



Community Culture Survey – Revised: Measuring neighborhood culture and exploring geographic, socioeconomic, and cultural determinants of health in samples across the United States and in Thailand

Karen L. Pellegrin^{a,*}, Sarah Hales^b, Patrick O'Neil^b, Supakit Wongwiwatthananutik^c, Suchada Jongrungruangchok^d, Thanapat Songsak^d, Alicia J. Lozano^e, Katharine Miller^f, Christina L. Mnatzaganian^g, Eduardo Fricovsky^g, Claudio R. Nigg^h, Michelle Tagorda-Kamaⁱ, Alexandra L. Hanlon^e

^a Center for Rural Health Science, Daniel K. Inouye College of Pharmacy, University of Hawai'i at Hilo, USA

^b Weight Management Center, Department of Psychiatry and Behavioral Sciences, Medical University of South Carolina, Charleston, SC, USA

^c Department of Pharmacy Practice, Daniel K. Inouye College of Pharmacy, University of Hawai'i at Hilo, USA

^d College of Pharmacy, Rangsit University, Pathum Thani, Thailand

^e Center for Biostatistics and Health Data Science (CBHDS), Department of Statistics, Virginia Tech, USA

^f Statistical Applications and Innovations Group (SAIG), Department of Statistics, Virginia Tech, USA

^g University of California San Diego, Skaggs School of Pharmacy and Pharmaceutical Sciences, USA

^h Department of Health Science, Institute of Sport Science, University of Bern, Switzerland

ⁱ Office of Public Health Studies, University of Hawai'i at Mānoa, USA

ARTICLE INFO

Keywords:

Culture
Social determinants
Disparities
Geography
Neighborhood
Community

ABSTRACT

Objectives: Research on links between social, geographic, and cultural determinants of health has been thwarted by inadequate measures of culture. The purpose of this study was to improve the measurement of community culture, defined as shared patterns of attitudes and behaviors among people within a neighborhood that distinguish it from others, and to examine dimensions of culture, independent of socioeconomic and demographic factors, and their relationships with health.

Study design: A survey research design with correlational analyses was used.

Methods: A survey packet including the Community Culture Survey – Revised (CCS-R), demographic, health, and other individual-level measures was administered through convenience sampling across the United States (US) and to a sample in Thailand from 2016 to 2018. US county-level variables were obtained from zip codes.

Results: 1930 participants from 49 US states (n = 1592) and Thailand (n = 338) completed all CCS-R items, from which 12 subscales were derived: Social Support & Connectedness, Responsibility for Self & Others, Family Ties & Duties, Social Distress, Urban Diversity, Discontinuity, Church-Engaged, External Resource-Seeking, Locally Owned Business-Active, Power Deference, Next Generation Focus, and Self-Reliance. Neighborhood culture subscale scores varied more by geography than by participant's demographics. All subscales predicted one or more health indicator, and some of these relationships were significant after adjusting for participant age and county-level socioeconomic variables. Most of the significant differences on subscales by race/ethnicity were no longer significant after adjusting for participant's age and county-level socioeconomic variables. Most rural/urban and regional differences in culture within the US persisted after these adjustments. Based on correlational analyses, Social Support & Connectedness and Responsibility for Self & Others were the best predictors of participants' overall health and quality of life, and Responsibility for Self & Others was the best predictor (inversely) of the CDC's measures of social vulnerability.

Conclusions: Neighborhood culture is measurable, multi-dimensional, distinct from race/ethnicity, and related to health even after controlling for age and socioeconomic factors. The CCS-R is useful for advancing research and practice addressing the complex interactions between individuals, their neighborhood communities, and health outcomes.

* Corresponding author.

E-mail address: karen3@hawaii.edu (K.L. Pellegrin).

<https://doi.org/10.1016/j.puhip.2024.100512>

Received 27 January 2024; Received in revised form 30 April 2024; Accepted 2 May 2024

Available online 23 May 2024

2666-5352/© 2024 Published by Elsevier Ltd on behalf of The Royal Society for Public Health. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

1.1. Background

Neglect of research on the cultural determinants of health – independent of socioeconomic determinants – has been identified as a major barrier to improving human health, addressing health disparities, and developing effective community health interventions [1]. Essential to this work is development of appropriate methods for measurement and examination of community culture. In the US, significant variation in life expectancy is explained by socioeconomic factors that contribute to health disparities [2,3]. However, the intersection of these factors with community culture has not been examined.

Creating healthier, more equitable communities is necessary to eliminate disparities [4], and group-level interventions, such as those targeting neighborhoods, are essential to achieve social change that promotes health equity [5]. Case studies have documented the potential of such community-based solutions to effect change, including reductions in violence, increases in educational attainment, and better access to healthy food [6]. Research on social context and culture is needed, including on adaptation of interventions to local community cultures to ensure efficacy and avoid adverse effects [7–9]. Lack of community-level measures is an obstacle to advancing research involving culture and health [10]. Absent appropriate measures, researchers often resort to using inadequate individual-level proxies for community culture – such as aggregating individual values [10], using individuals' "sense of community" [9], or simply using individuals' race/ethnicity [11].

In the National Institute on Minority Health and Health Disparities Research Framework, community is identified as one of four levels of influence (the others being individual, interpersonal, and societal), and these four levels intersect with five domains to produce health outcomes. The construct of community culture crosses at least two domains of influence – behavioral and sociocultural environment (the other domains being biological, physical/built environment, and healthcare system) [12]. Thus, community norms and functioning are recognized as key factors related to health and disparities. Reflecting these domains, the Community Culture Survey (CCS) conceptually defines community culture as "a shared way of life reflected in consistent patterns of values, attitudes, and behaviors" that are meaningful to people who live in a local community or neighborhood and that distinguishes one local community/neighborhood from another [13]. In contrast to measures that aggregate individuals' values, attitudes and behaviors, the CCS asks participants to describe their neighborhood community norms irrespective of their own values, attitudes and behaviors. This approach, used previously to develop useful tools of organizational culture that predict organizational performance and outcomes, produces a more direct measure of culture [14,15]. In addition, the CCS instructs the participant to report frequency rather than extent of importance or agreement, an approach based on the robust body of research demonstrating that frequency scales are useful in measuring more stable patterns (e.g., "traits") while intensity scales are more useful for measuring "states" (e.g., emotions or opinions) that are more transient [16].

1.2. Objectives

Preliminary data from research conducted in Hawai'i, one of the most racially/ethnically diverse states in the US, indicated that dimensions of the original 42-item Community Culture Survey (CCS) may be helpful in understanding cultural determinants of health [13]. However, the small sample size and uniqueness of Hawai'i limit the generalizability of findings from the pilot study to broader contexts. Advancing the validity of the survey for wider use necessitates larger and more diverse samples from other regions. Given the well documented health disparities in the United States and the availability of standardized county-level geographic and socioeconomic variables

related to disparities, administering the survey to a larger sample across different US regions is critical to examining the interplay among these variables. Additionally, administering the survey outside of the United States is essential to determine its potential for international use. Thus, the purpose of the current study is, first, to examine the dimensions of community culture using an expanded version of the tool – the Community Culture Survey – Revised (CCS-R) – with samples across the US and a sample from outside of the US. Thailand was selected due to established collaborations in health sciences and its unique ethnic, linguistic, and religious characteristics distinct from those of the US. Second, the current study explores the validity of the dimensions of community culture by examining the relationships between the dimensions and individual-level variables, including demographics and health, as well as geography-based variables, including region, rural-urban indicators, and socio-economic indicators. It was hypothesized that 1) dimensions of community culture would be similar with and without the Thai sample and 2) that CCS-R subscale scores measuring the dimensions would not predict the participant's personality or demographics but would predict the participant's overall ratings of the quality of the community, sense of community, and health-related variables.

2. Methods

2.1. Survey materials and administration

Based on research conducted since the pilot of the CCS in Hawaii, the CCS was expanded to create the CCS-R. Specifically, 10 items were added based on key informant interviews with an ethnically and geographically diverse sample from Hawai'i [17], and 54 items were added based on an expanded literature search [18–23]. In order to efficiently obtain data from different regions across the United States, convenience sampling was used to administer electronic and/or paper surveys locally from sites in South Carolina, Pennsylvania, Southern California, and Hawai'i. To explore the use of the CCS-R outside of the US, the survey was administered to a convenience sample from a single site in Thailand. The value of convenience sampling in cross-cultural research has been previously demonstrated in validity tests [24]. The surveys were administered from 2016 to 2018 with approval from the Institutional Review Boards at the universities overseeing data collection. All methods were performed in accordance with the relevant guidelines and regulations, and informed consent was obtained from all subjects. The South Carolina site recruitment also included use of ResearchMatch, a national health volunteer registry that was created by several academic institutions and supported by the U.S. National Institutes of Health as part of the Clinical Translational Science Award (CTSA) program. ResearchMatch has a large population of volunteers who have consented to be contacted by researchers about health studies for which they may be eligible. The CCS-R was administered as part of a packet that included individual-level variables, including demographic information, Brief Sense of Community Scale [25], the Ten Item Personality Measure (TIPI) [26], and health information, including the Dartmouth COOP Health Survey [27] and survey of health conditions adapted from the 2014 Behavioral Risk Factor Surveillance System Survey Questionnaire that is used by the U.S. Centers for Disease Control and Prevention (CDC) to collect self-reported health conditions [28]. Participants were asked to describe their community neighborhood, including geographic area (e.g., block, subdivision, apartment), the approximate number of people who live there, and the location (city, town, zip code). The CCS-R instructions state the participant should select "the answer that you think describes the community/neighborhood where you live most accurately. Describe how people in this community/neighborhood generally behave or think (not how you generally behave or think)." Based on US participant zip code, county-level geographic information was obtained. See the supplemental variables file for details about the survey packet and variables of

interest.

2.2. Samples and analyses

A total of 1930 individuals completed all 106 CCS-R items (82 % in the US – from all states except Alaska – and 18 % in Thailand). The majority of the US sample (84 %) was recruited from ResearchMatch. The Thai sample was composed of adult pharmacy students. Descriptive statistics were used to characterize all variables of interest in the overall sample and by country (US and Thailand). Principal component analyses with varimax rotation were conducted to identify dimensions of the CCS-R, and Cronbach’s alpha was calculated to determine the internal consistency of each dimension. Pearson correlation and linear regression analyses were conducted to determine the relationships between CCS-R dimensions and the other variables. For significant correlation coefficients, 0.30 to 0.49 was considered moderate and 0.50 or larger was considered a strong relationship [29]. Statistical significance was taken at the $p \leq 0.01$ level to adjust for multiplicity. All analyses were performed using SAS V9.4 (SAS Institute Inc., Cary, NC).

3. Results

3.1. Sample description by country

As shown in Table 1, the Thai sample was significantly younger (mean age = 21) and less racially/ethnically diverse (99 % Asian) than the US sample (mean age = 46, $p < 0.001$; 80 % White, $p < 0.001$) based on aggregation to US categories. Both samples had a higher percent of females (US sample 79 %, Thai sample 75 %) relative to males. The Thai sample had a higher percent of participants who had a college degree (67 % versus 40 %), while the US sample had a higher percent who had a masters or doctoral degree (37 % versus <1 %). While the Thai sample had a lower mean body mass index (BMI mean 22 versus 28, $p < 0.001$) and was less likely to report having ever been told they had depression (6.21 % versus 39.13 %), cancer (5.33 % versus 9.74 %), diabetes (6.8 % versus 10.68 %), high cholesterol (8.28 % versus 26.07 %) or hypertension (8.28 % versus 25.94 %), they were more likely to report having ever been told they had a stroke/transient ischemic attack (TIA, 3.85 % versus 2.76 %), angina/coronary heart disease (CHD, 5.33 % versus 2.83 %), or heart attack/myocardial infarction (MI, 3.25 % versus 1.7 %). Table 1 also shows descriptive statistics for the county-level geographic variables for the US sample.

3.2. Dimensions and subscales

Several methods were used to identify the potential number of dimensions in the CCS-R. Analyses indicated 9 dimensions with eigenvalues greater than one and at least 7 based on scree plots [30]. Minimum average partial correlations [31] rule suggested 11 (with Thai pharmacy students) or 12 dimensions (without Thai pharmacy students). Therefore, Principal Component Analyses with varimax rotation were conducted with 3- through 12-factor solutions with all subjects who completed all 106 CCS-R items, both with and without the Thai sample as a sensitivity analysis. The 12-factor solution had the fewest items with no loadings at > 0.4 both with and without the Thai sample (9 items and 13 items respectively with no loadings greater than 0.4) and has strong face-validity, indicating the CCS-R reflects 12 dimensions of community culture. Based on these results, items that did not load at least $\pm .4$ or higher on any factor [32] in the total sample or the US-only sample were eliminated, producing the 67-item CCS-R with subscales measuring the following 12 dimensions: Social Support & Connectedness, Responsibility for Self & Others, Family Ties & Duties, Social Distress, Urban Diversity, Discontinuity, Church-Engaged, External Resource-Seeking, Locally Owned Business-Active, Power Deference, Next Generation Focus, Self-Reliance. Items on each subscale and alignment between the CCS and CCS-R subscales are included in the

Table 1

Participant and community/neighborhood characteristics by country (N = 1930).

Characteristic	Overall Sample (N = 1930)	US (N = 1592)	Thailand (N = 338)	P-value
Participant Demographic Characteristics				
AGE (YEARS)				<0.001
N	1893	1555	338	
Mean (SD)	41.24 (17.06)	45.67 (15.59)	20.82 (1.91)	
Median (Q1, Q3)	38.00 (25.00, 56.00)	45.00 (32.00, 59.00)	21.00 (20.00, 21.00)	
Min, Max	18.00, 100.00	18.00, 100.00	18.00, 35.00	
GENDER, n (%)				<0.001
Female	1506 (78.0 %)	1254 (78.77 %)	252 (74.56 %)	
Male	386 (20.0 %)	306 (19.22 %)	80 (23.67 %)	
Not Reported/Unknown	38 (2.0 %)	32 (2.01 %)	6 (1.78 %)	
RACE/ETHNICITY, n (%)				<0.001
American Indian or Alaska Native	27 (1.4 %)	25 (1.57 %)	2 (0.59 %)	
Asian	415 (21.5 %)	80 (5.03 %)	335 (99.11 %)	
Black or African American	80 (4.1 %)	79 (4.96 %)	1 (0.30 %)	
Hispanic or Latino	25 (1.3 %)	25 (1.57 %)	0	
Native Hawaiian or Other Pacific Islander	4 (0.2 %)	4 (0.25 %)	0	
White	1273 (66.0 %)	1273 (79.96 %)	0	
Other	10 (0.5 %)	10 (0.63 %)	0	
Missing	96 (5.0 %)	96 (6.03 %)	0	
HIGHEST GRADE OR DEGREE COMPLETED, n (%)				<0.001
8th grade	2 (0.1 %)	2 (0.13 %)	0	
High school/12th grade (or GED)	311 (16.1 %)	199 (12.50 %)	112 (33.14 %)	
Technical school degree	137 (7.1 %)	137 (8.61 %)	0	
College (Bachelor’s) degree	858 (44.5 %)	633 (39.76 %)	225 (66.57 %)	
Master’s degree	452 (23.4 %)	451 (28.33 %)	1 (0.30 %)	
Doctoral degree	144 (7.5 %)	144 (9.05 %)	0	
Missing	26 (1.3 %)	26 (1.63 %)	0	
Participant Health Conditions				
HEART ATTACK/MI, n (%)				<0.0001
No	1843 (95.5 %)	1538 (96.61 %)	305 (90.24 %)	
Yes	38 (2.0 %)	27 (1.70 %)	11 (3.25 %)	
Not Sure	29 (1.5 %)	7 (0.44 %)	22 (6.51 %)	
Missing	20 (1.0 %)	20 (1.26 %)	0	
ANGINA/CHD, n (%)				<0.0001
No	1818 (94.2 %)	1521 (95.54 %)	297 (87.87 %)	
Yes	63 (3.3 %)	45 (2.83 %)	18 (5.33 %)	
Not Sure	30 (1.6 %)	7 (0.44 %)	23 (6.80 %)	
Missing	19 (1.0 %)	19 (1.19 %)	0	

(continued on next page)

Table 1 (continued)

Characteristic	Overall Sample (N = 1930)	US (N = 1592)	Thailand (N = 338)	P-value
STROKE/TIA, n (%)				
No	1825 (94.6 %)	1519 (95.41 %)	306 (90.53 %)	<0.0001
Yes	57 (3.0 %)	44 (2.76 %)	13 (3.85 %)	
Not Sure	26 (1.3 %)	7 (0.44 %)	19 (5.62 %)	
Missing	22 (1.1 %)	22 (1.38 %)	0	
HYPERTENSION, n (%)				
No	1439 (74.6 %)	1149 (72.17 %)	290 (85.80 %)	<0.0001
Yes	441 (22.8 %)	413 (25.94 %)	28 (8.28 %)	
Not Sure	31 (1.6 %)	11 (0.69 %)	20 (5.92 %)	
Missing	19 (1.0 %)	19 (1.19 %)	0	
HIGH CHOLESTEROL, n (%)				
No	1419 (73.5 %)	1137 (71.42 %)	282 (83.43 %)	<0.0001
Yes	443 (23.0 %)	415 (26.07 %)	28 (8.28 %)	
Not Sure	47 (2.4 %)	19 (1.19 %)	28 (8.28 %)	
Missing	21 (1.1 %)	21 (1.32 %)	0	
DIABETES, n (%)				
No	1684 (87.3 %)	1390 (87.31 %)	294 (86.98 %)	<0.0001
Yes	193 (10.0 %)	170 (10.68 %)	23 (6.80 %)	
Not Sure	32 (1.7 %)	11 (0.69 %)	21 (6.21 %)	
Missing	21 (1.1 %)	21 (1.32 %)	0	
CANCER, n (%)				
No	1709 (88.5 %)	1407 (88.38 %)	302 (89.35 %)	<0.0001
Yes	173 (9.0 %)	155 (9.74 %)	18 (5.33 %)	
Not Sure	28 (1.5 %)	10 (0.63 %)	18 (5.33 %)	
Missing	20 (1.0 %)	20 (1.26 %)	0	
DEPRESSION, n (%)				
No	1198 (62.1 %)	924 (58.04 %)	274 (81.07 %)	<0.0001
Yes	644 (33.4 %)	623 (39.13 %)	21 (6.21 %)	
Not Sure	68 (3.5 %)	25 (1.57 %)	43 (12.72 %)	
Missing	20 (1.0 %)	20 (1.26 %)	0	
OVERWEIGHT/OBESE, n (%)				
No	1179 (61.1 %)	926 (58.17 %)	253 (74.85 %)	<0.0001
Yes	689 (35.7 %)	634 (39.82 %)	55 (16.27 %)	
Not Sure	43 (2.2 %)	13 (0.82 %)	30 (8.88 %)	
Missing	19 (1.0 %)	19 (1.19 %)	0	
BODY MASS INDEX				
N	1866	1529	337	<0.001
Mean (SD)	26.68 (7.35)	27.77 (7.47)	21.77 (4.01)	
Median (Q1, Q3)	25.10 (21.70, 30.00)	26.30 (22.80, 30.70)	21.00 (19.00, 23.50)	
Min, Max	12.40, 130.00	12.40, 130.00	12.60, 39.10	

Table 1 (continued)

Characteristic	Overall Sample (N = 1930)	US (N = 1592)	Thailand (N = 338)	P-value
Community/Neighborhood Geographical Variables in US				
US REGION, n (%)				
New England		82 (4.2 %)		
Mid-Atlantic		253 (13.1 %)		
Upper South		171 (8.9 %)		
Deep South		282 (14.6 %)		
Midwest		318 (16.5 %)		
Southwest		77 (4.0 %)		
Northern Pacific		109 (5.6 %)		
Northern Mountain		20 (1.0 %)		
Southern Mountain		92 (4.8 %)		
Hawaii		59 (3.1 %)		
California		81 (4.2 %)		
Missing		386 (20.0 %)		
NCHS URBAN-RURAL CLASSIFICATION SCHEME FOR COUNTIES (NCHSUR) 2013, n (%)				
Large central metro		531 (27.5 %)		
Large fringe metro		337 (17.5 %)		
Medium metro		453 (23.5 %)		
Small metro		101 (5.2 %)		
Micropolitan		113 (5.9 %)		
Non-core		26 (1.3 %)		
Missing		369 (19.1 %)		
ZIP CODE APPROXIMATION OF 2010 RUCA 30, n (%)				
Metropolitan core area		1313 (68.0 %)		
Metropolitan area high commuting		78 (4.0 %)		
Metropolitan area low commuting		6 (0.3 %)		
Micropolitan area core		99 (5.1 %)		
Micropolitan high commuting		15 (0.8 %)		
Small town core		22 (1.1 %)		
Small town high commuting		4 (0.2 %)		
Rural areas		23 (1.2 %)		
Missing		370 (19.2 %)		
2010 FAR LEVEL 1 CODE – REMOTE FROM URBAN AREAS OF 50,000 OR MORE PEOPLE, n (%)				
Yes		70 (3.6 %)		
No		1483 (76.8 %)		
Missing		377 (19.5 %)		

(continued on next page)

Table 1 (continued)

Characteristic	Overall Sample (N = 1930)	US (N = 1592)	Thailand (N = 338)	P-value
FAR LEVEL 2 CODE – REMOTE FROM URBAN AREAS OF 25,000 OR MORE PEOPLE, n (%)				
Yes		18 (0.9 %)		
No		1535 (79.5 %)		
Missing		377 (19.5 %)		
FAR LEVEL 3 CODE – REMOTE FROM URBAN AREAS OF 10,000 OR MORE PEOPLE, n (%)				
Yes		6 (0.3 %)		
No		1547 (80.2 %)		
Missing		377 (19.5 %)		
FAR LEVEL 4 CODE – REMOTE FROM URBAN AREAS OF 2500 OR MORE PEOPLE, n (%)				
Yes		3 (0.2 %)		
No		1550 (80.3 %)		
Missing		377 (19.5 %)		
METRO-NONMETRO STATUS 2013, n (%)				
Metro		1422 (73.7 %)		
Nonmetro		139 (7.2 %)		
Missing		369 (19.1 %)		
NON-OVERLAPPING ECONOMIC-DEPENDENCE COUNTY INDICATOR, n (%)				
Nonspecialized		964 (49.9 %)		
Farm-dependent		7 (0.4 %)		
Mining-dependent		29 (1.5 %)		
Manufacturing-dependent		81 (4.2 %)		
Federal/State government-dependent		409 (21.2 %)		
Recreation		71 (3.7 %)		
Missing		369 (19.1 %)		
Percent below poverty line in 2010				
N		1552		
Mean (SD)		14.16 (5.31)		
Median (Q1, Q3)		14.08 (10.32, 16.64)		
Min, Max		2.83, 33.26		
Log median household income in 2016				
N		1552		
Mean (SD)		11.02 (0.25)		
Median (Q1, Q3)		10.99 (10.88, 11.19)		
Min, Max		10.27, 11.77		
2016 OVERALL SOCIAL VULNERABILITY INDEX (SVI) SCORE				
N		1556		

Table 1 (continued)

Characteristic	Overall Sample (N = 1930)	US (N = 1592)	Thailand (N = 338)	P-value
Mean (SD)		0.40 (0.21)		
Median (Q1, Q3)		0.39 (0.22, 0.56)		
Min, Max		0.00, 0.97		
GEOGRAPHIC ISOLATION SCALE - DISTANCE				
N		1508		
Mean (SD)		3.40 (1.84)		
Median (Q1, Q3)		3.34 (2.23, 4.45)		
Min, Max		0.00, 11.20		
GEOGRAPHIC ISOLATION SCALE - TIME				
N		1508		
Mean (SD)		3.43 (1.85)		
Median (Q1, Q3)		3.35 (2.25, 4.43)		
Min, Max		0.00, 11.20		

Note: P-values are based on non-parametric Wilcoxon rank-sum tests for continuous variables and chi-square tests for categorical variables; SD = Standard Deviation; Q1 = 1st Quartile; Q3 = 3rd Quartile; Min = Minimum; Max = Maximum.

supplemental subscale file. Because the first dimension had 26 items, 13 of which loaded at 0.6 or higher, those 13-items were used to create a shorter subscale which was included in all subsequent analyses along with the 26-item subscale. For all subscales, the score was computed as the mean across items, with only 1 item reverse-scored as noted in the supplemental subscale file.

3.3. Internal consistency

Cronbach’s alpha estimates were computed for the total sample and for the major subgroups (country, US federal race/ethnicity, US geographic region, rural/urban classifications, economic dependence) for each subscale. An acceptable range of Cronbach’s alpha for exploratory analyses is a value of 0.6 or greater [33,34]. There were 8 subscales in the US sample and 9 in the Thai sample with a Cronbach’s alpha value of 0.6 or greater. Given that all subscales demonstrated acceptable internal consistency with more than one subgroup as shown in the supplemental internal consistency file, all were included in subsequent analyses.

With the exception of geographic variables derived from US zip codes, all analyses were conducted with the total sample of participants from the US and Thai samples. Table 2 shows relationships between community culture subscales and participant demographics, global ratings of the neighborhood, sense of community, personality, and health, and geographic-based variables as summarized below.

3.4. Relationship between CCS-R subscales and other variables

3.4.1. Participant-reported demographic variables

There were no significant differences between males and females on any of the CCS-R subscales. All but one of the CCS-R subscales (Power Deference) were significantly but weakly correlated with age. There were significant differences based on level of educational achievement on the following subscales: Responsibility for Self and Others, Family

Table 2
Community culture survey-revised (CCS-R) subscales and relationships with participant-level variables and geographic-level variables.

VARIABLE	Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others 8 items	Family Ties & Duties 7 items	Social Distress 6 items	Urban Diversity 4 items	Discontinuity 2 items	Church-Engaged 3 items	Seek External Resources 2 items	Locally-Owned Business Active 2 items	Power-Deference 2 items	Next Generation Focus 3 items	Self-Reliance 2 items
Participant-Reported DEMOGRAPHIC Variables													
<i>AGE correlation coeff.</i>	0.11961	0.11135	0.21152	-0.15625	-0.21856	-0.16711	-0.28140	0.21754	0.13419	0.21007	-0.04571	0.16941	0.16368
<i>P-value</i>	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0467	<0.0001	<0.0001
<i>N</i>	1893	1893	1893	1893	1893	1893	1893	1893	1893	1893	1893	1893	1893
<i>EDUCATION P-value:</i>	0.2298	0.1324	<0.0001	<0.0001	0.0001	0.0273	<0.0001	0.0706	0.0011	<0.0001	0.1125	0.0052	0.0528
<i>Means (SDs):</i>													
<i>High school or less (N = 313)</i>	2.59 (0.59)	2.56 (0.54)	2.86 (0.53)	2.65 (0.53)	2.26 (0.56)	2.51 (0.69)	1.99 (0.65)	2.6 (0.71)	2.44 (0.66)	2.52 (0.66)	2.46 (0.6)	3.08 (0.51)	2.92 (0.66)
<i>Technical school degree (N = 137)</i>	2.58 (0.65)	2.55 (0.59)	2.85 (0.57)	2.46 (0.45)	2.18 (0.55)	2.26 (0.78)	1.7 (0.48)	2.77 (0.67)	2.54 (0.64)	2.65 (0.73)	2.39 (0.51)	3.07 (0.54)	2.95 (0.62)
<i>College degree (N = 858)</i>	2.66 (0.59)	2.62 (0.54)	2.91 (0.57)	2.54 (0.56)	2.21 (0.55)	2.41 (0.74)	1.94 (0.59)	2.62 (0.65)	2.53 (0.65)	2.6 (0.67)	2.51 (0.6)	3.07 (0.48)	2.92 (0.64)
<i>Master's degree (N = 452)</i>	2.67 (0.59)	2.64 (0.52)	3.02 (0.54)	2.37 (0.44)	2.11 (0.45)	2.39 (0.81)	1.78 (0.52)	2.67 (0.57)	2.63 (0.68)	2.77 (0.63)	2.47 (0.54)	3.16 (0.43)	2.98 (0.59)
<i>Doctoral degree (N = 144)</i>	2.63 (0.58)	2.62 (0.51)	3.07 (0.53)	2.34 (0.46)	2.08 (0.52)	2.38 (0.83)	1.76 (0.47)	2.67 (0.61)	2.65 (0.67)	2.64 (0.61)	2.45 (0.48)	3.18 (0.52)	3.07 (0.66)
RACE/ETHNICITY (US) P-value:													
<i>Means (SDs):</i>													
<i>American Indian or Alaska Native (N = 25)</i>	2.54 (0.59)	2.56 (0.51)	2.89 (0.57)	2.52 (0.59)	2.49 (0.65)	2.51 (0.92)	1.90 (0.60)	2.69 (0.79)	2.56 (0.55)	2.56 (0.71)	2.52 (0.53)	3.09 (0.54)	2.88 (0.70)
<i>Asian (N = 78)</i>	2.69 (0.58)	2.63 (0.50)	2.89 (0.54)	2.71 (0.57)	2.33 (0.47)	2.60 (0.73)	1.97 (0.65)	2.71 (0.56)	2.45 (0.56)	2.63 (0.63)	2.63 (0.51)	3.14 (0.49)	2.86 (0.58)
<i>Black or African American (N = 79)</i>	2.48 (0.52)	2.50 (0.48)	2.79 (0.60)	2.51 (0.51)	2.30 (0.54)	2.51 (0.81)	1.91 (0.66)	2.89 (0.67)	2.52 (0.77)	2.35 (0.66)	2.34 (0.50)	3.17 (0.53)	2.90 (0.76)
<i>Hispanic or Latino (N = 25)</i>	2.41 (0.49)	2.43 (0.44)	2.87 (0.51)	2.37 (0.48)	2.14 (0.46)	2.82 (0.53)	1.82 (0.66)	2.63 (0.58)	2.40 (0.68)	2.46 (0.59)	2.46 (0.54)	3.27 (0.50)	2.88 (0.67)
<i>Native Hawaiian or other Pacific Islander (N = 4)</i>	3.21 (0.31)	3.13 (0.33)	3.22 (0.80)	3.04 (0.24)	2.67 (0.71)	2.63 (0.83)	2.38 (0.75)	2.67 (0.47)	2.88 (1.03)	3.00 (0.00)	3.38 (0.75)	3.00 (0.61)	3.38 (0.48)
<i>White (N = 1276)</i>	2.69 (0.60)	2.65 (0.54)	3.02 (0.53)	2.42 (0.47)	2.14 (0.52)	2.33 (0.79)	1.75 (0.50)	2.73 (0.60)	2.60 (0.68)	2.77 (0.64)	2.47 (0.55)	3.15 (0.46)	3.01 (0.61)
Participant-Reported GLOBAL RATINGS of Their Neighborhood Community (correlation coefficient, P-value, N)													
Overall, how would you rate the quality of your community?	0.52033	0.54449	0.63629	0.08806	-0.30615	-0.02599	-0.01585	0.24292	0.06074	0.34072	0.12174	0.31493	0.34603
1 = poor	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.2542	0.4871	<0.0001	0.0077	<0.0001	<0.0001	<0.0001	<0.0001
5 = excellent	1926	1926	1926	1926	1926	1926	1926	1926	1926	1926	1926	1926	1926
Overall how satisfied are you living in your community?	-0.41185	-0.44306	-0.48514	-0.09301	0.30361	-0.04675	-0.05702	-0.14808	-0.05218	-0.24189	-0.08885	-0.24886	-0.30043
1 = almost always satisfied	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0402	0.0123	<0.0001	0.0220	<0.0001	<0.0001	<0.0001	<0.0001
4 = almost never satisfied	1927	1927	1927	1927	1927	1927	1927	1927	1927	1927	1927	1927	1927
If a friend or a family member were looking or a new place to live, would you recommend that he/she move to your community?	0.39702	0.42689	0.49972	0.04921	-0.30072	0.03629	0.03823	0.14286	-0.00298	0.24207	0.07609	0.24295	0.27802
1 = no, definitely not	<0.0001	<0.0001	<0.0001	0.0309	<0.0001	0.1115	0.0937	<0.0001	0.8961	<0.0001	0.0008	<0.0001	<0.0001

(continued on next page)

Table 2 (continued)

VARIABLE	Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others 8 items	Family Ties & Duties 7 items	Social Distress 6 items	Urban Diversity 4 items	Discontinuity 2 items	Church-Engaged 3 items	Seek External Resources 2 items	Locally-Owned Business Active 2 items	Power-Deference 2 items	Next Generation Focus 3 items	Self-Reliance 2 items
4 = yes, definitely	1924	1924	1924	1924	1924	1924	1924	1924	1924	1924	1924	1924	1924
Participant-Reported SENSE OF COMMUNITY (correlation coefficient, P-value, N)													
TOTAL	0.57306 <0.0001 1922	0.59927 <0.0001 1922	0.47847 <0.0001 1922	0.16405 <0.0001 1922	-0.26822 <0.0001 1922	0.09021 <0.0001 1922	0.13478 <0.0001 1922	0.17144 <0.0001 1922	-0.06137 0.0071 1922	0.31492 <0.0001 1922	0.07570 0.0009 1922	0.24517 <0.0001 1922	0.25649 <0.0001 1922
Needs Fulfillment	0.35502 <0.0001 1922	0.39759 <0.0001 1922	0.42260 <0.0001 1922	0.05020 0.0278 1922	-0.19521 <0.0001 1922	0.19688 <0.0001 1922	0.13792 <0.0001 1922	0.07729 0.0007 1922	-0.16688 <0.0001 1922	0.23889 <0.0001 1922	0.06074 0.0077 1922	0.21848 <0.0001 1922	0.18410 <0.0001 1922
Group Membership	0.50630 <0.0001 1922	0.53373 <0.0001 1922	0.45176 <0.0001 1922	0.13686 <0.0001 1922	-0.28010 <0.0001 1922	0.06479 0.0045 1922	0.08220 0.0003 1922	0.16371 <0.0001 1922	0.01316 0.5643 1922	0.28959 <0.0001 1922	0.03888 0.0884 1922	0.27318 <0.0001 1922	0.26731 <0.0001 1922
Influence	0.50298 <0.0001 1922	0.51768 <0.0001 1922	0.33912 <0.0001 1922	0.15661 <0.0001 1922	-0.18121 <0.0001 1922	0.00138 0.9517 1922	0.14577 <0.0001 1922	0.16026 <0.0001 1922	-0.03379 0.1387 1922	0.24275 <0.0001 1922	0.09275 <0.0001 1922	0.11742 <0.0001 1922	0.18247 <0.0001 1922
Emotional Connection	0.56398 <0.0001 1922	0.56831 <0.0001 1922	0.39436 <0.0001 1922	0.20644 <0.0001 1922	-0.24099 <0.0001 1922	0.03934 0.0847 1922	0.09475 <0.0001 1922	0.17493 <0.0001 1922	-0.02298 0.3139 1922	0.28692 <0.0001 1922	0.06628 0.0036 1922	0.20828 <0.0001 1922	0.22659 <0.0001 1922
Participant-Reported PERSONALITY Traits (correlation coefficient, P-value, N)													
Extraversion	0.14173 <0.0001 1911	0.14993 <0.0001 1911	0.07900 0.0005 1911	0.07727 0.0007 1911	-0.00734 0.7485 1911	0.04800 0.0359 1911	-0.00046 0.9840 1911	0.08843 0.0001 1911	0.00515 0.8220 1911	0.10459 <0.0001 1911	-0.02662 0.2448 1911	0.02939 0.1990 1911	0.05856 0.0105 1911
Agreeableness	0.16803 <0.0001 1911	0.17195 <0.0001 1911	0.21131 <0.0001 1911	0.02731 0.2327 1911	-0.19462 <0.0001 1911	0.00974 0.6704 1911	-0.08636 0.0002 1911	0.16088 <0.0001 1911	0.05625 0.0139 1911	0.14100 <0.0001 1911	0.03336 0.1448 1911	0.14839 <0.0001 1911	0.14129 <0.0001 1911
Conscientiousness	0.14145 <0.0001 1911	0.15422 <0.0001 1911	0.19661 <0.0001 1911	-0.01040 0.6497 1911	-0.12503 <0.0001 1911	0.00325 0.8869 1911	-0.10512 <0.0001 1911	0.10813 <0.0001 1911	0.04209 0.0658 1911	0.15947 <0.0001 1911	0.03477 0.1287 1911	0.13614 <0.0001 1911	0.15935 <0.0001 1911
Emotional stability	0.16594 <0.0001 1911	0.18239 <0.0001 1911	0.20598 <0.0001 1911	0.02351 0.3043 1911	-0.20804 <0.0001 1911	0.01370 0.5496 1911	-0.01819 0.4269 1911	0.10474 <0.0001 1911	0.11211 <0.0001 1911	0.12101 <0.0001 1911	0.01631 0.4761 1911	0.13825 <0.0001 1911	0.15134 <0.0001 1911
Openness to Experience	0.08934 <0.0001 1911	0.10426 <0.0001 1911	0.10828 <0.0001 1911	-0.00255 0.9111 1911	0.00576 0.8014 1911	0.03142 0.1698 1911	-0.06975 0.0023 1911	0.12103 <0.0001 1911	0.07555 0.0009 1911	0.14901 <0.0001 1911	-0.03939 0.0852 1911	0.09440 <0.0001 1911	0.09028 <0.0001 1911
Participant-Reported HEALTH Indicators (for correlations: coefficient, P-value, N; for group comparisons: mean, (standard deviation))													
Dartmouth COOP	-0.06154 0.0071 1913	-0.07662 0.0008 1913	-0.06929 0.0024 1913	0.05983 0.0089 1913	-0.00701 0.7594 1913	-0.00317 0.8897 1913	0.06092 0.0077 1913	-0.04180 0.0676 1913	0.01198 0.6005 1913	-0.10672 <0.0001 1913	-0.03949 0.0842 1913	-0.03623 0.1132 1913	-0.03118 0.1728 1913
Physical fitness (1 = best, 5 = worst)	-0.14019 <0.0001 1917	-0.15052 <0.0001 1917	-0.15308 <0.0001 1917	-0.00990 0.6650 1917	0.20037 <0.0001 1917	-0.02967 0.1940 1917	-0.02770 0.2253 1917	-0.03053 0.1815 1917	-0.01991 0.3837 1917	-0.07472 0.0011 1917	-0.00962 0.6738 1917	-0.03429 0.1334 1917	-0.10391 <0.0001 1917
Dartmouth COOP Feelings (1 = best, 5 = worst)	-0.13332 <0.0001 1912	-0.14567 <0.0001 1912	-0.17495 <0.0001 1912	-0.02945 0.1980 1912	0.12874 <0.0001 1912	-0.06025 0.0084 1912	-0.05924 0.0096 1912	-0.01661 0.4679 1912	0.01114 0.6263 1912	-0.05768 0.0116 1912	-0.03942 0.0849 1912	-0.07344 0.0013 1912	-0.08870 0.0001 1912
Dartmouth COOP Daily activities (1 = best, 5 = worst)	-0.13108 <0.0001 1914	-0.13202 <0.0001 1914	-0.19069 <0.0001 1914	0.04947 0.0305 1914	0.18914 <0.0001 1914	0.00314 0.8907 1914	0.06119 0.0074 1914	-0.07881 0.0006 1914	-0.00194 0.9324 1914	-0.13963 <0.0001 1914	0.00662 0.7723 1914	-0.11869 <0.0001 1914	-0.09527 <0.0001 1914
Dartmouth COOP Social activities (1 = best, 5 = worst)	-0.07786 0.0007 1914	-0.09595 <0.0001 1914	-0.09381 <0.0001 1914	-0.03696 0.1060 1914	0.06075 0.0078 1914	-0.07237 0.0015 1914	-0.08026 0.0004 1914	0.01061 0.6428 1914	0.08232 0.0003 1914	0.00252 0.9121 1914	-0.06238 0.0063 1914	-0.04044 0.0769 1914	-0.04183 0.0673 1914

(continued on next page)

Table 2 (continued)

VARIABLE	Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others 8 items	Family Ties & Duties 7 items	Social Distress 6 items	Urban Diversity 4 items	Discontinuity 2 items	Church-Engaged 3 items	Seek External Resources 2 items	Locally-Owned Business Active 2 items	Power-Deference 2 items	Next Generation Focus 3 items	Self-Reliance 2 items
(1 = best, 5 = worst)	1914	1914	1914	1914	1914	1914	1914	1914	1914	1914	1914	1914	1914
Dartmouth COOP	-0.07813	-0.08477	-0.04610	-0.09453	0.00331	-0.05062	-0.10340	0.02693	0.02893	-0.01179	-0.05219	-0.00708	-0.03398
Change in health	0.0006	0.0002	0.0437	<0.0001	0.8848	0.0267	<0.0001	0.2388	0.2057	0.6061	0.0224	0.7569	0.1372
(1 = best, 5 = worst)	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915
Dartmouth COOP	-0.18764	-0.21193	-0.21665	-0.01670	0.11782	-0.03856	-0.00750	-0.09914	0.02168	-0.16885	-0.06684	-0.07677	-0.16557
Overall health	<0.0001	<0.0001	<0.0001	0.4649	<0.0001	0.0914	0.7428	<0.0001	0.3428	<0.0001	0.0034	0.0008	<0.0001
(1 = best, 5 = worst)	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
Dartmouth COOP	-0.24391	-0.25762	-0.21795	-0.07586	0.13438	-0.03922	0.01119	-0.10057	-0.02797	-0.17771	-0.02647	-0.12372	-0.13946
Social support	<0.0001	<0.0001	<0.0001	0.0009	<0.0001	0.0860	0.6245	<0.0001	0.2209	<0.0001	0.2467	<0.0001	<0.0001
(1 = best, 5 = worst)	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917	1917
Dartmouth COOP	-0.19146	-0.19920	-0.21702	-0.04334	0.16606	-0.03929	-0.00911	-0.05620	-0.03441	-0.13597	-0.05438	-0.08121	-0.14830
Quality of life	<0.0001	<0.0001	<0.0001	0.0582	<0.0001	0.0859	0.6906	0.0140	0.1326	<0.0001	0.0174	0.0004	<0.0001
(1 = best, 5 = worst)	1911	1911	1911	1911	1911	1911	1911	1911	1911	1911	1911	1911	1911
Stage of change for Regular physical activity (1 = no intention in next 6 months, 5 = yes for more than 6 months)	0.10124	0.11859	0.10678	-0.00815	-0.05032	0.04532	-0.00553	0.07331	0.01665	0.10162	0.00220	0.05276	0.08060
	<0.0001	<0.0001	<0.0001	0.7216	0.0277	0.0474	0.8089	0.0013	0.4666	<0.0001	0.9234	0.0210	0.0004
	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915
Stage of change for Daily consumption of fruits and vegetables (1 = no intention in next 6 months, 5 = yes for more than 6 months)	0.15603	0.16898	0.14258	0.01804	-0.03228	-0.00743	-0.02230	0.13396	0.01075	0.17341	0.01483	0.06422	0.10853
	<0.0001	<0.0001	<0.0001	0.4302	0.1580	0.7452	0.3294	<0.0001	0.6383	<0.0001	0.5165	0.0049	<0.0001
	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915	1915
BMI	-0.02446	-0.03367	-0.00900	-0.02706	0.02596	-0.08880	-0.17422	0.10399	0.04957	0.02567	-0.01275	0.07890	0.01215
	0.2922	0.1469	0.6982	0.2439	0.2635	0.0001	<0.0001	<0.0001	0.0327	0.2688	0.5829	0.0007	0.6008
	1857	1857	1857	1857	1857	1857	1857	1857	1857	1857	1857	1857	1857
Overweight or Obesity P-value	0.0799	0.0411	0.1811	0.0773	0.6391	0.0024	<0.0001	0.0815	0.0697	0.4877	0.8392	0.4511	0.4609
No (N = 1179)	2.66 (0.59)	2.63 (0.53)	2.96 (0.55)	2.51 (0.53)	2.18 (0.53)	2.45 (0.76)	1.91 (0.59)	2.63 (0.65)	2.53 (0.68)	2.64 (0.66)	2.48 (0.57)	3.10 (0.49)	2.94 (0.62)
Yes (N = 689)	2.61 (0.60)	2.58 (0.55)	2.92 (0.56)	2.47 (0.50)	2.19 (0.53)	2.33 (0.77)	1.79 (0.54)	2.69 (0.62)	2.59 (0.66)	2.66 (0.67)	2.48 (0.57)	3.12 (0.47)	2.96 (0.65)
Heart Attack or Myocardial Infarction P-value	0.0232	0.0259	0.1081	0.1288	0.0238	0.5735	0.5875	0.1285	0.2801	0.8191	0.7014	0.0499	0.1238
No (N = 1843)mean (SD)	2.65 (0.59)	2.62 (0.53)	2.95 (0.55)	2.50 (0.52)	2.18 (0.53)	2.40 (0.77)	1.87 (0.57)	2.65 (0.64)	2.55 (0.67)	2.64 (0.66)	2.48 (0.57)	3.11 (0.48)	2.95 (0.63)
Yes (N = 38)mean (SD)	2.43 (0.56)	2.42 (0.52)	2.80 (0.64)	2.37 (0.44)	2.38 (0.61)	2.47 (0.73)	1.92 (0.71)	2.81 (0.69)	2.67 (0.62)	2.62 (0.69)	2.45 (0.73)	2.96 (0.53)	2.79 (0.63)
Angina or Coronary Heart Disease P-value	0.0016	0.0008	0.0074	0.1302	0.7133	0.8074	0.6094	0.897	0.6453	0.2392	0.1516	0.0305	0.0058
No (N = 1818)mean (SD)	2.65 (0.59)	2.62p (0.53)	2.95 (0.56)	2.50 (0.52)	2.18 (0.53)	2.40 (0.76)	1.87 (0.57)	2.65 (0.64)	2.56 (0.67)	2.65 (0.66)	2.49 (0.57)	3.11 (0.48)	2.95 (0.63)
Yes (N = 63)mean (SD)	2.41 (0.60)	2.39 (0.57)	2.76 (0.58)	2.40 (0.54)	2.16 (0.64)	2.38 (0.76)	1.83 (0.64)	2.66 (0.72)	2.52 (0.65)	2.55 (0.58)	2.38 (0.59)	2.98 (0.49)	2.73 (0.62)
Stroke or TIA P-value	0.6490	0.6540	0.2093	0.8011	0.6817	0.9126	0.9101	0.244	0.1914	0.0651	0.9772	0.4847	0.9823
No (N = 1825)mean (SD)	2.65 (0.59)	2.61 (0.53)	2.94 (0.56)	2.50 (0.52)	2.18 (0.53)	2.41 (0.76)	1.87 (0.57)	2.65 (0.64)	2.55 (0.67)	2.65 (0.66)	2.48 (0.56)	3.11 (0.48)	2.95 (0.63)
Yes (N = 57) mean (SD)	2.61 (0.59)	2.58 (0.56)	2.85 (0.55)	2.48 (0.53)	2.15 (0.61)	2.39 (0.79)	1.88 (0.57)	2.75 (0.66)	2.67 (0.66)	2.48 (0.65)	2.48 (0.72)	3.06 (0.48)	2.95 (0.71)

(continued on next page)

Table 2 (continued)

VARIABLE	Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others 8 items	Family Ties & Duties 7 items	Social Distress 6 items	Urban Diversity 4 items	Discontinuity 2 items	Church-Engaged 3 items	Seek External Resources 2 items	Locally-Owned Business Active 2 items	Power-Deference 2 items	Next Generation Focus 3 items	Self-Reliance 2 items
High Blood Pressure or Hypertension P-value	0.3034	0.5712	0.2122	0.7736	0.1006	0.4465	0.0013	<0.0001	0.0084	0.0332	0.8641	0.0035	0.0592
No (N = 1439)	2.64 (0.59)	2.61 (0.53)	2.93 (0.56)	2.50 (0.53)	2.19 (0.54)	2.41 (0.75)	1.89 (0.59)	2.61 (0.64)	2.53 (0.67)	2.62 (0.66)	2.48 (0.56)	3.09 (0.49)	2.93 (0.62)
Yes (N = 441)	2.67 (0.61)	2.62 (0.56)	2.97 (0.54)	2.49 (0.48)	2.15 (0.51)	2.38 (0.80)	1.79 (0.52)	2.77 (0.64)	2.63 (0.66)	2.70 (0.66)	2.48 (0.59)	3.17 (0.46)	3.00 (0.67)
Diabetes or High Blood Sugar P-value	0.7417	0.4995	0.9065	0.7463	0.3182	0.0088	0.1157	0.8468	0.5326	0.8709	0.1796	0.0543	0.8088
No (N = 1684)	2.65 (0.59)	2.62 (0.53)	2.94 (0.56)	2.50 (0.53)	2.19 (0.53)	2.42 (0.77)	1.88 (0.58)	2.65 (0.65)	2.55 (0.67)	2.65 (0.67)	2.49 (0.57)	3.10 (0.48)	2.95 (0.63)
Yes (N = 193)	2.63 (0.60)	2.59 (0.54)	2.94 (0.52)	2.48 (0.49)	2.15 (0.51)	2.27 (0.74)	1.81 (0.51)	2.66 (0.59)	2.58 (0.66)	2.64 (0.64)	2.43 (0.57)	3.17 (0.48)	2.94 (0.67)
High Cholesterol or Hypercholesterolemia P-value	0.3215	0.7075	0.2102	0.0081	0.0826	0.0111	<0.0001	0.0016	0.0161	0.0027	0.6525	0.1988	0.123
No (N = 1419)	2.64 (0.60)	2.61 (0.54)	2.93 (0.56)	2.51 (0.53)	2.20 (0.54)	2.43 (0.75)	1.91 (0.58)	2.62 (0.65)	2.53 (0.67)	2.62 (0.66)	2.48 (0.57)	3.10 (0.49)	2.93 (0.63)
Yes (N = 443)	2.67 (0.59)	2.62 (0.53)	2.97 (0.55)	2.44 (0.49)	2.15 (0.51)	2.33 (0.80)	1.74 (0.51)	2.73 (0.61)	2.62 (0.67)	2.73 (0.65)	2.47 (0.58)	3.13 (0.48)	2.99 (0.65)
Cancer P-value	0.1935	0.2631	0.047	0.1087	0.0014	0.1599	0.0096	0.3981	0.0401	0.3137	0.5605	0.1715	0.0014
No (N = 1709)	2.64 (0.59)	2.61 (0.53)	2.93 (0.56)	2.50 (0.52)	2.19 (0.53)	2.42 (0.77)	1.88 (0.58)	2.64 (0.64)	2.54 (0.66)	2.64 (0.66)	2.48 (0.57)	3.11 (0.49)	2.93 (0.63)
Yes (N = 173)	2.70 (0.59)	2.66 (0.54)	3.02 (0.55)	2.43 (0.49)	2.06 (0.46)	2.33 (0.74)	1.76 (0.48)	2.69 (0.62)	2.65 (0.69)	2.69 (0.65)	2.46 (0.58)	3.06 (0.43)	3.09 (0.66)
Depression P-value	0.0145	0.0043	0.1553	0.0004	0.0418	0.0011	<0.0001	0.4147	0.5177	0.0094	0.1035	0.8674	0.3263
No (N = 1198)	2.67 (0.59)	2.64 (0.53)	2.96 (0.56)	2.53 (0.53)	2.16 (0.52)	2.45 (0.75)	1.91 (0.58)	2.64 (0.66)	2.56 (0.66)	2.62 (0.66)	2.49 (0.57)	3.12 (0.48)	2.96 (0.62)
Yes (N = 644)	2.60 (0.60)	2.57 (0.54)	2.92 (0.55)	2.44 (0.50)	2.21 (0.55)	2.33 (0.79)	1.77 (0.55)	2.67 (0.60)	2.54 (0.69)	2.70 (0.67)	2.45 (0.56)	3.11 (0.49)	2.93 (0.65)
GEOGRAPHIC Variables Based on Location of Participant (for correlations: coefficient, P-value, N; for group comparisons: mean, (standard deviation))													
Nation P-value	0.003	0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	0.525	<0.001	<0.001
US (N = 1592)	2.66 (0.60)	2.63 (0.54)	2.99 (0.54)	2.45 (0.49)	2.17 (0.52)	2.36 (0.79)	1.78 (0.53)	2.73 (0.61)	2.58 (0.68)	2.72 (0.65)	2.47 (0.55)	3.15 (0.47)	2.98 (0.63)
Thailand (N = 338)	2.55 (0.53)	2.52 (0.50)	2.72 (0.57)	2.72 (0.60)	2.26 (0.55)	2.61 (0.59)	2.36 (0.55)	2.25 (0.64)	2.41 (0.59)	2.24 (0.55)	2.51 (0.67)	2.90 (0.50)	2.76 (0.63)
US Region P-value	<0.001	0.002	<0.001	<0.001	0.013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.177
New England (N = 82)	2.64 (0.55)	2.63 (0.50)	3.09 (0.52)	2.37 (0.44)	2.21 (0.55)	2.22 (0.87)	1.73 (0.54)	2.50 (0.48)	2.72 (0.57)	2.93 (0.65)	2.46 (0.45)	3.19 (0.44)	3.04 (0.59)
Mid-Atlantic (N = 253)	2.68 (0.63)	2.64 (0.55)	2.98 (0.55)	2.56 (0.47)	2.20 (0.53)	2.57 (0.78)	1.77 (0.49)	2.74 (0.60)	2.41 (0.61)	2.66 (0.61)	2.42 (0.54)	3.27 (0.45)	2.96 (0.61)
Upper South (N = 171)	2.71 (0.60)	2.68 (0.54)	3.05 (0.54)	2.38 (0.45)	2.18 (0.56)	2.29 (0.73)	1.77 (0.50)	2.87 (0.60)	2.57 (0.68)	2.71 (0.67)	2.58 (0.58)	3.18 (0.46)	3.08 (0.62)
Deep South (N = 282)	2.61 (0.59)	2.57 (0.55)	2.97 (0.56)	2.48 (0.46)	2.20 (0.55)	2.08 (0.67)	1.73 (0.49)	2.91 (0.59)	2.75 (0.74)	2.62 (0.67)	2.47 (0.58)	3.10 (0.50)	2.96 (0.65)
Midwest (N = 318)	2.73 (0.58)	2.67 (0.51)	3.00 (0.53)	2.40 (0.44)	2.08 (0.49)	2.28 (0.81)	1.69 (0.48)	2.73 (0.61)	2.52 (0.67)	2.81 (0.68)	2.47 (0.51)	3.14 (0.46)	3.00 (0.61)
Southwest (N = 77)	2.47 (0.66)	2.48 (0.57)	2.85 (0.52)	2.38 (0.54)	2.23 (0.56)	2.30 (0.75)	1.69 (0.57)	2.73 (0.60)	2.66 (0.74)	2.62 (0.66)	2.41 (0.60)	3.09 (0.45)	2.99 (0.66)

(continued on next page)

Table 2 (continued)

VARIABLE	Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others 8 items	Family Ties & Duties 7 items	Social Distress 6 items	Urban Diversity 4 items	Discontinuity 2 items	Church-Engaged 3 items	Seek External Resources 2 items	Locally-Owned Business Active 2 items	Power-Deference 2 items	Next Generation Focus 3 items	Self-Reliance 2 items
<i>Northern Pacific (N = 109)</i>	2.66 (0.58)	2.65 (0.51)	2.95 (0.54)	2.31 (0.45)	2.05 (0.43)	2.61 (0.83)	1.87 (0.60)	2.41 (0.54)	2.66 (0.67)	2.90 (0.52)	2.33 (0.48)	3.11 (0.43)	3.00 (0.57)
<i>Northern Mountain (N = 20)</i>	2.85 (0.65)	2.77 (0.63)	3.01 (0.46)	2.56 (0.56)	2.03 (0.41)	1.86 (0.56)	1.78 (0.44)	2.65 (0.64)	2.35 (0.71)	3.03 (0.68)	2.58 (0.57)	3.15 (0.49)	3.03 (0.73)
<i>Southern Mountain (N = 92)</i>	2.62 (0.64)	2.61 (0.57)	3.03 (0.51)	2.38 (0.47)	2.12 (0.52)	2.47 (0.70)	1.86 (0.50)	2.78 (0.68)	2.58 (0.71)	2.63 (0.63)	2.47 (0.61)	3.11 (0.45)	2.97 (0.69)
<i>Hawaii (N = 59)</i>	3.01 (0.58)	2.85 (0.54)	2.62 (0.60)	3.09 (0.52)	2.28 (0.47)	2.40 (0.70)	2.03 (0.70)	2.75 (0.58)	2.45 (0.58)	2.84 (0.69)	2.80 (0.62)	2.92 (0.58)	2.75 (0.63)
<i>California (N = 81)</i>	2.52 (0.53)	2.52 (0.49)	3.01 (0.51)	2.32 (0.46)	2.20 (0.47)	2.44 (0.61)	1.75 (0.48)	2.55 (0.58)	2.67 (0.61)	2.49 (0.61)	2.50 (0.51)	3.07 (0.53)	2.96 (0.59)
US NCHS urban-rural, 2013 P-value	<0.001	<0.001	<0.001	<0.001	0.485	<0.001	<0.001	<0.001	0.004	<0.001	<0.001	0.004	0.011
<i>Large central metro (N = 531)</i>	2.54 (0.56)	2.56 (0.50)	2.98 (0.55)	2.33 (0.46)	2.19 (0.53)	2.81 (0.73)	1.85 (0.55)	2.59 (0.59)	2.51 (0.66)	2.63 (0.62)	2.39 (0.55)	3.14 (0.47)	2.97 (0.60)
<i>Large fringe metro (N = 337)</i>	2.76 (0.62)	2.71 (0.54)	3.12 (0.52)	2.48 (0.47)	2.14 (0.53)	2.12 (0.72)	1.70 (0.48)	2.82 (0.60)	2.62 (0.69)	2.75 (0.64)	2.55 (0.49)	3.21 (0.45)	3.07 (0.62)
<i>Medium metro (N = 453)</i>	2.63 (0.61)	2.60 (0.56)	3.00 (0.54)	2.43 (0.46)	2.14 (0.51)	2.23 (0.71)	1.76 (0.52)	2.77 (0.59)	2.66 (0.69)	2.69 (0.67)	2.45 (0.56)	3.13 (0.45)	2.99 (0.64)
<i>Small metro (N = 101)</i>	2.72 (0.55)	2.65 (0.49)	2.87 (0.53)	2.49 (0.46)	2.16 (0.56)	2.10 (0.68)	1.72 (0.50)	2.81 (0.59)	2.46 (0.68)	2.81 (0.61)	2.51 (0.52)	3.14 (0.49)	2.93 (0.57)
<i>Micropolitan (N = 113)</i>	2.97 (0.61)	2.81 (0.56)	2.73 (0.54)	2.85 (0.55)	2.23 (0.48)	1.80 (0.55)	1.71 (0.55)	2.86 (0.65)	2.58 (0.65)	3.02 (0.70)	2.64 (0.61)	3.01 (0.55)	2.85 (0.67)
<i>Non-core (N = 26)</i>	3.01 (0.56)	2.87 (0.53)	2.76 (0.52)	2.80 (0.43)	2.15 (0.51)	1.53 (0.40)	1.54 (0.51)	3.13 (0.59)	2.69 (0.62)	3.08 (0.77)	2.77 (0.53)	3.06 (0.57)	3.17 (0.69)
US RUCA, 2010 P-value	<0.001	<0.001	<0.001	<0.001	0.5969	<0.001	0.068	<0.001	0.001	<0.001	0.002	0.002	0.004
<i>Metropolitan area core (N = 1313)</i>	2.62 (0.59)	2.60 (0.53)	3.02 (0.54)	2.39 (0.46)	2.16 (0.52)	2.47 (0.76)	1.79 (0.52)	2.70 (0.60)	2.56 (0.68)	2.66 (0.63)	2.45 (0.54)	3.15 (0.46)	3.00 (0.61)
<i>Metropolitan area high commuting (N = 78)</i>	2.88 (0.60)	2.79 (0.54)	2.95 (0.54)	2.65 (0.46)	2.15 (0.51)	1.64 (0.58)	1.66 (0.48)	3.00 (0.64)	2.85 (0.64)	3.07 (0.69)	2.58 (0.50)	3.22 (0.46)	2.96 (0.64)
<i>Micropolitan area core (N = 99)</i>	2.91 (0.62)	2.77 (0.56)	2.70 (0.48)	2.81 (0.58)	2.22 (0.49)	1.88 (0.55)	1.72 (0.57)	2.84 (0.62)	2.53 (0.63)	2.98 (0.62)	2.64 (0.59)	2.99 (0.54)	2.79 (0.65)
<i>Small town core (N = 22)</i>	3.18 (0.48)	3.03 (0.40)	2.94 (0.45)	2.69 (0.59)	2.25 (0.73)	1.59 (0.41)	1.68 (0.65)	3.00 (0.63)	2.64 (0.60)	3.14 (0.60)	2.66 (0.50)	3.03 (0.50)	3.09 (0.73)
<i>Rural areas (N = 23)</i>	2.96 (0.57)	2.82 (0.53)	2.72 (0.63)	2.70 (0.49)	2.25 (0.48)	1.47 (0.29)	1.61 (0.43)	3.01 (0.69)	2.91 (0.62)	3.22 (0.69)	2.39 (0.56)	3.00 (0.57)	3.26 (0.52)
US Metro-nonmetro, 2013 P-value	<0.001	<0.001	<0.001	<0.001	0.243	<0.001	0.035	0.001	0.764	<0.001	<0.001	0.002	0.101
<i>Metro (N = 1422)</i>	2.64 (0.59)	2.61 (0.53)	3.01 (0.54)	2.41 (0.47)	2.16 (0.53)	2.41 (0.78)	1.78 (0.52)	2.72 (0.60)	2.58 (0.68)	2.69 (0.64)	2.45 (0.54)	3.15 (0.46)	3.00 (0.62)
<i>Nonmetro (N = 139)</i>	2.98 (0.60)	2.82 (0.55)	2.74 (0.54)	2.84 (0.53)	2.21 (0.49)	1.75 (0.53)	1.68 (0.55)	2.91 (0.64)	2.60 (0.64)	3.03 (0.71)	2.67 (0.60)	3.02 (0.55)	2.91 (0.68)
US FAR level 1 P-value	<0.001	<0.001	<0.001	<0.001	0.600	<0.001	0.796	0.336	0.110	<0.001	0.042	<0.001	0.005
<i>Yes (N = 70)</i>	3.04 (0.58)	2.85 (0.53)	2.59 (0.50)	2.96 (0.53)	2.20 (0.46)	1.87 (0.56)	1.79 (0.57)	2.80 (0.61)	2.46 (0.59)	3.04 (0.65)	2.60 (0.59)	2.90 (0.60)	2.79 (0.68)
<i>No (N = 1483)</i>	2.65 (0.60)	2.62 (0.53)	3.00 (0.54)	2.42 (0.47)	2.16 (0.53)	2.37 (0.78)	1.77 (0.53)	2.73 (0.61)	2.59 (0.68)	2.70 (0.65)	2.46 (0.55)	3.15 (0.46)	3.00 (0.62)
US economic dependence P-value	0.004	0.054	0.161	0.374	0.271	<0.001	0.002	0.034	0.636	0.010	0.843	0.012	0.447

(continued on next page)

Table 2 (continued)

VARIABLE	Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others 8 items	Family Ties & Duties 7 items	Social Distress 6 items	Urban Diversity 4 items	Discontinuity 2 items	Church-Engaged 3 items	Seek External Resources 2 items	Locally-Owned Business Active 2 items	Power-Deference 2 items	Next Generation Focus 3 items	Self-Reliance 2 items
<i>Nonspecialized (N = 964)</i>	2.63 (0.59)	2.61 (0.53)	2.98 (0.54)	2.43 (0.47)	2.17 (0.53)	2.39 (0.79)	1.75 (0.51)	2.73 (0.61)	2.56 (0.67)	2.67 (0.65)	2.47 (0.55)	3.16 (0.46)	2.97 (0.61)
<i>Mining-dependent (N = 29)</i>	2.46 (0.68)	2.51 (0.58)	2.79 (0.60)	2.37 (0.56)	2.31 (0.59)	2.28 (0.73)	1.81 (0.52)	2.78 (0.58)	2.66 (0.64)	2.79 (0.69)	2.47 (0.61)	3.09 (0.42)	3.02 (0.54)
<i>Manufacturing-dependent (N = 81)</i>	2.82 (0.65)	2.71 (0.54)	3.00 (0.49)	2.53 (0.48)	2.13 (0.50)	1.93 (0.65)	1.61 (0.43)	2.93 (0.65)	2.64 (0.69)	2.86 (0.64)	2.52 (0.61)	3.25 (0.42)	2.93 (0.69)
<i>Federal/State government-dependent (N = 409)</i>	2.72 (0.59)	2.68 (0.54)	3.01 (0.56)	2.46 (0.52)	2.13 (0.51)	2.41 (0.78)	1.84 (0.57)	2.72 (0.58)	2.59 (0.69)	2.77 (0.66)	2.48 (0.55)	3.11 (0.50)	3.02 (0.64)
<i>Recreation (N = 71)</i>	2.68 (0.65)	2.65 (0.57)	2.91 (0.57)	2.46 (0.47)	2.22 (0.55)	2.10 (0.76)	1.80 (0.59)	2.65 (0.59)	2.65 (0.69)	2.83 (0.68)	2.43 (0.47)	3.01 (0.53)	3.08 (0.60)
US Social Vulnerability Index 2016													
<i>SVI Socioeconomic</i>	-0.13306 <0.0001 1556	-0.14289 <0.0001 1556	-0.43382 <0.0001 1556	0.12925 <0.0001 1556	0.10936 <0.0001 1556	0.12786 <0.0001 1556	0.00329 0.8967 1556	0.01774 0.4843 1556	-0.02420 0.3401 1556	-0.08293 0.0011 1556	-0.07427 0.0034 1556	-0.12103 <0.0001 1556	-0.10028 <0.0001 1556
<i>SVI Household composition</i>	-0.06862 0.0068 1556	-0.12868 <0.0001 1556	-0.34953 <0.0001 1556	0.19968 <0.0001 1556	0.08241 0.0011 1556	-0.22869 <0.0001 1556	-0.17314 <0.0001 1556	0.11953 <0.0001 1556	0.03814 0.1326 1556	-0.06428 0.0112 1556	-0.02379 0.3484 1556	-0.08153 0.0013 1556	-0.15029 <0.0001 1556
<i>SVI Minority status/language</i>	-0.23243 <0.0001 1556	-0.19270 <0.0001 1556	-0.17292 <0.0001 1556	-0.08252 0.0011 1556	0.05447 0.0317 1556	0.41747 <0.0001 1556	0.11466 <0.0001 1556	-0.14989 <0.0001 1556	-0.05024 0.0476 1556	-0.24921 <0.0001 1556	-0.08143 0.0013 1556	-0.03989 0.1157 1556	-0.01585 0.5322 1556
<i>SVI Housing/transportation</i>	-0.04304 0.0897 1556	-0.02220 0.3815 1556	-0.21752 <0.0001 1556	0.01632 0.5201 1556	0.05405 0.0330 1556	0.33116 <0.0001 1556	0.11490 <0.0001 1556	-0.05644 0.0260 1556	-0.04901 0.0532 1556	0.01223 0.6298 1556	-0.06117 0.0158 1556	-0.07938 0.0017 1556	-0.03518 0.1655 1556
<i>Overall SVI</i>	-0.15241 <0.0001 1556	-0.16059 <0.0001 1556	-0.42194 <0.0001 1556	0.11598 <0.0001 1556	0.10065 <0.0001 1556	0.18346 <0.0001 1556	0.00879 0.7289 1556	-0.00272 0.9145 1556	-0.02451 0.3339 1556	-0.11890 <0.0001 1556	-0.08042 0.0015 1556	-0.11139 <0.0001 1556	-0.11087 <0.0001 1556
<i>Median household income in 2016</i>	0.04785 0.0595 1552	0.07692 0.0024 1552	0.26124 <0.0001 1552	-0.13687 <0.0001 1552	-0.05992 0.0182 1552	0.08791 0.0005 1552	0.07313 0.0039 1552	-0.05589 0.0277 1552	0.02575 0.3106 1552	-0.00836 0.7421 1552	0.01726 0.4970 1552	0.09105 0.0003 1552	0.10358 <0.0001 1552
<i>Share below poverty line in 2010</i>	-0.11394 <0.0001 1552	-0.09484 0.0002 1552	-0.15712 <0.0001 1552	-0.01255 0.6212 1552	0.05375 0.0342 1552	0.23923 <0.0001 1552	0.05515 0.0298 1552	-0.04539 0.0738 1552	-0.06545 0.0099 1552	-0.04921 0.0526 1552	-0.09243 0.0003 1552	-0.03578 0.1589 1552	-0.04763 0.0607 1552

*Pearson Correlation Coefficients Prob > |r| under H0: Rho = 0 Number of Observations.

**P-values are based on one-way ANOVA tests (or P-values are based on non-parametric Wilcoxon rank-sum tests?).

Table 3

Linear regression model results for community culture survey-revised (CCS-R) subscales adjusted for respondent age and county-level poverty and income.

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
Race/Ethnicity														
American Indian or Alaska Native vs. White	Beta (95 % CI)	-0.157 (-0.395, 0.081)	-0.110 (-0.324, 0.104)	-0.138 (-0.345, 0.068)	0.109 (-0.077, 0.294)	0.323 (0.120, 0.526)	0.130 (-0.150, 0.410)	0.129 (-0.075, 0.334)	0.022 (-0.220, 0.264)	-0.016 (-0.287, 0.255)	-0.213 (-0.473, 0.047)	0.039 (-0.178, 0.256)	-0.062 (-0.250, 0.125)	-0.131 (-0.377, 0.114)
	p-value	0.196	0.314	0.19	0.252	0.002	0.362	0.214	0.856	0.908	0.108	0.723	0.514	0.295
Asian vs. White	Beta (95 % CI)	0.017 (-0.133, 0.168)	-0.030 (-0.165, 0.105)	-0.149 (-0.280, -0.019)	0.225 (0.108, 0.342)	-0.006 (-0.134, 0.122)	-0.009 (-0.186, 0.167)	0.042 (-0.087, 0.171)	0.015 (-0.138, 0.167)	-0.131 (-0.302, 0.040)	-0.105 (-0.270, 0.059)	0.049 (-0.088, 0.186)	-0.013 (-0.131, 0.106)	-0.121 (-0.276, 0.034)
	p-value	0.820	0.66	0.025	<0.001	0.929	0.917	0.525	0.852	0.134	0.208	0.483	0.832	0.125
Black vs. White	Beta (95 % CI)	-0.159 (-0.294, -0.025)	-0.131 (-0.252, -0.009)	-0.207 (-0.324, -0.090)	0.119 (0.014, 0.224)	0.139 (0.024, 0.254)	0.038 (-0.121, 0.196)	0.134 (0.018, 0.250)	0.197 (0.060, 0.334)	-0.049 (-0.203, 0.104)	-0.395 (-0.543, -0.248)	-0.099 (-0.222, 0.024)	0.028 (-0.078, 0.134)	-0.102 (-0.241, 0.037)
	p-value	0.021	0.035	<0.001	0.027	0.018	0.642	0.023	0.005	0.53	<0.001	0.113	0.606	0.151
Hispanic or Latino vs. White	Beta (95 % CI)	-0.192 (-0.436, 0.052)	-0.160 (-0.379, 0.060)	-0.070 (-0.282, 0.143)	-0.035 (-0.226, 0.155)	-0.061 (-0.269, 0.148)	0.325 (0.038, 0.612)	0.087 (-0.123, 0.297)	-0.035 (-0.283, 0.214)	-0.072 (-0.350, 0.206)	-0.255 (-0.522, 0.012)	0.006 (-0.217, 0.228)	0.160 (-0.033, 0.353)	-0.065 (-0.317, 0.187)
	p-value	0.123	0.154	0.52	0.715	0.569	0.027	0.417	0.785	0.611	0.061	0.961	0.103	0.612
Native Hawaiian or Pacific Islander vs. White	Beta (95 % CI)	0.476 (-0.192, 1.145)	0.410 (-0.190, 1.011)	0.182 (-0.399, 0.763)	0.568 (0.046, 1.089)	0.356 (-0.214, 0.927)	0.100 (-0.685, 0.886)	0.398 (-0.176, 0.972)	0.094 (-0.585, 0.773)	0.267 (-0.494, 1.028)	0.257 (-0.473, 0.988)	0.662 (0.052, 1.272)	-0.260 (-0.787, 0.267)	0.165 (-0.524, 0.854)
	p-value	0.163	0.18	0.539	0.033	0.221	0.802	0.174	0.786	0.491	0.49	0.033	0.334	0.638
Age	Beta (95 % CI)	0.004 (0.002, 0.006)	0.003 (0.002, 0.005)	0.005 (0.004, 0.007)	-0.001 (-0.003, 0.001)	-0.008 (-0.010, -0.006)	-0.003 (-0.005, -0.001)	-0.001 (-0.003, 0.001)	0.003 (0.001, 0.005)	0.005 (0.003, 0.007)	0.002 (0.000, 0.004)	-0.001 (-0.003, 0.001)	0.003 (0.001, 0.004)	0.005 (0.003, 0.007)
	p-value	<0.001	<0.001	<0.001	0.215	<0.001	0.016	0.166	0.011	<0.001	0.049	0.370	<0.001	<0.001
Percent below poverty line in 2010	Beta (95 % CI)	-0.019 (-0.028, -0.010)	-0.007 (-0.015, 0.001)	0.014 (0.007, 0.022)	-0.029 (-0.036, -0.022)	-0.005 (-0.013, 0.002)	0.106 (0.095, 0.117)	0.025 (0.017, 0.033)	-0.028 (-0.037, -0.019)	-0.010 (-0.020, 0.000)	-0.012 (-0.022, -0.002)	-0.022 (-0.030, -0.013)	0.006 (-0.002, 0.013)	0.010 (0.000, 0.019)
	p-value	<0.001	0.095	<0.001	<0.001	0.166	<0.001	<0.001	<0.001	0.060	0.018	<0.001	0.125	0.039
Log median household income in 2016	Beta (95 % CI)	-0.215 (-0.409, -0.021)	0.035 (-0.139, 0.209)	0.792 (0.623, 0.960)	-0.792 (-0.944, -0.641)	-0.254 (-0.420, -0.089)	1.992 (1.764, 2.220)	0.553 (0.387, 0.720)	-0.631 (-0.828, -0.434)	-0.095 (-0.315, 0.126)	-0.251 (-0.463, -0.039)	-0.339 (-0.516, -0.162)	0.260 (0.107, 0.413)	0.408 (0.208, 0.608)
	p-value	0.03	0.692	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	0.401	0.020	<0.001	<0.001	<0.001
Model R-Squared		0.0378	0.02573	0.1077	0.08057	0.07394	0.22978	0.04319	0.03913	0.02124	0.03438	0.02481	0.01953	0.03206
Myocardial Infarction (Yes = 1 vs No = 0)	Beta (95 % CI)	-0.239 (-0.467, -0.012)	-0.2 (-0.404, 0.003)	-0.107 (-0.306, 0.092)	-0.155 (-0.335, 0.025)	0.39 (0.196, 0.583)	0.264 (0.000, 0.528)	0.01 (-0.185, 0.204)	0.234 (0.004, 0.463)	0.113 (-0.143, 0.370)	0.04 (-0.209, 0.288)	-0.043 (-0.250, 0.164)	-0.148 (-0.327, 0.031)	-0.119 (-0.354, 0.116)
	p-value	0.039	0.054	0.29	0.091	<0.001	0.05	0.923	0.046	0.386	0.755	0.684	0.105	0.323
Age	Beta (95 % CI)	0.004 (0.003, 0.006)	0.004 (0.002, 0.006)	0.006 (0.005, 0.008)	-0.002 (-0.003, -0.000)	-0.008 (-0.010, -0.007)	-0.003 (-0.006, -0.001)	-0.002 (-0.003, 0.000)	0.002 (0.000, 0.004)	0.005 (0.003, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.001)	0.003 (0.002, 0.005)	0.006 (0.004, 0.008)

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
	p-value	<0.001	<0.001	<0.001	0.026	<0.001	0.003	0.065	0.016	<0.001	0.008	0.159	<0.001	<0.001
Percent below poverty line in 2010	Beta	-0.02 (-0.029, -0.012)	-0.008 (-0.016, -0.000)	0.013 (0.005, 0.020)	-0.029 (-0.036, -0.022)	-0.004 (-0.011, 0.004)	0.105 (0.095, 0.115)	0.027 (0.019, 0.034)	-0.025 (-0.034, -0.017)	-0.01 (-0.020, 0.000)	-0.016 (-0.025, -0.006)	-0.021 (-0.029, -0.013)	0.006 (-0.001, 0.013)	0.009 (0.000, 0.019)
	p-value	<0.001	0.048	0.001	<0.001	0.342	<0.001	<0.001	<0.001	0.053	0.002	<0.001	0.098	0.043
	Beta	-0.243 (-0.433, -0.052)	0.016 (-0.154, 0.187)	0.777 (0.611, 0.944)	-0.793 (-0.944, -0.642)	-0.196 (-0.358, -0.034)	1.993 (1.771, 2.214)	0.601 (0.438, 0.764)	-0.584 (-0.776, -0.392)	-0.076 (-0.291, 0.138)	-0.279 (-0.487, -0.070)	-0.322 (-0.496, -0.149)	0.249 (0.099, 0.399)	0.398 (0.201, 0.595)
Log median household income in 2016	p-value	0.013	0.851	<0.001	<0.001	0.017	<0.001	<0.001	<0.001	0.485	0.009	<0.001	0.001	<0.001
Model R-Squared		0.03182	0.02145	0.10104	0.06905	0.07001	0.22616	0.04063	0.03413	0.01795	0.01271	0.01723	0.01892	0.03094
Angina or CHD (Yes = 1 vs No = 0)	Beta	-0.355 (-0.535, -0.175)	-0.33 (-0.491, -0.169)	-0.243 (-0.401, -0.086)	-0.16 (-0.303, -0.018)	0.147 (-0.006, 0.301)	0.11 (-0.099, 0.320)	-0.091 (-0.245, 0.220)	0.038 (-0.145, 0.095)	-0.109 (-0.312, 0.067)	-0.13 (-0.327, 0.043)	-0.121 (-0.285, -0.023)	-0.164 (-0.306, -0.023)	-0.266 (-0.452, -0.080)
	p-value	<0.001	<0.001	0.002	0.027	0.06	0.301	0.245	0.686	0.295	0.196	0.148	0.023	0.005
	Beta	0.005 (0.003, 0.007)	0.004 (0.003, 0.006)	0.007 (0.005, 0.009)	-0.002 (-0.003, 0.000)	-0.008 (-0.010, -0.007)	-0.003 (-0.006, -0.001)	-0.001 (-0.003, 0.000)	0.003 (0.001, 0.005)	0.005 (0.003, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.001)	0.003 (0.002, 0.005)	0.006 (0.004, 0.008)
Age	p-value	<0.001	<0.001	<0.001	0.054	<0.001	0.004	0.125	0.013	<0.001	0.003	0.283	<0.001	<0.001
Percent below poverty line in 2010	Beta	-0.02 (-0.029, -0.011)	-0.008 (-0.016, 0.000)	0.013 (0.005, 0.020)	-0.029 (-0.036, -0.022)	-0.004 (-0.011, 0.004)	0.105 (0.095, 0.115)	0.027 (0.019, 0.034)	-0.026 (-0.035, -0.017)	-0.01 (-0.020, 0.000)	-0.015 (-0.025, -0.006)	-0.02 (-0.028, -0.012)	0.005 (-0.001, 0.012)	0.009 (0.000, 0.018)
	p-value	<0.001	0.054	0.001	<0.001	0.323	<0.001	<0.001	<0.001	0.05	0.002	<0.001	0.121	0.05
	Beta	-0.254 (-0.444, -0.063)	0.006 (-0.164, 0.176)	0.768 (0.602, 0.935)	-0.796 (-0.947, -0.646)	-0.2 (-0.362, -0.037)	1.993 (1.771, 2.214)	0.596 (0.433, 0.759)	-0.588 (-0.781, -0.396)	-0.086 (-0.301, 0.129)	-0.284 (-0.492, -0.075)	-0.327 (-0.500, -0.153)	0.242 (0.093, 0.392)	0.387 (0.191, 0.584)
Log median household income in 2016	p-value	0.009	0.943	<0.001	<0.001	0.016	<0.001	<0.001	<0.001	0.434	0.008	<0.001	0.002	<0.001
Model R-Squared		0.03868	0.02952	0.10605	0.07009	0.0624	0.22547	0.0416	0.0317	0.01825	0.0137	0.01794	0.02027	0.03526
Stroke or TIA (Yes = 1 vs No = 0)	Beta	-0.108 (-0.295, 0.079)	-0.096 (-0.263, 0.072)	-0.194 (-0.357, -0.031)	-0.087 (-0.234, 0.061)	0.082 (-0.077, 0.242)	0.1 (-0.117, 0.317)	0.027 (-0.131, 0.186)	0.012 (-0.177, 0.201)	0.034 (-0.176, 0.245)	-0.276 (-0.480, -0.072)	-0.039 (-0.208, 0.131)	-0.096 (-0.243, 0.051)	0.029 (-0.164, 0.223)
	p-value	0.258	0.264	0.02	0.248	0.31	0.367	0.736	0.901	0.749	0.008	0.653	0.2	0.765
	Beta	0.004 (0.003, 0.006)	0.004 (0.002, 0.006)	0.007 (0.005, 0.008)	-0.002 (-0.003, -0.000)	-0.008 (-0.010, -0.006)	-0.003 (-0.006, -0.001)	-0.002 (-0.003, 0.000)	0.003 (0.001, 0.005)	0.005 (0.003, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.000)	0.003 (0.002, 0.005)	0.005 (0.003, 0.008)
Age	p-value	<0.001	<0.001	<0.001	0.033	<0.001	0.005	0.065	0.011	<0.001	0.002	0.151	<0.001	<0.001
Percent below poverty line in 2010	Beta	-0.021 (-0.030, -0.012)	-0.008 (-0.016, -0.000)	0.013 (0.005, 0.021)	-0.03 (-0.037, -0.023)	-0.005 (-0.013, 0.003)	0.105 (0.095, 0.116)	0.026 (0.018, 0.033)	-0.026 (-0.035, -0.017)	-0.011 (-0.021, -0.001)	-0.016 (-0.025, -0.006)	-0.022 (-0.030, -0.014)	0.006 (-0.001, 0.013)	0.009 (-0.000, 0.018)
	p-value	<0.001	0.039	0.001	<0.001	0.19	<0.001	<0.001	<0.001	0.037	0.002	<0.001	0.083	0.054

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
Log median household income in 2016	Beta (95 % CI) p-value	-0.248 (-0.440, -0.057) 0.011	0.01 (-0.161, 0.181) 0.909	0.775 (0.608, 0.942) <0.001	-0.802 (-0.953, -0.651) <0.001	-0.23 (-0.393, -0.068) 0.006	2.005 (1.784, 2.227) <0.001	0.581 (0.419, 0.743) <0.001	-0.593 (-0.786, -0.400) <0.001	-0.095 (-0.311, 0.120) 0.385	-0.288 (-0.496, -0.079) 0.007	-0.34 (-0.513, -0.166) <0.001	0.255 (0.105, 0.405) <0.001	0.395 (0.197, 0.592) <0.001
Model R-Squared		0.03092	0.02044	0.10353	0.06954	0.06098	0.22631	0.03833	0.03145	0.1772	0.1719	0.01928	0.01819	0.02956
Hypertension (Yes = 1 vs No = 0)	Beta (95 % CI) p-value	-0.05 (-0.123, 0.023) 0.176	-0.05 (-0.116, 0.015) 0.132	-0.058 (-0.122, 0.006) 0.073	0.036 (-0.021, 0.094) 0.217	0.067 (0.004, 0.129) 0.036	0.109 (0.025, 0.194) 0.011	0.027 (-0.034, 0.089) 0.384	0.036 (-0.038, 0.110) 0.337	0.008 (-0.074, 0.090) 0.848	-0.048 (-0.128, 0.032) 0.235	-0.01 (-0.076, 0.056) 0.765	0.021 (-0.037, 0.078) 0.484	-0.031 (-0.106, 0.045) 0.423
Age	Beta (95 % CI) p-value	0.005 (0.003, 0.007) <0.001	0.004 (0.002, 0.006) <0.001	0.007 (0.005, 0.009) <0.001	-0.002 (-0.004, -0.001) 0.006	-0.009 (-0.011, -0.007) <0.001	-0.004 (-0.007, -0.002) <0.001	-0.002 (-0.004, -0.000) 0.03	0.002 (0.000, 0.004) 0.037	0.005 (0.002, 0.007) <0.001	0.003 (0.001, 0.006) 0.005	-0.001 (-0.003, 0.001) 0.171	0.003 (0.001, 0.004) 0.001	0.006 (0.004, 0.008) <.001
Percent below poverty line in 2010	Beta (95 % CI) p-value	-0.02 (-0.029, -0.011) <0.001	-0.008 (-0.016, 0.000) 0.061	0.013 (0.005, 0.021) <0.001	-0.029 (-0.036, -0.022) <0.001	-0.004 (-0.012, 0.003) 0.264	0.105 (0.094, 0.115) <0.001	0.027 (0.020, 0.035) <0.001	-0.025 (-0.034, -0.016) <0.001	-0.009 (-0.019, 0.001) 0.064	-0.015 (-0.024, -0.005) 0.003	-0.02 (-0.028, -0.012) <0.001	0.006 (-0.001, 0.013) 0.095	0.009 (-0.000, 0.018) 0.059
Log median household income in 2016	Beta (95 % CI) p-value	-0.235 (-0.427, -0.043) 0.016	0.02 (-0.152, 0.192) 0.823	0.785 (0.617, 0.952) <0.001	-0.77 (-0.921, -0.620) <0.001	-0.209 (-0.372, -0.046) 0.012	1.995 (1.773, 2.216) <0.001	0.602 (0.440, 0.765) <0.001	-0.582 (-0.775, -0.388) <0.001	-0.068 (-0.283, 0.148) 0.539	-0.276 (-0.485, -0.066) 0.01	-0.314 (-0.489, -0.140) <0.001	0.259 (0.108, 0.411) <0.001	0.385 (0.187, 0.583) <0.001
Model R-Squared		0.02942	0.01992	0.10449	0.06697	0.06455	0.2265	0.042	0.03168	0.01657	0.01221	0.01641	0.01726	0.03039
High Cholesterol (Yes = 1 vs No = 0)	Beta (95 % CI) p-value	-0.058 (-0.130, 0.013) 0.11	-0.063 (-0.127, 0.001) 0.054	-0.07 (-0.133, -0.007) 0.029	-0.037 (-0.093, 0.020) 0.203	0.055 (-0.007, 0.116) 0.08	0.023 (-0.060, 0.107) 0.58	-0.058 (-0.119, 0.003) 0.063	-0.014 (-0.086, 0.059) 0.707	0.019 (-0.062, 0.100) 0.645	-0.007 (-0.086, 0.071) 0.859	-0.034 (-0.099, 0.032) 0.312	-0.033 (-0.090, 0.024) 0.253	-0.039 (-0.113, 0.035) 0.3
Age	Beta (95 % CI) p-value	0.005 (0.003, 0.007) <0.001	0.004 (0.002, 0.006) <0.001	0.007 (0.005, 0.009) <0.001	-0.001 (-0.003, 0.000) 0.079	-0.009 (-0.010, -0.007) <0.001	-0.003 (-0.006, -0.001) 0.006	-0.001 (-0.003, 0.001) 0.271	0.003 (0.001, 0.005) 0.008	0.005 (0.002, 0.007) <0.001	0.003 (0.001, 0.005) 0.006	-0.001 (-0.003, 0.001) 0.366	0.003 (0.002, 0.005) <0.001	0.006 (0.004, 0.008) <0.001
Percent below poverty line in 2010	Beta (95 % CI) p-value	-0.021 (-0.030, -0.012) <0.001	-0.008 (-0.016, -0.000) 0.037	0.012 (0.005, 0.020) 0.002	-0.029 (-0.036, -0.022) <0.001	-0.004 (-0.011, 0.004) 0.352	0.106 (0.095, 0.116) <0.001	0.026 (0.019, 0.034) <0.001	-0.025 (-0.034, -0.016) <0.001	-0.01 (-0.020, 0.000) 0.057	-0.015 (-0.025, -0.005) 0.003	-0.021 (-0.029, -0.013) <0.001	0.006 (-0.001, 0.013) 0.076	0.009 (0.000, 0.018) 0.047
Log median household income in 2016	Beta (95 % CI) p-value	-0.238 (-0.430, -0.047) 0.015	0.014 (-0.157, 0.186) 0.871	0.771 (0.603, 0.939) <0.001	-0.773 (-0.924, -0.621) <0.001	-0.199 (-0.363, -0.035) 0.017	1.993 (1.770, 2.215) <0.001	0.598 (0.435, 0.761) <0.001	-0.575 (-0.769, -0.380) <0.001	-0.078 (-0.295, 0.138) 0.477	-0.257 (-0.467, -0.047) 0.016	-0.324 (-0.499, -0.149) <0.001	0.261 (0.110, 0.413) <0.001	0.401 (0.203, 0.599) <0.001
Model R-Squared		0.03234	0.02268	0.10431	0.06489	0.06359	0.2266	0.04316	0.03022	0.01666	0.01248	0.01753	0.01904	0.0314
Diabetes (Yes = 1 vs No = 0)	Beta (95 % CI)	-0.099 (-0.197, -0.000)	-0.092 (-0.180, -0.004)	-0.058 (-0.144, 0.028)	-0.023 (-0.101, 0.054)	0.017 (-0.068, 0.101)	-0.069 (-0.183, 0.045)	-0.017 (-0.101, 0.067)	-0.099 (-0.198, -0.000)	-0.046 (-0.156, 0.065)	-0.111 (-0.219, -0.004)	-0.092 (-0.181, -0.003)	0.049 (-0.028, 0.127)	-0.079 (-0.181, 0.022)

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
	p-value	0.049	0.04	0.189	0.557	0.698	0.237	0.694	0.049	0.42	0.043	0.043	0.214	0.125
Age	Beta	0.005 (0.003, 0.007)	0.004 (0.002, 0.006)	0.006 (0.005, 0.008)	-0.002 (-0.003, -0.000)	-0.008 (-0.010, -0.006)	-0.003 (-0.005, -0.001)	-0.001 (-0.003, 0.000)	0.003 (0.001, 0.005)	0.005 (0.003, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.001)	0.003 (0.001, 0.004)	0.006 (0.004, 0.008)
	p-value	<0.001	<0.001	<0.001	0.029	<0.001	0.009	0.092	0.003	<0.001	0.003	0.372	<0.001	<0.001
	Beta	-0.021 (-0.030, -0.012)	-0.009 (-0.017, -0.001)	0.012 (0.005, 0.020)	-0.029 (-0.036, -0.022)	-0.004 (-0.012, 0.003)	0.105 (0.095, 0.115)	0.027 (0.019, 0.034)	-0.026 (-0.035, -0.017)	-0.01 (-0.020, -0.000)	-0.016 (-0.026, -0.006)	-0.021 (-0.029, -0.013)	0.006 (-0.001, 0.013)	0.009 (-0.000, 0.018)
Percent below poverty line in 2010	p-value	<0.001	0.033	0.002	<0.001	0.288	<0.001	<0.001	<0.001	0.045	0.001	<0.001	0.082	0.056
	Beta	-0.253 (-0.444, -0.062)	0.007 (-0.164, 0.178)	0.772 (0.604, 0.940)	-0.785 (-0.936, -0.634)	-0.212 (-0.375, -0.048)	1.987 (1.766, 2.209)	0.598 (0.435, 0.761)	-0.61 (-0.802, -0.417)	-0.095 (-0.310, 0.121)	-0.285 (-0.493, -0.076)	-0.33 (-0.503, -0.156)	0.261 (0.110, 0.412)	0.387 (0.190, 0.584)
	p-value	0.009	0.933	<0.001	<0.001	0.011	<0.001	<0.001	<0.001	0.389	0.008	<0.001	<0.001	<0.001
Model R-Squared		0.03289	0.02248	0.1018	0.06639	0.05973	0.22867	0.04057	0.035	0.01821	0.01511	0.01985	0.01883	0.0312
Cancer (Yes = 1 vs No = 0)	Beta	-0.021 (-0.125, 0.084)	-0.025 (-0.119, 0.069)	-0.039 (-0.130, 0.053)	-0.05 (-0.133, 0.033)	-0.002 (-0.091, 0.087)	0.008 (-0.113, 0.130)	-0.045 (-0.134, 0.044)	-0.079 (-0.184, 0.027)	-0.005 (-0.123, 0.113)	-0.07 (-0.185, 0.044)	-0.014 (-0.109, 0.080)	-0.14 (-0.221, -0.058)	0.077 (-0.030, 0.185)
	p-value	0.699	0.603	0.406	0.237	0.96	0.895	0.322	0.144	0.938	0.228	0.766	<0.001	0.159
	Beta	0.004 (0.002, 0.006)	0.004 (0.002, 0.006)	0.006 (0.005, 0.008)	-0.002 (-0.003, 0.000)	-0.008 (-0.010, -0.006)	-0.003 (-0.006, -0.001)	-0.001 (-0.003, 0.000)	0.003 (0.001, 0.005)	0.005 (0.003, 0.007)	0.003 (0.001, 0.006)	-0.001 (-0.003, 0.000)	0.004 (0.002, 0.005)	0.005 (0.003, 0.007)
Age	p-value	<0.001	<0.001	<0.001	0.057	<0.001	0.008	0.129	0.004	<0.001	0.003	0.143	<0.001	<0.001
	Beta	-0.02 (-0.029, -0.011)	-0.008 (-0.016, 0.000)	0.013 (0.005, 0.021)	-0.029 (-0.036, -0.022)	-0.004 (-0.012, 0.003)	0.105 (0.095, 0.116)	0.027 (0.019, 0.034)	-0.026 (-0.035, -0.017)	-0.01 (-0.020, 0.000)	-0.015 (-0.025, -0.006)	-0.021 (-0.029, -0.013)	0.006 (-0.001, 0.012)	0.01 (0.000, 0.019)
	p-value	<0.001	0.053	0.001	<0.001	0.278	<0.001	<0.001	<0.001	0.055	0.002	<0.001	0.118	0.039
Percent below poverty line in 2010	Beta	-0.239 (-0.430, -0.048)	0.022 (-0.150, 0.193)	0.784 (0.617, 0.951)	-0.778 (-0.929, -0.627)	-0.206 (-0.369, -0.043)	2 (1.778, 2.221)	0.6 (0.438, 0.762)	-0.588 (-0.780, -0.396)	-0.073 (-0.289, 0.142)	-0.261 (-0.471, -0.052)	-0.335 (-0.508, -0.162)	0.244 (0.095, 0.393)	0.422 (0.226, 0.619)
	p-value	0.014	0.803	<0.001	<0.001	0.013	<0.001	<0.001	<0.001	0.504	0.014	<0.001	0.001	<0.001
	Model R-Squared	0.02884	0.01899	0.10074	0.06619	0.05985	0.22653	0.0417	0.03248	0.0173	0.01325	0.0184	0.02347	0.03298
Depression (Yes = 1 vs No = 0)	Beta	-0.106 (-0.168, -0.045)	-0.105 (-0.160, -0.050)	-0.071 (-0.124, -0.017)	-0.05 (-0.098, -0.001)	0.076 (0.023, 0.128)	-0.017 (-0.088, 0.055)	-0.023 (-0.075, 0.029)	-0.097 (-0.160, -0.035)	-0.046 (-0.115, 0.023)	-0.027 (-0.094, 0.041)	-0.044 (-0.100, 0.012)	-0.04 (-0.089, 0.008)	-0.079 (-0.142, -0.016)
	p-value	<0.001	<0.001	0.01	0.044	0.005	0.649	0.382	0.002	0.194	0.435	0.12	0.101	0.015
	Beta	0.004 (0.002, 0.006)	0.003 (0.002, 0.005)	0.006 (0.005, 0.008)	-0.002 (-0.003, -0.000)	-0.008 (-0.009, -0.006)	-0.003 (-0.005, -0.001)	-0.002 (-0.003, 0.000)	0.002 (0.000, 0.004)	0.005 (0.003, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.001)	0.003 (0.001, 0.004)	0.005 (0.003, 0.007)
Age	p-value	<0.001	<0.001	<0.001	0.016	<0.001	0.006	0.076	0.017	<0.001	0.009	0.186	<0.001	<0.001

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
Percent below poverty line in 2010	Beta (95% CI) p-value	-0.021 (-0.030, -0.012) <0.001	-0.009 (-0.017, -0.001) 0.036	0.012 (0.004, 0.020) 0.002	-0.029 (-0.037, -0.022) <0.001	-0.005 (-0.012, 0.003) 0.224	0.105 (0.095, 0.115) <0.001	0.026 (0.018, 0.033) <0.001	-0.026 (-0.035, -0.017) <0.001	-0.01 (-0.020, 0.000) 0.052	-0.016 (-0.026, -0.006) 0.002	-0.02 (-0.028, -0.012) <0.001	0.004 (-0.003, 0.011) 0.22	0.009 (0.000, 0.018) 0.049
Log median household income in 2016	Beta (95% CI) p-value	-0.236 (-0.428, -0.044) 0.016	0.02 (-0.152, 0.192) 0.82	0.78 (0.612, 0.947) <0.001	-0.79 (-0.941, -0.638) <0.001	-0.217 (-0.381, -0.052) 0.01	1.996 (1.773, 2.220) <0.001	0.597 (0.434, 0.759) <0.001	-0.591 (-0.785, -0.396) <0.001	-0.082 (-0.298, 0.135) 0.461	-0.274 (-0.485, -0.063) 0.011	-0.31 (-0.486, -0.135) <0.001	0.226 (0.075, 0.377) 0.003	0.415 (0.216, 0.613) <0.001
Model R-Squared		0.03666	0.02935	0.10861	0.06787	0.06483	0.2257	0.04028	0.03558	0.01892	0.01277	0.01728	0.0179	0.03576
Overweight/obese (Yes = 1 vs No = 0)	Beta (95% CI) p-value	-0.112 (-0.174, -0.049) <0.001	-0.097 (-0.152, -0.041) <0.001	-0.08 (-0.135, -0.026) 0.004	-0.02 (-0.069, 0.029) 0.427	0.064 (0.011, 0.117) 0.018	0.021 (-0.051, 0.093) 0.57	-0.014 (-0.067, 0.039) 0.594	-0.06 (-0.123, 0.002) 0.058	0.006 (-0.064, 0.076) 0.86	-0.079 (-0.147, -0.011) 0.024	-0.034 (-0.090, 0.023) 0.243	-0.017 (-0.067, 0.032) 0.486	-0.033 (-0.097, 0.031) 0.317
Age	Beta (95% CI) p-value	0.005 (0.003, 0.007) <0.001	0.004 (0.002, 0.006) <0.001	0.007 (0.005, 0.008) <0.001	-0.002 (-0.003, -0.000) 0.028	-0.008 (-0.010, -0.007) <0.001	-0.003 (-0.006, -0.001) 0.003	-0.001 (-0.003, 0.000) 0.109	0.003 (0.001, 0.005) 0.002	0.005 (0.003, 0.007) <0.001	0.003 (0.001, 0.006) 0.002	-0.001 (-0.003, 0.001) 0.206	0.003 (0.001, 0.005) <0.001	0.006 (0.004, 0.008) <0.001
Percent below poverty line in 2010	Beta (95% CI) p-value	-0.022 (-0.031, -0.013) <0.001	-0.009 (-0.017, -0.001) 0.024	0.012 (0.004, 0.020) 0.003	-0.029 (-0.037, -0.022) <0.001	-0.003 (-0.011, 0.004) 0.39	0.106 (0.096, 0.116) <0.001	0.027 (0.019, 0.034) <0.001	-0.027 (-0.036, -0.018) <0.001	-0.01 (-0.020, 0.000) 0.054	-0.017 (-0.027, -0.007) <0.001	-0.021 (-0.029, -0.013) <0.001	0.006 (-0.001, 0.013) 0.11	0.009 (-0.000, 0.018) 0.054
Log median household income in 2016	Beta (95% CI) p-value	-0.275 (-0.467, -0.083) 0.005	-0.009 (-0.181, 0.163) 0.919	0.758 (0.590, 0.926) <0.001	-0.794 (-0.946, -0.642) <0.001	-0.193 (-0.357, -0.029) 0.021	2.003 (1.781, 2.225) <0.001	0.595 (0.431, 0.758) <0.001	-0.619 (-0.812, -0.426) <0.001	-0.078 (-0.294, 0.139) 0.481	-0.297 (-0.508, -0.087) 0.006	-0.334 (-0.508, -0.159) <0.001	0.252 (0.100, 0.404) 0.001	0.395 (0.197, 0.593) <0.001
Model R-Squared		0.03749	0.0269	0.10525	0.06735	0.06306	0.22841	0.04081	0.03554	0.01676	0.01609	0.01835	0.0172	0.03136
Body Mass Index	Beta (95% CI) p-value	-0.007 (-0.011, -0.003) 0.002	-0.006 (-0.010, -0.002) 0.002	-0.005 (-0.008, -0.001) 0.020	0.002 (-0.002, 0.005) 0.294	0.006 (0.002, 0.010) 0.002	0.004 (-0.001, 0.009) 0.113	-0.002 (-0.005, 0.002) 0.418	-0.002 (-0.006, 0.003) 0.510	0.0001 (-0.005, 0.005) 0.983	-0.010 (-0.015, -0.005) <0.001	-0.003 (-0.007, 0.001) 0.178	0.002 ((-0.002, 0.005) 0.279	-0.004 (-0.009, 0.000) 0.069
Age	Beta (95% CI) p-value	0.005 (0.003, 0.007) <0.001	0.004 (0.002, 0.006) <0.001	0.006 (0.005, 0.008) <0.001	-0.002 (-0.004, -0.001) 0.007	-0.008 (-0.010, -0.007) <0.001	-0.004 (-0.006, -0.001) 0.001	-0.002 (-0.003, -0.000) 0.043	0.003 (0.001, 0.005) 0.008	0.005 (0.003, 0.007) <0.001	0.003 (0.001, 0.006) 0.003	-0.001 (-0.003, 0.001) 0.166	0.003 (0.001, 0.004) <0.001	0.006 (0.004, 0.008) <0.001
Percent below poverty line in 2010	Beta (95% CI) p-value	-0.021 (-0.030, -0.012) <0.001	-0.009 (-0.017, -0.001) 0.036	0.012 (0.004, 0.020) 0.003	-0.029 (-0.036, -0.021) <0.001	-0.003 (-0.011, 0.005) 0.435	0.106 (0.095, 0.116) <0.001	0.027 (0.020, 0.035) <0.001	-0.027 (-0.036, -0.018) <0.001	-0.010 (-0.020, 0.000) 0.056	-0.018 (-0.028, -0.008) <0.001	-0.021 (-0.029, -0.013) <0.001	0.008 (0.000, 0.015) 0.037	0.006 (-0.001, 0.018) 0.074
Log median household income in 2016	Beta (95% CI) p-value	-0.269 (-0.464, -0.074) 0.005	-0.012 (-0.186, 0.162) 0.922	0.752 (0.582, 0.922) <0.001	-0.770 (-0.923, -0.616) <0.001	-0.169 (-0.335, -0.002) 0.021	2.020 (1.793, 2.246) <0.001	0.595 (0.429, 0.760) <0.001	-0.621 (-0.818, -0.423) <0.001	-0.085 (-0.306, 0.136) 0.136	-0.332 (-0.545, -0.119) 0.006	-0.320 (-0.498, -0.141) <0.001	0.289 (0.136, 0.442) 0.001	0.365 (0.164, 0.566) <0.001

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
	p-value	0.007	0.893	<0.001	<0.001	0.047	<0.001	<0.001	<0.001	0.451	0.002	<0.001	<0.001	<0.001
Model R-Squared US Region		0.03444	0.02454	0.10282	0.06813	0.06673	0.22624	0.04419	0.03338	0.01747	0.02257	0.01774	0.01841	0.03275
New England vs. Deep South	Beta (95% CI)	-0.007 (-0.161, 0.147)	0.016 (-0.122, 0.155)	-0.043 (-0.177, 0.091)	-0.043 (-0.160, 0.074)	0.055 (-0.075, 0.186)	0.140 (-0.037, 0.317)	-0.013 (-0.142, 0.117)	-0.414 (-0.567, -0.261)	-0.033 (-0.205, 0.139)	0.331 (0.164, 0.499)	-0.038 (-0.178, 0.103)	0.048 (-0.074, 0.169)	0.035 (-0.124, 0.195)
	p-value	0.931	0.817	0.529	0.472	0.407	0.122	0.849	<0.001	0.707	<0.001	0.599	0.439	0.663
Hawaii vs. Deep South	Beta (95% CI)	0.372 (0.188, 0.557)	0.222 (0.057, 0.388)	-0.408 (-0.569, -0.248)	0.550 (0.410, 0.690)	-0.152 (-0.308, 0.005)	0.192 (-0.020, 0.405)	0.093 (-0.062, 0.248)	-0.197 (-0.381, -0.014)	-0.307 (-0.513, -0.101)	0.247 (0.046, 0.447)	0.204 (0.036, 0.372)	-0.146 (-0.292, -0.001)	-0.261 (-0.452, -0.069)
	p-value	<0.001	0.009	<0.001	<0.001	0.058	0.076	0.239	0.035	0.004	0.016	0.018	0.049	0.008
California vs. Deep South	Beta (95% CI)	-0.042 (-0.197, 0.112)	-0.046 (-0.185, 0.093)	-0.070 (-0.204, 0.065)	-0.042 (-0.159, 0.075)	-0.017 (-0.148, 0.114)	0.112 (-0.066, 0.290)	-0.068 (-0.198, 0.062)	-0.290 (-0.443, -0.136)	-0.031 (-0.204, 0.142)	-0.044 (-0.212, 0.124)	0.062 (-0.079, 0.203)	-0.050 (-0.172, 0.072)	-0.021 (-0.181, 0.139)
	p-value	0.59	0.513	0.311	0.484	0.799	0.219	0.305	<0.001	0.726	0.609	0.387	0.421	0.798
Mid-Atlantic vs. Deep South	Beta (95% CI)	0.099 (-0.006, 0.204)	0.073 (-0.022, 0.168)	-0.080 (-0.172, 0.012)	0.183 (0.103, 0.263)	0.029 (-0.060, 0.119)	0.258 (0.136, 0.379)	0.001 (-0.088, 0.090)	-0.101 (-0.206, 0.004)	-0.322 (-0.440, -0.204)	0.084 (-0.031, 0.199)	0.001 (-0.095, 0.097)	0.133 (0.050, 0.216)	-0.039 (-0.149, 0.070)
	p-value	0.065	0.131	0.089	<0.001	0.524	<0.001	0.979	0.059	<0.001	0.151	0.980	0.002	0.481
Upper South vs. Deep South	Beta (95% CI)	0.098 (-0.016, 0.212)	0.090 (-0.012, 0.193)	0.023 (-0.077, 0.122)	-0.062 (-0.148, 0.025)	0.016 (-0.081, 0.113)	0.153 (0.022, 0.285)	0.041 (-0.055, 0.137)	-0.039 (-0.152, 0.074)	-0.190 (-0.318, -0.062)	0.093 (-0.032, 0.217)	0.129 (0.025, 0.233)	0.064 (-0.026, 0.154)	0.096 (-0.023, 0.214)
	p-value	0.092	0.085	0.652	0.163	0.746	0.022	0.401	0.500	0.004	0.143	0.015	0.164	0.114
Midwest vs. Deep South	Beta (95% CI)	0.093 (-0.004, 0.189)	0.082 (-0.005, 0.169)	-0.007 (-0.091, 0.078)	-0.082 (-0.155, -0.009)	-0.109 (-0.191, -0.027)	0.250 (0.139, 0.361)	-0.017 (-0.098, 0.065)	-0.196 (-0.292, -0.100)	-0.238 (-0.346, -0.130)	0.175 (0.070, 0.281)	-0.005 (-0.093, 0.083)	0.033 (-0.044, 0.109)	0.015 (-0.085, 0.115)
	p-value	0.06	0.064	0.879	0.028	0.009	<0.001	0.691	<0.001	<0.001	0.001	0.914	0.402	0.767
Southwest vs. Deep South	Beta (95% CI)	-0.143 (-0.296, 0.010)	-0.092 (-0.229, 0.046)	-0.137 (-0.270, -0.004)	-0.109 (-0.225, 0.007)	0.018 (-0.112, 0.148)	0.226 (0.050, 0.402)	-0.033 (-0.162, 0.095)	-0.176 (-0.328, -0.025)	-0.117 (-0.288, 0.054)	-0.001 (-0.167, 0.166)	-0.053 (-0.192, 0.086)	-0.015 (-0.135, 0.106)	0.046 (-0.112, 0.205)
	p-value	0.066	0.192	0.043	0.065	0.788	0.012	0.612	0.023	0.181	0.992	0.457	0.811	0.568
Northern Pacific vs. Deep South	Beta (95% CI)	0.033 (-0.103, 0.169)	0.060 (-0.062, 0.183)	-0.128 (-0.247, -0.009)	-0.115 (-0.218, -0.011)	-0.114 (-0.230, 0.002)	0.519 (0.362, 0.676)	0.131 (0.016, 0.246)	-0.493 (-0.629, -0.358)	-0.106 (-0.259, 0.046)	0.297 (0.149, 0.446)	-0.137 (-0.261, -0.013)	-0.026 (-0.133, 0.082)	-0.013 (-0.155, 0.128)
	p-value	0.636	0.336	0.035	0.030	0.054	<0.001	0.026	<0.001	0.173	<0.001	0.030	0.642	0.856
Northern Mountain vs. Deep South	Beta (95% CI)	0.219 (-0.050, 0.489)	0.204 (-0.038, 0.447)	0.121 (-0.114, 0.355)	-0.007 (-0.212, 0.198)	-0.219 (-0.448, 0.010)	-0.039 (-0.350, 0.271)	0.106 (-0.122, 0.333)	-0.309 (-0.577, -0.041)	-0.397 (-0.699, -0.095)	0.372 (0.078, 0.666)	0.083 (-0.163, 0.329)	0.075 (-0.138, 0.288)	0.106 (-0.174, 0.385)
	p-value	0.111	0.098	0.314	0.945	0.061	0.804	0.362	0.024	0.010	0.013	0.508	0.488	0.460
Southern Mountain vs. Deep South	Beta (95% CI)	-0.014 (-0.157, 0.130)	0.008 (-0.121, 0.137)	-0.031 (-0.156, 0.094)	-0.063 (-0.172, 0.046)	-0.063 (-0.185, 0.058)	0.422 (0.257, 0.587)	0.130 (0.009, 0.251)	-0.121 (-0.264, 0.022)	-0.167 (-0.327, -0.006)	0.019 (-0.137, 0.175)	-0.011 (-0.142, 0.120)	-0.018 (-0.131, 0.095)	-0.020 (-0.169, 0.128)

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
	p-value	0.852	0.902	0.624	0.258	0.308	<0.001	0.035	0.096	0.042	0.815	0.868	0.755	0.788
Age	Beta	0.005 (0.003, 0.007)	0.004 (0.002, 0.006)	0.005 (0.004, 0.007)	-0.001 (-0.002, 0.001)	-0.008 (-0.010, -0.007)	-0.003 (-0.006, -0.001)	-0.001 (-0.003, 0.000)	0.002 (0.000, 0.004)	0.005 (0.003, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.001)	0.002 (0.001, 0.004)	0.005 (0.003, 0.007)
	p-value	<0.001	<0.001	<0.001	0.424	<0.001	0.004	0.141	0.033	<0.001	0.006	0.353	0.005	<0.001
	Beta	-0.021 (-0.031, -0.011)	-0.008 (-0.018, 0.001)	0.012 (0.003, 0.021)	-0.034 (-0.041, -0.026)	-0.013 (-0.021, -0.004)	0.103 (0.091, 0.114)	0.023 (0.014, 0.031)	-0.027 (-0.037, -0.017)	-0.010 (-0.021, 0.002)	-0.017 (-0.028, -0.006)	-0.020 (-0.030, -0.011)	0.004 (-0.004, 0.012)	0.007 (-0.003, 0.018)
Percent below poverty line in 2010	p-value	<0.001	0.067	0.007	<0.001	0.003	<0.001	<0.001	<0.001	0.093	0.002	<0.001	0.350	0.165
	Beta	-0.245 (-0.467, -0.022)	0.017 (-0.183, 0.217)	0.786 (0.591, 0.980)	-0.857 (-1.026, -0.688)	-0.402 (-0.591, -0.213)	1.860 (1.603, 2.116)	0.496 (0.309, 0.684)	-0.511 (-0.732, -0.289)	-0.081 (-0.331, 0.168)	-0.363 (-0.606, -0.121)	-0.305 (-0.508, -0.102)	0.227 (0.051, 0.403)	0.372 (0.141, 0.603)
	p-value	0.031	0.868	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.521	0.003	0.003	0.012	0.002
Model R-Squared		0.05043	0.03285	0.12018	0.14016	0.07758	0.22068	0.03344	0.07603	0.04775	0.04359	0.03169	0.03417	0.0385
NCHSUR Classification Scheme for Counties														
Large central metro vs. Large fringe metro	Beta	-0.144 (-0.244, -0.044)	-0.086 (-0.176, 0.005)	-0.013 (-0.102, 0.076)	-0.193 (-0.272, -0.114)	-0.016 (-0.103, 0.071)	0.474 (0.360, 0.588)	0.124 (0.037, 0.210)	-0.246 (-0.348, -0.144)	-0.026 (-0.141, 0.088)	-0.078 (-0.189, -0.020)	-0.112 (-0.205, -0.020)	-0.063 (-0.143, 0.017)	-0.057 (-0.162, 0.048)
	p-value	0.005	0.063	0.776	<0.001	0.724	<0.001	0.005	<0.001	0.65	0.166	0.017	0.124	0.287
	Beta	-0.083 (-0.179, 0.012)	-0.061 (-0.147, 0.025)	0.021 (-0.064, 0.105)	-0.144 (-0.218, -0.069)	-0.065 (-0.148, 0.018)	0.075 (-0.033, 0.183)	0.064 (-0.018, 0.147)	-0.112 (-0.209, -0.015)	0.089 (-0.020, 0.197)	-0.022 (-0.127, 0.084)	-0.095 (-0.183, -0.007)	-0.059 (-0.135, 0.017)	-0.043 (-0.142, 0.057)
Medium metro vs. Large fringe metro	p-value	0.087	0.164	0.631	<0.001	0.125	0.172	0.126	0.023	0.111	0.687	0.034	0.129	0.403
	Beta	0.029 (-0.113, 0.171)	0.029 (-0.099, 0.157)	-0.051 (-0.176, 0.075)	-0.103 (-0.214, 0.009)	-0.070 (-0.193, 0.053)	0.064 (-0.097, 0.225)	0.088 (-0.034, 0.211)	-0.107 (-0.251, 0.038)	-0.103 (-0.264, 0.059)	0.089 (-0.068, 0.245)	-0.026 (-0.156, 0.105)	-0.035 (-0.148, 0.079)	-0.044 (-0.193, 0.104)
	p-value	0.688	0.656	0.432	0.070	0.267	0.437	0.157	0.147	0.214	0.266	0.699	0.55	0.560
Micropolitan vs. Large fringe metro	Beta	0.313 (0.171, 0.455)	0.229 (0.100, 0.357)	-0.099 (-0.225, 0.028)	0.200 (0.088, 0.311)	-0.054 (-0.177, 0.070)	-0.118 (-0.279, 0.044)	0.127 (0.004, 0.250)	-0.076 (-0.221, 0.069)	0.036 (-0.127, 0.198)	0.335 (0.178, 0.492)	0.077 (-0.054, 0.208)	-0.140 (-0.254, -0.026)	-0.067 (-0.216, 0.082)
	p-value	<0.001	<0.001	0.126	<0.001	0.394	0.152	0.042	0.303	0.667	<0.001	0.247	0.016	0.378
	Beta	0.343 (0.091, 0.594)	0.294 (0.067, 0.521)	-0.007 (-0.230, 0.217)	0.093 (-0.104, 0.291)	-0.096 (-0.314, 0.123)	-0.261 (-0.546, 0.024)	0.029 (-0.188, 0.246)	0.118 (-0.138, 0.374)	0.123 (-0.164, 0.410)	0.381 (0.103, 0.658)	0.219 (-0.012, 0.450)	-0.087 (-0.288, 0.114)	0.261 (-0.003, 0.524)
Non-core metro vs. Large fringe metro	p-value	0.008	0.011	0.954	0.352	0.389	0.073	0.796	0.365	0.402	0.007	0.063	0.397	0.052
	Beta	0.005 (0.003, 0.006)	0.004 (0.002, 0.006)	0.006 (0.004, 0.008)	-0.002 (-0.003, -0.000)	-0.008 (-0.010, -0.006)	-0.003 (-0.005, -0.001)	-0.001 (-0.003, 0.000)	0.002 (0.000, 0.004)	0.005 (0.002, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.000)	0.003 (0.001, 0.004)	0.005 (0.003, 0.007)
	p-value	<0.001	<0.001	<0.001	0.030	<0.001	0.009	0.144	0.018	<0.001	0.004	0.134	<0.001	<0.001
Age														

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
Percent below poverty line in 2010	Beta	-0.003 (-0.014, 0.007)	0.003 (-0.006, 0.013)	0.012 (0.003, 0.021)	-0.014 (-0.022, -0.006)	-0.006 (-0.014, 0.003)	0.071 (0.059, 0.082)	0.022 (0.013, 0.031)	-0.011 (-0.022, -0.001)	-0.007 (-0.019, 0.005)	-0.002 (-0.013, 0.010)	-0.011 (-0.021, -0.002)	0.007 (-0.002, 0.015)	0.013 (0.002, 0.023)
	p-value	0.527	0.459	0.011	<0.001	0.225	<0.001	<0.001	0.035	0.237	0.791	0.019	0.120	0.020
	Beta (95% CI)	0.124 (-0.094, 0.341)	0.279 (0.083, 0.476)	0.740 (0.547, 0.934)	-0.549 (-0.720, -0.379)	-0.289 (-0.478, -0.100)	1.477 (1.230, 1.724)	0.605 (0.417, 0.793)	-0.442 (-0.664, -0.221)	-0.003 (-0.252, 0.245)	0.082 (-0.158, 0.322)	-0.167 (-0.367, 0.033)	0.194 (0.020, 0.369)	0.449 (0.221, 0.677)
Log median household income in 2016	p-value	0.265	0.005	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	0.978	0.505	0.102	0.029	<0.001
Model R-Squared		0.06445	0.04229	0.10448	0.11016	0.06355	0.28381	0.04672	0.04964	0.02378	0.03603	0.03028	0.02127	0.03564
2010 RUCA Codes														
Rural areas vs. Metropolitan area core	Beta	0.351 (0.103, 0.599)	0.281 (0.058, 0.505)	-0.148 (-0.368, 0.072)	0.186 (-0.010, 0.382)	0.092 (-0.124, 0.308)	-0.545 (-0.829, -0.260)	0.009 (-0.206, 0.224)	0.183 (-0.071, 0.436)	0.356 (0.075, 0.638)	0.590 (0.320, 0.860)	-0.124 (-0.352, 0.103)	-0.116 (-0.313, 0.081)	0.373 (0.114, 0.632)
	p-value	0.006	0.014	0.186	0.062	0.403	<0.001	0.932	0.158	0.013	<0.001	0.284	0.248	0.005
	Beta (95% CI)	0.256 (0.119, 0.394)	0.205 (0.081, 0.329)	-0.024 (-0.145, 0.098)	0.206 (0.097, 0.314)	-0.011 (-0.131, 0.108)	-0.595 (-0.753, -0.437)	-0.044 (-0.163, 0.075)	0.236 (0.096, 0.376)	0.271 (0.115, 0.427)	0.420 (0.270, 0.569)	0.083 (-0.043, 0.209)	0.072 (-0.037, 0.181)	0.027 (-0.116, 0.170)
Metropolitan area high commuting vs. Metropolitan area core	p-value	<0.001	0.001	0.704	<0.001	0.854	<0.001	0.467	0.001	<0.001	<0.001	0.198	0.195	0.711
Micropolitan area core vs. Metropolitan area core	Beta	0.351 (0.225, 0.478)	0.251 (0.137, 0.365)	-0.150 (-0.263, -0.038)	0.322 (0.222, 0.422)	0.001 (-0.109, 0.111)	-0.329 (-0.474, -0.184)	0.044 (-0.066, 0.153)	0.080 (-0.050, 0.209)	0.019 (-0.125, 0.162)	0.369 (0.231, 0.506)	0.145 (0.029, 0.261)	-0.117 (-0.218, -0.017)	-0.080 (-0.212, 0.052)
	p-value	<0.001	<0.001	0.009	<0.001	0.988	<0.001	0.436	0.226	0.799	<0.001	0.014	0.022	0.233
	Beta (95% CI)	0.573 (0.320, 0.827)	0.492 (0.264, 0.720)	0.066 (-0.158, 0.290)	0.176 (-0.023, 0.376)	0.106 (-0.114, 0.327)	-0.431 (-0.722, -0.141)	0.081 (-0.138, 0.301)	0.167 (-0.092, 0.426)	0.076 (-0.212, 0.381)	0.506 (0.231, 0.781)	0.149 (-0.083, 0.381)	-0.089 (-0.290, 0.112)	0.196 (-0.068, 0.460)
Small town core vs. Metropolitan area core	p-value	<0.001	<0.001	0.563	0.083	0.344	0.004	0.468	0.206	0.606	<0.001	0.209	0.384	0.146
Age	Beta	0.004 (0.002, 0.006)	0.004 (0.002, 0.005)	0.006 (0.004, 0.008)	-0.002 (-0.003, -0.000)	-0.008 (-0.010, -0.006)	-0.003 (-0.005, -0.001)	-0.002 (-0.003, 0.000)	0.003 (0.001, 0.005)	0.005 (0.002, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.001)	0.003 (0.001, 0.004)	0.005 (0.003, 0.007)
	p-value	<0.001	<0.001	<0.001	0.043	<0.001	0.005	0.074	0.007	<0.001	0.009	0.192	<0.001	<0.001
	Beta (95% CI)	-0.006 (-0.016, 0.003)	0.003 (-0.006, 0.011)	0.010 (0.002, 0.019)	-0.020 (-0.027, -0.012)	-0.004 (-0.012, 0.004)	0.089 (0.078, 0.100)	0.028 (0.020, 0.036)	-0.020 (-0.030, -0.011)	-0.004 (-0.015, 0.006)	0.002 (0.012, 0.012)	-0.019 (-0.028, -0.011)	0.005 (-0.003, 0.012)	0.013 (0.004, 0.023)
Percent below poverty line in 2010	p-value	0.195	0.512	0.016	<0.001	0.327	<0.001	<0.001	<0.001	0.433	0.682	<0.001	0.191	0.008
Log median household income in 2016	Beta	0.142 (-0.071, 0.355)	0.309 (0.117, 0.501)	0.698 (0.510, 0.887)	-0.510 (-0.678, -0.342)	-0.197 (-0.382, -0.012)	1.535 (1.291, 1.779)	0.614 (0.430, 0.799)	-0.432 (-0.649, -0.214)	0.101 (-0.140, 0.343)	0.187 (-0.044, 0.418)	-0.261 (-0.456, -0.066)	0.203 (0.034, 0.372)	0.514 (0.293, 0.736)
	p-value	0.190	0.002	<0.001	<0.001	0.037	<0.001	<0.001	<0.001	0.411	0.113	0.009	0.018	<0.001
	Model R-Squared	0.06254	0.04504	0.10446	0.09083	0.06168	0.25832	0.04046	0.03887	0.02856	0.05495	0.02667	0.0231	0.04131
FAR Level 1 (Yes vs. No)	Beta	0.425 (0.278, 0.571)	0.292 (0.160, 0.424)	-0.231 (-0.360, -0.102)	0.416 (0.300, 0.531)	-0.063 (-0.190, 0.064)	-0.174 (-0.345, -0.003)	0.135 (0.009, 0.261)	-0.020 (-0.169, 0.130)	-0.115 (-0.282, 0.052)	0.340 (0.178, 0.502)	0.084 (-0.051, 0.218)	-0.189 (-0.306, -0.073)	-0.096 (-0.249, 0.056)
	CI													

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
	p-value	<0.001	<0.001	<0.001	<0.001	0.327	0.047	0.036	0.796	0.176	<0.001	0.224	0.001	0.215
Age	Beta	0.005 (0.003, 0.007)	-0.004 (0.002, 0.006)	0.006 (0.004, 0.008)	-0.001 (-0.003, 0.000)	-0.008 (-0.010, -0.006)	-0.004 (-0.006, -0.001)	-0.001 (-0.003, 0.000)	0.003 (0.001, 0.005)	0.005 (0.002, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.000)	0.003 (0.001, 0.004)	0.006 (0.004, 0.008)
	p-value	<0.001	<0.001	<0.001	0.087	<0.001	0.002	0.107	0.010	<0.001	0.003	0.144	0.001	<0.001
Percent below poverty line in 2010	Beta	-0.015 (-0.024, -0.006)	0.004 (-0.012, 0.004)	0.010 (0.002, 0.018)	-0.024 (-0.031, -0.017)	-0.005 (-0.013, 0.003)	0.103 (0.092, 0.113)	0.029 (0.021, 0.036)	-0.026 (-0.035, -0.017)	-0.011 (-0.022, -0.001)	-0.011 (-0.021, -0.001)	-0.020 (-0.028, -0.011)	0.004 (-0.003, 0.011)	0.009 (-0.000, 0.018)
	p-value	0.001	0.329	0.011	<0.001	0.211	<0.001	<0.001	<0.001	0.029	0.029	<0.001	0.240	0.063
Log median household income in 2016	Beta	-0.064 (-0.260, 0.132)	0.144 (-0.032, 0.321)	0.710 (0.537, 0.882)	-0.633 (-0.787, -0.479)	-0.236 (-0.405, -0.066)	1.928 (1.699, 2.157)	0.652 (0.483, 0.820)	-0.598 (-0.798, -0.398)	-0.112 (-0.335, 0.112)	-0.130 (-0.347, 0.086)	-0.284 (-0.464, -0.104)	0.211 (0.055, 0.367)	0.392 (0.189, 0.596)
	p-value	0.520	0.108	<0.001	<0.001	0.007	<0.001	<0.001	<0.001	0.327	0.237	0.002	0.008	<0.001
Model R-Squared		0.0486	0.03104	0.10847	0.09554	0.06156	0.22717	0.0438	0.03154	0.01756	0.02214	0.01843	0.02447	0.03332
2013 Metro vs. Non-Metro Status	Beta	-0.390 (-0.503, -0.277)	-0.287 (-0.388, -0.185)	0.082 (-0.018, 0.181)	-0.314 (-0.402, -0.225)	0.016 (-0.081, 0.114)	0.309 (0.178, 0.441)	-0.035 (-0.132, 0.062)	-0.089 (-0.205, 0.026)	-0.031 (-0.159, 0.098)	-0.360 (-0.484, -0.236)	-0.179 (-0.283, -0.076)	0.082 (-0.008, 0.172)	-0.031 (-0.149, 0.087)
	p-value	<0.001	<0.001	0.109	<0.001	0.741	<0.001	0.477	0.128	0.638	<0.001	<0.001	0.075	0.606
Age	Beta	0.005 (0.003, 0.007)	0.004 (0.002, 0.006)	0.006 (0.004, 0.008)	-0.001 (-0.029, -0.015)	-0.008 (-0.010, -0.006)	-0.004 (-0.006, -0.001)	-0.001 (-0.003, 0.000)	0.003 (0.001, 0.005)	0.005 (0.003, 0.007)	0.003 (0.001, 0.005)	-0.001 (-0.003, 0.001)	0.003 (0.001, 0.004)	0.006 (0.004, 0.008)
	p-value	<0.001	<0.001	<0.001	0.055	<0.001	0.001	0.082	0.005	<0.001	0.003	0.197	<0.001	<0.001
Percent below poverty line in 2010	Beta	-0.011 (-0.020, -0.002)	-0.001 (-0.009, 0.007)	0.011 (0.003, 0.019)	-0.022 (-0.003, 0.000)	-0.005 (-0.013, 0.003)	0.098 (0.087, 0.108)	0.028 (0.020, 0.036)	-0.023 (-0.033, -0.014)	-0.009 (-0.020, 0.001)	-0.007 (-0.017, 0.003)	-0.016 (-0.025, -0.008)	0.004 (-0.003, 0.011)	0.010 (0.001, 0.020)
	p-value	0.019	0.805	0.007	<0.001	0.250	<0.001	<0.001	<0.001	0.082	0.183	<0.001	0.284	0.038
Log median household income in 2016	Beta	0.063 (-0.142, 0.269)	0.244 (0.059, 0.429)	0.727 (0.545, 0.910)	-0.553 (-0.714, -0.391)	-0.231 (-0.409, -0.053)	1.759 (1.519, 1.999)	0.629 (0.452, 0.806)	-0.524 (-0.734, -0.313)	-0.054 (-0.289, 0.181)	0.007 (-0.219, 0.234)	-0.186 (-0.375, 0.003)	0.196 (0.032, 0.360)	0.429 (0.214, 0.644)
	p-value	0.545	0.010	<0.001	<0.001	0.011	<0.001	<0.001	<0.001	0.652	0.950	0.054	0.019	<0.001
Model R-Squared		0.05725	0.03833	0.10297	0.09546	0.06123	0.23471	0.04099	0.03281	0.01694	0.03226	0.02463	0.01919	0.03097
Non-overlapping economic-dependence county indicator														
Farm-dependent vs. Nonspecialized	Beta	0.314 (-0.128, 0.756)	0.203 (-0.195, 0.601)	0.064 (-0.325, 0.453)	0.102 (-0.248, 0.451)	0.012 (-0.368, 0.391)	-0.511 (-1.020, -0.002)	-0.251 (-0.629, 0.127)	0.365 (-0.082, 0.812)	0.713 (0.213, 1.213)	0.553 (0.067, 1.038)	-0.125 (-0.529, 0.280)	0.104 (-0.245, 0.454)	0.272 (-0.187, 0.730)
	p-value	0.164	0.317	0.748	0.568	0.952	0.049	0.192	0.110	0.005	0.026	0.545	0.558	0.245
Mining-dependent vs. Nonspecialized	Beta	-0.145 (-0.364, 0.074)	-0.069 (-0.266, 0.128)	-0.112 (-0.305, 0.080)	-0.105 (-0.278, 0.068)	0.099 (-0.089, 0.286)	-0.069 (-0.322, 0.183)	0.075 (-0.112, 0.262)	0.040 (-0.182, 0.261)	0.117 (-0.131, 0.364)	0.129 (-0.112, 0.369)	-0.010 (-0.210, 0.190)	-0.036 (-0.209, 0.137)	0.092 (-0.134, 0.319)

(continued on next page)

Table 3 (continued)

Independent Variable		Social Support & Connectedness - 13 Items	Social Support & Connectedness - 26 Items	Responsibility for Self & Others	Family Ties & Duties	Social Distress	Urban Diversity	Discontinuity	Church-Engaged	Seek External Resources	Locally-Owned Business Active	Power-Deference	Next Generation Focus	Self-Reliance
	p-value	0.195	0.492	0.253	0.233	0.304	0.589	0.431	0.725	0.354	0.294	0.921	0.682	0.424
Manufacturing-dependent vs. Nonspecialized	Beta	0.128 (−0.012, 0.267)	0.089 (−0.037, 0.214)	0.072 (−0.050, 0.195)	0.003 (−0.107, 0.113)	−0.011 (−0.131, 0.108)	−0.127 (−0.287, 0.034)	−0.040 (−0.159, 0.079)	0.127 (−0.014, 0.267)	0.038 (−0.119, 0.195)	0.137 (−0.016, 0.290)	0.003 (−0.124, 0.130)	0.134 (0.024, 0.244)	−0.014 (−0.158, 0.130)
	p-value	0.073	0.165	0.248	0.962	0.851	0.121	0.507	0.078	0.636	0.080	0.963	0.017	0.848
	Beta	0.156 (0.083, 0.229)	0.107 (0.041, 0.173)	0.021 (−0.043, 0.085)	0.077 (0.019, 0.135)	−0.079 (−0.142, −0.016)	−0.257 (−0.341, −0.172)	0.005 (−0.058, 0.067)	0.036 (−0.038, 0.110)	0.048 (−0.035, 0.131)	0.145 (0.065, 0.225)	0.045 (−0.022, 0.112)	−0.051 (−0.108, 0.007)	0.041 (−0.035, 0.116)
Federal/State government-dependent vs. Nonspecialized	p-value	<0.001	0.001	0.520	0.009	0.013	<0.001	0.882	0.338	0.254	<0.001	0.188	0.086	0.293
	Beta	−0.040 (−0.188, 0.108)	0.011 (−0.122, 0.144)	0.016 (−0.114, 0.146)	−0.122 (−0.239, −0.005)	0.055 (−0.072, 0.182)	0.112 (−0.059, 0.282)	0.144 (0.017, 0.270)	−0.197 (−0.347, −0.048)	0.068 (−0.099, 0.236)	0.106 (−0.056, 0.269)	−0.107 (−0.242, 0.029)	−0.112 (−0.229, 0.005)	0.156 (0.002, 0.309)
	p-value	0.592	0.872	0.812	0.041	0.392	0.198	0.026	0.010	0.422	0.199	0.122	0.061	0.047
Recreation vs. Nonspecialized	Beta	0.004 (0.002, 0.006)	0.004 (0.002, 0.005)	0.006 (0.005, 0.008)	−0.002 (−0.003, −0.000)	−0.008 (−0.010, −0.006)	−0.004 (−0.006, −0.001)	−0.002 (−0.003, 0.000)	0.003 (0.001, 0.005)	0.005 (0.003, 0.007)	0.003 (0.001, 0.005)	−0.001 (−0.003, 0.000)	0.003 (0.001, 0.004)	0.006 (0.004, 0.008)
	p-value	<0.001	<0.001	<0.001	0.020	<0.001	0.002	0.07	0.006	<0.001	0.008	0.141	<0.001	<0.001
	Beta	−0.025 (−0.035, −0.016)	−0.011 (−0.020, −0.002)	0.013 (0.005, 0.022)	−0.034 (−0.042, −0.026)	0.000 (−0.008, 0.008)	0.115 (0.104, 0.126)	0.028 (0.020, 0.036)	−0.028 (−0.037, −0.018)	−0.009 (−0.020, 0.002)	−0.017 (−0.028, −0.007)	−0.024 (−0.033, −0.015)	0.008 (0.001, 0.016)	0.010 (0.000, 0.020)
Percent below poverty line in 2010	p-value	<0.001	0.015	0.002	<0.001	0.996	<0.001	<0.001	<0.001	0.093	0.001	<0.001	0.035	0.049
	Beta	−0.313 (−0.519, −0.106)	−0.015 (−0.201, 0.171)	0.795 (0.613, 0.976)	−0.879 (−1.042, −0.716)	−0.141 (−0.318, 0.036)	2.156 (1.918, 2.394)	0.626 (0.449, 0.802)	−0.627 (−0.836, −0.419)	−0.046 (−0.279, 0.188)	−0.269 (−0.496, −0.042)	−0.391 (−0.579, −0.202)	0.298 (0.135, 0.461)	0.436 (0.222, 0.650)
	p-value	0.003	0.873	<0.001	<0.001	0.118	<0.001	<0.001	<0.001	0.701	0.020	<0.001	<0.001	<0.001
Log median household income in 2016		0.04443	0.02738	0.10341	0.07518	0.06651	0.24574	0.04591	0.04066	0.02325	0.02448	0.02029	0.02623	0.03503

Ties and Duties, Social Distress, Discontinuity, Seek External Resources, Locally-Owned Business-Active, and Next Generation Focus. There were significant differences based on race/ethnicity on the following subscales: Social Support and Connectedness (13-item subscale), Responsibility for Self and Others, Family Ties and Duties, Social Distress, Urban Diversity, Discontinuity, Locally-Owned Business-Active, and Power Deference.

3.4.2. Participant-reported global ratings of their neighborhood community quality

All but two of the subscales (Urban Diversity subscale and Discontinuity) were significantly correlated with one or more of the three global ratings of community quality. The Social Support and Connectedness subscale and the Responsibility for Self and Others subscale were strongly correlated with all three of the global ratings. The Social Distress, Locally-Owned Business Active, Next Generation Focus, and Self-Reliance subscales were moderately correlated with one or more of the global ratings.

3.4.3. Relationship between CCS-R subscales and participant-reported sense of community

All of the CCS-R subscales were significantly correlated with the total scores on the Brief Sense of Community and with one or more of its subscales. The Social Support and Connectedness subscale was strongly correlated with sense of community, and the Responsibility for Self and Others subscale and Locally-Owned Business Active were moderately correlated with sense of community.

3.4.4. Relationship between CCS-R subscales and participant-reported personality

All but two of the CCS-R subscales (Urban Diversity and Power Deference) were significantly but weakly correlated with one or more personality dimensions.

3.4.5. Relationship between CCS-R subscales and participant-reported health indicators

All of the CCS-R subscales significantly predicted at least one of the health indicators.

3.4.6. Relationship between CCS-R subscales and geographic variables where the participants lived

There were significant differences between the US and Thai samples on all subscales except Power Deference. Within the US, there were significant differences by region on all subscales except Self-Reliance. On one or more of the US rural-urban classification systems, there were significant differences between rural and urban counties on all subscales except Social Distress. There were significant differences based on US county-level economic dependence on five of the subscales. All but three of the CCS-R subscales were significantly correlated with overall social vulnerability based on the CDC's county-level Social Vulnerability Index; all but one of these relationships were weak. The Responsibility for Self and Others subscale was moderately inversely correlated with overall social vulnerability and with the socioeconomic and household composition themes. The Urban Diversity subscale was moderately and significantly correlated with the minority status/language and housing/transportation themes of the social vulnerability index. County-level median household income was weakly significantly correlated with seven of the subscales, and share of the county population in poverty with five of the subscales.

3.5. Subscale relationships after adjusting for participant age and county-level socioeconomic variables related to health

Although only weakly correlated with about half of the CCS-R subscales (Table 2), median income and percent of the population in poverty have been previously shown to explain approximately half of

the variation in county-level age-adjusted premature mortality rates (Long et al., 2018). Thus, Table 3 shows the CCS-R subscale relationships with race/ethnicity, health conditions, and geography after adjusting for the participant's age and county-level median income and percent of the population in poverty where the participants live. For each variable, the logistic regression reference group was selected based on the sample size, number of significant differences with other groups in post-hoc comparisons, and/or previously reported differences between groups on health indicators. The unadjusted models are shown in supplemental material.

3.5.1. Race/ethnicity

Most of the significant differences between Whites and other groups on CCS-R subscales were no longer significant after adjusting for participant's age and socioeconomic variables in the county where they lived. After adjusting, there were no differences between White and Hispanic participants or between White and Native Hawaiian or Other Pacific Islanders. After adjusting, there were significant differences between the neighborhood descriptions of White and Black participants on Responsibility for Self and Others, Church Engaged, and Locally Owned Business Active subscales. After adjusting, there were significant differences between the neighborhoods of White and Asian participants on the Family Ties and Duties subscale and between the neighborhoods of White and American Indian or Alaska Native participants on the Social Distress subscale.

3.5.2. Health conditions

Most of the significant differences between those who have had versus not had specific health conditions on CCS-R subscales were no longer significant after adjusting for participant's age and socioeconomic variables in the county where they lived. After adjusting, there were significant differences between the neighborhood descriptions of participants who had ever versus not been told they had a heart attack/MI on the Social Distress subscale. The neighborhoods of participants who had ever versus not been told they had angina/CHD were significantly different on the Social Support and Connectedness, Responsibility for Self and Others, and Self-Reliance subscales. There were significant differences between the neighborhoods of those who have had stroke/TIA versus not on the Locally Owned Business Active subscale, those who have had hypertension versus not on the Urban Diversity subscale, and those who have had cancer versus not on the Next Generation Focus subscale. There were significant differences between the neighborhoods of those who have had depression and those who have not on the Social Support and Connectedness, Responsibility for Self and Others, Social Distress, and Church Engaged subscales. There were significant differences between the neighborhoods of those who have had overweight/obesity and those who have not on the Social Support and Connectedness and Responsibility for Self and Others subscales, and there were significant associations between BMI and the Social Support and Connectedness, Social Distress, and Locally Owned Business Active subscales. There were no differences between the neighborhoods of those who have had high cholesterol or diabetes and those who have not on any of the CCS-R subscales after adjusting.

3.5.3. US region

In the adjusted models, there were significant differences between the Deep South region and at least one of the other regions on all of the CCS-R subscales except Discontinuity and Power Deference.

3.5.4. Rural/urban

In the adjusted models, all of the subscales except Social Distress differed between one or more levels of rural-urban on at least one of the classification systems.

3.5.5. Economic dependence

In the adjusted models, there were significant differences between

nonspecialized county economies and farm-dependent economies on the External Resources-Seeking subscale and between nonspecialized economies and recreation-dependent counties on the Church-Engaged subscale. There were significant differences between nonspecialized economies and federal/state government-dependent counties on the Social Support and Connectedness, Family Ties and Duties, Social Distress, Urban Diversity, and Locally Owned Business Active subscales. There were no differences between nonspecialized county economies and counties with economies dependent on mining or manufacturing after adjusting.

4. Discussion

4.1. Dimensions of community culture as distinct determinants of health

In this study, we identified 12 dimensions of community culture that distinguish neighborhoods from one another and are related to health indicators in samples across the United States and in Thailand. Two CCS-R dimensions (Responsibility for Self & Others and Family Ties & Duties) aligned with CCS dimensions, while the predominant CCS-R dimension (Social Support & Connectedness) is composed mostly of new items. The 13-item and 26-item Social Support & Connectedness subscales performed very similarly in nearly all analyses indicating no advantage to using the longer version. There were more differences in community culture based on geography of the individual's neighborhood than based on the demographics of the individual living in the neighborhood. Most of the significant differences in neighborhood culture by US participants' race/ethnicity disappeared after controlling for the participant's age and county-level socioeconomic indicators, a finding that underscores the importance of not confusing culture with race/ethnicity in research methods or in clinical settings. The dimensions of community culture were only weakly correlated with the participant's personality and strongly correlated with sense of community, findings which further validate the construct of culture as distinct from individual traits.

The Social Support & Connectedness and Responsibility for Self & Others dimensions of neighborhood culture strongly predicted higher overall participant ratings of the quality of the neighborhood, best predicted participant's overall health, social support, and quality of life (based on correlational analyses relative to the other dimensions), and predicted some health conditions (based on comparisons between those who had versus had not been told they had the condition). Specifically, those living in neighborhoods higher on these dimensions were less likely to report a history of angina/CHD, depression, and overweight/obesity after adjusting for participants' age and county-level socioeconomic indicators. After these adjustments, those living in neighborhoods higher in Social Distress were more likely to report a history of heart attack/MI and depression and tended to have higher current BMI; those living in neighborhoods higher on Urban Diversity were more likely to report a history of hypertension; those living in neighborhoods higher on Church Engaged were less likely to report a history of depression; those living in neighborhoods higher on Locally Owned Business Active were less likely to report a history of stroke/TIA and tended to have lower current BMI; those living in neighborhoods higher on Next Generation Focus were less likely to report a history of cancer; and those living in neighborhoods higher on Self Reliance were less likely to report a history of angina/CHD.

4.2. Implications for addressing health disparities

The Committee on Community-Based Solutions to Promote Health Equity in the United States, part of the National Academies of Sciences, Engineering, and Medicine, has identified communities actively addressing health disparities. For example, the committee highlighted a community in Minnesota that reduced youth gunshot victims and another in Mississippi that reduced the rate of low birthweight babies. Yet, the committee also raises two key questions that reflect the

challenges advancing progress beyond specific case studies: "What accounts for successful community interventions for promoting health equity? Why are some communities and organizations able to come together and effect change while others are not?" [6]. They recognize that the complex answers to these questions involve the characteristics of the communities. The CCS-R may help measure relevant dimensions of community culture to improve the effectiveness of community interventions.

The findings in this study support the recommendation that cultural determinants of health be measured and examined in addition to socioeconomic determinants of health [1]. In our study, based on correlational analyses, we also found that higher neighborhood Responsibility for Self and Others moderately predicted lower overall social vulnerability, socioeconomic vulnerability (a composite of poverty, unemployment, income, and education measures), and household composition vulnerability (a composite measure of older adults, youth, disabled civilians, and single-parent households) at the county level [35]. In rural areas, which tend to have higher socioeconomic vulnerability, our findings identify cultural strengths, such as Social Support & Connectedness and Locally Owned Business Active dimensions which might be leveraged to improve health outcomes.

In comparing multi-state regions, we found that the Deep South region of the US was most different from the Midwest on community culture after adjusting for age and socioeconomic factors. Although higher on Social Distress, the Deep South was also higher on Church Engaged, which might help explain why the South has had a lower mortality-rate from depression while the Midwest has had the highest [36]. The Deep South was lower on Locally Owned Business Active, and lower scores on this subscale predicted higher body mass index and risk of stroke after adjusting for county-level income and poverty. This link between community culture and health might help explain the South's higher stroke mortality rate [37] and higher obesity prevalence [38] independent of socioeconomic factors. Incorporation of community culture measures in CDC surveillance methods may help shed additional light on these relationships.

4.3. Limitations

The key limitations of this study indicate the need for further research. First, the use of convenience sampling resulted in over- and under-representation by demographics and geography. In particular, while granular race/ethnicity was collected, including allowing multiple categories, we aggregated to the current minimum standard US federal categories based on the participants' selection of the one race/ethnicity that best identified them to obtain larger group sizes. Thus, additional sampling is needed to examine the dimensions of culture relative to more granular categories of race/ethnicity. Furthermore, these US categories may not be appropriate or meaningful aggregations for the Thai sample. In addition, the Thai sample was significantly younger and composed of all students, which might account for some of the differences compared to the U.S. sample, including health status. Translation of medical terminology might also account for some of these differences. While there were no differences between males and females on any of the CCS-R subscales, differences between males and females in prevalence of health conditions could introduce bias in these results. Second, geographic variables were based on county-level data, while participants were asked to describe their neighborhood, which was frequently defined by the participants as being a much smaller than the county. Thus, more granular geographic variables (e.g., at the level of census tract rather than county) may shed additional light on the relationships between community culture, socioeconomic variables, and individual health outcomes. Third, reports of health conditions were based on participant's recollection of whether a health professional had ever told them they had the condition, which may have introduced error relative to use of medical records. Finally, some of the CCS-R subscales did not have acceptable internal consistency across groups, indicating the need

for further refinement. For example, the internal consistency of the Discontinuity subscale may be increased by adding items that help describe this domain in a way that is more meaningful across subgroups.

5. Conclusions

The CCS-R holds promise for advancing research on the complex relationships between individual-level and community-level variables to advance health equity. Since the pandemic has, perhaps permanently, given many members of the workforce the opportunity to live anywhere and work remotely, community culture may be increasing in importance and impact – including widening the gap in health disparities between those of greater socioeconomic means and those who are already more vulnerable. The CCS-R as a measurement tool may be a step toward shaping and monitoring the impact of health policies designed to reduce disparities, particularly through development of new community health intervention models that leverage and strengthen local culture.

Authors statements

This research was conducted with approval from the Institutional Review Boards at the universities overseeing administration of the surveys. All methods were performed in accordance with the relevant guidelines and regulations, and informed consent was obtained from all subjects. This research was not supported by extramural funding, and the authors have no competing interests to report.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.puhip.2024.100512>.

References

- [1] A.D. Napier, C. Ancarno, B. Butler, J. Calabrese, A. Chater, H. Chatterjee, F. Guesnet, R. Horne, S. Jacyna, S. Jadhav, A. Macdonald, Culture and health, *Lancet* 384 (9954) (2014 Nov 1) 1607–1639.
- [2] L. Dwyer-Lindgren, A. Bertozzi-Villa, R.W. Stubbs, C. Morozoff, J.P. Mackenbach, F.J. van Lenthe, A.H. Mokdad, C.J. Murray, Inequalities in life expectancy among US counties, 1980 to 2014: temporal trends and key drivers, *JAMA Intern. Med.* 177 (7) (2017 Jul 1) 1003–1011.
- [3] A.S. Long, A.L. Hanlon, K.L. Pellegrin, Socioeconomic variables explain rural disparities in US mortality rates: implications for rural health research and policy, *SSM-Population Health* 6 (2018 Dec 1) 72–74.
- [4] A.L. Plough, Building a culture of health: a critical role for public health services and systems research, *Am. J. Publ. Health* 105 (S2) (2015 Apr) S150–S152.
- [5] B. Thompson, Y. Molina, K. Viswanath, R. Warnecke, M.L. Prelep, Strategies to empower communities to reduce health disparities, *Health Aff.* 35 (8) (2016 Aug 1) 1424–1428.
- [6] National Academies of Sciences, Engineering, and Medicine, *Communities in Action: Pathways to Health Equity*, The National Academies Press, Washington, DC, 2017, <https://doi.org/10.17226/24624>.
- [7] J.J. Van Bavel, K. Baicker, P.S. Boggio, V. Capraro, A. Cichocka, M. Cikara, M. J. Crockett, A.J. Crum, K.M. Douglas, J.N. Druckman, J. Drury, Using social and behavioural science to support COVID-19 pandemic response, *Nat. Human Behav.* 4 (5) (2020 May) 460–471.
- [8] A.F. Brown, G.X. Ma, J. Miranda, E. Eng, D. Castille, T. Brockie, P. Jones, C. O. Airhihenbuwa, T. Farhat, L. Zhu, C. Trinh-Shevrin, Structural interventions to reduce and eliminate health disparities, *Am. J. Publ. Health* 109 (S1) (2019 Jan) S72–S78.
- [9] A. Chandra, C.E. Miller, J.D. Acosta, S. Weilant, M. Trujillo, A. Plough, Drivers of health as a shared value: mindset, expectations, sense of community, and civic engagement, *Health Aff.* 35 (11) (2016 Nov 1) 1959–1963.
- [10] M.L. Tan, D. Vlahov, E. Hagan, M.M. Glymour, L.M. Gottlieb, E.C. Matthay, N. E. Adler, Building the evidence on making health a shared value: insights and considerations for research, *SSM-Population Health* 9 (2019 Dec 1) 100474.
- [11] M. Kagawa Singer, Applying the concept of culture to reduce health disparities through health behavior research, *Prev. Med.* 55 (5) (2012) 356–361.
- [12] National Institute on minority health and health disparities research Framework. <https://www.nimhd.nih.gov/about/overview/research-framework/nimhd-framework.html>. (Accessed 10 May 2021).
- [13] K.L. Pellegrin, C.R. Nigg, The Community Culture Survey: preliminary findings from a new approach to measurement and understanding health disparities, *J. Community Psychol.* 45 (2) (2017 Mar) 283–289.
- [14] R. Moos, A Social Climate Scale, Work Environment Scale Manual, Development, Applications, Research, Mind Garden, Palo Alto, California, 2008.
- [15] K.L. Pellegrin, H.S. Currey, Demystifying and improving organizational culture in health care, in: *Organization Development in Healthcare: Conversations on Research and Strategies*, Emerald Group Publishing Limited, 2011.
- [16] C.D. Spielberger, E.C. Reheiser, Assessment of emotions: anxiety, anger, depression, and curiosity, *Appl. Psychol.: Health and Well-Being* 1 (3) (2009) 271–302.
- [17] Anonymous, [Unpublished Manuscript] Details Omitted for Double Blind Reviewing.
- [18] S.H. Schwartz, G. Melech, A. Lehmann, S. Burgess, M. Harris, V. Owens, Extending the cross-cultural validity of the theory of basic human values with a different method of measurement, *J. Cross Cult. Psychol.* 32 (5) (2001) 519–542.
- [19] W.A. Vega, A. Ang, M.A. Rodriguez, B.K. Finch, Neighborhood protective effects on depression in Latinos, *Am. J. Community Psychol.* 47 (1) (2011) 114–126.
- [20] G. Townley, B. Kloos, E.P. Green, M.M. Franco, Reconcilable differences? Human diversity, cultural relativity, and sense of community, *Am. J. Community Psychol.* 47 (1) (2011) 69–85.
- [21] G. Moreno, L.S. Morales, F. Nuñez de Jaimes, C.H. Tseng, M. Isordia, C. Noguera, C.M. Mangione, Neighborhood perceptions and health-related outcomes among Latinos with diabetes from a rural agricultural community, *J. Community Health* 39 (6) (2014 Dec) 1077–1084.
- [22] H.Y. Lee, S. Vang, Barriers to cancer screening in Hmong Americans: the influence of health care accessibility, culture, and cancer literacy, *J. Community Health* 35 (3) (2010) 302–314.
- [23] M. Dronavalli, S.C. Thompson, A systematic review of measurement tools of health and well-being for evaluating community-based interventions, *J. Epidemiol. Community Health* 69 (8) (2015) 805–815.
- [24] M.A. Straus, The national context effect: an empirical test of the validity of cross-national research using unrepresentative samples, *Cross Cult. Res.* 43 (3) (2009) 183–205.
- [25] N.A. Peterson, P.W. Speer, D.W. McMillan, Validation of a brief sense of community scale: confirmation of the principal theory of sense of community, *J. Community Psychol.* 36 (1) (2008 Jan) 61–73.
- [26] S.D. Gosling, P.J. Rentfrow, Jr WB. Swann, A very brief measure of the Big-Five personality domains, *J. Res. Pers.* 37 (6) (2003 Dec 1) 504–528.
- [27] T. Eaton, P. Young, W. Fergusson, J.E. Garrett, J. Kolbe, The Dartmouth COOP charts: a simple, reliable, valid and responsive quality of life tool for chronic obstructive pulmonary disease, *Qual. Life Res.* 14 (3) (2005) 575–585.
- [28] Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System Survey Questionnaire, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Atlanta, Georgia, 2014.
- [29] J. Cohen, *Statistical Power Analysis for the Behavioral Sciences*, second ed., Lawrence Erlbaum Associates, Publishers, Hillsdale, NJ, 1988.
- [30] H. Abdi, L.J. Williams, Principal component analysis, *WIREs Comp Stat* 2 (2010) 433–459, <https://doi.org/10.1002/wics.101>.
- [31] P.-O. Caron, Minimum average partial correlation and parallel analysis: the influence of oblique structures, *Commun. Stat. Simulat. Comput.* 48 (7) (2019) 2110–2117, <https://doi.org/10.1080/03610918.2018.1433843>.
- [32] Barbara G. Tabachnick, & Linda S. Fidell, ©2013 *Using Multivariate Statistics*, sixth ed., Pearson.
- [33] R.A.L.F. van Griethuijsen, M.W. van Eijck, H. Haste, et al., Global patterns in students' views of science and interest in science, *Res. Sci. Educ.* 45 (2015) 581–603, <https://doi.org/10.1007/s11165-014-9438-6>.
- [34] K.S. Taber, The use of Cronbach's alpha when developing and reporting research instruments in science education, *Res. Sci. Educ.* 48 (6) (2018) 1273–1296.
- [35] CDC SVI Documentation, 2018. https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2018.html. (Accessed 14 September 2020).
- [36] A.P. Polednak, US regional differences in death rates from depression, *Soc. Psychiatr. Psychiatr. Epidemiol.* 47 (12) (2012 Dec) 1977–1983.
- [37] Centers for Disease Control and Prevention (CDC), Stroke death rates 2017–2019. https://www.cdc.gov/dhds/maps/national_maps/stroke_all.htm. (Accessed 10 July 2022).
- [38] Centers for Disease Control and Prevention (CDC), Prevalence of self-reported obesity among US adults by state and territory, 2011–2018. <https://www.cdc.gov/obesity/downloads/2018-overall-obesity-prevalence-map-508.pdf>. (Accessed 10 July 2022).