



Trajectories of perceived neighborhood quality across the life course: Sociodemographic determinants and implications for well-being



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ABSTRACT

Neighborhoods are an important social context across the life course, with implications for well-being throughout adulthood. However, the capacity to select and/or alter one's neighborhood is dependent in part upon factors such as race, class, and gender. Cumulative advantage/disadvantage and cumulative inequality theory both anticipate growing disparities between the most and least advantaged over time, yet disagree on the *a*/symmetry of these divergent trajectories. This study analyzes three-wave longitudinal data from the National Study of Midlife Development in the United States (1995–2014) to examine whether trajectories of perceived neighborhood quality differ according to sociodemographic characteristics over a twenty-year period, and whether neighborhood quality influences individual well-being over the same timespan. Results indicate that (1) women, Black and other nonwhite residents, and renters report worse neighborhood quality than their peers; (2) perceived neighborhood quality declines with age for Black and poorly educated residents; (3) perceived neighborhood quality improves with age for highly educated residents; (4) the overall deficit in perceived neighborhood quality among renters is weaker for Black than for White residents, while the overall deficit in perceived neighborhood quality among the poorly educated is contingent upon their having children. Moreover, (5) perceived neighborhood quality predicts both life satisfaction and negative affect over two decades, though its influence on the latter was contingent upon owning or mortgaging one's home rather than renting. Overall, findings offer support for both cumulative advantage/disadvantage and cumulative inequality theory, and suggest implications for theory and future research.

1. Introduction

Sociological research has established the importance of neighborhood context for various aspects of well-being, including for individuals' mental and physical health, social participation and cohesion, and experiences of discrimination (e.g., Moorman et al., 2017; Stokes and Moorman, 2016; Vogelsang, 2016; Yen et al., 2009; Yen et al., 2006). Moreover, it is not merely the objective characteristics of neighborhoods that impact adults' well-being; rather, subjective appraisals of one's neighborhood can be influential as well (e.g., Hale et al., 2013; Haney, 2007; Oswald et al., 2010; Yen et al., 2006).

Neighborhood context is not necessarily a stable feature in one's life, however; individuals relocate, and those who do not may see

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their neighborhoods change around them. Indeed, even subjective appraisals of stable neighborhood features or neighborhood built environment may shift over time as individuals' needs and goals change (e.g., Greenfield, 2012; Oswald et al., 2010). Thus, a life course approach to neighborhood context and quality is vital.

Research into neighborhood quality is of particular interest to scholars of aging, given ongoing initiatives to foster successful aging in place among older adults (Greenfield, 2012; Oswald et al., 2010). The majority of older adults live in community dwellings, and often hold great attachment to their homes and neighborhoods (Oswald et al., 2010). However, successful aging in place depends upon the structure and quality of the “place” where one lives (Greenfield, 2012; Yen et al., 2009). Further, neighborhoods themselves may take on greater prominence in later life, as individuals leave the work force, trim their social networks, experience health and mobility limitations, and increasingly depend on neighbors for social contact (Carstensen et al., 1999; Cornwell et al., 2008; Oswald et al., 2010). A recent study found that perceived neighborhood quality was more strongly linked with life satisfaction for the oldest-old than for the young-old, highlighting the increasing importance of neighborhood quality at later stages of the life course (Oswald et al., 2010).

Access to a high-quality neighborhood is not a matter of chance, nor typically a new development in later life; rather, events and opportunities across the life course may determine who does and does not have access to a high-quality neighborhood in adulthood and older age. The present study takes an intersectional approach and uses the lens of cumulative advantage/disadvantage (CAD) and cumulative inequality theory (CIT) to investigate trajectories of perceived neighborhood quality over a two-decade span, and to determine whether these trajectories differ according to sociodemographic characteristics. Further, this study also explores links between perceived neighborhood quality and both positive (life satisfaction) and negative (negative affect) aspects of well-being across the same timespan.

1.1. Theoretical framework

Life course theory (Elder et al., 2003) stresses that sociological research must take into account both personal and social life histories when examining individuals' data. In other words, individuals' circumstances, beliefs, and outcomes in the present are indelibly linked with their experiences, opportunities, and exposures in the past; our personal and social biographies leave imprints on us later in life. These imprints are not limited to psychological impacts, either; indeed, early-life experiences and opportunities can have major impacts on concrete aspects of lived experience (e.g., exposure to high-quality education may result in better career opportunities and a higher income in adulthood). As concerns neighborhood quality, the physical and social spaces we inhabit—and the wherewithal to choose where to live—may be determined by life histories, experiences, and opportunities.

Life course trajectories, then, may result in inequality—or even in increasing inequality over time (Dannefer, 1987). Cumulative advantage/disadvantage (CAD) builds off of life course theory and focuses explicitly on “the systemic tendency for interindividual divergence in a given characteristic (e.g., money, health, or status) with the passage of time” (Dannefer, 2003:S327). In other words, both advantage and disadvantage may accrue over time and across the life course: One opportunity opens the door to another, while one difficulty snowballs into yet more; the rich get richer, while the poor get poorer (Dannefer, 1987, 2003; Entwisle et al., 2001). CAD research has demonstrated growing life course inequality for outcomes such as educational attainment, accumulation of wealth, and even health and mortality (see DiPrete and Eirich, 2006; Willson et al., 2007).

Perceived neighborhood quality has the potential for similarly divergent trajectories: The most advantaged individuals may not only live in the highest-quality neighborhoods to begin with, but also retain the wherewithal to move into the neighborhood(s) of their choice, in order to meet changing needs with age, or to exit an undesirable situation. These individuals may also have the greatest access to the means to improve or shape their own neighborhood settings. The least advantaged, on the other hand, may live in the lowest-quality neighborhoods to begin with, and lack the resources to either improve their own neighborhoods or select into more desirable ones. Across mid- and later life, the needs, desires, and means of individuals can differ greatly, driven in part by life histories and the sociodemographic factors which stratify American society (George, 2010). Indeed, characteristics such as race, class, and gender may intersect regarding individuals' access—or lack thereof—to high-quality neighborhoods (e.g., Veenstra, 2011; Viruell-Fuentes et al., 2012).

A related yet distinct perspective to CAD has been recently developed, called cumulative inequality theory (CIT; Ferraro et al., 2009). Although other differences between these frameworks exist, the crucial distinction for this study is CIT's contention that the accrual of advantage and disadvantage over time may be asymmetric; that is, the rich may get richer, while the poor remain stably poor (or vice versa). Regarding perceived neighborhood quality, there may be relative stability for the most (or least) advantaged, and an accumulation of (dis)advantage for the other. The end result of such a process would still be an increase in *inequality* between the most and least advantaged over time, even if neighborhood quality itself did not *worsen* for the least advantaged (or *improve* for the most advantaged). The a/symmetry of diverging trajectories may be crucial to understand for effectively reducing inequality.

1.2. Neighborhood quality over time

There are two primary explanations for any life course trajectories of perceived neighborhood quality: (1) objective changes to neighborhood features, whether via changing neighborhoods (e.g., gentrification, redevelopment, blight, increased/decreased crime, etc.) or via changes to the neighborhoods in which individuals live (i.e., relocation, whether voluntarily or otherwise), and (2) subjective changes to individuals' appraisals of stable neighborhood features, possibly due to changing life circumstances (e.g., having children may make neighborhood safety, local parks and amenities, or other child-centric features more salient; for older adults, neighborhood built environment such as walkability, access to services and transportation, and other age-friendly features

may become more important (see Nagel et al., 2008; Oswald et al., 2010)).

These two explanations may well overlap in practice. For example, upon having children individuals' desires for their neighborhoods—and thus their appraisals of their current neighborhoods' quality—may change. Advantaged residents may choose to either relocate to a better-fitting neighborhood, or to modify their present neighborhood so as to improve its perceived quality; disadvantaged residents may desire to do these things, yet face obstacles that prevent them from doing so. Racial discrimination in housing and racial segregation of neighborhoods in the United States is quite common, as is segregation on the basis of class and even age (Acevedo-Garcia and Lochner, 2003; Moorman et al., 2017; Pager and Shepherd, 2008; Winkler and Klaas, 2012). Home ownership status and socioeconomic status may impact “neighborhood stake” and the ability for residents to modify their surroundings to better meet their needs, as well as residents' ability to afford a potentially costly relocation (to a more expensive neighborhood) (Rohe and Stewart, 1996). Thus, whether trajectories of perceived neighborhood quality are driven by objective changes in neighborhood features, subjective changes in individuals' appraisals, or a combination of the two, the implications for well-being throughout adulthood and later life remain (Haney, 2007). Further, stratification in these trajectories by socio-demographic characteristics may inform the literature on inequality across the life course.

1.3. *The present study*

Social well-being in the United States is highly stratified by sociodemographic features, and in particular by race, gender, and socioeconomic status (George, 2010). Cumulative advantage/disadvantage (CAD) and cumulative inequality theory (CIT) anticipate the systemic divergence of certain characteristics over time, on the basis of individuals' attributes. This study examines whether perceived neighborhood quality is one such characteristic, and whether sociodemographics account for interindividual divergence over time.

Using three-wave longitudinal data from the National Study of Midlife Development in the United States, this study investigates (1) trajectories of perceived neighborhood quality over a twenty-year period, and (2) whether these trajectories differ according to sociodemographic characteristics, including: race/ethnicity, gender, educational attainment, home ownership status, marital status, parental status, and employment status. This study then further explores whether perceived neighborhood quality predicts positive (life satisfaction) and negative (negative affect) aspects of well-being across the same two-decade span, to demonstrate the implications of neighborhood quality trajectories for adults' well-being.

2. Methods

2.1. *Data & sample*

Data for this study came from the National Study of Midlife Development in the United States (MIDUS, 1995–2014), a three-wave longitudinal study of aging Americans. MIDUS data collection began in 1995–1996 with a national probability sample of non-institutionalized, English-speaking residents of the contiguous U.S. ages 24 to 74, who were selected using random digit dialing (RDD) (Ryff et al., 2017). Follow-up surveys were conducted from 2004 to 2006, and again from 2013 to 2014. Data were collected from respondents using both phone interviews and self-administered questionnaires (SAQ) (Ryff et al., 2017). Since items of interest for this study (e.g., neighborhood quality) were from the self-administered questionnaire, the analytic sample was restricted to those individuals who completed both the phone interview and the SAQ.

There were 3034 individuals who responded to both the phone interview and the SAQ at wave 1. At wave 2, nearly a decade later, 1805 individuals (59% of the wave 1 total) responded to both the phone interview and the SAQ. At wave 3, after another approximately ten-year lag, there were 1177 individuals (65% of the wave 2 total) who responded to both the phone interview and the SAQ. At waves 2 and 3, individuals who did not respond to both the phone interview and SAQ at the prior wave were allowed to (re-) join the sample if they answered both instruments at that particular wave, though these accounted for a small portion of the sample. For instance, 54 individuals responded to both the phone interview and the SAQ for the first time at wave 2, while 11 individuals did so for the first time at wave 3. On average, respondents participated in approximately 2 of the 3 waves (mean = 1.94). The final analytic sample for this study consisted of 6016 observations from 3102 individuals gathered across all three waves of MIDUS.

Given the age range of sample participants, as well as the nearly ten-year gap between data collection waves, attrition across waves in these data was anticipated. In examining correlates of attrition, it was found that respondents who participated at both wave 1 and wave 2 reported significantly better neighborhood quality, greater life satisfaction, lower negative affect, better health, and greater social integration than those who responded at wave 1 but not at wave 2. Further, those who returned at wave 2 were significantly younger, more likely to be female, better educated, more likely to be White rather than Black or another race, more likely to own their home outright or be paying on a mortgage rather than renting, reported less discrimination, and were more likely to be married rather than divorced/separated or never married than those who responded at wave 1 but did not respond at wave 2.

Respondents who participated at both wave 2 and wave 3 reported significantly better neighborhood quality, significantly lower negative affect, and were significantly younger, wealthier, healthier, and better educated than those who responded at wave 2 but not at wave 3. Additionally, participants who returned at wave 3 were significantly more likely to be White rather than Black; more likely to be paying for their home on a mortgage than renting; more likely to be married and less likely to be widowed; and more likely to be employed and less likely to be retired than were those who responded at wave 2 but did not return at wave 3.

2.2. Outcomes

Perceived neighborhood quality. Perceived neighborhood quality was measured using a 4-item scale (Keyes, 1998). Response options ranged from 1 (*Not at all*) to 4 (*A lot*), with sample questions including “I feel safe being out alone in my neighborhood at night” and “People in my neighborhood trust each other.” Perceived neighborhood quality was generated as a mean-score scale, and was coded such that higher values indicated greater perceived quality ($\alpha = 0.65$). The scale was set to missing for participants who answered fewer than half of the items.

Life satisfaction. Life satisfaction was measured using a single-item scale concerning global life satisfaction. Response options ranged from 1 (*Not at all satisfied*) to 4 (*Very satisfied*).

Negative affect. Negative affect was measured using a 6-item scale (Mroczek and Kolarz, 1998). Response options ranged from 1 (*None of the time*) to 5 (*All of the time*), with sample questions including “During the past 30 days, how much of the time did you feel nervous?” and “... restless or fidgety?” Negative affect was generated as a mean-score scale, with higher values indicating greater negative affect ($\alpha = 0.86$). To reduce significant skew, negative affect was transformed using the inverse of its square ($1/X^2$). It was then reversed for directionality, and standardized for ease of interpretation. The scale was set to missing for participants who answered fewer than half of the items.

2.3. Sociodemographic predictors

Sociodemographic predictors were included for participants’ age, gender, race/ethnicity, education, marital status, parental status, employment status, and home ownership status. Age was measured as a continuous variable, in years. Age ranged from 20 to 74 at wave 1, from 30 to 84 at wave 2, and from 39 to 93 at wave 3. Age was mean-centered for analysis. Gender was measured using a dichotomous indicator for *female*. Race/ethnicity was measured using three dichotomous indicators for *White* (reference), *Black*, and *Other race*, along with a separate dichotomous indicator for *Hispanic*. Education was measured using dichotomous indicators for *less than high school*, *high school degree*, *some college* (reference), *college degree*, and *some education beyond college*. Marital status was measured using dichotomous indicators for *married* (reference), *divorced/separated*, *widowed*, and *never married*. Parental status was measured using a dichotomous measure of whether a participant *had any children*. Employment status was measured using three dichotomous indicators for *employed* (reference), *retired*, and *not employed*. Home ownership status was measured using three dichotomous indicators for *owns home outright*, *paying on a mortgage* (reference), and *rents home*.

2.4. Covariates

To ensure the validity of results, additional predictors were included for years lived in current neighborhood, income, self-rated health, neuroticism, social integration, and perceived discrimination. *Years lived in neighborhood* was self-reported and measured in years. *Income* was self-reported in reference to the previous year, and was transformed using within-wave standardization to improve comparability over time (i.e., standardized scores measure income relative to other participants at the same wave; increases in standardized scores over time reflect gains in income relative to others, rather than nominal inflation). *Self-rated health* was measured using a single item ranging from 1 (*Poor*) to 5 (*Excellent*). *Neuroticism* was measured using a 4-item mean-score scale ranging from 1 (*Lowest*) to 4 (*Highest*) (Lachman and Weaver, 1997). *Social integration* was measured using a 3-item mean-score scale ranging from 1 (*Least integrated*) to 7 (*Most integrated*) (Keyes, 1998). *Perceived discrimination* was measured using a 9-item mean-score scale concerning the frequency of participants’ day-to-day experiences of discrimination, with responses ranging from 1 (*Never*) to 4 (*Often*) (Williams et al., 1997). Due to significant positive skew, perceived discrimination was recoded such that 1 = *Never*, 2 = *More than never to rarely*, 3 = *More than rarely to sometimes*, and 4 = *More than sometimes to often*. For all mean-score scales, values were set to missing for those who answered fewer than half of the items. An additional control for *data collection wave* was tested to check for period effects, and was retained only in the analyses of life satisfaction and negative affect, due to statistical significance.

2.5. Analytic strategy and missing data

The majority of cases (64%) had complete data for all measures included in the analysis. The item with the greatest amount of missingness was Hispanic ethnicity, for which 21% of cases were missing data. This is primarily due to the fact that no direct question concerning Hispanic ethnicity was included at wave 1. Therefore, wave 1 observations were coded as “Hispanic” or “not Hispanic” based on participants’ wave 2 and/or wave 3 responses, and set to missing for those without valid wave 2 or wave 3 information. Excluding Hispanic ethnicity, 83% of cases had complete data on all measures included in the analysis, and more than 98% had complete data on the perceived neighborhood quality scale. Aside from ethnicity, missing data diagnostics did not reveal any clear patterns of item-missingness. Thus, multiple imputation by chained equations was used to address missing data, with a total of 10 complete data sets generated for analysis (Johnson and Young, 2011; Royston, 2005). Analyses excluding Hispanic ethnicity produced the same significant findings of interest. Findings of interest were unchanged when a total of 50 complete data sets were generated and analyzed as a robustness check (Graham et al., 2007). The outcome variables were included in the imputation equations, and the imputed versions were used in the final analyses (Johnson and Young, 2011). Findings of interest were unchanged when the outcome measures’ imputed values were deleted prior to analysis as a robustness check (MID; von Hippel, 2007).

Longitudinal random effects models were used to account for non-independence of the data, due to the nesting of observations within individuals. Random effects models estimate between- and within-person effects simultaneously, and therefore examine both

stable differences between groups *and* individuals' trajectories of change over time. Moreover, random effects models incorporate data from participants who responded at *any* wave, rather than only those who responded at two or all three waves of MIDUS, thus reducing potential bias from attrition. Lastly, random effects models allow for cross-level interactions to test whether within-person trajectories of change vary according to time-invariant characteristics. An autoregressive residual structure was modeled as well, to account for the correlation of individuals' residual errors across waves, and was retained in analyses of perceived neighborhood quality and negative affect due to statistical significance.

Analysis of perceived neighborhood quality began with a main effects model, which included all sociodemographic predictors and all control measures. Interactions were then explored between each of the sociodemographic measures and age, to model differential trajectories. Significant interactions between race and age (Model 2) and education and age (Model 3) are presented separately. Additional interactions were then explored among the sociodemographic predictors themselves, and significant interactions between race and home ownership status (Model 4) and education and parental status (Model 5) are also presented separately. Lastly, Model 6 presents a final model that includes all significant interactions simultaneously, along with all main effects and control measures.

Additional analyses were conducted concerning life satisfaction and negative affect, in order to demonstrate the importance of perceived neighborhood quality for adults' well-being. The same set of covariates were included in these analyses, as measures that may confound associations between sociodemographic characteristics and perceived neighborhood quality are also measures that may confound associations between perceived neighborhood quality and well-being. Since life satisfaction was an ordinal outcome, ordered logistic random effects models were estimated. Negative affect was analyzed using linear random effects models, just as perceived neighborhood quality was. For both life satisfaction and negative affect, the same analytic steps were followed, including (1) a main effects model including all control measures, (2) exploration of interactions between sociodemographic factors and age, and (3) exploration of interaction effects among sociodemographic measures themselves. For parsimony, only the final model is presented for each outcome. For life satisfaction, the final model includes main effects of perceived neighborhood quality, all sociodemographic predictors, and all control measures, as well as significant interactions between (1) gender and age, (2) race and age, and (3) marital status and age. For negative affect, the final model includes main effects of perceived neighborhood quality, all sociodemographic predictors, and all control measures, as well as a significant interaction between home ownership status and perceived neighborhood quality.

3. Results

3.1. Descriptive statistics

Descriptive statistics for all measures are reported in Table 1. Overall, participants reported fairly positive perceptions of neighborhood quality, averaging between 3.40 and 3.48 on the 4-point scale across waves. Likewise, life satisfaction was relatively high and negative affect relatively low overall. Across all waves, participants tended to be female (53%), White (88%), not Hispanic (96%), with some college education (30%), married (65%), with children (85%), employed (53%), and paying for their homes on a mortgage (49%). Most sociodemographic variables were stable over time, with the exceptions of age (due to the 9–10 year gap between waves) and home ownership (with the proportion of renters dropping by 50% after wave 1, and the increase in outright home owners increasing at both wave 2 and wave 3).

3.2. Analytic results

Table 2 presents the results of the analytic models predicting perceived neighborhood quality over two decades. Model 1 included all sociodemographic predictors as well as all control measures. Female respondents ($B = -0.09$, $p < .001$), Black ($B = -0.20$, $p < .001$) and other nonwhite respondents ($B = -0.09$, $p < .05$), and those who rent their home ($B = -0.25$, $p < .001$) all reported significantly worse perceived neighborhood quality than their peers, whereas retired respondents ($B = 0.04$, $p < .05$) reported significantly better neighborhood quality than their peers. Among control measures, income ($B = 0.02$, $p < .01$), self-rated health ($B = 0.02$, $p < .001$), neuroticism ($B = -0.04$, $p < .001$), social integration ($B = 0.11$, $p < .001$), and perceived discrimination ($B = -0.06$, $p < .001$) were all significantly associated with perceived neighborhood quality over two decades.

Model 2 added a significant interaction term between Black race and age ($B = -0.005$, $p < .01$), indicating that for Black respondents perceived neighborhood quality declines across the life course. No other significant coefficients from Model 1 were altered. Model 3 added significant interaction terms between less than high school education and age ($B = -0.003$, $p < .05$) and education beyond college and age ($B = 0.003$, $p < .01$) to the main effects Model 1. Together these interactions indicate that for the least educated perceived neighborhood quality declines across the life course, whereas for the most educated it improves with age. Once again, no significant coefficients from Model 1 were altered.

Model 4 added a significant interaction term between Black race and rents home ($B = 0.17$, $p < .01$) to the main effects Model 1. This interaction indicates that the negative association between renting one's home and perceived neighborhood quality was weaker for Black respondents. No significant coefficients from Model 1 were altered. Model 5 added a final significant interaction term between less than high school education and parental status ($B = -0.28$, $p < .001$) to the main effects Model 1. Including this interaction resulted in the main effect of less than high school education becoming positive and significant ($B = 0.20$, $p < .01$). Together, these significant coefficients suggest that the least educated respondents perceived worse neighborhood quality than their peers only when they had children; without children, the least educated reported somewhat better perceived neighborhood quality than others. No other significant coefficients were altered from Model 1.

Table 1
Descriptive Statistics, National Study of Midlife Development in the United States, 1995–2014 (N = 6016 observations from 3102 individuals).

	Wave 1 (n = 3034)	Wave 2 (n = 1805)	Wave 3 (n = 1177)
	Mean (SD), or %	Mean (SD), or %	Mean (SD), or %
Perceived neighborhood quality	3.40 (0.54)	3.47 (0.52)	3.48 (0.52)
Negative affect ^a	1.57 (0.64)	1.54 (0.60)	1.49 (0.61)
<i>Life satisfaction:</i>			
Not at all satisfied	2.09%	1.66%	1.11%
A little satisfied	5.40%	3.88%	4.85%
Somewhat satisfied	32.70%	28.75%	30.19%
Very satisfied	59.81%	65.70%	63.86%
Age	47.06 (13.12)	56.85 (12.62)	64.72 (11.37)
<i>Gender:</i>			
Female	51.52%	54.68%	53.27%
Male	48.48%	45.32%	46.73%
<i>Race:</i>			
White	85.23%	89.92%	91.33%
Black	6.62%	5.43%	4.59%
Other race	8.14%	4.65%	4.08%
<i>Ethnicity:</i>			
Hispanic	3.54%	3.89%	3.66%
Not Hispanic	96.46%	96.11%	96.34%
<i>Education:</i>			
Less than high school	9.93%	7.10%	5.27%
High school degree	29.29%	27.23%	24.83%
Some college	31.20%	28.62%	29.59%
College degree	16.99%	18.86%	20.75%
Some education beyond college	12.60%	18.19%	19.56%
<i>Marital status:</i>			
Married	64.04%	67.37%	63.83%
Divorced/separated	18.46%	16.54%	16.68%
Widowed	5.93%	8.60%	11.91%
Never married	11.57%	7.49%	7.57%
<i>Parental status:</i>			
Has children	82.43%	87.04%	87.26%
No children	17.57%	12.96%	12.74%
<i>Employment status:</i>			
Employed	59.49%	49.28%	47.75%
Retired	15.72%	27.76%	29.12%
Not employed	24.79%	22.97%	23.13%
<i>Home ownership status</i>			
Owns home outright	24.52%	36.19%	44.29%
Paying on a mortgage	51.37%	51.40%	42.69%
Rents home	24.11%	12.41%	13.02%
Years lived in neighborhood	14.28 (17.38)	16.82 (14.84)	20.78 (15.95)
Income ^b	\$14,609 (\$7050)	\$25,969 (\$17,798)	\$25,234 (\$21,161)
Self-rated health	3.45 (1.00)	3.50 (1.00)	3.38 (1.06)
Neuroticism	2.25 (0.66)	2.09 (0.63)	2.10 (0.63)
Social integration	4.67 (1.45)	4.86 (1.33)	4.85 (1.33)
Perceived discrimination	1.75 (0.72)	1.74 (0.67)	1.70 (0.68)

^a Raw coding reported (1 = *None of the time*, 5 = *All the time*). Negative affected was transformed and standardized for analysis, to reduce significant skew.

^b Income reported in U.S. dollars, calculated from the raw scores. Income was transformed into wave-specific standardized scores for analysis.

Finally, Model 6 estimated all of these significant interaction terms simultaneously, and included all main effects and control measures. All of the interaction terms remained significant, and the only significant coefficient change compared with Model 1 was the positive and significant main effect of less than high school education ($B = 0.21$, $p < .01$), as seen in Model 5. These results indicate complex associations between sociodemographic characteristics and trajectories of perceived neighborhood quality. Fig. 1 illustrates the implications of these results, displaying trajectories of perceived neighborhood quality that differ by race, education, home ownership, and parental status.

As a next step, analyses were also conducted examining the implications of perceived neighborhood quality for individuals' life satisfaction and negative affect over a twenty-year span. Table 3 presents the final models for each of these outcomes.

In the final model concerning life satisfaction, perceived neighborhood quality was a positive and highly significant predictor ($B = 0.30$, $p < .001$). Age, gender, race, education, marital status, employment status, home ownership status, income, self-rated health, neuroticism, social integration, perceived discrimination, and data collection wave also had significant effects. Significant interactions were identified between (1) gender and age, such that women's superior ratings of life satisfaction diminished with age; (2) Black race and age, such that Black respondents' superior ratings of life satisfaction increased with age; and (3) marital status and

Table 2
Random Effects Models Predicting Perceived Neighborhood Quality from 1995–2014 (N = 6016).

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	B (SE)					
<i>Sociodemographic predictors</i>						
Age ^a	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.00 (.00)	0.00 (.00)
Female ^b	−0.09*** (.02)	−0.09*** (.02)	−0.09*** (.02)	−0.09*** (.02)	−0.09*** (.02)	−0.09*** (.02)
Black ^c	−0.20*** (.03)	−0.22*** (.03)	−0.20*** (.03)	−0.26*** (.04)	−0.20*** (.04)	−0.27*** (.04)
Other race ^c	−0.09* (.04)	−0.08* (.04)	−0.09* (.04)	−0.08* (.04)	−0.09* (.04)	−0.09* (.04)
Hispanic ^d	−0.06 (.06)	−0.07 (.05)	−0.07 (.05)	−0.06 (.05)	−0.06 (.05)	−0.07 (.05)
Less than high school ^e	−0.05 (.03)	−0.05 (.03)	−0.04 (.03)	−0.05 (.03)	0.20** (.07)	0.21** (.07)
High school degree ^e	−0.01 (.02)	−0.01 (.02)	−0.01 (.02)	−0.01 (.02)	−0.02 (.02)	−0.01 (.02)
College degree ^e	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)
Education beyond college ^e	−0.01 (.02)	−0.01 (.02)	−0.01 (.02)	−0.01 (.02)	−0.01 (.02)	−0.01 (.02)
Divorced/separated ^f	−0.02 (.02)	−0.02 (.02)	−0.03 (.02)	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)
Widowed ^f	−0.01 (.03)	−0.01 (.03)	−0.01 (.03)	−0.01 (.03)	−0.01 (.03)	−0.01 (.03)
Never married ^f	−0.03 (.03)	−0.04 (.03)	−0.03 (.03)	−0.03 (.03)	−0.03 (.03)	−0.04 (.03)
Has children ^g	0.03 (.02)	0.03 (.02)	0.03 (.02)	0.03 (.02)	0.05* (.02)	0.04 (.02)
Retired ^h	0.04* (.02)	0.04* (.02)	0.04* (.02)	0.04* (.02)	0.04* (.02)	0.04* (.02)
Not employed ^h	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)	−0.02 (.02)
Owens home outright ⁱ	0.01 (.02)	0.01 (.02)	0.01 (.02)	0.01 (.02)	0.01 (.02)	0.01 (.02)
Rents home ⁱ	−0.25*** (.02)	−0.25*** (.02)	−0.25*** (.02)	−0.26*** (.02)	−0.25*** (.02)	−0.26*** (.02)
<i>Interaction terms</i>						
Black ^c x age ^a	−	−0.005** (.00)	−	−	−	−0.004* (.00)
Less than high school ^e x age ^a	−	−	−0.003* (.00)	−	−	−0.003* (.00)
Education beyond college ^e x age ^a	−	−	0.003** (.00)	−	−	0.003* (.00)
Black ^c x rents home ⁱ	−	−	−	0.17** (.06)	−	0.16** (.06)
Less than high school ^e x has children ^g	−	−	−	−	−0.28*** (.07)	−0.28*** (.07)
<i>Covariates</i>						
Years lived in neighborhood	−0.00 (.00)	−0.00 (.00)	−0.00 (.00)	−0.00 (.00)	−0.00 (.00)	−0.00 (.00)
Income ^j	0.02** (.01)	0.02** (.01)	0.03** (.01)	0.02** (.01)	0.02** (.01)	0.02** (.01)
Self-rated health	0.02*** (.01)	0.02*** (.01)	0.02*** (.01)	0.02*** (.01)	0.02*** (.01)	0.02** (.01)
Neuroticism	−0.04*** (.01)	−0.04*** (.01)	−0.04*** (.01)	−0.04*** (.01)	−0.04*** (.01)	−0.04*** (.01)
Social integration	0.11*** (.00)	0.11*** (.00)	0.11*** (.00)	0.11*** (.00)	0.11*** (.00)	0.11*** (.00)
Perceived discrimination	−0.06*** (.01)	−0.06*** (.01)	−0.06*** (.01)	−0.06*** (.01)	−0.06*** (.01)	−0.06*** (.01)
<i>Model fit</i>						
Level 2 variance	0.07*** (.01)	0.07*** (.01)	0.07*** (.01)	0.07*** (.01)	0.07*** (.01)	0.07*** (.01)
Level 1 variance	0.14*** (.01)	0.14*** (.01)	0.14*** (.01)	0.14*** (.01)	0.14*** (.01)	0.14*** (.01)
Autocorrelation (ρ)	0.12* (.05)	0.12* (.05)	0.12** (.05)	0.11* (.05)	0.12* (.05)	0.11* (.05)
F; df	61.69***; 23	59.72***; 24	57.88***; 25	59.76***; 24	60.20***; 24	53.41***; 28

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a Mean-centered variable.

^b Reference group is male.

^c Reference group is White.

^d Reference group is Not Hispanic.

^e Reference group is HS degree.

^f Reference group is Married.

^g Reference group is No children.

^h Reference group is Employed.

ⁱ Reference group is Paying on a mortgage.

^j Standardized variable.

age-squared, such that only for the never married the positive trajectory of life satisfaction was curvilinear rather than linear and accelerated at later stages of the life course.

In the final model concerning negative affect, perceived neighborhood quality was a negative and significant predictor ($B = -0.09$, $p < .01$). Age, race, education, marital status, parental status, home ownership status, years lived in neighborhood, income, self-rated health, neuroticism, social integration, perceived discrimination, and data collection wave were also significant predictors. A significant interaction was identified between rents home and perceived neighborhood quality ($B = 0.14$, $p < .01$), such that the protective benefits of a high-quality neighborhood were weakest—even non-existent—for those who rent rather than own (or pay a mortgage on) their homes.

4. Discussion

The present study sought to examine trajectories of perceived neighborhood quality across a twenty-year span, and to determine whether these trajectories varied according to sociodemographic characteristics. Further, this study also sought to examine the long-term implications of perceived neighborhood quality for adults' positive and negative well-being. Findings suggest that (1) female,

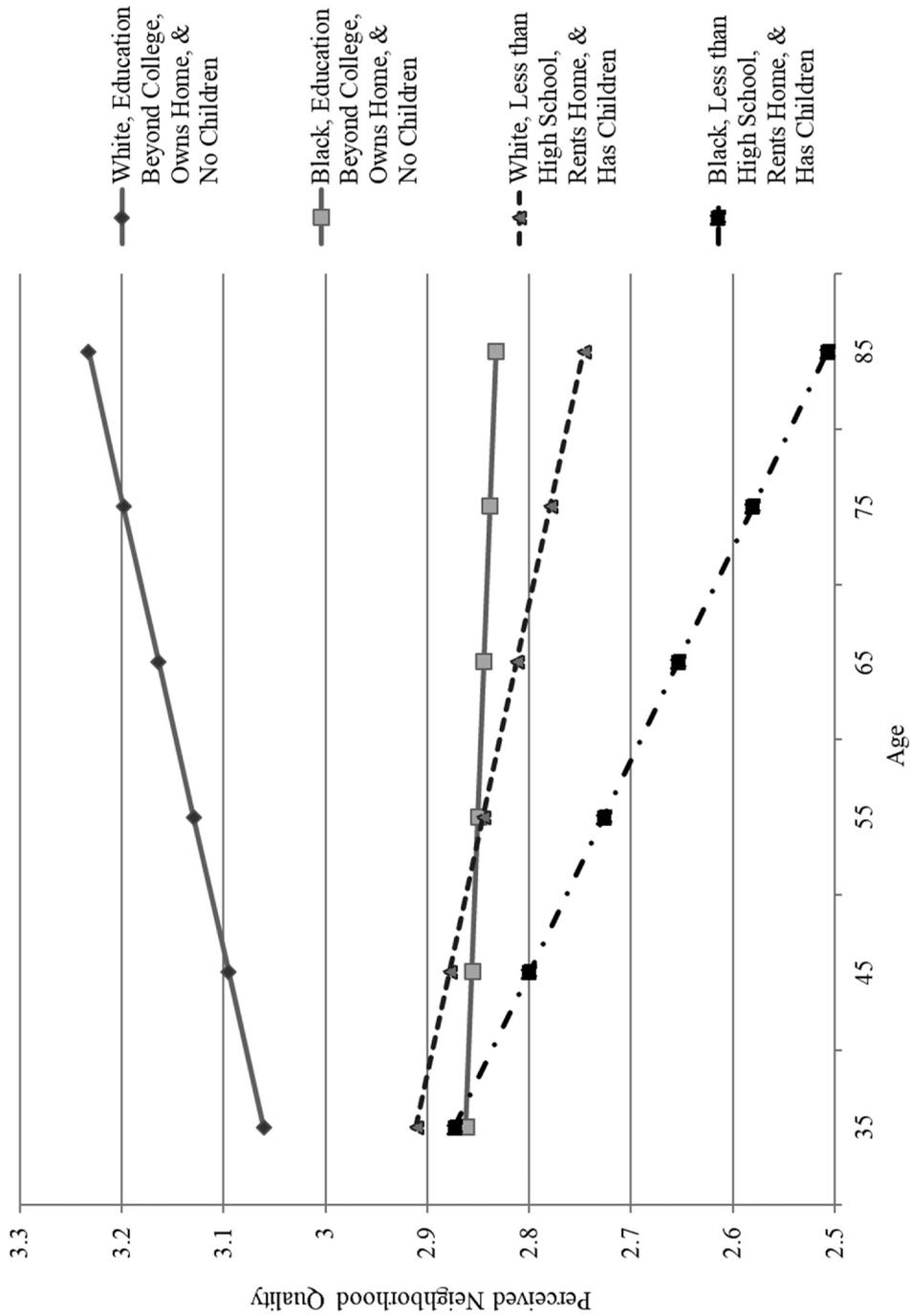


Fig. 1. Trajectories of perceived neighborhood quality vary according to sociodemographic factors.
 Note: Trajectories display predicted values for persons with all of the sociodemographic characteristics listed. All other covariates were set to zero. Y-axis has been truncated.

Table 3
Models Predicting Life Satisfaction and Negative Affect from 1995–2014 (N = 6016).

	Life Satisfaction	Negative Affect
	B (SE)	B (SE)
<i>Sociodemographic predictors</i>		
Perceived neighborhood quality	0.30*** (.08)	−0.09** (.03)
Age ^a	0.03*** (.01)	−0.004** (.00)
Age ^{2a}	0.00 (.00)	−
Female ^b	0.22* (.10)	0.04 (.03)
Black ^c	0.51* (.20)	−0.22*** (.05)
Other race ^c	0.29 (.20)	−0.11* (.05)
Hispanic ^d	−0.09 (.31)	−0.01 (.08)
Less than high school ^e	0.64*** (.17)	−0.00 (.05)
High school degree ^e	0.29** (.11)	−0.01 (.03)
College degree ^e	0.17 (.13)	0.01 (.03)
Education beyond college ^e	0.13 (.14)	0.08* (.04)
Divorced/separated ^f	−1.27*** (.11)	0.05 (.03)
Widowed ^f	−0.97*** (.17)	0.15** (.04)
Never married ^f	−1.46*** (.23)	0.01 (.05)
Has children ^g	−0.09 (.14)	−0.09* (.04)
Retired ^h	0.29* (.14)	−0.03 (.04)
Not employed ^h	−0.21* (.10)	0.01 (.03)
Owens home outright ⁱ	0.23* (.11)	0.05 (.03)
Rents home ⁱ	−0.01 (.12)	−0.37* (.16)
<i>Interaction terms</i>		
Female ^b x age ^a	−0.02** (.01)	−
Black ^c x age ^a	0.04** (.01)	−
Never married ^f x age ^{2a}	0.001* (.00)	−
Rents home ⁱ x perceived neighborhood quality	−	0.14** (.05)
<i>Covariates</i>		
Years lived in neighborhood	−0.00 (.00)	0.002* (.00)
Income ^j	0.20*** (.06)	−0.03* (.02)
Self-rated health	0.56*** (.04)	−0.17*** (.01)
Neuroticism	−0.86*** (.07)	0.66*** (.02)
Social integration	0.32*** (.03)	−0.06*** (.01)
Perceived discrimination	−0.16** (.06)	0.12*** (.02)
Wave 2 ^k	−0.08 (.09)	0.16*** (.02)
Wave 3 ^k	−0.31** (.12)	0.16*** (.03)
<i>Model fit</i>		
Level 2 variance	2.22*** (.23)	0.12*** (.03)
Level 1 variance	−	0.53*** (.03)
Autocorrelation (ρ)	−	0.18*** (.04)
F; df	25.52***; 30	89.76***; 27

* $p < .05$, ** $p < .01$, *** $p < .001$.

^a Mean-centered variable.

^b Reference is Male.

^c Reference is White.

^d Reference is Not Hispanic.

^e Reference is HS degree.

^f Reference is Married.

^g Reference is No children.

^h Reference is Employed.

ⁱ Reference is Paying on a mortgage.

^j Standardized variable.

^k Reference is Wave 1.

Black, and other nonwhite residents, as well as those who rent their homes, report worse neighborhood quality than their peers, while retirees report better neighborhood quality than their peers; (2) perceived neighborhood quality declines with age for Black and poorly educated (less than high school) residents; (3) perceived neighborhood quality improves with age for highly educated (education beyond college) residents; and (4) the overall deficit in perceived neighborhood quality among renters is weaker for Black than for White residents, while the overall deficit in perceived neighborhood quality among the poorly educated (less than high school) is contingent upon their having children. Furthermore, (5) perceived neighborhood quality influenced both life satisfaction and negative affect over two decades, though its influence on the latter was contingent upon owning or mortgaging one's home rather than renting. Overall, these findings offer support for cumulative advantage/disadvantage (CAD) and cumulative inequality theory (CIT) and underscore the stratification of social well-being by race, class, and gender (Dannefer, 1987, 2003; Ferraro et al., 2009; George, 2010). Moreover, these findings highlight the importance of neighborhood context for well-being, offering implications for

sociological theory and research moving forward.

4.1. Sociodemographic characteristics and stable differences in perceived neighborhood quality

The results of this study highlight not only persistent inequalities in perceived neighborhood quality, but also how such inequalities are exacerbated over time (Dannefer, 1987, 2003; Ferraro et al., 2009; George, 2010). In particular, sociodemographic characteristics such as gender, race, and socioeconomic status (measured by home ownership) had stable impacts on perceived neighborhood quality, such that women, Black and other nonwhite residents, and renters reported worse neighborhood quality than their peers. These results speak to the stratification of social well-being by gender, race, and socioeconomic status in the United States, and to the systemic and structural barriers faced by less advantaged persons as concerns their neighborhood context (George, 2010). The superior reports of neighborhood quality among retirees may reflect similar processes concerning socioeconomic status, as those with the wherewithal to retire appear more satisfied with their neighborhoods than their age-similar peers who continue to have or seek employment are (e.g., George, 2010).

The significant gender difference in perceived neighborhood quality is worth noting in greater detail. Given that neighborhood quality is associated with adults' mental and physical health (Yen et al., 2006, 2009), and even with mortality (e.g., Assari, 2017), women's reports of inferior neighborhood quality may have consequences for their well-being across the life course. Moreover, although there were no gender differences in the present study concerning effects of perceived neighborhood quality on life satisfaction or negative affect, some prior research has indicated that certain aspects of neighborhood quality may be particularly impactful for women's physical health (Assari et al., 2015). Thus, deficits in perceived neighborhood quality may contribute to gender inequalities in health and well-being throughout adulthood and into later life (e.g., Mirowsky and Ross, 1992).

Additionally, differences in perceived neighborhood quality on the basis of gender, race, and socioeconomic status should not be understood in isolation from one another. Rather, these findings support an intersectional approach to advantage/disadvantage (e.g., Veenstra, 2011; Viruell-Fuentes et al., 2012), wherein deficits due to disadvantaged gender, race, and/or socioeconomic status compound one another, with lower-class women of color being at particular risk of experiencing poor neighborhood quality, and its concomitant harms for mental and physical health (Assari, 2017; Assari et al., 2015; Yen et al., 2006, 2009).

4.2. Cumulative dis/advantage, inequality, and neighborhood quality

Beyond the stable group differences that were found concerning perceived neighborhood quality, there was evidence of both cumulative advantage *and* disadvantage, with the most privileged respondents reporting improvements in neighborhood quality with age, and the less privileged reporting declines in neighborhood quality with age (Dannefer, 1987, 2003). Specifically, perceived neighborhood quality improved with age for the most educated, but declined with age for the least educated, and in a symmetric fashion, as anticipated by CAD. In other words, the best educated reap increasing rewards as they get older, while the worst educated find themselves more and more unhappy with their neighborhoods as they age.

However, not all of the intracohort divergences in perceived neighborhood quality were symmetric, underscoring the usefulness of cumulative inequality theory (CIT) as a complement to CAD (Ferraro et al., 2009). For instance, Black residents' reports of neighborhood quality declined with age, but there was no concomitant improvement with age in neighborhood quality reports among White respondents. In this case, disadvantage accumulated over time, but advantage did not. Yet the end result remains: Increasing inequality in perceived neighborhood quality between White and Black respondents across the life course (Ferraro et al., 2009).

This racial divergence in trajectories of perceived neighborhood quality may help to explain the prior finding that one-time measurements of certain aspects of neighborhood quality predict mortality better for White than for Black adults (Assari, 2017). Net of other covariates, Whites' perceived neighborhood quality was stable over time in this study, whereas Blacks' perceived neighborhood quality declined with age. This may give Whites' reports of neighborhood quality at one point in time greater predictive power in the future, as the one-time measurement reflects stable perceptions, while Blacks' reports of neighborhood quality reflect a perception that is likely to change—and decline—as time passes.

An intersectional approach to understanding advantage/disadvantage is enlightening here as well (e.g., Veenstra, 2011; Viruell-Fuentes et al., 2012). For instance, Fig. 1 illustrates the intersection of race and class as determinants of perceived neighborhood quality over time. Markers of socioeconomic status such as higher education and home ownership provide benefits for White and Black participants alike, but these benefits are noticeably greater for Whites. This is in keeping with theories of “diminished gain” for Black Americans, whereby the advantages associated with socioeconomic status are markedly smaller for Black than for White Americans (Assari, 2018). Indeed, the most advantaged Black participants showed trajectories of perceived neighborhood quality that were similar to those of the *least* advantaged White participants. Education beyond college, home ownership, and non-parental status managed to counteract the average decline with age in perceived neighborhood quality for Black participants, but offered little more; for White participants, education beyond college, home ownership, and non-parental status were associated with clear and consistent improvements in perceived neighborhood quality over time. Further, although gender was not included in Fig. 1—since it was associated only with stable differences in neighborhood quality—it is important to note that gender intersects with race and class as well, with women's predicted trajectories being parallel to, but lesser than, those of their male counterparts of the same race and education, home ownership, and parental statuses.

Overall, the present findings offer some support for both CAD and CIT, for different sociodemographic predictors. Despite their differences, however, both CAD and CIT anticipate the same general end result, which was borne out in these analyses: Across the life

course, the most privileged gain greater advantage in comparison with the least privileged, whether the divergences in their trajectories are symmetric or asymmetric (Dannefer, 1987, 2003; Ferraro et al., 2009). Moreover, dis/advantage in this context must be understood as the intersection of various sociodemographic factors, including gender, race, and socioeconomic status. This study establishes perceived neighborhood quality as among the facets of social life that diverge between individuals over time based on their personal characteristics (e.g., race, class). This extends the literature on CAD and CIT, and has implications for theory and future research concerning determinants of successful aging in place.

4.3. *Neighborhoods and well-being*

As a secondary aim, this study examined the implications of perceived neighborhood quality for both positive and negative aspects of well-being over twenty years. The results were clear, and in accordance with prior findings (e.g., Hale et al., 2013; Haney, 2007; Oswald et al., 2010; Yen et al., 2006, 2009): Perceived neighborhood quality was significantly positively related with life satisfaction, and significantly negatively related with negative affect, across the two-decade span. Prior research has established that subjective appraisals of neighborhood quality predict well-being independent of objective neighborhood characteristics (Haney, 2007). Thus, whether participants' perceptions of neighborhood quality reflect objective neighborhood characteristics or subjective appraisals of (potentially stable) neighborhood features, those perceptions themselves have clear implications for well-being in mid- and later life. The present findings thus underscore the importance of examining perceived neighborhood quality as a potential determinant of well-being in adulthood, both alongside and separate from objective neighborhood characteristics (e.g., Haney, 2007). Even when neighborhood structure remains stable, individuals' needs and desires may shift—and therefore their perceptions of neighborhood quality and their well-being may shift, as well (e.g., Oswald et al., 2010). An important direction for future research will be disentangling the influence of objective vs. subjective aspects of neighborhood quality—as well as neighborhood social vs. built environment—for well-being across mid- and later life, including examination of age-based differences in these effects.

4.4. *Mechanisms for differential trajectories*

As noted earlier, there are two primary explanations for differential life course trajectories of perceived neighborhood quality: (1) objective changes to neighborhood characteristics, whether due to changes within the neighborhood itself or due to changes in the neighborhood(s) in which one lives, and (2) subjective changes to individuals' appraisals of stable neighborhood features, perhaps due to changing life circumstances and desires/needs for one's neighborhood. The present study cannot distinguish the relative influence of (1) and (2), but it is likely that the two explanations overlap and work in conjunction. This dual explanation is bolstered by the empirical results of the present study.

First, educational attainment served as a defining factor in residents' life course trajectories of perceived neighborhood quality: The best educated saw improvements in neighborhood quality as they grew older, whereas the least educated saw declines in neighborhood quality instead. This implies that the most advantaged may either select and/or impact their neighborhoods more so than the least advantaged do, resulting in greater satisfaction and lower frustration as they grow older and their age-related needs and desires change (Greenfield, 2012; Oswald et al., 2010).

However, despite these differential trajectories according to education attainment, the overall deficit in perceived neighborhood quality among the least educated was contingent upon parental status. In other words, residents with less than a high school education reported inferior neighborhood quality only if they had children. This likely indicates differences in desired neighborhood structure, built environment, and/or needed neighborhood features due to parental status (e.g., Quercia and Galster, 2000). The neighborhoods within which the least educated live may meet their individual (or even partnered) needs, but largely fail to meet the increased desires and needs that arise when raising children.

Second, Black residents reported declines in neighborhood quality with age, unlike their White counterparts. This too may be due to a combination of objective and subjective neighborhood factors. For instance, Black and White residents have different preferences concerning neighborhood social demographics. Black Americans prefer to live in integrated neighborhoods with a clear Black presence, ideally a 50/50 split, a density far too high for most White residents (Krysan and Farley, 2002). Moreover, Black residents are averse to entering predominantly or entirely White neighborhoods that lack a Black presence due to the potential for discrimination (Hunt et al., 2007; Krysan and Farley, 2002). This only exacerbates the exclusion of Black residents from high-quality neighborhoods that results from overt racial discrimination (Acevedo-Garcia and Lochner, 2003; Pager and Shepherd, 2008). Thus, it is not necessarily surprising that as Black adults age they may be increasingly frustrated with the neighborhoods in which they live, in comparison with the neighborhoods they have either been excluded from or feel unwelcome in (e.g., Suls and Wheeler, 2012).

Lastly, the negative impact of renting a home (vs. owning or paying on mortgage) was somewhat mitigated for Black respondents. It is possible that this is due to racial differences in home ownership status, given the higher prevalence of renting a home among Black respondents (38% across all waves for Black respondents, vs. 16% for White respondents). Thus, perceived neighborhood quality may be subject to a process of social comparison (e.g., Festinger, 1954; Suls and Wheeler, 2012). That is, renting a home may either be more of a transitional life stage or a more stigmatized adult status for White respondents, and a more typical and normalized status for Black respondents, resulting in White renters perceiving their living situations as inferior to their peers' to a greater extent than Black renters do. Future research is needed to determine whether objective neighborhood characteristics differ for White and Black renters to the same extent as their subjective appraisals of quality differ.

4.5. Limitations and future directions

The present study retains a number of limitations. First, due to the long gap between data collection waves and the age of sample participants, attrition reduced both the size and representativity of the longitudinal sample. It is possible that participants who remained in the sample for multiple waves—and whose data were therefore more heavily weighted in these analyses—differ from those who were lost to attrition. Future research ought to examine neighborhood quality and its association with mortality and/or attrition, perhaps using data collected at shorter intervals.

Second, information on neighborhood quality in these data is limited to self-reports. Therefore, this study cannot differentiate between objective changes in neighborhood structure or quality (e.g., reductions in crime, shifts in demographics) and changes in residents' perceptions thereof (e.g., opinions of stable neighborhood factors shifting with age). Although both objective and subjective aspects of neighborhood quality impact individuals' well-being across the life course (Haney, 2007), they imply different mechanisms and thus different interventions to improve outcomes. Moreover, the measure of neighborhood quality used in this study refers primarily to the social environment—rather than the built environment—of participants' neighborhoods, and these also imply different mechanisms that may influence residents' health and well-being (e.g., Renalds et al., 2010; Yen et al., 2009).

Lastly, while the three-wave longitudinal data used in this study allowed for an examination of perceived neighborhood quality trajectories—and thus had a clear advantage over cross-sectional analysis—these data did not allow for a thorough delineation of age, cohort, and period effects. That is, trajectories of perceived neighborhood quality across the age range in this sample may be due to aspects of the aging process itself, whether social, biological, or otherwise (i.e., age effects); conversely, these trajectories may be unique to the particular cohort or generation(s) of midlife and older adults included in this sample (i.e., cohort effects); or, lastly, these trajectories may be due to circumstances specific to the historical period covered by this data set (i.e., period effects), which notably includes major events such as the 9/11 terrorist attacks and the Great Recession (with its concomitant crash of the housing bubble). Future research, encompassing multiple cohorts across numerous historical periods, will be better suited to parse out these three potential explanations for the trajectories identified in this study.

5. Conclusion

Despite its limitations, this study makes clear contributions to the literature on cumulative advantage/disadvantage (CAD), cumulative inequality theory (CIT), and the importance of neighborhood context across the life course. Findings suggest that perceptions of neighborhood quality—whether due to objective neighborhood factors or subjective appraisals of neighborhoods—shift over the life course, with benefits increasingly accruing to the most privileged, and decreasingly accruing to the least advantaged.

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