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Physical and mental health characteristics of adults with subjective
cognitive decline: A study of 3,407 people aged 18-81 years from an MTurk-based U.S. national sample

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39 **Abstract**

40 Subjective cognitive decline (SCD), or internal feelings of reduced mental capacity, is of increasing
41 interest in the scientific, clinical, and lay community. Much of the extant literature is focused on SCD as a
42 risk factor for Alzheimer’s disease in older adults, while less attention has been paid to non-cognitive
43 health correlates of SCD across adulthood. Consequently, we investigated physical and mental health
44 correlates of SCD in younger, middle-aged, and older adults. We recruited 3,407 U.S. residents through
45 Amazon’s Mechanical Turk, an online labor market. Participants completed a 90-item self-report survey
46 questionnaire assessing sociodemographic characteristics, physical health, sleep, depression, anxiety,
47 loneliness, wisdom, self-efficacy, and happiness. Overall, 493/1930 (25.5%) of younger adults (18-49)
48 and 278/1032 (26.9%) of older adults (50 or older) endorsed the SCD item. Multivariate analysis of
49 variance and follow-up *t*-tests revealed worse physical and mental health characteristics in people
50 endorsing SCD compared to those who did not, with effect sizes primarily in the medium to large range.
51 Additionally, age did not moderate relationships between SCD and physical and mental health. Results
52 suggest that SCD is associated with a diverse set of negative health characteristics such as poor sleep and
53 high body mass index, and lower levels of positive factors including happiness and wisdom. Effect sizes
54 of psychological correlates of SCD were as large as (or larger than) those of physical correlates,
55 indicating that mental health and affective symptoms may be critical to consider when evaluating SCD.
56 Overall, findings from this large, national U.S. sample suggest the presence of relationships between SCD
57 and multiple psychological and perceived health factors; our results also show that SCD may be highly
58 prevalent in both younger and older adults, suggesting that it be assessed across the adult lifespan.

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62 **Introduction**

63 A self-reported decline in cognitive abilities – i.e., subjective cognitive decline (SCD) – is a
64 common complaint in older adults with and without objective cognitive deficits (1). A burgeoning
65 literature in the field of aging research focuses on examining the utility of SCD as an indicator of
66 underlying pathological age-associated cognitive decline years before the onset of the objective,
67 measurable symptoms identifiable in mild cognitive impairment (MCI) and dementia (2). However,
68 whether or not SCD represents an early clinical manifestation of Alzheimer’s disease (AD) pathology
69 remains to be determined. Studies supporting the utility of SCD have found it to be associated with AD
70 neurochemical biomarkers (3). Moreover, in a recent review, Jessen and colleagues (4) concluded that
71 SCD increases risk for pathological cognitive decline on a population level, but that most people with
72 SCD will not convert to MCI and dementia. In contrast, other studies have found inconsistent associations
73 between SCD and objective cognitive functioning in preclinical disease phases (1) and, in some cases,
74 even MCI (5). Moreover, some researchers have reported no relationship between SCD and
75 neuropathological biomarkers of AD (6), and others have found subjective complaints to be an innocuous
76 condition with little risk for future cognitive decline (7–9).

77 SCD base rates in older adults are high (27-43% in people in their 60s and 70s; 1), evidence for
78 SCD as a risk factor for future cognitive decline is inconclusive (4), and the costs of comprehensive
79 workups for those reporting SCD can be high (10). Moreover, current evidence demonstrates that SCD in
80 the absence of objective cognitive symptoms is associated with worse physical health (11), subjective and
81 objective sleep disturbance (12–14), and psychiatric symptom severity (11,14–16). Negative personality
82 traits (e.g., neuroticism and lower general perceived self-efficacy) have also been linked to SCD in older
83 adults (11,16,17), underscoring the importance of assessing socioemotional health in the context of SCD.
84 Consequently, it is important to investigate non-cognitive correlates of SCD in order to better elucidate
85 the full clinical syndrome and appropriately direct physical and mental healthcare resources.

86 Relative to older adults, non-cognitive correlates of SCD remain under-investigated in non-
87 clinical samples of younger adults, who are unlikely to experience objective cognitive decline due to
88 neurodegeneration, despite SCD being reported with equal frequency across all ages (18–22). In
89 comparison to older adults who more frequently attribute their SCD to intrinsic, age-associated cognitive
90 decline, younger adults are more likely to attribute SCD to extrinsic, modifiable causes, such as stress,
91 multitasking, and concentration problems (20,21,23). However, the evaluation of SCD in younger adults
92 has been restricted primarily to clinical and medical populations (24–26). The few studies that recruited
93 non-clinical younger and older adults found correlates of SCD to be similar across the two age groups,
94 underscoring the importance of stress, sleep disturbance, and psychiatric symptom severity in SCD across
95 the lifespan (14,19–21,27). However, measures of physical functioning were not consistently and/or
96 comprehensively examined across these studies. Moreover, these studies vary in their recruitment
97 methods and research setting (e.g., memory clinics, surveys explicitly informing participants of the nature
98 of the survey), which may influence prognostically-relevant sample sociodemographic/clinical
99 characteristics (28).

100 Most of the studies in the exiguous lifespan SCD literature have been conducted in
101 geographically restricted areas (e.g., Korea (27); Paris suburb (21); Portugal (18)), with no prior
102 investigations in a demographically representative and age-diverse U.S. sample. Furthermore, studies
103 within the overall SCD literature have not examined the role of psychological constructs such as wisdom,
104 resilience, and loneliness across the adult lifespan and this information is of essential importance in
105 situating SCD amongst important health-related constructs. As such, the aims of the current study were to
106 comprehensively characterize physical and mental health correlates of SCD across the lifespan in a large,
107 demographically diverse US sample. We recruited participants using Amazon’s Mechanical Turk (AMT),
108 an online labor market allowing for the rapid acquisition of high quality data at low cost (29–33). Based
109 on previously reviewed literature, we hypothesized that, compared to participants who do not endorse
110 SCD (SCD-), those who endorse SCD (SCD+) would report worse physical and mental health.

111 Furthermore, because of the well-known impact of aging on cognition, we explored the moderating effect
112 of age on the relationship between SCD status and mental/physical health.

113 **Methods**

114 **Participants**

115 We recruited 3,407 people, aged 18-81, from AMT (see Table 1). Participants completed a 90-
116 item online survey during a five-week period in spring 2019. The description of the survey, visible on
117 AMT read, “*We are looking for people to answer questions about a variety of topics, including age,*
118 *gender, mood, wisdom, and sleep, among others.*” We described the survey in general terms so as to
119 reduce sampling bias and enhance generalizability. Interested participants consented to the study by
120 selecting a hyperlink, which routed them to the questionnaire, presented via SurveyGizmo.

121 Table 1 About Here

122 We paid each worker \$1.00 for survey completion. Inclusion criteria were the following: 1) ≥ 18
123 years old, 2) English-speaking, 3) residing in the U.S., and 4) a Human Intelligence Task Approval rate
124 $>90\%$ (32). We initially recruited 2,289 participants and found that the age distribution was skewed
125 toward younger adults. In order to balance the sample with respect to age, we added 250 more
126 participants aged 35-45, 500 participants aged 45-55, and 368 participants aged 55+, leading to the initial
127 sample size of 3,407.

128 Although AMT workers provide high quality data overall (29,31,33–38), a subset may be
129 inattentive or may provide invalid data for other reasons. In order to address this issue, we excluded
130 participants who provided impossible or highly improbable answers to survey items. Specifically, we
131 excluded participants who, 1) completed the survey in <270 seconds ($n=104$), 2) reported values for
132 height and weight leading to a body mass index (BMI) <16 ($n=165$), 3) reported fewer total close friends
133 than the number of close friends seen at least once per month ($n=252$), 4) reported their height at <3 feet
134 or >7 feet ($n=42$), 5) reported living with ≥ 20 people in their household ($n=12$), and/or 6) reported owning
135 ≥ 40 pets ($n=3$). Overall, 336 participants provided one invalid response, 86 participants provided two

136 invalid responses, 22 participants provided three invalid responses, and 1 participant provided four invalid
137 responses. Applying these exclusion criteria resulted in 445 (13.1%) participants being excluded, leaving
138 a final sample of 2,962 participants for analysis.

139 This project, including a request for a waiver of documented consent, was reviewed through the
140 UC San Diego Human Research Protections Program by an IRB Chair and/or the IRB Chair's designee
141 and certified as exempt from IRB review under 45 CFR 46.104(d), Category 2.

142 **Materials**

143 Within the 90-item survey, we measured SCD with a single item (“*Have you noticed a decline in*
144 *your memory and thinking that is worrisome to you? [Yes/No]*”). We attempted to minimize the length of
145 the survey as much as possible; consequently, we selected empirically-supported abbreviated versions of
146 all measures with the exception of the San Diego Wisdom Scale (SD-WISE), which does not have a short
147 form. We measured multiple sociodemographic characteristics including age, sex, education, race, annual
148 income, marital status, and employment status. To assess physical health, we administered one item
149 inquiring about frequency of flossing (once per week, 2-3 times per week, 4-6 times per week, or daily;
150 39), two items measuring height and weight to calculate body mass index (BMI), one item asking whether
151 or not any medications are taken for medical conditions, the 12-item Medical Outcomes Survey-Short
152 Form (assessing physical and mental health related quality of well-being; 39), the 4-item Patient-Reported
153 Outcomes Measurement Information System (PROMIS) Sleep Disturbance-short form (41), and the 1-
154 item PROMIS sleep apnea question (41). We measured depression with the 2-item Patient Health
155 Questionnaire (PHQ-2; 42) and anxiety with the 2-item version Generalized Anxiety Disorder scale (43).
156 We measured loneliness with the 4-item version of the UCLA Loneliness Scale (44), using the anchors
157 from the third edition of the UCLA scale, *never*, *rarely*, *sometimes*, and *always*, rather than those of
158 Russel et al. (44), *never*, *rarely*, *sometimes*, and *often*. Measures of positive psychological factors
159 included the 24-item SD-WISE (45), the 2-item Connor-Davidson Resilience Scale (46), and the 4-item
160 Happiness Factor from the Center for Epidemiologic Studies-Depression scale (47). The SD-WISE

161 includes the following subscales: Decisiveness, Emotional Regulation, Pro-Social Behaviors, Social
162 Advising, and Tolerance for Divergent Values. We assessed social self-efficacy using four items, with
163 minor wording modifications, from the Social Self-Efficacy Scale (48,49) that was originally developed
164 for use with adolescents. These four items were selected for age-appropriateness and included: (1) “*How*
165 *well can you become friends with other people?*,” (2) “*How well can you have a chat with an unfamiliar*
166 *person?*,” (3) “*How well can you tell other people that they are doing something you don’t like?*,” and (4)
167 “*How well can you succeed in preventing quarrels with other people?*”.

168 **Statistical Analyses**

169 We analyzed the data using SPSS 26.0. We first examined distributional characteristics of all
170 continuous variables. For those that were highly skewed, we used appropriate non-parametric tests. Next,
171 we tested our hypothesis with SCD group as the between-subjects predictor (“independent”) variable and
172 physical and mental health scores as outcome (“dependent”) variables. Casual inference cannot be
173 established with this cross-sectional data, but our main focus was to test whether SCD status predicted
174 physical and mental health levels. We ran an omnibus multivariate analysis of variance (MANOVA),
175 followed by independent samples *t*-tests for each continuous variable; due to low missing data rates (<4%
176 for all variables and <1% for all variables except for frequency of flossing), we used the classic
177 MANOVA procedure rather than the generalized estimating equations procedure (50). For the two
178 categorical outcome variables (presence or absence of medications and sleep apnea), we conducted χ^2
179 tests. With regard to the exploratory analysis, we conducted 2-group (SCD+ versus SCD-) X 2-age cohort
180 (older: 50+ versus younger: 18-49) ANOVAs on the physical and mental health variables listed in Table 1
181 in order to examine the possible moderating effect of age. We dichotomized age into two groups in order
182 to contrast younger adults with older adults, given that the majority of the current SCD literature exists in
183 aging populations. Although some researchers define older adults beginning in the 60s, we were
184 interested in “young-old” adults, and our sample of “old-old” adults was small, likely due to our use of an
185 internet-based data collection platform (AMT).

186 We report appropriate effect sizes for all statistical tests – partial η^2 for the MANOVA, Cohen’s d
187 for t tests, and Cramer’s V for χ^2 tests. We used the False Discovery Rate to control for Type I error, with
188 alpha set at $p < .05$. The False Discovery Rate predicts and controls individual false positive results, while
189 simultaneously maintaining a high level of statistical power relative to familywise error rate methods such
190 as the Bonferroni correction (51). All statistical tests were two-tailed.

191 **Results**

192 Overall, 493/1930 (25.5%) of younger adults (18-49) and 278/1032 (26.9%) of older adults (50 or
193 older) endorsed the SCD item, $\chi^2(1) = .68, p = .41$. For continuous variables with non-normal distributions,
194 results from non-parametric tests (Mann Whitney U s) mirrored those from parametric statistics. For ease
195 of interpretation, we present the parametric results for all continuous variables. Of the demographic
196 variables, sex, education, employment status, and annual income differed significantly across the two
197 groups; however, when we added these variables to the models as covariates, results did not differ. For
198 ease of interpretation, we provide unadjusted parameters.

199 With respect to our hypothesis that the SCD+ group would report worse physical and mental
200 health compared to the SCD- group, the MANOVA was statistically significant, $F(11, 2937) = 46.47,$
201 $p < .001, \lambda = 0.85, \eta_p^2 = .15$. In univariate analyses, all physical and mental health variables differed in the
202 hypothesized direction, with the exception of SD-WISE Tolerance for Diverging Values subscale.
203 Specifically, compared to the SCD- group, the SCD+ group reported higher BMI, greater rate of taking
204 medications for medical conditions, less frequent flossing, worse overall self-reported physical health,
205 higher rates of self-reported sleep disturbance and sleep apnea, worse overall mental health, higher rates
206 of depression, anxiety, and loneliness, and lower scores on scales for resilience, happiness, wisdom, and
207 self-efficacy (see Table 1). Moreover Cohen’s d effect sizes were primarily in the medium (0.50) to large
208 (0.80) range. When we split the sample by age (18-49 and 50+) for the exploratory analysis, interaction
209 terms for the 2-SCD group X 2-Age group ANOVAs were all non-significant, suggesting that age did not
210 moderate the relationship between SCD and physical or mental health.

211 **Discussion**

212 Most research efforts to investigate SCD have been focused on understanding its relationship to
213 objective cognitive decline (52,53) and its importance as an early risk factor for MCI and dementia in
214 older adults (4,54). Although the literature on SCD as a marker of early cognitive decline in older adults
215 is growing rapidly, much less is known about SCD as a general construct, especially its physical and
216 mental health correlates in non-clinical populations across the adult lifespan. The present study evaluated
217 self-reported physical and psychological correlates of SCD in a large survey sample of adults aged 18-81.
218 As hypothesized, both younger and older adults who endorsed SCD exhibited worse self-reported
219 physical health symptoms and psychological traits/states compared to those who did not endorse SCD.
220 Compared to SCD- participants, SCD+ participants had higher mean BMI, were more likely to take
221 medications for medical conditions, were more likely to have sleep apnea or other sleep disturbances, and
222 were less likely to floss. They also reported worse physical well-being, worse mental well-being, higher
223 depression and anxiety symptoms, greater loneliness, and lower levels of resilience, happiness, wisdom,
224 and self-efficacy. Age did not moderate the relationship between SCD and either physical or
225 psychological functioning. Overall, our findings are consistent with previous literature suggesting that
226 SCD is associated with worse physical health (11), subjective and objective sleep disturbance (12–14),
227 and psychiatric symptom severity (11,14–16), and that SCD correlates are similar across the lifespan in
228 both younger and older adults (19,21,27). To our knowledge, this study is the first large-scale
229 investigation of SCD rates to include a non-clinical sample of younger adults in the U.S. Notably, the
230 prevalence of SCD did not differ between younger and older adults, which was unexpected. Previous
231 studies have reported similar rates of SCD in younger adults (approximately 25-29%) but higher rates in
232 older adults (20,27). A possible explanation for the lack of difference in SCD between younger and older
233 adults is that our older adult sample recruited through AMT may be different than those in other clinical
234 studies. Nevertheless, other studies have found SCD to be as frequent, though qualitatively different, in
235 young adults compared to older adults (18,21).

236 Depression and anxiety symptoms demonstrated the strongest relationships to SCD, with
237 moderate-to-large (Cohen's $d \geq 0.70$) effect sizes. This finding is consistent with earlier studies, which
238 suggest that the relationship between SCD and symptoms of depression and anxiety is complex.
239 Depression moderates the relationship between SCD and objective cognitive impairment (14,55).
240 Moreover, although depression and anxiety are closely related and highly comorbid, they are associated
241 with different risk factors; pure anxiety tends to be associated with a wide range of stress-related factors,
242 none of which are associated with pure depression (56). One factor common to both is personal mastery,
243 or perceived behavioral control, which may be a cognitive psychological marker of trait vulnerability for
244 both depression and anxiety (56). Depression interacts with personal mastery and general self-efficacy
245 such that the association between depressive symptoms and SCD may be stronger in participants with
246 higher feelings of perceived mastery and social self-efficacy (11). Our data revealed that individuals who
247 endorsed SCD exhibited lower levels of self-efficacy. Memory complaints may reflect a general state of
248 diminished psychological or mental well-being, which was also observed in this study.

249 We also observed strong associations between SCD and negative/positive psychological factors,
250 including loneliness, resilience, happiness, and wisdom (Cohen's $d \geq 0.30$). In each case, SCD was
251 related to higher levels of negative and lower levels of positive psychological factors, and effect sizes of
252 psychological correlates were as large as (or larger) than those of physical correlates, suggesting that
253 psychological features may be associated with SCD as much as physical functioning. These results
254 represent a unique contribution to the current SCD literature and have important clinical implications. The
255 associations between SCD and negative/positive psychological factors point to possible areas of
256 intervention. For example, increasing one's subjective cognitive experience may improve resilience and
257 happiness and decrease levels of loneliness; conversely, interventions aimed at improving psychological
258 factors may improve one's subjective cognitive experience.

259 Wisdom is a complex, multidimensional personality trait that is comprised of several specific
260 components, including pro-social behaviors such as empathy and compassion, emotional regulation, self-
261 reflection or insight, acceptance of divergent values, decisiveness, and social advising (57–59). Although

262 it is often conflated with intelligence, wisdom encompasses cognitive, affective, and reflective
263 dimensions (60). Among the wisdom subscales of the SD-WISE, the cognitive (decisiveness) and
264 affective (emotional regulation) components of wisdom were the strongest correlates of SCD. The
265 decisiveness component entails the cognitive abilities and dispositional qualities related to making
266 decisions. The emotional regulation component pertains to the ability to maintain emotional homeostasis.
267 Although the latter can be reflective of psychological distress, one of the items (e.g., *I cannot filter my*
268 *negative emotions*) also involves an aspect impulse control related to frontal executive functions,
269 specifically response inhibitory (57). Thus, it is not surprising that individuals with SCD would have
270 lower decisiveness and emotional regulation. At the same time, it is worth stress that positive traits are
271 potentially modifiable. There is growing literature on interventions designed to enhance levels of positive
272 traits such as resilience and components of wisdom including emotional regulation (61,62).

273 In addition, individuals with SCD reported greater loneliness, which has been previously
274 identified as a major risk factor for adverse mental and physical health outcomes, including cognitive
275 decline and dementia (63–66). (Please see our companion paper, Nguyen et al. (67), for description of
276 detailed analyses of loneliness and associated factors within this MTurk sample.)

277 With regard to physical functioning, SCD had the strongest relationship with self-reported sleep
278 disturbances and overall physical well-being, consistent with previous literature (27). Disrupted sleep can
279 contribute to both subjective and objective experiences of cognitive impairment (12,68). Similarly,
280 presence of sleep disorders – namely, obstructive sleep apnea (OSA) – has been associated with SCD.
281 Although cognitive deficits have been well documented in patients with OSA, the relationship between
282 SCD and objective impairment in OSA remains unclear (69). SCD in combination with subjective sleep
283 disturbance and OSA may represent early prodromal signs for developing MCI or dementia (70).

284 The present study has notable strengths. It includes a large sample of nearly 3,000 adults across
285 the adult lifespan with sociodemographic diversity in terms of gender, race, and socioeconomic status.
286 Utilization of the AMT online crowdsourcing marketplace allowed for access to thousands of research
287 participants from demographically diverse backgrounds from around the US, without geographic

288 restrictions (29). Recruitment through internet samples may reduce biases from traditional samples (71)
289 and better approximate US census data (72–76). Moreover, we took the precaution of using general terms
290 to describe the survey so as to reduce sampling bias and enhance generalizability. Although the
291 unsupervised nature of data collection potentially reduces reliability and validity, many studies have
292 shown that AMT data quality is equivalent to that acquired in controlled settings (29,31–33,38,76) and
293 excluded participants who provided impossible or highly implausible responses to survey items to ensure
294 validity of results. Furthermore, our study included a comprehensive assessment of physical and mental
295 health factors, including positive and negative psychological traits/states, which, to our knowledge, have
296 never been simultaneously investigated in the context of SCD. Overall, our findings provide a more
297 comprehensive understanding of the physical and psychological characteristics, above and beyond
298 psychopathology, associated with SCD.

299 Nevertheless, this investigation also had several limitations. The presence of SCD was
300 determined using a single yes-no question, rather than a more detailed method of inquiry or standardized
301 measure, which restricted our ability to assess SCD severity and capture complaints in specific cognitive
302 domains. Many self-report measures have been used to investigate SCD (77), but there is no established
303 gold standard method of assessment (78). Moreover, in our experience, this mode of assessment is more
304 pragmatic and consistent with typical clinical practice, and most individuals with impairments in other
305 cognitive domains (e.g., attention/concentration, language, executive function) often perceive these
306 problems as memory difficulties. Due to restrictions of the AMT platform, all data are self-report, which
307 has well known limitations due to recall and response bias (79,80). Although the assessment of subjective
308 cognitive decline requires self-report by definition, this represents a limitation with regard to reports of
309 physical health and functioning. Relatedly, we did not administer performance-based cognitive tests to
310 determine objective cognitive impairment. Finally, the cross-sectional design limits our ability to draw
311 causal inferences regarding SCD and its correlates, and future prospective longitudinal studies are needed
312 to clarify these relationships.

313 **Conclusions**

314 Notwithstanding these limitations, the current study contributes to important research aimed at
315 better understanding the non-cognitive aspects of SCD. Our findings help to characterize the wide range
316 of physical and psychological correlates of SCD. Notably, although definitive causal conclusions are
317 limited by reliance on subjective self-reports, the effect sizes of psychological correlates of SCD were as
318 large as (or larger) than those of physical correlates, indicating that mental health and psychological
319 features are critical to consider when evaluating SCD.

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Table 1. Demographic Characteristics, Physical Health, and Mental Health by Group.

	SCD (n = 771)	No SCD (n = 2191)				
	Mean (SD)/Percentage	Mean (SD)/Percentage	t or χ^2	p	FDR-adjusted p	Cohen's d or Cramer's V
<i>Demographic Characteristics</i>						
Age	43.16 (12.97); range = 18-73	43.44 (13.47); range = 18-81	0.50	.62	.64	0.02
Gender (% Female)	482/769 (63%)	1186/2187 (54%)	18.93	< .001	< .001	.08
Years of Education	<u>n = 768</u>	<u>n = 2185</u>	5.00	< .001	< .001	0.21
Less than a high school diploma	4 (<1%)	19 (<1%)				
High school degree or equivalent	392 (51%)	845 (39%)				
Bachelor's degree	272 (35%)	963 (44%)				
Master's or doctorate	100 (13%)	358 (16%)				
Race	<u>n = 766</u>	<u>n = 2180</u>	3.82	.43	.47	.04
African American	66 (9%)	156 (7%)				
American Indian/Alaska Native	10 (1%)	12 (<1%)				
Asian	40 (5%)	155 (7%)				
Multi-Racial	20 (3%)	63 (3%)				
Native Hawaiian or Pacific Islander	3 (<1%)	6 (<1%)				
Other	6 (<1%)	20 (<1%)				
White	621 (81%)	1768 (81%)				
Latinx origin (% endorsed)	79/762 (10.4%)	196/2175 (9.0%)	1.22	.27	.29	.02
Income (per year)	<u>n = 762</u>	<u>n = 2165</u>	3.20	.001	.001	0.14
< \$35,000	397 (52%)	965 (44%)				
\$35,000 – \$74,000	254 (33%)	834 (38%)				
≥ \$75,000	111 (14%)	366 (17%)				
Married or living in a marriage-like relationship (% endorsed)	427/771 (55%)	1225/2191 (56%)	.064	.80	.80	.01
Employment status	<u>n = 762</u>	<u>n = 2178</u>	9.05	.03	.04	.03
Employed full time	462 (60%)	1394 (64%)				
Employed part-time	118 (15%)	332 (15%)				
Unemployed/unable to work	87 (11%)	172 (8%)				
Other	95 (12%)	280 (13%)				
<i>Physical Health</i>						
BMI	28.33 (7.72)	27.15 (6.51)	3.83	< .001	< .001	0.30
Medications for medical conditions (% endorsed)	398/771 (52%)	712/2191 (32%)	89.02	< .001	< .001	.17
Frequency of flossing	--	--	6.40	< .001	< .001	0.28
SF-12 Physical Health	44.41 (10.75)	49.32 (9.44)	11.26	< .001	< .001	0.49
PROMIS Sleep Disturbances	54.03 (8.66)	49.01 (8.92)	13.72	< .001	< .001	0.57
Sleep apnea item (% endorsed)	104/771 (13%)	158/2191 (7%)	27.88	< .001	< .001	.10

<i>Mental Health</i>						
SF-12 Mental Health	39.72 (11.83)	47.87 (11.15)	16.70	< .001	< .001	0.71
CDRS-2 Total	4.95 (1.68)	5.76 (1.64)	11.70	< .001	< .001	0.49
PHQ-2 Total	2.51 (1.84)	1.21 (1.55)	17.54	< .001	< .001	0.76
GAD-2 Total	2.59 (1.88)	1.35 (1.64)	16.25	< .001	< .001	0.70
UCLA Loneliness 4-item	9.76 (2.55)	8.39 (2.59)	12.64	< .001	< .001	0.53
CES-D Happiness Scale	6.47 (3.36)	8.71 (3.23)	16.31	< .001	< .001	0.68
SD-WISE Total	3.54 (0.49)	3.78 (0.49)	11.34	< .001	< .001	0.49
Decisiveness	3.13 (0.90)	3.59 (0.87)	12.47	< .001	< .001	0.52
Emotional Regulation	3.00 (0.82)	3.56 (0.82)	16.53	< .001	< .001	0.68
Pro-Social Behaviors	3.82 (0.65)	4.01 (0.64)	7.22	< .001	< .001	0.29
Social Advising	3.57 (0.71)	3.68 (0.63)	4.26	< .001	< .001	0.16
Tolerance for Divergent Values	3.84 (0.67)	3.88 (0.63)	1.44	.15	.17	0.06
Social Self-Efficacy	12.85 (3.43)	13.86 (3.27)	7.28	< .001	< .001	0.30

Note. BMI = body mass index; CDRS = Connor Davidson Resilience Scale-2 item; CES-D = Center for Epidemiologic Studies-Depression scale; GAD-2 = Generalized Anxiety Disorder scale, 2-item; PHQ-2 = Patient Health Questionnaire, 2-item; PROMIS = Patient-Reported Outcomes Measurement Information System; SCD = subjective cognitive decline; SD-WISE = San Diego Wisdom Scale; UCLA = University of California Los Angeles.