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The Effects of Retirement on Sense of Purpose in Life: Crisis or Opportunity?

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Abstract

Does retirement lead to an existential crisis or present an opportunity to experience a renewed sense of purpose in life? Prior research has documented a negative association between retirement and sense of purpose in life, suggesting that retirement could lead people to feel aimless and lost. We revisited these findings using a quasiexperimental approach and identified the causal impact of retirement on purpose in life. In a nationally representative panel of American adults (N = 8,113), we applied an instrumental-variable analysis to assess how Social Security retirement incentives in the United States drove differences in the likelihood of retirement. Results showed a sizable increase in purpose in life as an outcome of retirement. These improvements were driven by individuals with lower socioeconomic status who retired from dissatisfying jobs. The findings suggest that retirement may provide an opportunity to experience a renewed sense of purpose, especially among socioeconomically disadvantaged populations.

Keywords

aging, meaning, well-being, socioeconomic status, life experiences, open data, open materials

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For many people, work is more than a paycheck. Work provides a social role and identity (Froidevaux et al., 2018) and is considered an essential source of purpose in life (Ward & King, 2017). In retirement, people lose the roles, goals, and structure provided by work, which can create an existential vacuum and cause people to feel aimless and lost.

Consistent with this hypothesis, results of a meta-analysis documented a negative correlation between retirement and sense of purpose in life (N = 2,858; Pinquart, 2002). More recent work found a positive link between retirement status and longitudinal declines in sense of purpose (Hill & Weston, 2019). However, these associations may not accurately reflect the causal impact of retirement on purpose in life; instead, they may capture the reverse relationship in which retirement is driven by decreases in purpose. Or the associations could be explained by unmeasured factors (e.g., illness, bereavement) that simultaneously change purpose while inducing the decision to retire.

To rule out these alternative explanations, we used a quasiexperimental approach that allowed us to estimate the causal impact of retirement on sense of purpose in life. Following prior studies (e.g., Charles, 2004; Gorry et al., 2018), we took advantage of a variation in retirement that is driven by eligibility rules for Social Security retirement benefits in the United States. Because benefits are offered to all citizens but only at specific ages (e.g., 62 years, 65 years), changes in Social Security eligibility status create a variation in the likelihood of retirement independent of personal factors that could confound the relationship between retirement and purpose in life (e.g., bereavement, illness, baseline levels of purpose). In a nationally representative longitudinal panel of Americans (N = 8,113),

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we used an instrumental-variable analysis to isolate this policy-driven variation in retirement and uncovered a positive causal impact of retirement on sense of purpose in life over 4 to 8 years after participants left the workforce.

We also used these data to examine whether the effects of retirement differed over the short term (1–4 years after retirement) or long term (4–8 years) and to explore participant characteristics driving our results. The resource theory of retirement suggests that social, financial, and psychological resources could moderate the effects of retirement on well-being (Wang & Shi, 2014). Identity-based theories also highlight the possibility of positive changes in well-being after retirement for individuals with lower work identification or higher job stress (Froidevaux et al., 2018). To address these theories, we documented for whom retirement may positively affect their sense of purpose and why.

Method

Participants

We tested our hypotheses in a sample recruited from the Health and Retirement Study (HRS), a longitudinal, nationally representative study of aging in the United States (data were drawn from the 2006 to 2016 HRS waves). In 2006 (Wave 1), 50% of the HRS panel was randomly chosen to complete a lifestyle questionnaire, which included questions about sense of purpose and included longitudinal follow-ups in 2010 and 2014. The remaining 50% of the sample completed this questionnaire in 2008 (Wave 2), with follow-ups in 2012 and 2016 (Sonnega et al., 2014). Our initial sample contained 14,275 individuals who completed the lifestyle questionnaire.

Because our hypotheses applied only to individuals who transitioned from work to retirement, we excluded 3,367 individuals who, at any wave, reported that they were out of the labor force, unemployed, or disabled. We excluded observations with missing data on sense of purpose or labor-force status in any given wave. This led to the exclusion of 2,400 individuals. We dropped observations if individuals used a proxy in a given wave (e.g., their spouse or child responded on their behalf); this led to the exclusion of 58 individuals. After we retained participants who had at least two observations for our panel-data analysis, the analytic sample consisted of 8,113 individuals and 21,714 person–wave observations. The exclusion criteria and changes in sample size are reported in detail in Table S1, and sample characteristics are described in Table S2 (both tables can be found in the Supplemental Material available online).

Statement of Relevance

Work provides people with a structure for living, goals, and a sense of identity; therefore, retirement is considered a developmental milestone that initiates significant changes in people's conceptions of self and life. However, it is unclear whether this important transition leads to an increase or a decrease in a general sense of purpose in life. Although existing correlational evidence supports the idea that sense of purpose declines during retirement, our study used rigorous quasiexperimental techniques to show that the effects of retirement on sense of purpose are positive and driven by individuals with lower socioeconomic status who are dissatisfied with their work. The findings are important in the global context of aging populations and policy debates about increasing mandatory retirement ages to make older adults work longer. The findings suggest that policies that delay retirement may have adverse psychological impacts, especially on vulnerable populations.

Measures

Purpose in life. Sense of purpose in life was assessed with a widely used seven-item scale that measures the extent to which people have goals and aims that give direction and meaning to their lives (Ryff & Keyes, 1995). The scale includes questions such as "I have a sense of direction and purpose in life" and "My daily activities often seem trivial and unimportant to me" (reverse scored) rated on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). By capturing people's degree of meaningful engagement with goals and daily activities, our measure of sense of purpose assessed productive engagement with life and existential concerns, which are critical issues at later stages of life (Ryff & Keyes, 1995).

Sense of purpose was measured in all waves of the HRS data ($M = 4.65$, $SD = 0.91$). The scores for the items were averaged and the final measure showed strong reliability at all waves (Wave 1: $\alpha = .74$, Wave 2: $\alpha = .77$, Wave 3: $\alpha = .77$). The variable was set to missing if participants left more than three items incomplete, which occurred in less than 0.001% of the sample. The measure was standardized ($M = 0$, $SD = 1$) so the results could be reported in standard-deviation units.

Retirement. The HRS includes a battery of questions about retirement status. In one question, individuals are asked, "At this time do you consider yourself to be completely retired, partly retired, or not retired at all?" Other

questions ask about employment status in the participants' primary, second, and third jobs (e.g., working part time, working full time, retired). Using HRS data, the RAND Institute for the Study of Aging created a new data set in which certain variables, including the labor-force-status variable, were imputed and standardized (Bugliari et al., 2019). We used the labor-force-status variable in RAND HRS longitudinal data files to construct the retirement variable.

The labor-force-status variable in the RAND data classified individuals as fully retired if (a) they reported that they were retired in any of the questions included in the survey, and (b) they reported that they were not looking for employment. If participants reported part-time employment and mentioned being retired, they were classified as partly retired. Individuals were classified as working full time if they reported working at least 35 hr per week. Any participant who worked less than this threshold was classified as working part time. In the sample used in our analysis (N = 8,113), 56% of participants were fully retired, 12% were partly retired, 26% were employed full time, and 5% were employed part time, according to RAND data. To create a dummy variable that measured retirement, we assigned a value of 1 to participants who were fully and partly retired and 0 to those working full time and part time (for a similar operationalization, see Gorry et al., 2018).

Prior research has defined retirement as active withdrawal from work, which is described as a behavioral change that occurs over time (Wang & Shi, 2014). Because retirement was measured in all HRS waves, we could apply panel-data methods to track changes in retirement status over time: from 0 (working part time or full time) to 1 (partially or fully retired). For an exploratory analysis, we estimated the effects of transitioning from full-time work to full-time retirement and from full-time work to partial retirement (for an explanation of the models and results of this analysis, see Table S3 in the Supplemental Material).

Covariates. The panel-data methods that we applied focus on assessing within-person changes over time, which automatically controls for person-fixed factors that do not change over time. Therefore, our regression models did not include person-fixed covariates such as gender, race, and education. Instead, we included time-varying covariates that could change within persons over time and that were measured in all waves of the data: marital status, age, household income, and perceived health. Across waves, marital status was coded as 1 if participants were married or partnered and 0 if they were divorced, widowed, or never married or their spouse was absent. Age was measured in months, and age^2 and age^3 were also used to account for any potential nonlinear relationships with age. Household income equaled the sum of pensions and annuities, Social Security disability and retirement, unemployment and workers' compensation, other government transfers, and household capital income for the spouse and participant in the last calendar year. A single-item measure provided a global assessment of participants' health on a scale from 1 (*poor*) to 5 (*excellent*).

Other variables. We also examined the characteristics of the population that drove the effects of retirement in the current analysis. We used the following sociodemographic variables: gender (female = 1, male = 0), race (White = 1, other = 0), a person-fixed measure of education (college graduate = 1, other = 0), and a baseline measure of marital status (married/partnered = 1, other = 0). For economic variables, we used baseline measures of (a) household income (see above); (b) total wealth, indexed by the value of assets (e.g., residence, real estate, vehicles) owned by the household minus debts (e.g., mortgage, home loans); and (c) labor income (the sum of the participant's wage, bonuses, second job or military earnings, professional practice income, or trade income).

We also included two work-related characteristics at baseline. Occupation was measured on the basis of the 1980 U.S. Census classification scheme (Stevens & Cho, 1985). Occupation was coded as 1 if participants were white-collar employees working in managerial and professional occupations or technical, sales, and administrative support fields in their job with the longest tenure. All other occupations (blue-collar and service workers) were coded as 0. Job satisfaction was constructed using the average scores from nine questions that assessed satisfaction with various aspects of the job at the baseline wave (e.g., support, freedom, recognition, security; 1 = *strongly disagree*, 4 = *strongly agree*; α = .80; Karasek, 1979). Finally, we also used baseline sense of purpose in life and perceived health in understanding participant characteristics.

Statistical analysis

Main analysis. We used an instrumental-variable approach to identify the causal impact of retirement on sense of purpose in life. The instrumental variable is a commonly used statistical tool in economics to enable causal inferences from observational data when random assignment of a treatment is not feasible or ethical (Angrist & Pischke, 2008). The instrumental variable overcomes the limitations of correlational analysis in observational data that also plague the analysis of retirement and purpose in life. The associations between retirement and purpose in life may be driven by decreasing levels of purpose

inducing the decision to retire (reverse causality) or unmeasured factors such as bereavement, illness, or retirement of loved ones that simultaneously lower sense of purpose while increasing the likelihood of retirement (omitted-variable problem). Because these factors most likely yield opposing influences on retirement and purpose (the effects on purpose are negative and the effects on retirement are positive), the association between retirement and purpose could be biased toward zero, that is, appear more negative than the true relationship between retirement and purpose.

The instrumental variable addresses these issues in correlational analysis by isolating an exogenous variation in the likelihood of retirement, that is, a variation that is created by an external factor that is independent of the outcome (purpose in life) and other determinants of the outcome (e.g., bereavement, illness). By using this exogenous variation in retirement and measuring its impacts on sense of purpose in life, the instrumental variable rules out the possibility that this relationship between retirement and sense of purpose in life may be driven by reverse causality or omitted variables and increases our confidence that the relationship will accurately capture the direct causal impact of retirement on sense of purpose in life.

In the instrumental-variable approach, a third variable (an instrument) is used to measure the external factor that creates the exogenous variation in the explanatory variable (retirement). Following previous studies on the causal effects of retirement in health economics (e.g., Charles, 2004; Gorry et al., 2018), we used eligibility status for Social Security retirement benefits in the United States as an instrument in our analysis. The U.S. retirement policy allows individuals to claim 80% of their retirement benefits for the first time at age 62 years or wait and claim 100% of benefits at the normal retirement age, which, depending on their birth cohort, varies between ages 65 and 67 years (M = 66 years, SD = 0.49; see Table S4 in the Supplemental Material). Prior studies have shown that Social Security eligibility is a strong determinant of retirement behavior in the U.S. population (Fitzpatrick & Moore, 2018; Gorry et al., 2018). In addition, government-set retirement incentives apply to everyone who reaches a certain age; hence, one's date of birth and government policy are the only determinants of Social Security eligibility. Factors such as sense of purpose in life or other potential unobserved factors related to purpose should not have a direct effect on the timing of Social Security eligibility. Therefore, Social Security eligibility is a valid instrument that creates an exogenous variation in the likelihood of retirement, enabling us to estimate the causal impact of retirement on sense of purpose in life.

In applying the instrumental-variable analysis to the current data, we first regressed retirement status on Social Security eligibility to test whether crossing the Social Security age thresholds predicted within-person changes in retirement over time (the first-stage regression). Here, Social Security eligibility was measured with two dummy variables that indicated whether participants were eligible for early retirement benefits (1 = age 62 years or older) and normal retirement benefits in a given wave (1 = ages 65–67 years or older; see Table S4). We then used, in the second stage, the predicted values of retirement from the first stage as a predictor of changes in people's self-reported sense of purpose over time. Note that these two steps were estimated simultaneously rather than separately in a regression.

Note also that we applied the instrumental-variable analysis in panel data, which enabled us to study within-person changes in retirement and sense of purpose in life using individual fixed effects. By focusing on within-person changes, the fixed-effects method automatically controls for all factors that remain stable over time for each individual. These include person-specific factors, such as early life experiences, personality, and genetic factors, that are hard to observe and measure. This method also removes the need to control for any of the observable person-fixed determinants of purpose, including gender, race, and highest educational level.

Even though a valid instrumental variable does not require including further controls to obtain unbiased estimates, we also controlled for within-person changes in marital status, income, and perceived health from all waves in our models as a further robustness check. Similarly, we included age, age^2, and age^3 from all waves to prevent the possibility that our model captured only the effects of aging on purpose in life. If the effects of aging in general are held constant, it is unlikely that these specific Social Security eligibility ages coincide with any abrupt changes in purpose directly or initiate special life events (apart from retirement) that could change average levels of purpose. This implies that changes in retirement status are likely the only channel through which Social Security eligibility ages can induce within-person changes in purpose in life. We clustered standard errors at the household level in all the models to control for potential nonindependence of responses across members of the same family—47% of the unique individuals in the data had another household member participating in the survey.

We also estimated whether the effects of retirement on sense of purpose in life varied over time by replacing the retirement dummy with (a) a dummy variable indicating being retired for 1 to 4 years and (b) a dummy variable indicating being retired for 4 to 8 years.[1] In this analysis, four instruments were used: dummy variables indicating being 1 to 4 years above the eligibility ages

Table 1. Results of Regressions Predicting the Impact of Retirement on Sense of Purpose in Life

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Retired	−0.21** [−0.271, −0.152]	−0.08** [−0.120, −0.035]	0.32* [0.072, 0.574]	0.29* [0.043, 0.541]	
Retired 1–4 years					0.37* [0.081, 0.664]
Retired 4–8 years					0.20 [−0.148, 0.554]
Age	−0.01 [−0.022, 0.010]	0.00 [−0.012, 0.015]	0.01 [−0.009, 0.019]	0.00 [−0.009, 0.018]	−0.00 [−0.024, 0.020]
Age^2	0.00 [−0.000, 0.000]	0.00 [−0.000, 0.000]	−0.00 [−0.000, 0.000]	−0.00 [−0.000, 0.000]	0.00 [−0.000, 0.000]
Age^3	−0.00 [−0.000, 0.000]	−0.00 [−0.000, 0.000]	−0.00 [−0.000, 0.000]	−0.00 [−0.000, 0.000]	−0.00 [−0.000, 0.000]
Married				0.03 [−0.026, 0.088]	
Household income (log)				0.01† [−0.001, 0.023]	
Health				0.07** [0.051, 0.090]	
Year fixed effects	No	Yes	Yes	Yes	Yes
Individual effects	No	Yes	Yes	Yes	Yes
R^2	.02	.04			
Observations	8,113	21,714	21,714	21,692	21,714

Note: Standardized regression coefficients are shown. The first regression model was estimated with the ordinary least squares (OLS) regression method. The second model included individual fixed effects. The third, fourth, and fifth models were estimated with an instrumental-variable method combined with individual fixed effects. Three waves of data were drawn from two cohorts of the Health and Retirement Study (Cohort 1: 2006, 2010, 2014; Cohort 2: 2008, 2012, 2016). Purpose-in-life and health measures were standardized ($M = 0$, $SD = 1$). Income was indexed by total household income and logarithmically transformed. Being married was coded as a dummy variable. Age was measured in months. Errors were clustered at the household level in all models. Values in brackets are 95% confidence intervals.

†$p < .10$. *$p < .05$. **$p < .01$.

for (a) early retirement and (b) normal retirement and 4 to 8 years above the eligibility ages for (c) early retirement and (d) normal retirement.

The validity of the instrumental variables. We provided statistical evidence to support our assumption that Social Security eligibility dummies are valid instruments by showing that they created meaningful changes in the explanatory variable (retirement), but they were not directly related to the outcome (purpose in life) or its unobserved determinants beyond their effects on retirement. The probability of retirement increased with age, and there was a noticeably sharp and large increase in retirement between the ages of 61 and 62 years when individuals first become eligible for early retirement benefits (see Fig. S1 in the Supplemental Material). We also documented a steady increase in retirement at the age of normal pension eligibility (65–67 years; see Fig. S1).[2] Importantly, as revealed by the first-stage regression analysis (see Table S5 in the Supplemental Material), controlling for changes in income, perceived health, marital status, and linear and nonlinear relationships with age, analyses showed that changes in retirement status were predicted by early retirement eligibility ($\beta = 0.17$, 95% confidence interval [CI] = [0.142, 0.191], $p < .001$) and normal retirement eligibility ($\beta = 0.10$, 95% CI = [0.079, 0.124], $p < .001$). A common recommendation to validate the strength of the instruments is that the F statistic that tests the joint significance of the instruments in the first-stage regression model should be above 10 (Stock et al., 2002), which was supported in the current analysis, $F(2, 6195) = 127.30$, $p < .001$.

We also tested whether the instruments were statistically independent of unobserved variables or the outcome in the data (Sargan, 1958), which requires that the null hypothesis that supports the independence assumption is not rejected in a Sargan-Hansen test. The null hypothesis in the Sargan-Hansen test was not rejected in the fixed-effects/instrumental-variable model without covariates (see Table 1, Model 2; $J = .422$; p from χ^2 test = .516) or with covariates ($J = .331$; p from χ^2 test = .565), providing evidence that the instruments were valid in enabling causal inferences. Altogether, these analyses provide support that our application of

the instrumental-variable analysis in the current data using Social Security eligibility dummies as the instrumental variable was appropriate for estimating the causal impact of retirement on sense of purpose in life.

Complier analysis. The instrumental-variable analysis is considered similar to randomized controlled trials in which people are randomly assigned to a treatment condition, but not everyone complies with or fully participates in the treatment. This is also the case in the current analysis in which not everyone who was treated (who reached retirement-eligibility ages) complied with the treatment (shifted into retirement). There were individuals who, despite turning 62 years or 65 to 67 years, continued to work and retired at later ages. Hence, the instrumental-variable method estimates only the local average treatment effect. This is the causal effect of retirement among individuals whose decision to retire was directly influenced by reaching the Social Security eligible ages, that is, among the compliers. An important question is to understand who these compliers are in the current analysis.

Following Angrist and Pischke (2008), we described complier characteristics using the coefficients of the eligibility-age dummies from the first-stage regression. When estimated in the full sample, these coefficients measured the probability of complying (moving into retirement) in response to early and normal retirement-eligibility ages for the general population. When estimated in a restricted sample (e.g., college graduates), the coefficients measured the probability of compliance in that subpopulation. By dividing the probability in the restricted sample by the probability in the full sample, we were able to calculate the relative likelihood that a person who complied with early or normal retirement eligibility is from a subgroup of the population (e.g., a college graduate) compared with the full sample, which represents the general population (see Table S6 in the Supplemental Material).

Note that any differences in preretirement characteristics between compliers and the full sample determine for whom the causal estimates apply, but they do not threaten the internal validity of the estimates (that the instrumental-variable estimates measure unbiased causal relationships). Because the timing of Social Security eligibility cannot be determined by individual characteristics, eligibility-driven changes in the likelihood of retirement can be assumed to be independent of these factors. Additionally, our application of within-person analysis prevented preretirement, person-fixed factors from affecting our results.

Because the instrumental-variable estimates were based on the compliers' responses to the instruments, one question is whether our results can be generalized outside the context of our study. To answer this question, it is useful to know that at least a third of the U.S. population retires at the age of 62 years, the age at which retirement benefits first become available (Fitzpatrick & Moore, 2018). In addition, age-based rules for retirement eligibility are used in many countries around the world. Therefore, the age thresholds used as instruments in our analysis are relevant for large groups of the population in the United States and many other countries, lending further support for the external validity of the instrumental-variable estimates.

For completeness, we discuss our empirical strategy in detail here. To replicate earlier findings in the literature that documented a negative association between retirement and sense of purpose in life (Hill & Weston, 2019; Pinquart, 2002), we first regressed sense of purpose in life on retirement in a standard ordinary least squares (OLS) regression analysis using cross-sectional data from the baseline wave (Model 1). Next, we provided within-person estimates of the relationship between retirement and sense of purpose in life in a fixed-effects regression (Model 2). We then combined the fixed-effects model with the instrumental-variable approach to identify the causal effects of retirement on purpose in life, which represent the main findings of the present research (Model 3). We used this step-by-step analysis to document the biases in the correlational estimates and how these biases could be addressed through the application of more advanced models. We also explored whether being retired for shorter as opposed to longer periods of time differentially impacted sense of purpose (Model 4) and examined the characteristics of the individuals whose sense of purpose has been impacted by changes in retirement status induced by pension-eligibility ages (Model 5).

Results

Main analysis: the effects of retirement on sense of purpose in life

Does retirement increase or decrease sense of purpose in life? To provide an initial test of this question, in Figure 1, we document the relationship in the raw data between sense of purpose in life and age using cross-sectional data from all waves. Consistent with previous work (Springer et al., 2011), the results shown in Figure 1 reveal that sense of purpose declined as a function of age among middle-age and older adults, but there was also a noticeable increase in sense of purpose following the Social Security eligibility ages for early retirement (62 years) and normal retirement (between 65 and 67 years; average = 66). Figure 1 provides evidence that the act of retirement may increase sense of purpose in life. Further, it highlights the possibility that declines in sense of purpose over time (or

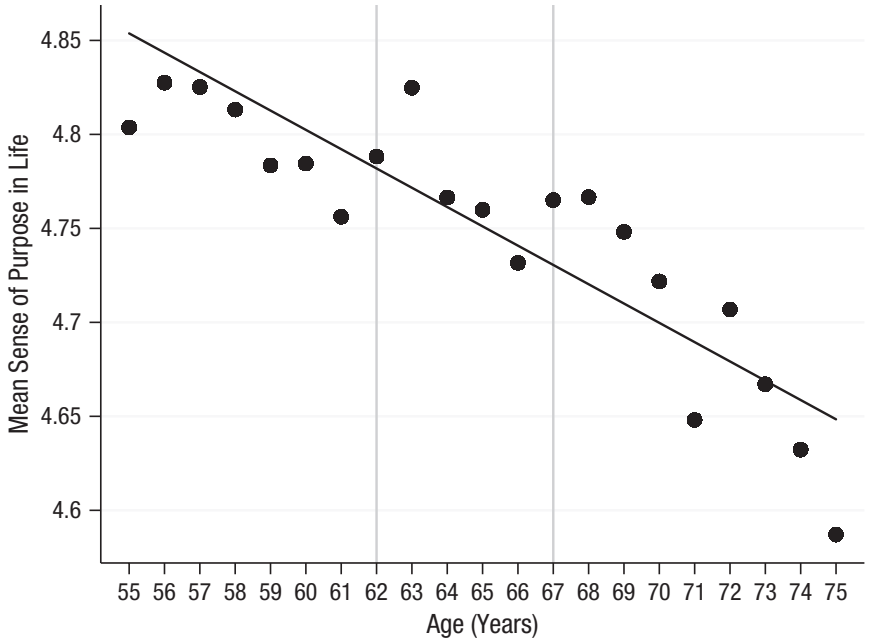

Fig. 1. Mean sense of purpose in life as a function of age. Vertical lines represent Social Security retirement-eligibility ages in the United States. The diagonal line shows the best-fitting regression. Data were drawn from the Health and Retirement Study (2006–2016).

factors related to this decline) may increase retirement behavior, creating a negative bias in the relationship between retirement and sense of purpose. By progressing from basic correlational analysis to more advanced methods that tackle these biases, we can observe whether the correlational estimates were indeed biased in the current data.

We wanted to test whether, in the absence of the fixed-effects/instrumental-variable strategy, we could replicate earlier findings that have shown a negative association between retirement and sense of purpose (Hill & Weston, 2019; Pinquart, 2002). The standard OLS regression analysis in baseline cross-sectional data has shown this possibility. As reported in Table 1, there was a negative association between retirement and sense of purpose when analyses controlled for the effects of aging (Model 1: $\beta = -0.21$, 95% CI = [−0.271, −0.152], $p < .001$). Next, we studied the associations between within-person changes in retirement and purpose while holding constant person-specific confounding factors in a fixed-effects model in panel data. As Model 2 shows, this also produced a negative coefficient for retirement ($\beta = -0.08$, 95% CI = [−0.120, −0.035], $p < .001$); however, the size of the association was smaller and less negative. This suggests that the initial correlations may have been biased toward zero because of the confounding factors unaccounted for in the model.

Next, we combined the instrumental-variable analysis with fixed effects to estimate the causal impact of retirement on sense of purpose. This method tackled the sources of bias that cannot be accounted for in the within-person analysis, such as those that arise from reverse causality and unobserved factors that are not fixed at the individual level but vary over time (e.g., changes in health, bereavement). As Table 1 shows, in the fixed-effects/instrumental-variable model, retirement had a positive effect on sense of purpose (Model 3: $\beta = 0.32$, 95% CI = [0.072, 0.574], $p = .012$), even after models controlled for changes in marital status, household income, and perceived health (Model 4: $\beta = 0.29$, 95% CI = [0.043, 0.541], $p = .021$). As the results for Model 5 show, the positive effects were larger in magnitude and more precisely estimated for people who had been retired for 4 years or fewer ($\beta = 0.37$, 95% CI = [0.081, 0.664], $p = .012$) than between 4 and 8 years ($\beta = 0.20$, 95% CI = [−0.148, 0.554], $p = .257$).

The effects remained positive when we estimated the effects of shifting from full-time work to full-time retirement (see Table S3, Column 1) and the effects of shifting from full-time work to part-time retirement (see Table S3, Column 2). Nevertheless, the effects were not significant, likely because of the smaller sample size available.

Results continued to hold when (a) we used survey weights to adjust the sample for representativeness, (b) we excluded individuals who returned to employment after retiring (2% of the sample), and (c) we adjusted the model to include changes in spousal retirement status, which was not included in the main analysis because of a large number of missing data (see Table

S3, Columns 3 and 4). Excluding individuals whose household income or earnings from their full-time job were above the 91st or 95th percentile did not change these findings in a meaningful way (see Table S7 in the Supplemental Material).

Additional analysis: Who drives the effects of retirement on sense of purpose?

We also shed light on the characteristics of the individuals whose retirement decision was impacted by the early and normal Social Security age cutoffs (compliers). The compliers were individuals whose retirement decision led to an improvement in their sense of purpose, according to the fixed-effects/instrumental-variable estimates. Hence, the analysis provided an explanation for the average positive effect in our sample.

Our analysis of complier characteristics showed that, compared with the full sample, people who retired early (at age 62 years) were 44% less likely to have high satisfaction in their preretirement jobs. They were less likely to have a higher socioeconomic status, as indicated by a 36% lower likelihood of having a college degree, 16% lower likelihood of working in a white-collar occupation, 19% lower likelihood of having above-median wealth, and 48% lower likelihood of having above-median earnings among compliers who took advantage of early retirement eligibility, compared with the full sample. There were no meaningful differences in demographics and perceived health and, notably, sense of purpose in life between compliers who took advantage of early retirement eligibility and the full sample. People who complied with normal retirement-eligibility requirements were 20% more likely to be female, compared with the full sample, but they did not differ meaningfully along the other critical dimensions. Full descriptive statistics are shown in Table S2.

Discussion

Consistent with previous research (Hill & Weston, 2019; Pinquart, 2002), our results show a negative cross-sectional association between retirement and sense of purpose in life. However, after applying a quasiexperimental method addressing the limitations of correlational analysis, we observed a positive causal impact of retirement on purpose in life. This effect was concentrated over the first 4 postretirement years and among individuals with lower socioeconomic status who were dissatisfied in their jobs.

The findings suggest that retirement can foster well-being as a result of improved psychological resources from leaving an unsatisfactory job (Froidevaux et al., 2018), even when people have fewer financial resources available after retirement (Wang & Shi, 2014). The results contribute to limited research on factors that causally increase sense of purpose in older ages, a period when sense of purpose tends to show a decline (Springer et al., 2011) yet predicts positive health outcomes (Kim et al., 2017) and longevity (Hill & Turiano, 2014). Note that sense of purpose is considered a motivational factor that gives rise to a general sense of meaning in life (Ward & King, 2017), so the findings also shed light on what makes life meaningful and for whom.

People associate work with low pleasure, despite finding it rewarding (White & Dolan, 2009). This implies that retiring may increase happiness but decrease purpose. Studies have shown retirement-induced increases in life satisfaction (Gorry et al., 2018) and decreases in depression (Charles, 2004). Yet we did not find evidence of an asymmetric, negative impact on purpose, possibly because work is not as strong a source of purpose for older adults with lower socioeconomic status. Building on our global assessment of purpose in life, future researchers can use domain-specific measures to more directly examine the pleasure or purpose that people may derive from work as opposed to retirement activities (e.g., leisure).

Overall, our analysis demonstrates that retirement, as a crucial developmental milestone, may be something to be celebrated rather than feared for many people. In particular, the findings suggest that the policies to increase mandatory retirement ages may have adverse impacts on the well-being of socioeconomically vulnerable populations.

Transparency

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All the authors developed the study concept. A. Yemiscigil analyzed the data and drafted the manuscript. N. Powdthavee and A. V. Whillans provided critical revisions. All the authors approved the final manuscript for submission.
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Open Practices
The data used in this study are available from the website of the Health and Retirement Study (https://hrs.isr.umich.edu/data-products). The following files can be found at https://hrsdata.isr.umich.edu/data-products/rand?_ga=2: 2006 RAND HRS Fat File (h06f3a_STATA), 2008 RAND HRS Fat File (h08f3a_STATA), 2010 RAND HRS Fat File (hd10f5f_STATA), 2012 RAND HRS Fat File (h12f3a_STATA), 2014 RAND HRS Fat File (h14f2b_STATA), and 2016 RAND HRS Fat File (h16f2b_STATA). RAND HRS Longitudinal File 2016

V1 (randhrs1992_2016v1_archive_STATA) can be accessed at https://hrsdata.isr.umich.edu/data-products/rand-hrs-archived-data-products. Analysis code has been made publicly available via OSF and can be accessed at https://osf.io/ur9cx. This article has received the badges for Open Data and Open Materials. More information about the Open Practices badges can be found at http://www.psychologicalscience.org/publications/badges.

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Supplemental Material

Additional supporting information can be found at http://journals.sagepub.com/doi/suppl/10.1177/09567976211024248

Notes

1. These periods were chosen because of the 4-year intervals between survey waves, which constitutes the period over which we can assess changes in these data.
2. The graph in Figure S1 is less informative for tracking jumps in retirement as a result of reaching normal retirement ages because pension incentives are available to participants at different points between the ages of 65 and 67 years on the basis of participants' specific birth cohort (see Table S4 in the Supplemental Material). It is therefore not possible to directly observe these jumps for specific birth cohorts in Figure S1; however, the increase in retirement at these ages is still evident although more evenly spread out in the figure.

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