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RESEARCH PAPER

Sociodemographic Disparities in Positive Life Experiences

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Abstract
Individuals' daily positive life experiences, from having a good conversation to taking a relaxing bath, may be thought of as mundane, but when added together they may be key contributors to making life meaningful and enjoyable. Some individuals, however, may have more frequent access to positive life experiences or may be able to enjoy them more. We used data from the Midlife Development in the US Study to examine disparities in overall frequency and enjoyment of positive life experiences across socioeconomic status (SES), race, and sexual orientation (with consideration of gender and age), as well as whether positive experiences may mediate associations between sociodemographic characteristics and psychological health and well-being (life satisfaction, positive affect, depressive and anxiety symptomatology), as measured concurrently with positive experiences (Study 1; N = 2,118). We then extended these analyses to 3 indicators of well-being (positive and negative affect, life satisfaction) measured 7 years later (Study 2; N = 1,182). We found that people of lower SES, Black people, other people of color, and gay/bisexual people had a lower frequency of positive experiences. Similar patterns were seen for enjoyment, but with smaller effect sizes. Racial associations with positive experiences were attenuated after adjustment for SES. In mediation analyses, positive experiences mediated associations between greater SES and better psychological health and well-being. Positive experiences also appeared to play a role in the lower life satisfaction observed in gay/bisexual participants. Potential disparities in accessing and engaging in positive life experiences, and the role of such disparities in well-being, warrant further study.

Keywords Positive life experiences · Disparities · Socioeconomic status · Psychological well-being · Race · Sexual orientation

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1 Introduction

The daily pleasant experiences that individuals have in life—from smiling at someone, to having a good conversation, to spending time with loved ones, to taking a relaxing bath—may be thought of as mundane, but when added together these simple *positive life experiences* may be key contributors to making life meaningful and enjoyable. They may therefore have an impact on an individual's sense of well-being, including their affective state, mental health, and satisfaction with life. If some individuals have more frequent access to positive life experiences or are able to derive more enjoyment from them, such disparities in everyday experiences could partially account for known disparities in psychological well-being. In the current research, we build on work by Podber and Gruenewald (2023) that identified a link between socioeconomic status and frequency of positive experiences by examining sociodemographic disparities in frequency and enjoyment of a wide range of positive life experiences across major social strata (socioeconomic status, race, and sexual orientation, with consideration of gender and age as well). We then examine whether positive life experiences may be a pathway that underlies associations between sociodemographic characteristics and multiple forms of psychological health and well-being, including positive and negative affect, depression, anxiety, and life satisfaction.

1.1 Positive Experiences and Psychological Well-Being

Positive life experiences are occurrences and behaviors that hold the potential for reward and enjoyment. These include experiences of leisure, entertainment, nature, and relaxation, social and intimate interactions, experiences of competence, autonomy (Deci & Ryan, 1985, 2000), generativity (Erikson, 1950, 1997), and thinking positively about others or the future. Although researchers sometimes examine specific domains of positive experiences (e.g., leisure, nature) in relation to psychological health and well-being, a growing literature attempts to understand how psychological health and well-being might be linked to characteristics of these experiences in aggregate, such as the frequency, type, and experienced enjoyment associated with a range of everyday positive experiences.

Much of this empirical work has utilized the Pleasant Events Schedule (PES; MacPhillamy & Lewinsohn, 1982), which assesses both the frequency and associated enjoyment of a large number (over 300 in the original measure) of positive life experiences over the past month. Modified versions of the PES have been developed to examine smaller subsets of items (MacPhillamy & Lewinsohn, 1982), for use in different geographical contexts (Ferreira et al., 2015; Márquez-González et al., 2014), and for use with different age and cognitive ability groups (Logsdon & Teri, 1997; Rider et al., 2016). Greater frequency and enjoyment of positive experiences, as assessed with modified versions of the PES, have been linked to higher life satisfaction and positive affect and lower depressive symptomatology, anxiety, and negative affect (Bouman & Luteijn, 1986; Ferreira & Barham, 2018; Ferreira & Suzuki, 2022). These studies suggest that greater aggregate experience of everyday positive experiences and the joy that may flow from them is linked to better psychological health.

1.2 Positive Life Experiences and Sociodemographic Characteristics

Although positive experiences may be desired ends in their own right, in addition to their possible links to increased psychological health, these indicators of the "good life" may

not be equally experienced by all. Just as life's ills are often experienced with greater frequency in disadvantaged and marginalized sociodemographic groups (Baum et al., 1999), sociodemographic variations may also exist in the frequency or experienced pleasure of life's positive experiences. To date, however, the evidence remains limited and mixed with regard to sociodemographic disparities in positive experiences.

Socioeconomic conditions may shape the frequency of positive experiences. Ferreira and Barham (2018) found a lower frequency of positive experiences among less advantaged Brazilian older adults, but Marquez-Gonzalez et al. (2014) found no variations in the frequency or enjoyment of positive life experiences by education or socioeconomic status in older Spanish adults. An investigation using a 10-item measure of leisure engagement, the Pittsburgh Enjoyable Activities Test (PEAT; Pressman et al., 2009), found that leisure engagement was more frequent in those with higher income and education. In an analysis of disparities in consumption and leisure time in the U.S. from 1980 to 2010, Attanasio et al. (2014) found that higher-educated households spent more money on leisure compared to lower-educated households, and that this inequality increased over time. They also found, however, that higher-educated households spent less time engaged in weekly leisure activity compared to lower-educated households, and that this disparity also increased over time. Thus, the evidence to date is mixed with regard to socioeconomic variations in positive experience frequency. Given the pervasive disparities in health and mortality observed in the U.S. by socioeconomic status (Bosworth, 2018; Kim et al., 2023) and indications that lower positive experience frequency may be one pathway to the poorer physiological health observed in those of lower socioeconomic status (Gruenewald et al., 2012; Podber & Gruenewald, 2023), a better understanding of socioeconomic variation in positive experience frequency and associated enjoyment is warranted.

Positive experiences may also vary by other sociodemographic factors. In the U.S., race and ethnicity are intertwined with socioeconomic status, which may cause racial disparities in positive experiences. For example, Black and Hispanic households earn half as much money as White households, on average, and own 15–20% as much wealth (Aladangady & Forde, 2021), which may impact access to some types of positive experiences. There may also be racial differences in patterns of frequency or enjoyment of many leisure activities due to the possibility of experiencing racial stigma or racial profiling (e.g., while shopping or playing sports outdoors; see Pittman, 2020; Pinckney et al., 2018). An investigation using the previously mentioned PEAT scale found that leisure engagement was more frequent in White people compared to non-White people (Pressman et al., 2009).

It is possible that issues of homophobia and associated concerns with safety or comfort, as well as decreased social/family support (Barry et al., 2022; Menzel et al., 2019; Puckett et al., 2015), may lead to both reduced opportunities to engage in some positive experiences and reduced enjoyment of some positive experiences in sexual minority populations. To our knowledge, little prior research has directly examined race and sexual orientation variations in positive experience frequency and associated enjoyment.

Positive experiences may also differ by other sociodemographic factors, such as age and gender. An early study found that frequency, but not enjoyment, of positive events decreased with age (Lewinsohn & MacPhillamy, 1974). Although older adulthood is associated with changes in health and functional status that may limit leisure engagement, having fewer restrictions on time, as is often the case after retirement, has been linked to increased leisure engagement (Tunney et al., 2023). Studies of older adults indicate that women report a higher frequency of positive experiences than men (Ferreira & Barham, 2018; Márquez-González et al., 2014). To date, however, an investigation of potential age and gender variations in the frequency and associated enjoyment of positive experiences

has not been conducted in a large sample that includes participants across the adult life span. Thus, our examination of sociodemographic disparities by SES, race, and sexual orientation will also assess and account for potential variations by age and gender.

1.3 Do Positive Life Experiences Play a Role in Sociodemographic Variations in Psychological Well-Being?

Potential sociodemographic variations in positive experiences may also be linked to sociodemographic disparities in key forms of psychological well-being, including affective well-being (positive and negative affect, depression, anxiety) and life satisfaction. Lower levels of socioeconomic advantage are associated with worse psychological well-being, including lower life satisfaction (Barger et al., 2009), lower positive affect (Gallo et al., 2005), greater depressive symptoms (Hoebel et al., 2017), and higher rates of anxiety disorders (Regier et al., 1993). Racial differences in life satisfaction have been identified, in which Black and Latinx individuals have lower levels of life satisfaction than White people, but these differences may be attenuated after controlling for socioeconomic status (Barger et al., 2009). On the other hand, Black people have been found to have higher levels of positive affect (Boehm et al., 2015) and a lower prevalence of major depressive disorder (Riolo et al., 2005) than White people. Lesbian, gay, and bisexual people have been found to have lower levels of life satisfaction (Powdthavee & Wooden, 2015) and positive affect (Christie, 2021), as well as a higher prevalence of depression and anxiety disorders (Bostwick et al., 2010), than straight people.

Given the previously reviewed evidence of associations between positive life experiences and psychological health and well-being together with the evidence suggesting there may be sociodemographic variations in positive experiences, it is plausible that frequency of positive experiences and level of enjoyment derived from them could play a role in sociodemographic variations in psychological well-being.

1.4 The Current Research

The current research uses data from the Midlife Development in the United States (MIDUS) Study (http://midus.wisc.edu) to examine evidence for sociodemographic variations in overall frequency and enjoyment of positive experiences and whether these variations might mediate sociodemographic variations in psychological well-being. In Study 1, we examine whether there are sociodemographic disparities in frequency and enjoyment of positive life experiences. Specifically, we examine whether people of lower SES have lower frequency and enjoyment of positive experiences than people of higher SES, whether Black people and other people of color have lower frequency and enjoyment of positive experiences than White people, and whether gay or bisexual people have lower frequency and enjoyment of positive experiences than straight people. In line with the work of other researchers who examine risk and resilience factors in marginalized and underserved groups (e.g., Crabtree et al., 2023), observed disparities in levels of positive experiences, psychological health, and well-being are understood to be related to people's experiences with systems of marginalization and privilege (e.g., poverty vs. wealth, racism, homophobia) and not to their identities themselves.

In Study 1 we also assess whether positive experiences are a pathway that mediates associations between sociodemographic characteristics (SES, race, and sexual orientation) and multiple indicators of psychological health and well-being (life satisfaction, positive

affect, depressive symptomatology, anxiety symptomatology), as measured at the same time as positive experiences. In Study 2, we examine whether these associations persist when psychological well-being is assessed years in the future (positive and negative affect and life satisfaction measured an average of 7 years later). To our knowledge, these studies are the first to examine potential sociodemographic variations in a comprehensively-assessed measure of the frequency of and derived enjoyment from everyday positive life experiences, as well as the potential mediating role of frequency and enjoyment of these experiences in sociodemographic variations in concurrent and future psychological well-being.

2 General Methods

The data in the current research are from the Midlife Development in the U.S. (MIDUS) Study (http://midus.wisc.edu) and are available at the Inter-university Consortium of Political and Social Research (https://www.icpsr.umich.edu/web/pages/NACDA/midus.html). The MIDUS Study was approved by the University of Wisconsin-Madison, Georgetown University, and University of California, Los Angeles Institutional Review Boards. The current research uses de-identified data and was determined to be exempt from human subjects IRB review.

2.1 Data and Participants

The MIDUS Study is an ongoing, longitudinal study designed to assess relationships between behavioral, social, and psychological factors and health and well-being over the life course in a national sample of Americans. There have been 3 main waves of survey data collection from the original MIDUS cohort (M1, M2, and M3) and 1 main survey wave from a MIDUS Refresher cohort (MR), which was recruited to replenish the original sample. A subsample of participants in both cohorts took part in either the M2 (assessed between the main M2 and M3 waves) or MR (assessed after the main MR wave) MIDUS Biomarker Project, in which comprehensive biological assessments, medical histories, and an additional self-administered questionnaire were collected during an overnight visit to a general clinical research center. The analytic samples used in the current studies include only participants who took part in the Biomarker Project substudies.

In the original MIDUS cohort, data collection included a national random-digit-dialing (RDD) probability sample, siblings of participants from the RDD sample, 5 metropolitan-area oversamples, a national sample of twins, and starting with M2, an additional oversample of African American participants from Milwaukee, WI. Sampling in the MR cohort included a national RDD sample and a new oversample of African American participants from Milwaukee, WI.

Figures 1 and 2 show participant flowcharts for both analytic samples in the current research, including details on sample and subsample sizes for each MIDUS wave and lag times between waves. As illustrated in Fig. 1, Study 1 includes the 2,118 participants from the M2 Biomarker (n = 1,255) and MR Biomarker (n = 863) substudies. Study 2 (see Fig. 2) includes the 1,182 participants in the M2 Biomarker substudy who either participated in the M3 survey (n = 1,113) or did not but were not deceased at the end of M3 data collection for their subsample (n = 69). Data on childhood socioeconomic status used in the current studies were collected at M1 for the original cohort and at the initial MR wave

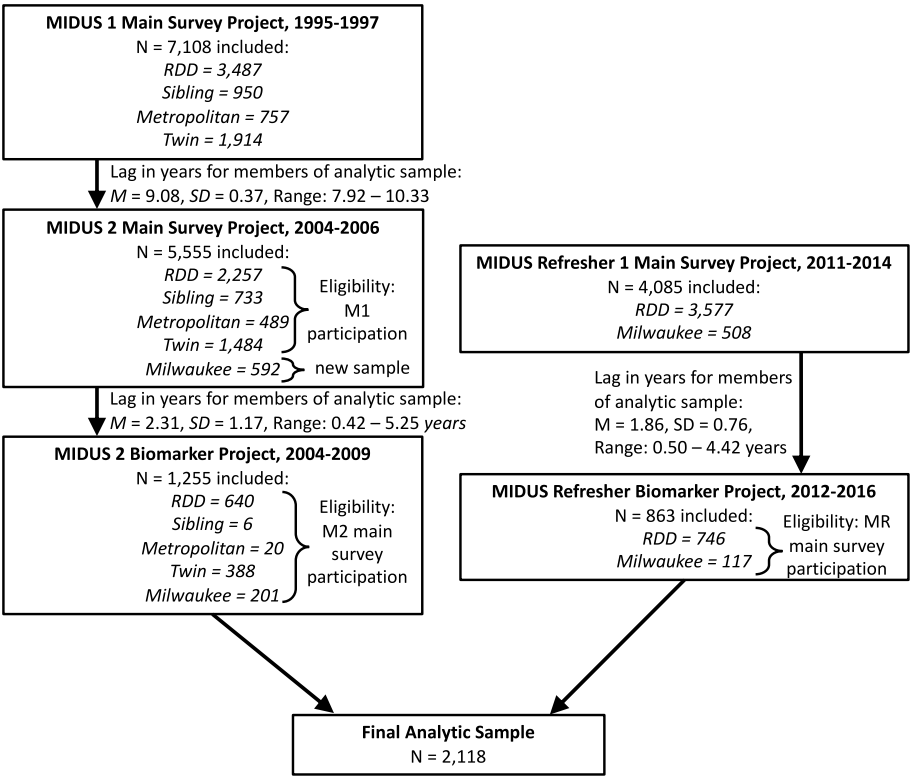

Fig. 1 Participant flow chart for Study 1. RDD = Random digit dialing

for the Refresher cohort. All other socioeconomic status, race, and sexual orientation data used in the current studies were collected during the M2 and MR survey waves. Positive life experiences measures and Study 1 predicted psychological well-being measures were assessed during the M2 Biomarker and MR Biomarker Projects. The psychological well-being measures predicted in Study 2 were assessed during M3.

2.2 Measures Used in All Studies

2.2.1 Frequency of Positive Life Experiences

Positive experience frequency was assessed during the M2 and MR Biomarker Projects. It was calculated as the mean of 49 items that asked about the frequency of engagement over the past month in different experiences involving relaxation, recreation, entertainment, green spaces, social engagement, intimacy, achievement, exercise, and physical comfort (e.g., "Thinking about something good in the future," "Being with someone I love," "Appreciating nature," and "Having a lively talk"). The majority of items were from the Mood-Related subscale of the PES (MacPhillamy & Lewinsohn, 1982), with a few additional experiences investigators chose to assess at the time of the MIDUS assessments. The response options were 0—Never, 1—1 to 6 times, and 2—7 or more times. In addition to the main positive experience frequency score, 7 scores were created that represent domains

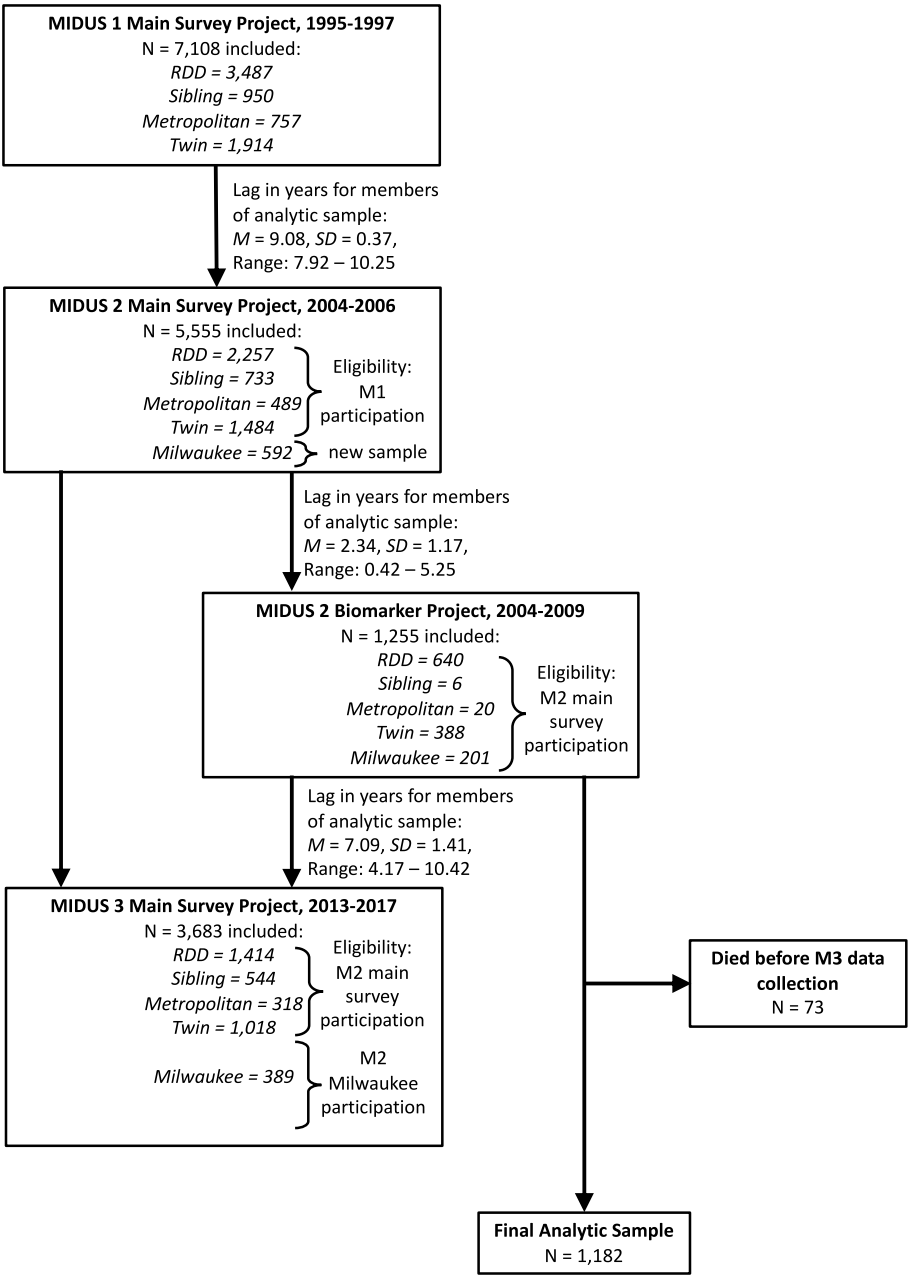

Fig. 2 Participant flow chart for Study 2. RDD = Random digit dialing

of positive experiences (social, spirituality, personal growth, nature, intimacy, love and family, and solitude), and 7 single items that represent additional domains of positive experiences were also examined (see supplemental Table S1).

2.2.2 Enjoyment of Positive Life Experiences

Positive experience enjoyment was assessed at the same time as positive experience frequency. For each of the 49 positive life experiences, if the participant reported that the frequency of the experience was at least 1 (1 to 6 times), the participant was then asked, "How pleasant, enjoyable, or rewarding was this?" The response options were 0—Neutral or unpleasant, 1—Somewhat pleasant, and 2—Very pleasant. Positive experience enjoyment was calculated as the mean of the enjoyment ratings for whichever experiences the participant had reported having. In addition to the main positive experience enjoyment score, enjoyment scores for the same domains of positive experiences described above were also examined.

2.2.3 Cumulative Socioeconomic Status (CSES)

Following prior MIDUS investigations that assessed SES conditions across childhood and adulthood (e.g., Gruenewald et al., 2012; Lee, Tsenkova, Boylan, & Ryff, 2018), cumulative life-course socioeconomic status was calculated using 3 childhood SES items (assessed during M1 and MR) and 5 adult SES items (assessed during M2 and MR). A childhood SES score with a scale of 0–6 was computed from the following items: parents' highest education level (0—less than high school, 1—high school/GED, 2—some college or greater), whether the family ever received governmental welfare (0—yes, 2—no), and a self-assessment of financial level when growing up (0—worse off than others, 1—same as others, 2—better off than others). A score for current level of adult SES with a scale of 0–10 was computed from the following indicators: education level (0—high school/GED, 1—some college/associate's degree, 2—college degree or greater), self-assessment of current financial situation (0—worst possible, 1—average, 2—best possible), whether there is enough money to meet basic needs (0—not enough, 1—just enough, 2—more than enough), difficulty of paying bills (0—very or somewhat difficult, 1—not very difficult, 2—not difficult at all), and level of household-adjusted income-to-poverty ratio (0—less than 300%, 1—300–599%, 2—greater than or equal to 600%). For the income-to-poverty ratio, U.S. Census Bureau data (https://www.census.gov/topics/income-poverty/poverty/data/tables/cps.html) were used to assign a poverty threshold to each participant's household using household size, number of children living in the household, whether anyone 65 or older lived in the household, and year the survey was taken. Household-adjusted income-to-poverty ratio was then calculated as total household income divided by poverty threshold. CSES was computed as the sum of childhood and adult SES (range: 0–16).

2.2.4 Demographic Variables

Race as reported in the main M2/MR survey was entered into the analyses as White [referent], Black, or other person of color (POC)/multiracial (see the supplement for a detailed explanation of how race was computed). Sexual orientation as reported in the main M2/MR survey was entered into the analyses as straight [referent] or gay/bisexual (gay and bisexual were separate response options in the survey). Gender at time of M2/MR was recorded in MIDUS as female [referent] or male. Age at time of Biomarker participation was recorded in years.

2.2.5 Chronic Health Burden

Twenty items from the M2/MR main surveys and M2/MR Biomarker surveys were used to create indicators for 9 types of major chronic conditions: lung-related conditions, AIDS or HIV, autoimmune disease, high blood pressure or hypertension, diabetes or high blood sugar, neurological disorders, stroke, cancer, and heart trouble. Participants were assigned 1 on an indicator if they reported having a type of condition on any of the items assessing it. The indicators were summed to create the chronic health burden score, which was then winsorized at just over 95% (range 0–4). This variable was used as a covariate, since chronic health burden may impact frequency and enjoyment of life experiences and psychological well-being.

2.3 Analyses

All analyses were run using Stata 17 (StataCorp, 2021; analysis code available at https://osf.io/nad6g/?view_only=77caa880da0244ea9bb35f6af0e691b5).

3 Study 1 Methods

3.1 Measures

In addition to all measures described above, the following 4 variables were assessed concurrently with positive experience frequency and enjoyment during the M2/MR Biomarker Project substudy.

3.1.1 Satisfaction with Life Scale

In this scale (Pavot & Diener, 1993), participants were asked to rate their level of agreement with 5 items that focused on overall evaluation of their life (e.g., "In most ways my life is close to my ideal," "So far I have gotten the important things I want in life"). The response options ranged from 1—Strongly disagree to 7—Strongly agree. All non-missing values were averaged to create the scale (Range: 1–7; Cronbach's $\alpha = 0.88$).

3.1.2 Positive Affect, Depressive Symptomatology, Anxiety Symptomatology

These constructs were assessed with subscales of the Mood and Symptom Questionnaire (MASQ; Clark & Watson, 1991). The MASQ measures the degree (1—Not at all to 5—Extremely) of feelings and experiences of each state in the past week. Positive affect was measured with 14 items (e.g., "Felt cheerful," "Felt like I had a lot of energy"), depressive symptomatology with 12 items (e.g., "Felt sad," "Felt discouraged"), and anxiety symptomatology was assessed with the 17 items of the anxious arousal subscale (e.g., "Startled easily," "Hands were shaky"). Subscale scores were created by averaging the non-missing values on each subscale and multiplying by the total number of items in each to produce a total score for each measure (Ranges: positive affect, 14–70, Cronbach's $\alpha = 0.93$; depressive symptomatology, 12–60, Cronbach's $\alpha = 0.90$; anxiety symptomatology, 17–85, Cronbach's $\alpha = 0.80$).

3.2 Analyses

Descriptive univariate and bivariate statistics were examined. There were two main sets of primary analyses. The first set of analyses examined whether there were sociodemographic disparities in positive experience frequency and enjoyment. Generalized estimating equation (GEE) models with an exchangeable correlation structure were used to account for family clustering among siblings. Unadjusted and adjusted models were run to examine SES, race, and sexual orientation as predictors of positive experience frequency and enjoyment. The adjusted models included SES, race, sexual orientation, gender, age, and chronic health burden as predictors. In supplementary analyses, all models were replicated with predicted variables representing different domains of positive experiences (see Supplemental Table S1).

The second set of primary analyses examined whether frequency and enjoyment of positive life experiences mediated associations between sociodemographic characteristics and 4 measures of well-being and psychological health. These analyses consisted of four multimediation models, one for each predicted variable (satisfaction with life, positive affect, depressive symptomatology, and anxiety symptomatology), with frequency and enjoyment of positive experiences as mediators in each model. The conceptual mediation model for satisfaction with life is shown in Fig. 3. Each model included 3 regressions, which predicted positive experience frequency (predictors: SES, race, sexual orientation, age, gender, and chronic health burden), positive experience enjoyment (same predictors), and one of the 4 well-being or psychological health variables (same predictors, plus positive experience frequency and enjoyment). The errors of the 2 mediator variables were correlated, and cluster robust standard errors were used to account for family-level clustering in the data. Mediation was assessed with bootstrap tests of the indirect paths through positive experiences (5,000 replications) using percentile-based confidence intervals (see Method 4 (Boot MI) from Schomaker & Heumann, 2018).

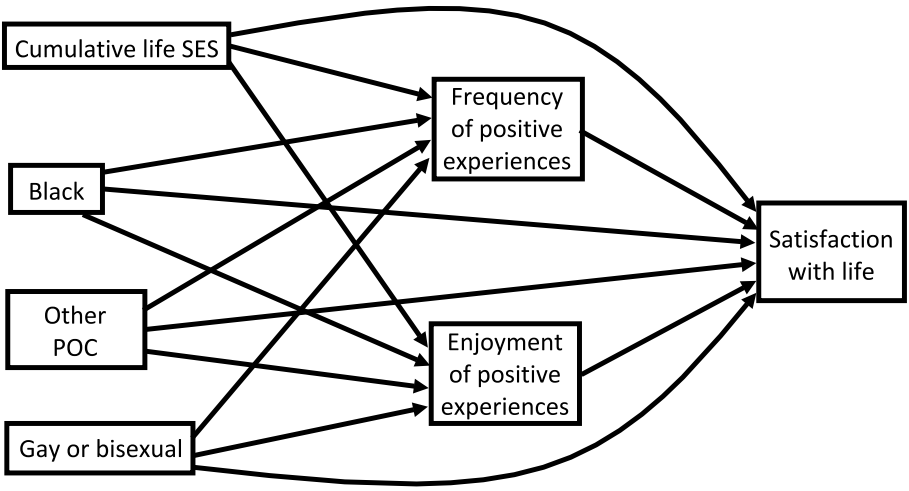

Fig. 3 Conceptual mediation model for satisfaction with life. POC = Person of color. Study 1 models also included age splines, gender, and chronic health burden. Study 2 models also included age splines, gender, chronic health burden, and months between the M2 Biomarker survey and M3 survey

Initial graphical analyses of associations between age and positive experiences suggested a linear relationship until later life and then a steep decline in the late 70s and 80s (see supplemental Figure S1), and subsequent analyses indicated that this was not explained by chronic health burden. Continuous piecewise linear regression was therefore used to enter age into the analyses with a single knot, which allowed for different linear associations before and after the age where the knot was placed. In the first set of analyses, the knot was placed at the age that resulted in the lowest Quasi-likelihood-based Information Criterion (QICu; Pan, 2001) for each adjusted model (age 77 for all positive experience frequency models and age 80 for all enjoyment models). In the mediation analyses, knot placement was assessed by examining AIC and BIC values for models with knots placed at 77–80. In all cases, the lowest values were found for models with the knot placed at 80, and this knot was retained in the analyses.

All variables had 0–1% missing data (see Table 1), except for sexual orientation, which had 3% missing data. The missing data were imputed into 5 datasets using multiple imputation by chained equations (MICE; White et al., 2011; see supplement for additional information). All 4 well-being and psychological health variables, positive experience frequency and enjoyment, and SES were standardized in the models. Graphical analysis was used to assess assumptions of normality, linearity, and heteroscedasticity. The depressive symptomatology and anxiety symptomatology residuals had high kurtosis, but analyses carried out using the log of each had residuals that were relatively normally distributed. We report the analysis results for the original variables but also report analyses that use the log transform of these variables as supplementary analyses.

4 Study 1 Results

4.1 Descriptive Analyses

Table 1 shows missing data and univariate and bivariate descriptive statistics for the study variables. Tables S2 and S3 in the supplement show missing data and descriptive statistics for each positive experience frequency and enjoyment item. Participants ranged in age from 26 to 86 (M = 55). As detailed in Table 1, the sample was predominantly White and straight but more diverse in terms of SES.

4.2 Sociodemographic Variations in Positive Life Experiences

As shown in Table 2, which presents the unadjusted and adjusted models predicting positive experience frequency and enjoyment, before adjustment SES was positively associated with positive experience frequency. Before adjustment, Black participants and other POC participants both had lower levels of positive experience frequency than White participants on average, and gay or bisexual participants had lower levels of positive experience frequency than straight participants on average. In the fully adjusted model, which included SES, race, sexual orientation, age, gender, and chronic health burden, SES remained positively associated with positive experience frequency, and both gay or bisexual participants and non-Black POC participants still showed lower levels of positive experience frequency than straight and White participants, respectively (see Table 2). After adjustment, however, Black participants no longer showed lower average levels of positive experience frequency

Table 1 Descriptive univariate and bivariate statistics for Study 1 (N = 2,118)

	Missing	M(SD)	Correlation with:					
			Satisfaction with life	Positive affect	Depression	Anxiety	Positive experience frequency	Positive experience enjoyment
Satisfaction with life	9(0.4%)	4.74(1.32)	1					
Positive affect	3(0.1%)	44.46(10.33)	0.51	1				
Depression	3(0.1%)	18.64(6.57)	−0.46	−0.47	1			
Anxiety	3(0.1%)	21.96(5.41)	−0.28	−0.21	0.55	1		
Positive exp. frequency*	6(0.3%)	1.24(0.26)	0.43	0.50	−0.26	−0.15	1	
Positive exp. enjoyment*	9(0.4%)	1.59(0.27)	0.36	0.48	−0.25	−0.14	0.50	1
Socioeconomic status	16(0.8%)	9.18(3.56)	0.37	0.22	−0.23	−0.28	0.23	0.13
Age	0(0%)	55.45(12.56)	0.14	0.11	−0.18	−0.03	0.03	0.14
Chronic health burden	0(0%)	1.20(1.14)	−0.11	−0.08	0.09	0.27	−0.08	0.003
	Missing	%	M(SD) of:					
			Satisfaction with life	Positive affect	Depression	Anxiety	Positive experience frequency	Positive experience enjoyment
Race	9(0.4%)	–						
White	–	74.8%	4.89(1.29)	44.91(10.05)	18.26(6.17)	21.47(4.75)	1.26(0.25)	1.60(0.26)
Black	–	18.5%	4.20(1.33)	43.23(10.98)	19.82(7.71)	23.61(6.97)	1.19(0.29)	1.58(0.29)
Other POC	–	6.7%	4.55(1.30)	42.93(11.29)	19.59(7.30)	22.80(6.22)	1.18(0.26)	1.55(0.31)
Sexual orientation	59(2.8%)	–						
Straight	–	96.0%	4.75(1.32)	44.62(10.27)	18.58(6.51)	21.90(5.24)	1.25(0.25)	1.60(0.26)
Gay or bisexual	–	4.0%	4.29(1.38)	41.20(10.48)	20.15(7.88)	23.16(7.44)	1.14(0.27)	1.53(0.31)
Gender	0(0%)	–						
Male	–	45.1%	4.73(1.30)	44.12(10.13)	18.01(6.08)	21.23(4.69)	1.23(0.26)	1.55(0.27)
Female	–	54.9%	4.75(1.34)	44.74(10.50)	19.15(6.92)	22.57(5.87)	1.25(0.26)	1.63(0.26)

* See Tables S1 and S2 in the supplement for full information on each frequency and enjoyment item

Satisfaction with life, positive affect, depressive symptomatology, anxiety symptomatology, positive experience frequency, and positive experience enjoyment were measured at $M2_{Bio}$ or MR_{Bio}

POC = person of color

Table 2 Unadjusted coefficients and fully adjusted models predicting positive life experience frequency and enjoyment

Variable	Separate Unadjusted Model Coefficients		Fully Adjusted Model	
	b (95% CI)	*p*	*b* (95% CI)	*p*
Predicted Variable: $M2_{Bio}$/MR_{Bio} positive experience frequency				
Socioeconomic status	**0.059 (0.048, 0.070)**	**< .001**	**0.054 (0.042, 0.066)**	**< .001**
Race				
Black	**−0.076 (−0.104, −0.047)**	**< .001**	−0.021 (−0.052, 0.010)	0.179
Other POC	**−0.078 (−0.122, −0.033)**	**0.001**	**−0.054 (−0.098, −0.010)**	**0.016**
Gay or bisexual	**−0.114 (−0.171, −0.057)**	**< .001**	**−0.092 (−0.148, −0.036)**	**0.001**
Male			**−0.036 (−0.058, −0.014)**	**0.001**
Age (26–77)			0.001 (−0.0002, 0.002)	0.135
Age (77–86)			**−0.017 (−0.029, −0.005)**	**0.006**
Chronic health burden			**−0.011 (−0.021, −0.0005)**	**0.041**
Constant			**1.242 (1.187, 1.298)**	**< .001**
Variable	Separate Unadjusted Model Coefficients		Fully Adjusted Model	
	b (95% CI)	*p*	*b* (95% CI)	*p*
Predicted Variable: $M2_{Bio}$/MR_{Bio} positive experience enjoyment				
Socioeconomic status	**0.036 (0.025, 0.048)**	**< .001**	**0.037 (0.024, 0.049)**	**< .001**
Race				
Black	**−0.036 (−0.067, −0.006)**	**0.018**	0.005 (−0.027, 0.038)	0.756
Other POC	**−0.049 (−0.095, −0.002)**	**0.042**	−0.016 (−0.062, 0.030)	0.495
Gay or bisexual	**−0.069 (−0.128, −0.009)**	**0.024**	−0.032 (−0.091, 0.027)	0.289
Male			**−0.082 (−0.105, −0.059)**	**< .001**
Age (26–80)			**0.003 (0.002, 0.004)**	**< .001**
Age (80–86)			**−0.028 (−0.052, −0.003)**	**0.026**
Chronic health burden			−0.006 (−0.017, 0.004)	0.245
Constant			**1.452 (1.395, 1.510)**	**< .001**

Bold type = $p < .05$

POC = person of color

than White participants (Table 2). Age was negatively associated with positive experience frequency in those over 77, and women had higher frequency than men.

In order to determine which factors in the model contributed to the complete attenuation of the Black/White racial gap in positive experience frequency, the model was re-run with each predictor variable removed, one at a time. The only variable that changed the results was SES – when SES was removed from the full model, Black participants showed lower average levels of positive experience frequency than White participants (b = -0.070, $p < 0.001$, 95%CI [−0.100, −0.041], and the effect size was almost as large as in the unadjusted model.

Before adjustment, SES was positively associated with positive experience enjoyment, and Black participants, other POC participants, and gay or bisexual participants all had lower average levels of positive experience enjoyment, though none of the associations

were as strong as for positive experience frequency (see Table 2). In the adjusted model, SES remained associated with positive experience enjoyment, but the other associations were fully attenuated (Table 2). In this model, age was positively associated with positive experience enjoyment in those up to 80 and negatively associated with it in those over 80, and women had higher enjoyment than men.

The results of the analyses that examined separate domains of positive experience frequency and enjoyment are presented on page 4 in the Supplement, as well as in Supplemental Tables S4-S5 and Figures S2-S3.

4.3 Sociodemographic Variations in Well-Being

The following sections discuss the results of the mediation analyses, which included SES, race, sexual orientation, age, gender, and chronic health burden as predictors, and the breakdown of direct, indirect, and total effects in the models is discussed. In this context, the term "effects" refers to statistical effects only, and it is not meant to imply causality. As shown by the total effects in Table 3, greater SES was associated with higher levels of satisfaction with life and positive affect and lower levels of depressive and anxiety symptomatology. Black participants had lower levels of satisfaction with life and marginally higher levels of positive affect than White participants. Gay or bisexual participants had marginally lower satisfaction with life and positive affect than straight participants.

4.4 Positive Experience Mediation

As indicated in Table 3, tests of the total indirect effect through both positive experience frequency and enjoyment showed that the greater levels of life satisfaction and positive affect and lower levels of depression and anxiety in those with greater SES were mediated by greater levels of positive experiences. The percentage of the total effect of SES mediated by positive experience frequency and enjoyment combined was 23.9% for satisfaction with life, 51.1% for positive affect, 25.7% for depressive symptomatology, and 10.3% for anxiety symptomatology.

The Black/White racial differences in life satisfaction and positive affect were not mediated by positive experiences (Table 3). The marginally lower levels of satisfaction with life and positive affect among gay or bisexual participants were mediated by greater levels of positive experiences (Table 3). The percentage of these marginal differences that were mediated by positive experiences was 50.4% for satisfaction with life and 74.8% for positive affect.

In supplementary models that used the log of depressive symptomatology, none of the main mediation results changed in significance, but Black participants had lower depressive symptomatology than White participants (see supplementary Tables S8–S9). None of the results of the main analyses changed in significance in the model that used the log of anxiety symptomatology (Tables S8-S9).

Table 3 Breakdown of direct, indirect, and total effects associated with socioeconomic status, racialized experiences, and sexual orientation in the Study 1 models predicting $M2_{Bio}/MR_{Bio}$ satisfaction with life, positive affect, depressive symptomatology, and anxiety symptomatology

	Predicted: Satisfaction with Life		Predicted: Positive Affect		Predicted: Depressive Sympt		Predicted: Anxiety Sympt	
	b or Effect (95% CI)	*p*	*b* or Effect (95% CI)	*p*	*b* or Effect (95% CI)	*p*	*b* or Effect (95% CI)	*p*
	Socioeconomic status		*Socioeconomic status*		*Socioeconomic status*		*Socioeconomic status*	
Direct	**0.258 (0.218, 0.298)**	**< .001**	**0.106 (0.067, 0.145)**	**< .001**	**−0.147 (−0.189, −0.104)**	**< .001**	**−0.190 (−0.234, −0.146)**	**< .001**
Indirect	**0.081 (0.062, 0.100)**†		**0.111 (0.085, 0.137)**†		**−0.051 (−0.068, −0.037)**†		**−0.022 (−0.036, −0.011)**†	
Total	**0.340 (0.296, 0.383)**	**< .001**	**0.217 (0.172, 0.262)**	**< .001**	**−0.197 (−0.243, −0.152)**	**< .001**	**−0.212 (−0.257, −0.166)**	**< .001**
	Race—Black		*Race—Black*		*Race—Black*		*Race—Black*	
Direct	**−0.117 (−0.224, −0.009)**	**0.034**	**0.129 (0.027, 0.231)**	**0.013**	−0.105 (−0.230, 0.020)	0.099	0.047 (−0.088, 0.183)	0.495
Indirect	−0.013 (−0.064, 0.037)†		−0.011 (−0.083, 0.057)†		0.003 (−0.031, 0.037)†		−0.004 (−0.022, 0.014)†	
Total	**−0.129 (−0.244, −0.015)**	**0.027**	0.118 (−0.004, 0.240)	0.059	−0.102 (−0.232, 0.027)	0.121	0.043 (−0.093, 0.179)	0.533
	Race—Other POC		*Race—Other POC*		*Race—Other POC*		*Race—Other POC*	
Direct	0.010 (−0.144, 0.164)	0.897	0.047 (−0.116, 0.210)	0.571	−0.032 (−0.221, 0.157)	0.741	0.114 (−0.064, 0.291)	0.210
Indirect	−0.070 (−0.142, 0.001)†		−0.091 (−0.191, 0.011)†		0.040 (−0.008, 0.093)†		0.014 (−0.012, 0.044)†	
Total	−0.060 (−0.226, 0.107)	0.481	−0.044 (−0.238, 0.149)	0.654	0.008 (−0.183, 0.200)	0.932	0.128 (−0.050, 0.306)	0.160
	Sexual orientation—Gay/Bisexual		*Sexual orientation—Gay/Bisexual*		*Sexual orientation—Gay/Bisexual*		*Sexual orientation—Gay/Bisexual*	
Direct	−0.112 (−0.312, 0.087)	0.269	−0.050 (−0.238, 0.138)	0.599	0.067 (−0.162, 0.295)	0.568	0.134 (−0.142, 0.409)	0.341
Indirect	**−0.114 (−0.205, −0.016)**†		**−0.150 (−0.277, −0.011)**†		0.066 (0.004, 0.141)†		0.023 (−0.013, 0.067)†	
Total	−0.227 (−0.460, 0.007)	0.057	−0.200 (−0.427, 0.027)	0.084	0.133 (−0.111, 0.377)	0.286	0.157 (−0.120, 0.435)	0.267

Bold type = $p < .05$

Indirect effects are the total indirect effects through positive experience frequency and enjoyment. See Table S6 in the supplement for each individual mediation path

Point estimates based on multiple imputation procedure with original sample

† Percentile-based confidence intervals based on 5,000 bootstrap samples; no associated *p*-values

See supplemental Table S7 for paths A and B of the indirect effects

5 Study 2 Methods

A third main wave of survey data collection in the original MIDUS cohort allowed for assessment of whether positive experience persisted as a mediator of associations between sociodemographic characteristics and well-being when assessing well-being years into the future (7 years on average).

5.1 Psychological Well-Being Measures Used in Study 2

The following 3 variables were assessed during both the second (M2) and third (M3) survey waves.

5.1.1 Domain-Specific Life Satisfaction

This 5-item scale (see Prenda & Lachman, 2001) assessed current satisfaction with overall life, health, work, marriage/relationship, and relationship with children. Response options ranged from 0—worst possible to 10—best possible. Following the original scale construction, the scores for marriage/relationship and relationship with children were averaged to create one family domain score. Then this score was averaged together with the remaining three items to create the final score (average of all non-missing values; range: 0–10).

5.1.2 Positive and Negative Affect

These 2 6-item scales were created for the MIDUS study (see Mroczek & Kolarz, 1998). Participants were asked how often they experienced a number of positive (e.g., “extremely happy,” “calm and peaceful”) and negative (e.g., "so sad nothing could cheer you up,” “worthless”) feelings over the past 30 days. Response options ranged from 1—None of the time to 5—All of the time. The final scores were the average of all non-missing values (M3 positive affect: Cronbach’s $\alpha = 0.91$; M3 negative affect: Cronbach’s $\alpha = 0.86$).

5.2 Analyses

Study 2 examined whether positive life experiences mediated longer-term associations between sociodemographic characteristics and life satisfaction, positive affect, and negative affect. The primary analyses consisted of multi-mediation models, and model specifications were the same as for the mediation analyses in Study 1 with two exceptions. First, the number of months between the M2 Biomarker and M3 surveys was added as a covariate in the regressions predicting M3 variables, since the lag time between M2 Biomarker and M3 participation varied between participants. Second, the models were run without and then while controlling for M2 baseline levels of life satisfaction, positive affect, and negative affect. As in Study 1, age splines with the knot placed at 80 were retained in the analyses, based on AIC and BIC values. Mediation was assessed with bootstrap tests of the indirect paths through positive experiences (5,000 replications) using percentile-based confidence intervals (Method 4 from Schomaker & Heumann, 2018).

All variables from the M2 and M2 Biomarker surveys had less than 1% missing data, except for sexual orientation, where 2.8% of scores were again missing (see Table 4). Out of the participants in the analytic sample, 5.8% had not participated in M3. The proportion

Table 4 Descriptive univariate and bivariate statistics for Study 2 (N = 1,182)

			Correlation with:							
	Missing	M(SD)	M3 life satisfaction	M3 positive affect	M3 negative affect	$M2_{Bio}$ positive experience frequency	$M2_{Bio}$ positive experience enjoyment	M2 life satisfaction	M2 positive affect	M2 negative affect
M3 life satisfaction	117(9.9%)	7.80(1.35)	1							
M3 positive affect	116(9.8%)	3.49(0.73)	0.54	1						
M3 negative affect	120(10.2%)	1.51(0.61)	−0.53	−0.61	1					
$M2_{Bio}$ positive exp. frequency	5(0.4%)	1.25(0.26)	0.29	0.29	−0.22	1				
$M2_{Bio}$ positive exp. enjoyment	6(0.5%)	1.61(0.27)	0.33	0.38	−0.29	0.49	1			
M2 life satisfaction	0(0.0%)	7.73(1.29)	0.61	0.45	−0.44	0.32	0.35	1		
M2 positive affect	4(0.3%)	3.47(0.72)	0.40	0.61	−0.42	0.28	0.35	0.53	1	
M2 negative affect	3(0.3%)	1.54(0.62)	−0.44	−0.44	−0.61	−0.20	−0.26	−0.55	−0.61	1
Socioeconomic status	9(0.8%)	9.27(3.50)	0.31	0.17	−0.30	0.24	0.13	0.39	0.17	−0.34
Age	0(0%)	56.72(11.18)	0.24	0.17	−0.19	0.06	0.14	0.26	0.16	−0.21
Health Burden	0(0%)	1.14(1.09)	−0.12	−0.06	0.14	−0.05	0.03	−0.15	−0.06	0.15
Months ($M2_{Bio}$—M3)	69(5.8%)	85.04(16.97)	−0.12	0.02	0.09	−0.06	−0.07	−0.14	0.02	0.11

Table 4 (continued)

	Missing	%	M(SD) of:							
			M3 life satisfaction	M3 positive affect	M3 negative affect	$M2_{Bio}$ positive experience frequency	$M2_{Bio}$ positive experience enjoyment	M2 life satisfaction	M2 positive affect	M2 negative affect
Race	4(0.3%)	–								
White	–	78.4%	7.92(1.25)	3.47(0.70)	1.45(0.52)	1.27(0.24)	1.61(0.26)	7.89(1.16)	3.45(0.68)	1.47(0.52)
Black	–	17.8%	7.36(1.62)	3.62(0.83)	1.72(0.81)	1.16(0.30)	1.58(0.30)	7.17(1.55)	3.61(0.86)	1.78(0.85)
Other POC	–	3.8%	7.46(1.65)	3.21(0.84)	1.72(0.87)	1.17(0.23)	1.56(0.24)	7.26(1.56)	3.28(0.84)	1.76(0.75)
Sexual orientation	33(2.8%)	–								
Straight	–	96.3%	7.83(1.31)	3.50(0.72)	1.48(0.58)	1.26(0.25)	1.61(0.26)	7.74(1.27)	3.47(0.71)	1.52(0.60)
Gay or bisexual	–	3.7%	6.83(2.02)	3.09(0.85)	2.01(0.85)	1.12(0.26)	1.49(0.33)	7.30(1.55)	3.28(0.87)	1.88(0.95)
Gender	0(0%)	–								
Male	–	42.6%	7.79(1.33)	3.46(0.74)	1.48(0.60)	1.23(0.26)	1.56(0.27)	7.71(1.31)	3.47(0.72)	1.49(0.57)
Female	–	57.5%	7.81(1.37)	3.51(0.73)	1.52(0.62)	1.26(0.25)	1.63(0.25)	7.75(1.27)	3.47(0.72)	1.57(0.65)

POC = person of color

of data missing for each M3 outcome was between 9.8% and 10.2%. Missing data were imputed into 30 datasets using MICE (White et al., 2011), due to the larger proportion of missing data. The well-being, positive experiences, and SES measures were standardized in the models. The residuals for the negative affect regression had high kurtosis, but analyses carried out using its log had residuals that were relatively normally distributed. The results using the original variable are reported, as well as a supplementary analysis that uses the log transform.

6 Study 2 Results

Table 4 shows the missing data and univariate and bivariate statistics for the model variables.

6.1 Sociodemographic Variations in Well-Being

As shown by the total effects in Table 5, in analyses that included SES, race, sexual orientation, age, gender, chronic health burden, and lag time, greater SES was associated with higher levels of life satisfaction and positive affect and lower levels of negative affect at M3, both before and after controlling for baseline levels. Black participants had higher levels of positive affect at M3 than White participants, both before and after controlling for baseline levels (Table 5). Gay or bisexual participants had lower life satisfaction, marginally lower positive affect, and higher negative affect at M3 than straight participants, both before and after controlling for baseline levels.

6.2 Positive Experience Mediation

Tests of the total indirect effect through both positive experience frequency and enjoyment showed that the greater M3 life satisfaction and positive affect and lower negative affect in those with greater SES were mediated by greater levels of positive experiences, both before and after controlling for M2 baseline levels of well-being (see Table 5). The percentage of the total effect of SES mediated by positive experience frequency and enjoyment combined was 19.3% for life satisfaction, 32.4% for positive affect, and 15.0% for negative affect before controlling for baseline levels and 23.4% for life satisfaction, 32.4% for positive affect, and 18.5% for negative affect after controlling for baseline levels.

Positive experiences were not a pathway underlying the higher positive affect observed in Black participants compared to White participants. The lower life satisfaction observed in gay or bisexual participants was mediated by lower levels of positive experiences before controlling for baseline levels of life satisfaction but not after. Neither the higher negative affect nor marginally lower positive affect observed in gay or bisexual participants compared to straight participants was mediated by positive experiences. Using the log of negative affect did not change any of the main results (see Tables S14-S17).

Table 5 Breakdown of direct, indirect, and total effects associated with socioeconomic status, racialized experiences, and sexual orientation in the Study 2 models predicting M3 life satisfaction, positive affect, and negative affect

		Predicted: Life Satisfaction		Predicted: Positive Affect		Predicted: Negative Affect	
		b or Effect (95% CI)	*p*	*b* or Effect (95% CI)	*p*	*b* or Effect (95% CI)	*p*
		Socioeconomic status		*Socioeconomic status*		*Socioeconomic status*	
Prior to controlling for baseline M2 levels of the predicted variable	Direct	**0.220 (0.162, 0.277)**	**< .001**	**0.141 (0.080, 0.202)**	**< .001**	**−0.206 (−0.268, −0.144)**	**< .001**
	Indirect	**0.052 (0.032, 0.076)**†		**0.067 (0.042, 0.096)**†		**−0.036 (−0.058, −0.016)**†	
	Total	**0.272 (0.213, 0.331)**	**< .001**	**0.208 (0.146, 0.270)**	**< .001**	**−0.242 (−0.305, −0.180)**	**< .001**
		Race—Black		*Race—Black*		*Race—Black*	
	Direct	0.072 (−0.113, 0.258)	0.446	**0.556 (0.375, 0.738)**	**< .001**	0.070 (−0.122, 0.261)	0.474
	Indirect	−0.016 (−0.066, 0.033)†		−0.018 (−0.085, 0.042)†		0.001 (−0.039, 0.043)†	
	Total	0.056 (−0.131, 0.242)	0.559	**0.538 (0.354, 0.723)**	**< .001**	0.071 (−0.122, 0.263)	0.470
		Race—Other POC		*Race—Other POC*		*Race—Other POC*	
	Direct	−0.015 (−0.333, 0.303)	0.927	−0.044 (−0.398, 0.310)	0.807	0.182 (−0.198, 0.562)	0.347
	Indirect	−0.046 (−0.133, 0.035)†		−0.057 (−0.165, 0.050)†		0.025 (−0.041, 0.097)†	
	Total	−0.061 (−0.387, 0.266)	0.715	−0.101 (−0.443, 0.241)	0.562	0.208 (−0.174, 0.589)	0.286
		Sexual orientation—Gay/Bisexual		*Sexual orientation—Gay/Bisexual*		*Sexual orientation—Gay/Bisexual*	
	Direct	**−0.386 (−0.770, −0.001)**	**0.049**	−0.208 (−0.535, 0.118)	0.211	**0.608 (0.219, 0.996)**	**0.002**
	Indirect	**−0.114 (−0.232, −0.001)**†		−0.146 (−0.291, 0.000)†		0.076 (−0.028, 0.174)†	
	Total	**−0.500 (−0.926, −0.074)**	**0.021**	−0.354 (−0.722, 0.013)	0.059	**0.684 (0.278, 1.090)**	**0.001**
		Socioeconomic status		*Socioeconomic status*		*Socioeconomic status*	

Table 5 (continued)

		Predicted: Life Satisfaction		Predicted: Positive Affect		Predicted: Negative Affect	
		b or Effect (95% CI)	*p*	*b* or Effect (95% CI)	*p*	*b* or Effect (95% CI)	*p*
After controlling for baseline M2 levels of the predicted variable	Direct	**0.085 (0.035, 0.136)**	**0.001**	**0.073 (0.022, 0.124)**	**0.005**	**−0.087 (−0.140, −0.035)**	**0.001**
	Indirect	**0.026 (0.011, 0.041)**†		**0.035 (0.019, 0.054)**†		**−0.020 (−0.035, −0.007)**†	
	Total	**0.111 (0.060, 0.163)**	**< .001**	**0.108 (0.057, 0.159)**	**< .001**	**−0.108 (−0.159, −0.056)**	**< .001**
		Race—Black		*Race—Black*		*Race—Black*	
	Direct	0.103 (−0.059, 0.266)	0.212	**0.274 (0.123, 0.424)**	**< .001**	0.022 (−0.139, 0.184)	0.785
	Indirect	−0.009 (−0.036, 0.019)†		−0.008 (−0.044, 0.025)†		0.001 (−0.039, 0.043)†	
	Total	0.094 (−0.067, 0.256)	0.251	**0.266 (0.114, 0.417)**	**0.001**	0.024 (−0.137, 0.185)	0.772
		Race—Other POC		*Race—Other POC*		*Race—Other POC*	
	Direct	0.068 (−0.174, 0.309)	0.583	−0.051 (−0.330, 0.229)	0.723	0.091 (−0.204, 0.386)	0.544
	Indirect	−0.024 (−0.071, 0.018)†		−0.030 (−0.090, 0.031)†		0.015 (−0.041, 0.097)†	
	Total	0.043 (−0.202, 0.289)	0.728	−0.081 (−0.346, 0.184)	0.550	0.107 (−0.186, 0.399)	0.475
		Sexual orientation—Gay/Bisexual		*Sexual orientation—Gay/Bisexual*		*Sexual orientation—Gay/Bisexual*	
	Direct	**−0.400 (−0.712, −0.089)**	**0.012**	−0.172 (−0.439, 0.095)	0.206	**0.409 (0.140, 0.677)**	**0.003**
	Indirect	−0.055 (−0.119, 0.001)†		−0.073 (−0.157, 0.009)†		0.041 (−0.016, 0.101)†	
	Total	**−0.455 (−0.784, −0.126)**	**0.007**	−0.246 (−0.523, 0.032)	0.083	**0.450 (0.179, 0.721)**	**0.001**

Bold type = $p < .05$

Reported indirect effects are the total indirect effects that sum the indirect paths through positive experience frequency and enjoyment. See Tables S10 and S12 in the supplement for each individual mediation path

Point estimates based on multiple imputation procedure with original sample

†Percentile-based confidence intervals based on 5,000 bootstrap samples; no associated *p*-values

See supplemental Table S11 and S13 for paths A and B of the indirect effects

7 Discussion

In Study 1, we found evidence of sociodemographic disparities in positive life experiences, such that people with lower cumulative socioeconomic status, Black people, other people of color, and gay or bisexual people had a lower frequency of positive life experiences. Though these groups also rated their enjoyment of their experiences less favorably, the effect sizes for enjoyment were 39%-53% smaller than for frequency. Although not a specific focus of our investigation of sociodemographic disparities, we also identified variations by gender and age, with males having a lower frequency of engagement in positive experiences and a steep decline in frequency of positive experiences in older age. Racial variations in positive experiences were attenuated or eliminated after adjustment for all sociodemographic covariates. Subsequent analyses showed that this attenuation was due to the inclusion of SES in the model, suggesting that racial differences in positive experiences may be a function of the strong association between race and socioeconomic status in the U.S. (Aladangady & Forde, 2021).

We also found an overall pattern, across multiple cross-sectional and longitudinal analyses, that suggests that positive experiences are a mediator of associations between greater cumulative socioeconomic status and better psychological health and well-being, including greater life satisfaction and positive affect and lower depression, anxiety, and negative affect. In longitudinal analyses in Study 2, these associations were observed before and after controlling for baseline levels of psychological health and well-being. This suggests that the lower levels of positive experiences observed in people of lower SES may play a role in their poorer well-being years into the future. We also found that positive life experiences mediated the lower life satisfaction observed in gay or bisexual participants, though this mediation path decreased to marginal significance after controlling for baseline life satisfaction.

What factors might be responsible for disparities in positive life experiences? Among marginalized groups, we found bigger disparities in frequency than enjoyment. This suggests that lack of access to positive life experiences may be more of a driving factor in disparities than decreased enjoyment of such experiences when they do occur. There are many reasons why marginalized status might be associated with reduced access to positive experiences. In the US, only half of the lowest quartile of income earners have any paid vacation time, while 90% of the highest quartile of earners have paid vacation time (Ray, 2013). Having paid days off likely allows workers to engage in a greater number and variety of positive experiences.

Lack of expendable income among lower-wage earners is also likely a barrier to engaging in many positive experiences, and it is likely that neighborhood access is as well. For example, in a study of census tract-level U.S. data, higher poverty levels were associated with lower percentages of green spaces (though not farther distances to parks) in suburban and urban areas (Wen et al., 2013). It is possible that, for sexual minority individuals, strained social and family interactions (Barry et al., 2022; Puckett et al., 2015) may lead to discrepancies in positive experiences—in supplementary analyses (see Supplement p. 4 and Figure S4) the greatest disparities we observed in frequency of positive experiences for gay and bisexual participants were in the domain that included being with family and being told one is loved.

What are some pathways through which systemic differences in positive experiences may heighten sociodemographic disparities in psychological well-being? Leisure activities in which individuals freely choose to engage may foster joy and positive emotions, help

individuals maintain a sense of connectedness and belonging in the world, help individuals grow and discover their individual and collective identities, help individuals maintain a sense of control over the pace of life, and provide opportunities to heal from or cope with stress (Iwasaki et al., 2018). The different events in our positive experiences measure (see Table S1), when taken together, would be expected to cultivate these elements of meaningful engagement with life. In addition, research on behavioral activation suggests that positive life experiences can have the effect of countering depression (Mazzucchelli et al., 2009).

Given that these outcomes are theorized to occur when positive experiences are engaged in freely, such as in the current study, and are therefore able to contribute to meaning-making in one's life, what types of positive experience interventions may be useful? Hopper and Iwasaki (2017) urge that leisure interventions, particularly those that focus on groups facing marginalization and exclusion, should be participant-led instead of prescribed, since the latter approach may result in harm. Successful positive experience interventions (e.g., Gallagher-Thompson et al., 2000) may teach participants to track their frequency of engagement in positive activities and their mood, identify positive activities that impact their mood, and make plans/set goals to increase their positive experiences, while also recognizing obstacles to increased engagement. It is likely that many of these obstacles cannot be overcome entirely through clinical intervention, without social and material changes (paid time off, access to expendable income, equitable neighborhood resources, a society that celebrates diverse identities), particularly in the U.S. context. Efforts to document sociodemographic disparities in everyday positive experiences and the role that these experiences may play in psychological and physical health and well-being may bolster efforts to increase equitable access to these experiences.

7.1 Limitations

In the current study, we used observational data to examine associations between positive experiences and measures of well-being assessed both concurrently and an average of 7 years after positive experiences. Measures of positive experience frequency and enjoyment were not assessed at the time of well-being follow-up, so it is not clear whether the observed associations represent those of stable frequencies and enjoyment of positive experiences. The original PES was found to have moderate long-term test–retest reliability (MacPhillamy & Lewinsohn, 1976), but future research is needed to identify how patterns of stability or change in positive experiences are linked to concomitant patterns of well-being. Similarly, although there is evidence that positive experiences likely impact well-being (e.g., Mazzucchelli et al., 2009), it is also possible that the reverse is true, the relationships are bidirectional, or that other constellations of factors are responsible for both. Future longitudinal investigations with multiple waves of assessment of these constructs are needed to more clearly delineate patterns of association over time.

Our data may not be generalizable to the U.S. as a whole. The majority of participants in MIDUS were recruited using a national random-digit-dialing approach, after which they could volunteer to join the Biomarker Project. The Black participants in MIDUS, however, were mostly recruited from targeted oversamples of Black individuals from Milwaukee, WI, which is characterized by a high level of racial and socioeconomic segregation (Levine, 2020). In Study 2, for example, 78% of all Black participants were from these oversamples. While unadjusted racial differences in the current study were strong, they were largely

erased when socioeconomic status was added to the models. It is possible that this sampling strategy may have further heightened observed associations between race and socioeconomic status beyond those that might have been observed in some other geographic locations in the U.S. Our data on non-Black people of color was limited in the current study, and this category likely combines participants from different racial backgrounds.

Our data on sexual orientation was also limited, and MIDUS does not include any data on gender identity, other than recording whether participants are male or female. Only 4% of participants identified as gay or bisexual in our current study, meaning that we did not have sufficient data to differentiate between sexual minority participants of different genders or differentiate between gay and bisexual participants. It is possible that these groups have different experiences – in a recent study that examines MIDUS data from the M1-M3 waves (Wardecker et al., 2019), researchers found that life satisfaction trajectories of bisexual individuals were different from those of both straight and gay individuals. We hope that our work leads to further consideration of sexual orientation in the study of positive experiences, given that we were able to identify clear differences, even with a limited sample.

7.2 Future Research

Future research can be designed to allow for more robust examination of how historically marginalized populations, based on race, ethnicity, sexual orientation, and gender identity, differ in access to positive life experiences, as well as how these associations may be implicated in a wide range of psychological and physical outcomes. Interventions can be developed and assessed to examine which are most effective and whether they have similar impacts on participants with different levels of marginalization and social or economic disadvantage. Similarly, life stress can be examined as a moderator of associations between positive experiences and psychological and physical well-being. The potential influence of more macro-level economic, social, and environmental factors that may shape observed individual-level sociodemographic variations in positive experience frequency and enjoymentis is also an important aim of future research.

8 Conclusion

We found that people of lower socioeconomic status, Black people, other people of color, and gay or bisexual people had lower levels of frequency and enjoyment of positive life experiences, but that the observed racial differences were attenuated when accounting for socioeconomic status. We also found that positive experiences mediated associations between socioeconomic status and all measures of psychological health and well-being (life satisfaction, positive and negative affect, depressive and anxiety symptomatology), both concurrently and over a 7-year period. We found preliminary evidence that disparities in life satisfaction between sexual minority and straight people may be mediated by positive experiences. If these everyday positive experiences might have long-term impacts on our well-being, then potential barriers to accessing and engaging in them warrant further study.

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Declarations

Conflict of interest The authors declare that there is no conflict of interest.

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