



Published in final edited form as:

Arthritis Care Res (Hoboken). 2013 August ; 65(8): 1334–1342. doi:10.1002/acr.21969.

Independent Influences of Current and Childhood Socioeconomic Status on Health Outcomes in a North-Carolina Family-Practice Sample of Arthritis Patients

Antoine R. Baldassari, BA¹, Rebecca J. Cleveland, PhD¹, and Leigh F. Callahan, PhD^{1,2,3}

¹Thurston Arthritis Research Center, University of North Carolina at Chapel Hill, North Carolina, United States

²Division of Rheumatology, Department of Medicine, University of North Carolina at Chapel Hill, North Carolina, United States

³Department of Social Medicine, University of North Carolina at Chapel Hill, North Carolina, United States

Abstract

Objectives—Compelling evidence suggests that socioeconomic status (SES) is a determinant of health outcomes among persons with arthritis. SES in early-life has likewise been associated with various aspects of health, but the connection between childhood SES and health among people with arthritis remains to be investigated. The purpose of this study is to determine the influences of current and childhood SES on self-reported disability, depression, and physical and mental health among people with self-reported doctor-diagnosed arthritis.

Methods—Data originated from a North Carolinian network of primary care centers. Participants with self-reported arthritis with complete sociodemographic and relevant health information were retained in our sample (n = 782). We created summary measures for current and childhood SES from indicators of education, occupation and homeownership, using parental SES as a proxy for participants' childhood SES. Linear regression models were used to assess the associations between health outcomes and SES variables separately and together, adjusting for key covariates.

Results—Lower childhood and current SES scores were associated with worse disability and physical health. Current SES was furthermore associated with mental health and depressive symptoms. Associations of low current and childhood SES with health outcomes remained significant when concurrently included in a linear model.

Conclusion—Childhood and current SES are both determinants of health among persons with arthritis. This underscores the importance of childhood SES as a determinant of adult health among individuals with arthritis. Further studies should focus on these associations in different populations and across different types of arthritis.

Socioeconomic status (SES) is a recognized determinant of health. The association is well-documented in arthritis, as socioeconomic markers such as occupation and educational attainments have been convincingly tied to the health of individuals with arthritis diagnoses, including rheumatoid arthritis (RA), osteoarthritis (OA), lupus and fibromyalgia [1–4].

Studies have placed increasing emphasis on socioeconomic conditions throughout the life-course, and mounting evidence suggests that SES during childhood lastingly influences

mortality [5] and various dimensions of health in adulthood [6–9] independently of later socioeconomic circumstances. Likewise, childhood SES has been associated with etiology and health outcomes across a range of chronic conditions [10–12]. While tremendous advances have been made towards assessing the influence of childhood socioeconomic circumstances in cardiovascular disease [10], the literature remains at an early stage with regards to chronic musculoskeletal disorders. Arthritis studies have so far focused on early socioeconomic determinants of RA development; to date, blue collar paternal occupation, low maternal education and low childhood SES sustained into adulthood were each associated with a greater vulnerability to RA [13–15], whereas self-assessed social class was not found to affect RA prevalence [16]. Additionally, one study found arthritis morbidity to be higher among individuals reared in low-SES families [17].

While the etiological relevance of childhood SES in arthritis has received increasing attention, the relationship between the early socioeconomic environment and health outcomes among individuals with arthritis has yet to be investigated. This study aims to explore independent associations of adult and childhood SES with self-reported disability, depression, physical health and mental health in a cohort of North Carolinians with self-reported doctor-diagnosed arthritis.

MATERIALS AND METHODS

Study design

The North Carolina Family Medicine Research Network (NC-FM-RN) is a statewide practice-based network of 22 family medical practices selected to represent the geographic and racial/ethnic diversity of North Carolina. Over the course of 4 weeks in 2001, individuals over the age of 18 were offered to be recruited into the NC-FM-RN cohort during their visit to a participating practice. Consenting participants were given a questionnaire inquiring about demographics, common diseases, risk factors, and health habits. The cohort was periodically enriched with new participants (2004, 2005, 2008), and is described in greater detail in previous manuscripts [18].

Data originated from complementary phone surveys administered to eligible NC-FM-RN respondents ($n = 4442$) in 2004 and 2006 within the Individual and Community Social Determinants of Arthritis Outcomes (SODE) study. The first survey focused on current demographics, health status, attitudes and beliefs, chronic health conditions and perceptions of neighborhood environment ($n = 2479$), and the second extended to parental characteristics and childhood circumstances ($n = 1541$). Our study focuses on the 782 SODE participants who reported having doctor-diagnosed arthritis, defined according to the 2002 arthritis module of the Behavior Risk Factor Surveillance System [17], and provided all relevant sociodemographic and health information. The flow of participants from the NC-FM-RN to the current study is detailed in Figure 1. All study materials and methods were approved by the University of North Carolina at Chapel Hill Biomedical Institutional Review Board.

Measures

Health outcomes—Disability was evaluated using the Stanford Health Assessment Questionnaire 20-Item Disability Scale (HAQ), a widely-used self-reported measure of disability in which respondents rate the extent to which they can perform a set of common tasks, scored on an integer scale ranging from 0 to 3, with 0 meaning without any difficulty, 1 meaning with some difficulty, 2 meaning with much difficulty and 3 meaning unable to do. Activities are organized across eight categories (dressing and grooming, arising, eating, walking, hygiene, reach, grip, activities), and a mean score out of 3 is produced for each category from corresponding abilities, with higher score indicating greater disability [19].

We used the 12-Item Short Form Survey Instrument (SF-12 v. 2), an abbreviated version of the 36-Item Short Form Health Survey to rate respondent health. Two distinct scores are created for each individual: the physical component summary (PCS) and the mental component summary (MCS), respectively assessing physical and mental health. MCS and PCS scores range from 0 to 100, where higher scores indicate better health. The SF-12 v. 2 has been shown to be a reliable scale in general populations [20].

Depressive symptoms were rated using the Center for Epidemiologic Studies Depression Scale (CES-D). Respondents are asked to assess some of their behaviors, feelings and outlooks (e.g. “I felt depressed”, “I talked less than usual”) by indicating the number of times they experienced each of the 20 symptoms over the past week, ranging from rarely or none of the time (less than 1 day) to most or all of the time (5–7 days). An integer score out of 3 is created for each symptom, with higher scores meaning greater symptom severity, and the 20 scores are summed to produce a participant's CES-D score out of 60. The scale has been shown to be a reliable measure of depressive symptoms in general populations [21].

All sample participants had an HAQ score, whereas 36 (4.6%) lacked a CES-D score, and 12 (1.5%) did not have a score on the SF-12 v. 2 measures of health (Figure 1).

SES variables—It has been suggested that maternal education, paternal occupation and the financial situation of the family adequately reflect SES in childhood as it relates to health [22]. In the absence of data on parental income or accumulated assets, we used parental homeownership at the time of childhood as an indicator of financial wealth, considering the role of homeownership as the foremost wealth-management avenue in the United States. We thus assessed childhood SES by using participant-provided information on their mother's highest level of education, their father's occupation, and their parents' homeownership status during childhood. Parental homeownership was determined by asking participants to describe living arrangements in the household in which they were raised, and occupations were categorized as professional or nonprofessional according to 2000 U.S. Census occupational codes; we used educational or occupational information on the designated primary caretaker for participants with missing data on the mother or father (n=26 [3.3%], n=36 [4.6%] respectively).

Participants indicated their own level of education, their occupation, and whether they were homeowners. These characteristics are frequently used in epidemiological studies concerned with evaluating current SES. Consequently, current and childhood SES were identically assessed by accounting for a unique set of socioeconomic circumstances at two points in the lifecourse.

Covariates—The covariates used in all of our analyses were known contributors to self-reported health outcomes. They consisted of body mass index (BMI, kg/m²), age, gender (0: male [referent], 1:female), race (0: non-Hispanic white [referent] 1: other), and a cumulative count of comorbidities, assessed by asking participants if they had been told by a health professional that they had any of 23 different chronic conditions other than arthritis (e.g. heart disease, lung disease, back pain, osteoporosis, asthma, vision problems).

Analysis—We created adult SES and childhood SES summary scores for each participant by counting socioeconomic characteristics indicative of low-SES. Not having completed high school, not owning a home, and holding a nonprofessional occupation each incremented a participant's adult SES score by 1, while having a mother who did not complete high school, a father who held an occupation other than professional, and parents who did not own their home during childhood each added 1 to a participant's childhood SES score. Childhood and current composite SES scores therefore both ranged from 0 to 3,

where a higher value indicated less advantageous circumstances. Participants with an SES score of 2 or 3 were collapsed into one category due to the small number of participants with the lowest possible current SES score (3 [n = 36, 4.6%]). As a result, current and childhood SES scores took one of three possible values: high (0 [referent]), medium (1), or low (2 or 3). For example, participants with a non-professional occupation who completed high-school and who owned a home were included in the medium (1) current SES category (1 + 0 + 0); respondents whose mothers did not complete high-school, whose fathers held a non-professional occupation and whose parents were homeowners were given a low (2) childhood SES score (1 + 1 + 0).

All statistical analyses were performed using STATA version 11.1 (StataCorp LP, College Station, TX). Descriptive statistics for the sample of participants were computed, stratified by current and childhood SES scores. The associations between our SES summary scores and the health outcome measures were calculated using multiple linear regression models, clustered by network practice to account for potential intrasite correlations. Unadjusted regressions of the individual SES scores levels (low, medium, high [referent]) on health outcomes were first performed, followed by three covariate-adjusted models: the first two included levels of either current SES or childhood SES scores, and the third model simultaneously included levels of both summary scores.

Due to the complexity of the relationships between SES, gender and race, we tested for effect measure modification of race and gender on SES summary scores in each outcome variable by adding interaction terms to adjusted linear models. While there were no significant interactions between race and SES scores on health assessment measures, gender appeared to appreciably modify the impact of low current SES on CES-D score ($p < 0.05$). As a result, we stratified our models of SES on CES-D score by gender.

RESULTS

Participants

Socioeconomic, demographic and health status information on our participants according to their SES summary scores are shown in Table 1. A majority of sample participants were women (73%), had graduated from high-school (87%), held a nonprofessional occupation (62%), and were homeowners (83%). There was a distinct trend towards greater SES across generations, as participants reported that their mother (or alternate caretaker) graduated from high school (46%), owned their home (70%), and held a professional occupation (46%) at significantly lower rates than they themselves did. As shown in our stratification by SES categories, the gap between medium and high SES categories mostly reflected occupational differences, whereas the transition from medium SES to low SES involved homeownership and educational characteristics more evenly.

The average participant was 60 years old (SD=13), had a BMI of 30.2 (SD=6.9), and 3.0 comorbidities (SD=2.1). Mean health scores were 0.67 on the HAQ (SD: 0.63), 38.59 on the PCS (SD: 12.92), and 51.76 on the MCS (SD: 10.92). Women had a mean CES-D score of 12.5 (SD: 12.2), which was significantly higher than the mean score of 9.5 for men (SD: 9.5; $p < 0.01$). There existed significant correlations between depressive symptoms and the other health outcomes (ranging from 0.34 with physical health to 0.72 with mental health; $p < 0.01$), and between physical health and disability (0.72; $p < 0.01$).

Regression Analyses

In unadjusted linear models (data not shown), having a low or a medium current SES was associated with scores 0.16 and 0.32 higher on the HAQ ($p < 0.05$), 2.80 and 4.33 lower on the MCS ($p < 0.01$) and 4.04 and 7.13 lower on the PCS ($p < 0.01$). Similar relationships were

observed between childhood SES and measures of physical health: participants with a medium and a low childhood SES scored 0.13 and 0.30 higher on the HAQ ($p<0.01$), and 2.72 and 6.94 lower on the PCS ($p<0.01$); conversely, there were no significant associations between childhood SES and MCS scores. Adjusting for covariates lowered parameter estimates but did not appreciably affect statistical significance for the observed relationships (Tables 2 and 3). Associations of either SES summary score with health outcomes were most attenuated by covariate adjustments among low-SES participants, particularly with regards to HAQ and PCS scores. Changes were less appreciable at the medium SES level; of note, the association of medium childhood SES with PCS score became statistically significant upon covariate adjustment ($p<0.05$).

We also examined whether SES summary scores were associated with disability, physical health and mental health independently of each other (Table 4). Although current and childhood SES somewhat attenuated each other's effect on every outcome variable, previously observed associations of SES scores with measures of disability and physical health remained significant, with the exception of medium adult SES and PCS scores. Only low current SES remained associated with mental health.

In unadjusted models stratified by gender, we found that low current SES and medium current SES were associated with respective score increases of 5.5 and 8.7 on the CES-D scale among women ($p<0.01$), whereas no significant association could be found among men. Having a low-SES in childhood was likewise associated with a 4.5 CES-D increase among women ($p<0.01$) but not among men (data not shown). Adjusting for BMI, race, age and comorbidities somewhat reduced parameter estimates but did not otherwise modify associations of SES with CES-D scores (Table 5). The association of low childhood SES with greater depressive symptoms appeared to be explained by current SES in mutually adjusted models (Table 5), while low and medium current SES both remained associated with CES-D scores.

DISCUSSION

Our data are consistent with associations of current and childhood SES with health outcomes in persons with arthritis which are not fully explained by adjustments for covariates. SES summary scores attenuated each other's influences on health; childhood SES was however independently associated with HAQ and SF v.12 physical health scores, with current SES remaining associated with each health outcome measure.

Previous work has broadly implicated adult socioeconomic characteristics in the health of persons with arthritis [23–25], but childhood SES remains to be investigated as a determinant of health outcomes within that population. Our results are nevertheless in agreement with the associations of low childhood SES with poor physical health reported across population studies [6, 7, 26, 27]. In contrast, our findings inconsistently reflect the building consensus that childhood circumstances lastingly influence mental health [8, 9, 28]; the literature remains equivocal regarding the effects of childhood SES independently of more proximal circumstances, and our lack of positive results are in line with studies of comparable, elderly populations [29, 30]. Differences according to gender in the effects of SES on depressive symptoms are consistent with an expanding body of research suggesting that environmental stressors to which low-SES women are disproportionately exposed, including physical abuse and single parenthood, may put them at a higher risk of depression than low-SES men [31, 32].

Since the HAQ, CES-D and SF-12 are generic health assessment tools, our results may be explained by mechanisms not specific to arthritis in addition to ones more closely associable

with the disease. Namely, the observed associations of SES with health outcomes were likely mediated by socioeconomic patterns of health behaviors such as alcohol use, diet consumption, physical activity and smoking habits [33–37]; in particular, physical activity is a strong determinant of physical health outcomes independently of BMI among persons with arthritis, as illustrated by the consensus on the value of physical exercise in the management of arthritis [38]. Socioeconomic differences in environmental exposures and in the utilization of health care may also explain our results; with regards to physical health and arthritis, low-SES individuals are more likely to sustain musculoskeletal injuries [39], and the use of procedures such as joint replacement surgeries follows a positive gradient [40]. Health disparities are furthermore known to have a psychosocial dimension, and SES-associated characteristics such as self-efficacy may influence the health outcomes of chronic pain disorders such as arthritis [41]. Biologically, exaggerated inflammatory reactions among low-SES individuals have been documented [42, 43], and adverse life events associated with low-SES have been found to dysregulate hypothalamic-pituitary-adrenal (HPA) axis activity, which is closely tied into chronic pain [44].

Similar mechanisms may explain independent associations of low-childhood SES with physical health outcomes insofar as poor childhood health, for instance due to inadequate medical care or to harmful environmental exposures, may have a lasting impact on the lifecourse [17]. Studies have also stressed the importance of behaviors taking their roots in early life-stages as a pathway by which childhood socioeconomic characteristics may affect future health [45, 46]. Adverse circumstances may furthermore have an amplified effect during critical developmental phases such as childhood, as underscored by the increasingly well-documented association of child abuse with the development of osteoarthritis in adulthood [47], and by epigenetics research suggesting that adverse early socioeconomic circumstances may trigger harmful defensive phenotypes associated with chronic health [48].

This investigation is, to the best of our knowledge, the first to specifically examine associations of childhood SES with health outcomes among persons with arthritis. The validity of our findings is supported by our use of well-established measures of health outcomes, and by our adjusting for potential confounder variables. Conversely, methodological limitations include the inherent imprecision involved in measuring SES as well as possible recall bias in our retrospective assessment of childhood SES; however, a standard approach to comprehensively summarize SES does not currently exist, and recollections of parental socioeconomic characteristics are generally considered to be reliable [49]. Additionally, this study's cross-sectional design precludes us from inferring causal relationships, particularly with regards to current SES and health outcomes. It should also be noted that while osteoarthritis likely affected most individuals in this primary-care sample, grouping participants into a single disease category certainly overlooked meaningful differences between the many types of arthritis. Furthermore, recruiting participants from family practices excluded individuals who did not visit a primary-care provider, perhaps for reasons tied to their low-SES. While our self-reported outcome measures are considered to adequately reflect health status, it has been suggested that self-reported outcomes such as SF-12 v.2 items may underestimate health disparities due to reporting heterogeneity according to SES, although the direction and magnitude of the effect remain a matter of debate [50].

This investigation underscores the role that SES over the entire life course plays on the health status of persons with arthritis. Studies on health disparities should evaluate socioeconomic circumstances across life stages, including childhood. It may be beneficial for primary-care providers to inquire about the past and present SES of their patients with

arthritis, insofar as such characteristics may inform the assessment of risk factors and health outcomes.

It would be worthwhile to examine whether the associations we observed likewise occur in other, potentially larger, samples of individuals with arthritis, and to determine if the health and SES connection varies across specific arthritis disorders. Investigating the extent to which behaviors and adverse life events explain these health disparities appears to be a logical next step in this line of research. Our study adds to the consensus that intervening early in the lifecourse may pay health dividends into old age; however, absent of greater insight into causal mechanisms, it remains unclear what policies may best mitigate the adverse impact of low childhood SES among persons with arthritis.

Acknowledgments

We would like to thank Robert DeVellis, Jay Kaufman, Thelma Mielenz, Randy Randolph, Britta Schoster, Phillip Sloane, Todd Schwartz, and Morris Weinberger for their contributions and input to the study. We thank the following participating family practices in the NC-FM-RN for their assistance: Black River Health Services, Burgaw; Bladen Medical Associates, Elizabethtown; Blair Family Medicine, Wallace; Cabarrus Family Medicine, Concord; Cabarrus Family Medicine, Harrisburg; Cabarrus Family Medicine, Kannapolis; Cabarrus Family Medicine, Mt. Pleasant; Chatham Primary Care, Siler City; CMC Biddle Point, Charlotte; CMC-North Park, Charlotte; Community Family Practice, Asheville; Cornerstone Medical Center, Burlington; Dayspring Family Medicine, Eden; Family Practice of Summerfield, Summerfield; Goldsboro Family Physicians, Goldsboro; Henderson Family Health Center, Henderson; Orange Family Medical Group, Hillsborough; Person Family Medical Center, Roxboro; Pittsboro Family Medicine, Pittsboro; Prospect Hill Community Health Center, Prospect Hill; Robbins Family Practice, Robbins; and Village Family Medicine, Chapel Hill. Finally, we thank the individuals who willingly participated in the study.

Grant support: National Institute of Arthritis and Musculoskeletal and Skin Disease Multidisciplinary Clinical Research Center Rheumatic Diseases: P60-AR49465-01

Dr. Callahan has received consultancy fees, speaking fees, and/or honoraria (less than \$10,000 each) from the NIH, the Canadian Arthritis Network, the University of Washington Pain Behaviors Study, and the National Association of Chronic Disease Directors.

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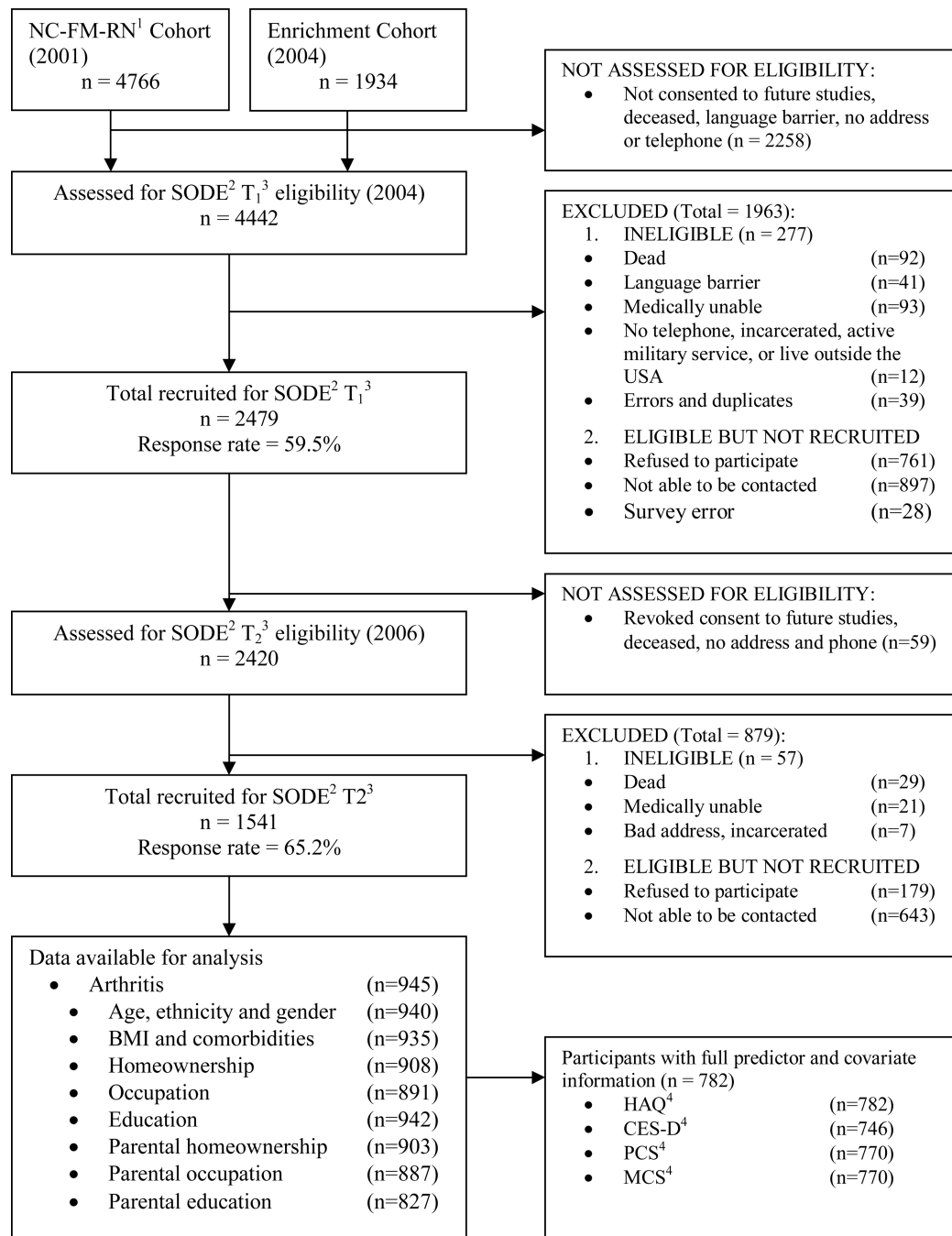
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SIGNIFICANCE AND INNOVATIONS

- Current SES has consistently been associated with worse health outcomes among people with arthritis, but there has yet to be a study of the connection between early-SES and health outcomes within that population.
- We observed significant associations between low childhood SES and self-reported disability and physical health in our sample of participants with self-reported arthritis. Current SES was likewise tied to these health outcome measures, as well as to mental health and depressive symptoms.
- These associations remained significant when both SES measures were included in the same linear models, implying that childhood and current SES may independently influence health outcomes.

**Figure 1.**

Flow Chart of Participants Used in Our Study

¹ North Carolina Family Medicine Research Network² Individual and Community Social Determinants of Arthritis Outcomes Study³ T₁: Time 1, T₂: Time 2⁴ HAQ: Health assessment questionnaire, CES-D center for epidemiological study depression scale, PCS: physical component summary (from SF-12 v. 2), MCS: mental component summary (from SF-12 v. 2).

Table 1

Sociodemographic and Health Characteristics of Sample Participants (N = 782) Within Each Category of Current and Childhood Socioeconomic Status (SES)¹.

Key Variable (Range)	CURRENT SES			CHILDHOOD SES		
	Low (n=165)	Medium (n=358)	High (n=259)	Low (n=446)	Medium (n=231)	High (n=105)
Female	136 (82)	247 (69)	189 (73)	340 (76)	157 (68)	75 (71)
Not Caucasian	50 (30)	61 (17)	21 (8)	95 (21)	29 (13)	8 (8)
Age (23 – 94 years)	59.9 (13.9)	59.8 (12.3)	60.6 (13.1)	61.9 (11.7)	58.0 (14.2)	57.1 (13.4)
Education < HS ²	99 (60)	6 (2)	0 (0)	91 (20)	10 (4)	4 (4)
Does not own home	106 (64)	28 (8)	0 (0)	95 (21)	24 (10)	15 (14)
Occupation NP ³	161 (98)	324 (91)	0 (0)	329 (74)	116 (50)	40 (38)
Parental Education < HS	123 (75)	217 (61)	82 (32)	399 (89)	25 (11)	0 (0)
Parents did not own home	80 (48)	100 (28)	56 (22)	216 (48)	20 (9)	0 (0)
Parental occupation NP ³	141 (85)	303 (85)	179 (69)	437 (98)	186 (81)	0 (0)
Current SES: High				92 (21)	108 (47)	59 (56)
Medium				228 (51)	96 (42)	34 (32)
Low				126 (28)	27 (12)	12 (11)
Childhood SES: High	12 (7)	34 (10)	59 (23)			
Medium	27 (16)	96 (27)	108 (42)			
Low	126 (76)	228 (64)	92 (36)			
BMI (15 – 65) ⁴	30.8 (8.25)	30.7 (6.97)	29.2 (5.89)	30.5 (7.04)	30.2 (7.05)	28.6 (6.05)
Comorbidities (0 – 11)	3.48 (2.20)	3.03 (2.07)	2.80 (1.92)	3.40 (2.13)	2.48 (1.79)	2.78 (2.01)
HAQ (0–3) ⁴	0.85 (0.65)	0.69 (0.66)	0.53 (0.56)	0.76 (0.65)	0.59 (0.60)	0.46 (0.54)
PCS (0–66) ⁴	34.8 (12.1)	37.9 (13.1)	41.9 (12.3)	36.4 (12.8)	40.6 (12.5)	43.4 (11.9)
CES-D (0–55) ⁴	15.6 (12.6)	12.6 (12.0)	8.06 (9.61)	13.4 (12.5)	9.41 (9.84)	9.21 (10.6)
MCS (0–75) ⁴	49.6 (12.6)	51.1 (11.1)	53.9 (9.06)	51.0 (11.5)	53.0 (10.0)	52.1 (9.95)

¹N (%) or mean (s.d.), by column.

²Less than high school diploma i.e. less than 12 years of education.

³ Non-professional occupation, according to 2000 U.S. census codes.

⁴ BMI: Body Mass Index (kg/m^2); HAQ: Health Assessment Questionnaire; CES-D: Center for Epidemiological Study Depression scale; PCS: Physical Component Summary (from SF-12 v. 2); MCS: Mental Component Summary (from SF-12 v. 2).

Table 2

Adjusted¹ Parameter Estimates and 95% Confidence Intervals (CI) for Current² Summary Socioeconomic Status (SES) Associated with HAQ and SF-12 v. 2 (PCS and MCS)³ scores in Persons with Self-Reported Doctor-Diagnosed Arthritis.

	HAQ (n=782)	PCS (n=770)	MCS (n=770)
Current SES	β (95% CI)	β (95% CI)	β (95% CI)
Medium	0.11 (0.01, 0.21)	-3.2 (-5.14, -1.26)	-2.37 (-4.13, -0.6)
<i>p</i>	0.03	<0.01	0.01
Low	0.18 (0.04, 0.33)	-4.92 (-7.44, -2.41)	-3.25 (-5.5, -1.01)
<i>p</i>	0.01	<0.01	<0.01

¹All models adjusted for gender, age, race, body mass index, comorbidities.

²Participants in the referent current SES category had 12 y. of education, owned a home and had a professional occupation.

³HAQ: Health Assessment Questionnaire, PCS: Physical Component Summary (from SF-12 v. 2), MCS: Mental Component Summary (from SF-12 v. 2).

Table 3

Adjusted¹ Parameter Estimates and 95% Confidence Intervals (CI) for the Childhood² Summary Socioeconomic Status (SES) Variable Associated with HAQ and SF-12 v. 2 (PCS and MCS) scores³ in Persons with Self-Reported Doctor-Diagnosed Arthritis.

	HAQ (n=782)	PCS (n=770)	MCS (n=770)
Childhood SES	β (95% CI)	β (95% CI)	β (95% CI)
Medium	0.13 (0.04, 0.22)	-2.76 (-5.34, -0.19)	0.51 (-2.32, 3.33)
<i>p</i>	<0.01	0.04	0.71
Low	0.15 (0.05, 0.24)	-4.32 (-6.87, -1.78)	-1.35 (-3.58, 0.89)
<i>p</i>	<0.01	<0.01	0.22

¹All models adjusted for gender, age, race, body mass index, comorbidities.

²Participants in the referent childhood SES category reported that their mother had 12 y. of education, that their father had a professional occupation, and that their parents were homeowners.

³HAQ: Health Assessment Questionnaire, PCS: Physical Component Summary (from SF-12 v. 2), MCS: Mental Component Summary (from SF-12 v. 2).

Table 4

Concurrently Adjusted¹ Parameter Estimates and 95% Confidence Intervals (CI) for the Current² and Childhood³ Socioeconomic Status (SES) Summary Variables Associated with HAQ and SF-12 v. 2 (PCS and MCS) scores⁴ in Persons with Self-Reported Doctor-Diagnosed Arthritis

	HAQ (n=782)	PCS (n=770)	MCS (n=770)
SES	β (95% CI)	β (95% CI)	β (95% CI)
<u>Current</u>			
Medium	0.1 (-0.01, 0.21)	-2.7 (-4.74, -0.66)	-2.13 (-4.02, -0.24)
<i>p</i>	0.07	0.01	0.03
Low	0.17 (0.02, 0.33)	-4.36 (-6.92, -1.8)	-2.92 (-5.14, -0.69)
<i>p</i>	0.03	<0.01	0.01
<u>Childhood</u>			
Medium	0.12 (0.03, 0.22)	-2.53 (-5.24, 0.18)	0.69 (-2.22, 3.6)
<i>p</i>	0.01	0.07	0.63
Low	0.1 (0, 0.21)	-3.17 (-5.79, -0.54)	-0.51 (-2.9, 1.88)
<i>P</i>	0.04	0.02	0.66

¹ All models adjusted for gender, age, race, body mass index, comorbidities.

² Participants in the referent current SES category had 12 y. of education, owned a home and had a professional occupation.

³ Participants in the referent childhood SES category reported that their mother had 12 y. of education, that their father had an professional occupation, and that their parents were homeowners.

⁴ HAQ: Health Assessment Questionnaire, PCS: physical component summary (from SF-12 v. 2), MCS: mental component summary (from SF-12 v. 2).

Table 5

Singly and concurrently adjusted¹ Parameter Estimates and 95% Confidence Intervals (CI) for the Current² and Childhood³ Socioeconomic Status (SES) Summary Variables Associated with CES-D⁴ scores in Persons with Self-Reported Doctor-Diagnosed Arthritis, Stratified by Gender.

SES	Singly Adjusted Models		Mutually Adjusted Models	
	Male	Female	Male	Female
	β (95% CI)	β (95% CI)	β (95% CI)	β (95% CI)
<u>Current</u>				
Medium	1.85 (-3.07, 6.77)	4.57 (2.21, 6.94)	1.3 (-3.58, 6.18)	3.97 (1.72, 6.23)
<i>p</i>	0.44	<0.01	0.58	<0.01
Low	1.13 (-5.93, 8.19)	7.52 (4.71, 10.32)	0.86 (-5.88, 7.6)	6.6 (3.94, 9.26)
<i>p</i>	0.74	<0.01	0.79	<0.01
<u>Childhood</u>				
Medium	2.37 (-2.02, 6.76)	-0.45 (-3.77, 2.87)	2.23 (-2.05, 6.5)	-0.7 (-4.1, 2.7)
<i>p</i>	0.27	0.78	0.29	0.67
Low	3.59 (-1.48, 8.66)	3.65 (1.03, 6.28)	3.18 (-1.33, 7.7)	1.75 (-0.98, 4.49)
<i>p</i>	0.15	<0.01	0.16	0.2

¹ All models adjusted for age, race, obesity, comorbidities.

² Participants in the referent current SES category had 12 y. of education, owned a home and had a professional occupation.

³ Participants in the referent childhood SES category reported that their mother had 12 y. of education, that their father had a high-status occupation, and that their parents were homeowners.

⁴ CES-D: Center for Epidemiological Study Depression scale.