants from 1993, 1994, 2004, and 2010. SE = standard error.

**Table 2** Logistic regression models testing associations between demographic, socioeconomic, residential, and health exposures and the odds of three types of arts engagement.

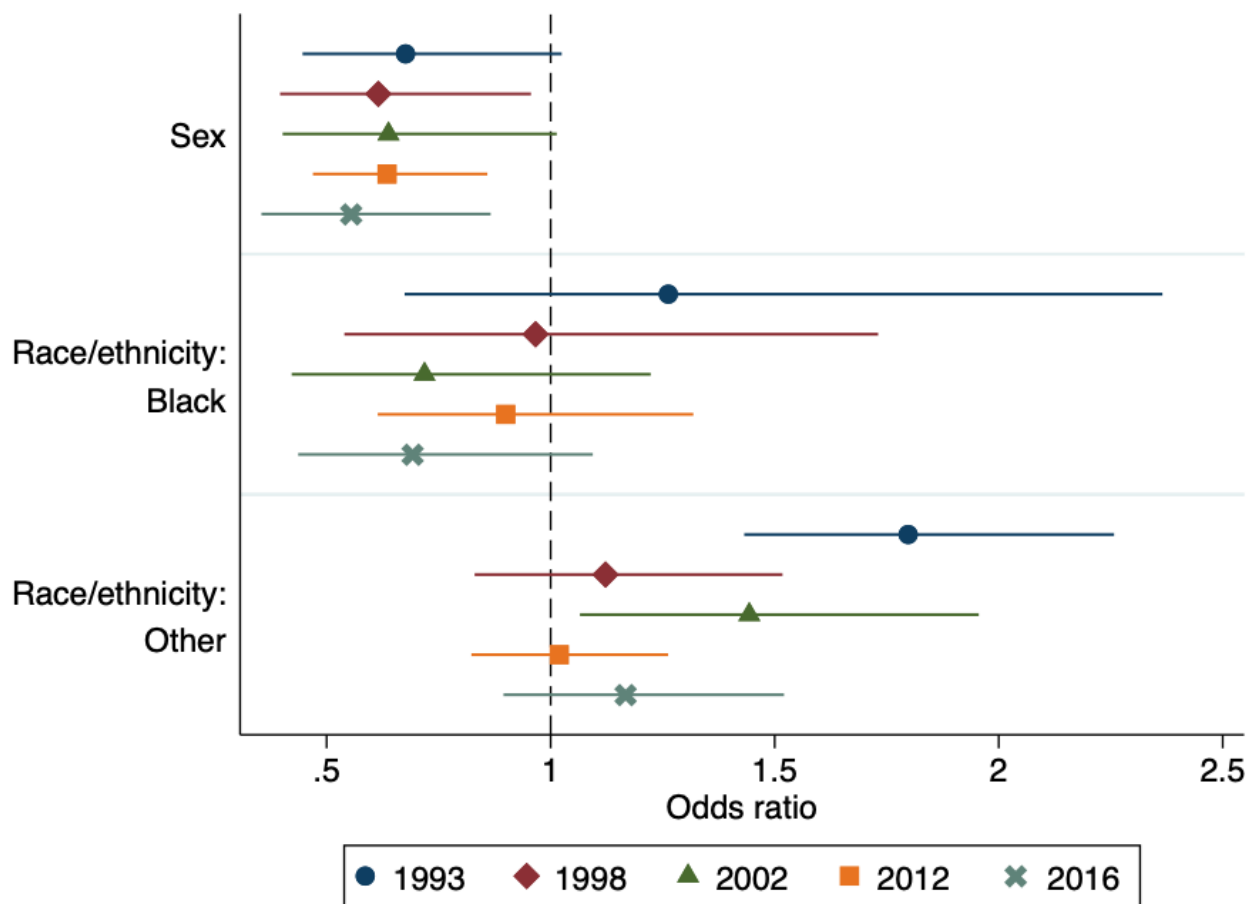
	Model 1: Events n=8684			Model 2: Activities n=4372			Model 3: Groups n=4268		
	OR	95% CI	p	OR	95% CI	p	OR	95% CI	p
Age	1.01	0.99-1.04	0.288	1.00	0.98-1.03	0.758	<b>1.01</b>	<b>1.00-1.02</b>	<b>0.006</b>
Age (quadratic)	1.00	1.00-1.00	0.116	1.00	1.00-1.00	0.182	-	-	-
Female	<b>1.22</b>	<b>1.08-1.36</b>	<b>0.001</b>	<b>1.71</b>	<b>1.46-2.01</b>	<b>&lt;0.001</b>	<b>1.33</b>	<b>1.08-1.64</b>	<b>0.008</b>
Race/ethnicity									
White	1			1			1		
Black	<b>0.65</b>	<b>0.54-0.77</b>	<b>&lt;0.001</b>	<b>0.49</b>	<b>0.39-0.61</b>	<b>&lt;0.001</b>	0.93	0.66-1.33	0.706
Other	0.89	0.71-1.11	0.288	<b>0.70</b>	<b>0.51-0.96</b>	<b>0.026</b>	1.12	0.74-1.69	0.596
Marital status									
Married	1			1			1		
Separated	1.09	0.94-1.26	0.236	0.93	0.77-1.11	0.409	0.91	0.68-1.21	0.515
Never married	<b>1.29</b>	<b>1.08-1.54</b>	<b>0.005</b>	1.03	0.81-1.30	0.832	<b>1.58</b>	<b>1.17-2.11</b>	<b>0.002</b>
Work status									
Employed	1			1			1		
Unemployed	0.91	0.71-1.16	0.442	<b>1.46</b>	<b>1.07-1.98</b>	<b>0.016</b>	0.78	0.50-1.22	0.283
Retired	1.07	0.87-1.33	0.520	1.12	0.85-1.48	0.427	1.25	0.85-1.85	0.250
Keeping house	<b>0.79</b>	<b>0.65-0.97</b>	<b>0.023</b>	1.16	0.90-1.49	0.266	1.37	0.95-1.99	0.093
Other	1.04	0.80-1.36	0.744	1.36	0.97-1.91	0.073	1.10	0.71-1.71	0.656
Household income									
\$0-\$9999	1			1			1		
\$10,000-\$24,999	1.09	0.87-1.36	0.466	0.92	0.69-1.22	0.542	0.94	0.58-1.52	0.805
\$25,000 and up	<b>1.66</b>	<b>1.32-2.08</b>	<b>&lt;0.001</b>	0.99	0.74-1.32	0.939	1.35	0.82-2.25	0.240
Satisfaction with financial situation									
Not satisfied at all	1			1			-	-	-
More or less satisfied	0.96	0.84-1.11	0.616	0.99	0.82-1.19	0.909	-	-	-
Pretty well satisfied	1.13	0.96-1.33	0.146	0.97	0.79-1.20	0.808	-	-	-
Social class									
Lower class	1			1			1		
Working class	1.19	0.93-1.52	0.165	1.19	0.85-1.66	0.321	1.25	0.65-2.40	0.512
Middle class	<b>1.63</b>	<b>1.25-2.12</b>	<b>&lt;0.001</b>	1.00	0.71-1.41	0.984	1.39	0.73-2.65	0.320
Upper class	<b>1.86</b>	<b>1.22-2.83</b>	<b>0.004</b>	0.87	0.53-1.40	0.560	1.71	0.79-3.70	0.174
Years of education	<b>1.20</b>	<b>1.17-1.23</b>	<b>&lt;0.001</b>	<b>1.08</b>	<b>1.05-1.11</b>	<b>&lt;0.001</b>	<b>1.15</b>	<b>1.10-1.20</b>	<b>&lt;0.001</b>
Parental years of education	<b>1.06</b>	<b>1.04-1.08</b>	<b>&lt;0.001</b>	<b>1.05</b>	<b>1.02-1.07</b>	<b>&lt;0.001</b>	<b>1.04</b>	<b>1.01-1.08</b>	<b>0.017</b>
General health rating									
Excellent	1			1			-	-	-
Good	0.87	0.74-1.02	0.094	0.96	0.80-1.16	0.694	-	-	-
Fair	<b>0.70</b>	<b>0.58-0.84</b>	<b>&lt;0.001</b>	0.96	0.74-1.25	0.748	-	-	-
Poor	<b>0.48</b>	<b>0.34-0.67</b>	<b>&lt;0.001</b>	0.95	0.66-1.38	0.800	-	-	-
Level of urbanicity									
Med-large city	1			1			1		
Suburb	0.95	0.82-1.11	0.518	1.17	0.97-1.40	0.094	1.06	0.82-1.38	0.665
Unincorporated area	0.82	0.67-1.00	0.051	0.95	0.74-1.23	0.699	1.22	0.89-1.67	0.224
Small city or town	<b>0.68</b>	<b>0.57-0.82</b>	<b>&lt;0.001</b>	1.08	0.84-1.40	0.540	1.20	0.88-1.64	0.250
Smaller areas or country	<b>0.57</b>	<b>0.47-0.69</b>	<b>&lt;0.001</b>	0.98	0.75-1.29	0.909	0.95	0.63-1.43	0.814
Household size	0.96	0.92-1.01	0.122	1.01	0.95-1.08	0.695	0.99	0.91-1.08	0.794
Feels afraid in neighborhood	1.07	0.92-1.26	0.386	0.97	0.80-1.17	0.725	-	-	-
Survey year									
1	1			1			1		
2	<b>1.92</b>	<b>1.61-2.29</b>	<b>&lt;0.001</b>	0.89	0.74-1.06	0.178	0.73	0.52-1.03	0.072
3	<b>2.23</b>	<b>1.85-2.69</b>	<b>&lt;0.001</b>	1.04	0.87-1.25	0.654	<b>0.74</b>	<b>0.57-0.96</b>	<b>0.023</b>
4	1.16	0.98-1.36	0.088	-	-	-	<b>0.65</b>	<b>0.51-0.82</b>	<b>&lt;0.001</b>
5	0.98	0.81-1.18	0.820	-	-	-	-	-	-

Note. Survey year refers to different years for each arts outcome; for events 1= 1993, 2=1998, 3=2002, 4=2012, 5=2016; for activities 1= 1993, 2=1998, 3=2002; and for groups 1= 1993, 2=1994, 3=2004, 4=2010. For odds ratios, 1 indicates the reference category.

**Table 3** Logistic regression models testing associations between demographic, socioeconomic, residential, and health exposures and the odds of being an interested non-attende.

	Mean (SE) / %	OR	95% CI	p
Age	48.62 (0.43)	0.99	0.96-1.03	0.711
Age (quadratic)	-	1.00	1.00-1.00	0.723
Female	53%	1.12	0.90-1.41	0.317
Race/ethnicity				
White	73%	1		
Black	18%	0.91	0.62-1.33	0.619
Other	9%	<b>0.55</b>	<b>0.37-0.82</b>	<b>0.003</b>
Marital status				
Married	51%	1		
Separated	23%	1.15	0.86-1.54	0.355
Never married	25%	<b>1.41</b>	<b>1.02-1.96</b>	<b>0.040</b>
Work status				
Employed	59%	1		
Unemployed	7%	1.32	0.87-2.01	0.195
Retired	17%	0.85	0.57-1.27	0.427
Keeping house	11%	0.94	0.65-1.38	0.756
Other	6%	0.86	0.55-1.33	0.483
Household income				
\$0-\$9999	9%	1		
\$10,000-\$24,999	21%	1.59	0.94-2.70	0.086
\$25,000 and up	70%	<b>1.70</b>	<b>1.06-2.72</b>	<b>0.028</b>
Satisfaction with financial situation				
Not satisfied at all	31%	1		
More or less satisfied	43%	<b>0.69</b>	<b>0.54-0.88</b>	<b>0.004</b>
Pretty well satisfied	26%	0.74	0.54-1.02	0.063
Social class				
Lower class	11%	1		
Working class	51%	0.93	0.62-1.38	0.713
Middle class	36%	0.68	0.44-1.05	0.083
Upper class	2%	0.54	0.24-1.18	0.123
Years of education	13.18 (0.10)	<b>1.09</b>	<b>1.04-1.14</b>	<b>&lt;0.001</b>
Parental years of education	11.90 (0.12)	1.03	0.99-1.07	0.141
General health rating				
Excellent	23%	1		
Good	44%	1.11	0.80-1.53	0.540
Fair	25%	1.36	0.93-1.99	0.113
Poor	8%	1.54	0.88-2.70	0.130
Level of urbanicity				
Med-large city	31%	1		
Suburb	32%	1.05	0.79-1.41	0.722
Unincorporated area	18%	1.11	0.76-1.63	0.572
Small city or town	8%	1.17	0.77-1.78	0.451
Smaller areas or country	11%	0.71	0.47-1.08	0.110
Household size	2.87 (0.05)	0.97	0.89-1.06	0.543
Feels afraid in neighborhood	31%	1.15	0.88-1.50	0.314
Survey year	52%	1.05	0.80-1.39	0.719
Attended an arts event	35%	<b>2.32</b>	<b>1.71-3.13</b>	<b>&lt;0.001</b>

Note. Survey year is 2016 compared to 2012. For odds ratios, 1 indicates the reference category. N=2799.



*Figure 1.* Results of subgroup analyses, with logistic regression models testing associations between exposures and the odds of attending arts events separately in each survey year (1993 n=1590, 1998 n=1432, 2002 n=1355, 2012 n=2838, 2016 n=1469). Odds ratios and 95% confidence intervals are displayed. For associations between sex and arts events, the odds ratio represents attendance in females compared to males. For associations between race and arts events, White is the reference category. Associations were estimated in the full logistic regression models (including all exposures as shown in Table 2), but only results for sex and race are presented.