

The Association of Personality and Socioeconomic Status with Health Status

NATIONAL INSTITUTES OF HEALTH NATIONAL INSTITUTE ON AGING INTRAMURAL RESEARCH PROGRAM

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Background & rationale

Individuals with socioeconomic status (SES) – those with low income and less education – during childhood and adulthood are more likely to have poorer health than those who have lived in a high SES environment throughout their life spans¹. Research examining coping modes and social characteristics shows that low SES individuals are less likely to selectively ignore noxious stimuli, less likely to rely on positive comparisons and maintain positive outlooks, and less likely to actively transfer value from high strain to low strain experiences². Dispositional personality traits may underlie poor coping mechanisms that cluster among low SES individuals. For example, high Neuroticism has been associated with more escape avoidance coping, low Conscientiousness with less problem solving coping, and low Agreeableness with more confrontational styles³. Increased cardiovascular reactivity to stress is associated with lower Extraversion scores⁴, higher levels of antagonistic hostility⁵, and anger related personality traits⁶. These findings suggest that personality is one mechanism through which low SES leads to poor physiological, behavioral, and psychosocial patterns that cause poor health.

Although unhealthy behaviors are widespread in the general population, risky health behaviors are clustered among low SES individuals⁷. This clustering of risk factors may be related to common personality traits in low SES groups. Recent data showed that hostile men had a high prevalence of non-optimal health, irrespective of employment status, and in non-hostile men, employment was associated with better health than unemployment⁸. These results suggest that personality might be an important mediator of the relationship between low life-course SES, risky health behaviors, and poor health.

Several studies have found relationships among SES, personality physiological reactivity, health behaviors, and health outcomes. However, few studies have examined the association between life course SES and personality. To our knowledge, no research to date has evaluated the association between life course SES, measured by mother’s and father’s educations and current

SES, and all five personality domains as assessed by the NEO PI-R. As a first step toward this goal, the aim of proposed research is to examine the association between SES throughout the life course and personality as measured by the Revised NEO Personality Inventory (NEO PI-R) in participants in the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) study.

The HANDLS study provides a unique opportunity to examine these effects in a racially mixed representative sample of upper and lower SES individuals in Baltimore. HANDLS collects detailed health histories, but because of time limitations, we collect only cursory residential and occupational histories. In addition, time limitations prohibited administering the NEO-PI-R as part of the ongoing baseline assessment.

Study design, procedures, and methods

We propose a pilot test of an interim assessment. The HANDLS protocol specifies repeat assessments every 3 years. An interim assessment 1½ years after the baseline examination would do double duty as an opportunity to collect valuable supplemental data and as an opportunity to test our ability to trace the baseline sample for follow-up.

The pilot interim follow-up will consist of a combination of telephone interviews and in-person interviews. The combination is necessary because many HANDLS participants do not have a telephone or a consistent means of contact. In addition, the validity of telephone interviews may be questionable in circumstances where there are many interruptions or the lack of privacy.

We propose to administer the NEO-PI-R in an interview format to avoid difficulties with participants' levels of literacy. In addition, we will collect information about parents' education attainments, parents' occupations, and a life course history of socioeconomic status. Although it is difficult to estimate the rate of attrition in HANDLS from the present data, we anticipate that it may take considerable effort to re-contact some baseline participants. Consequently, we will take a 10% random sample of participants from the first year, or approximately 125 participants.

Expected results

We expect the results to show whether there are clusters of personality traits associated with health problems in racially mixed groups with low and high socioeconomic status. Based on the literature presently available, we expect to find specific patterns of neuroticism, extraversion, and conscientiousness associated with SES and certain health risk outcomes such as obesity and metabolic syndrome or illicit drug use and HIV infection.

In addition, we expect to identify barriers to continued follow-up and we hope to gain useful experience in ways to trace as many participants as possible in subsequent follow-ups.

Patient eligibility and exclusion criteria

Inclusion criteria –Participants who completed a household interview in the population study for HANDLS.

Exclusion criteria – Inability to give informed consent.

Statistical consideration and data management

Statistical consideration: The overall sample size will be the same as the HANDLS study. Thus far, 1,153 participants have enrolled in HANDLS. However, we anticipate a total sample size of 4,000 after we complete the baseline survey in 2007. The overall design for HANDLS is SES (lo, hi), race (African American, white), sex (women, men), and age (7 five-year groups between 30-64). For the baseline data, we will have approximately equal numbers of participants ($n = 71$) in all 56 cells ($2 \times 2 \times 2 \times 7$) of the design. The primary outcome variables in the interim survey are personality domain scores from the NEO-PI-R (neuroticism, extraversion, openness, agreeableness, conscientiousness) and health status data from the baseline examination. We will use analyses of variance and analyses of covariance to analyze these scores. With 3,976 participants (71/cell with 56 cells), power to detect a difference of one-quarter standard deviation exceeds 0.99.

Data management: The HANDLS data system collects and serves data to the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) study. The *HANDLS: The association of personality and socioeconomic status with health status – An Interim Follow-up Study* protocol will be separate from the main HANDLS study. However, the data management system for the sub-study will be integrated with the main HANDLS data systems. This will ensure reliable, consistent data collection for completion of study objectives (as already demonstrated within the main HANDLS study). The system provides web services, touch screen data entry and archival data storage for study questionnaires.

Consistent with NIH policy on Protected Health Information (PHI), HANDLS data is stored in secure databases. These databases are password protected and maintained on a secure NIA/NIH system with access limited to authorized NIA staff. All NIA staff that has access to these databases has the proper training on patient confidentiality as well as the required Human Subject Protection Training. The system is administered using the security policies and regulations required by the National Institutes of Health consistent with the Health and Human Services Privacy Rule and HIPAA.

The system utilizes two of the HANDLS servers (*handls* and *handlsdb*) programmed and installed with applications to collect and transfer encrypted data. *MRVWeb* is the primary interface for data collection and synchronization. Database access is controlled by Apache authentication and user web page authorization via a MySQL server. Staff may view only applicable web pages based on authorization provided by a MySQL binary matrix specifying access control to defined database resources. All user paths are audited by Apache login authentication, and JavaScript and PHP timestamps. Staff navigates through the *MRVWeb* site

forms via a HTML/PHP/JavaScript driven menu system. Data collected in-home are encrypted and limited to password authentication at both the hardware and database server access points.

Audit trails support tracking all entries and maintaining historical records with no changes. Audit trails are designed and implemented to record appropriate information that can assist in intrusion detection and remediation. Audit trail include sufficient information to establish what events occurred and who (or what) caused them (e.g., type of event, when the event occurred, user ID associated with the event, program or command used to initiate the event). The appropriate application/system level administrator reviews audit trails following a known application/system software problem, an unexplained application/system or user problem, or a known violation of existing requirements by a user.

Pharmaceutical information

Not applicable

Recruitment plan

The HANDLS study is currently recruiting a representative sample of whites and African Americans between 30 and 64 years old from 12 census tracts in Baltimore City in both low and high socioeconomic strata as a fixed cohort following the overall design.

Subjects will be recruited for this study from the main HANDLS participant database. All subjects in this study must have participated in either Phase I or II of the main HANDLS study. Recruitment letters may be mailed, or phone calls will be placed to eligible participants inviting them to participate.

Benefits

This study is not designed to provide direct benefits to any participants. We hope the information learned from this study will benefit others in the future.

Compensation

Participants will be compensated \$20.00 for the home interview and \$10.00 for the telephone interview.

Risks or discomforts

The risks of this study are those associated with completing computer-assisted questionnaires. Participation in the interim follow-up does not influence eligibility for future HANDLS assessments. The risks for this study are minimal. Occasionally, psychological tests may seem tiring, stressful, disturbing, or anxiety-producing. Participants will be informed that they do not have to answer any questions that make them uncomfortable. They will also be informed that they can stop the study at any time without any affect on future participation.

Consent process

The HANDLS interim follow-up study consent procedure is designed to obtain written or electronic informed consent from participants saying that they agree to participate before research tests or examinations are performed. We want to make sure that participants understand the tests in this study and any risks that are involved. We will welcome any questions that the participant might have about what is expected for participation in the study. The consent procedure informs participants that we follow federal regulations for research with human subjects and that the regulations require that we make sure that the participant understands what procedures will be performed and the risks that are involved, if any.

The field interviewer has made previous contact with the participant (by phone or mail) and determined the candidates are interested in learning more about participating in the study. The field interviewer gives them a printed copy of the informed consent document for the study. The field interviewer reviews the study procedures with candidates, and confirms that the candidates have clear understandings of the study, the degree of risk, potential benefits, and alternatives. Candidates may review the informed consent documents in the privacy of their homes and at their convenience. The field interviewer may suggest that candidates review or discuss their participation with their families. If requested, the field interviewer will return at a later date to complete the enrollment. Alternately, candidates may choose to sign and date the printed or electronic copy of the informed consent document at the initial contact and will then proceed with the interview.

Appendices

NEO PI-R
Informed Consent Document

References

1. Frank JW, Cohen R, Yen I, Balfour J, Smith M. Socioeconomic gradients in health status over 29 years of follow-up after midlife: the Alameda county study. *Soc Sci Med.* Dec 2003;57(12):2305-2323.
2. Pearlin LI, Schooler C. The structure of coping. *J Health Soc Behav.* Mar 1978;19(1):2-21.
3. McCormick RA, Dowd ET, Quirk S, Zegarra JH. The relationship of NEO-PI performance to coping styles, patterns of use, and triggers for use among substance abusers. *Addict Behav.* Jul-Aug 1998;23(4):497-507.
4. Pearson GL, Freeman FG. Effects of extraversion and mental arithmetic on heart-rate reactivity. *Percept Mot Skills.* Jun 1991;72(3 Pt 2):1239-1248.

5. Suarez EC, Harlan E, Peoples MC, Williams RB, Jr. Cardiovascular and emotional responses in women: the role of hostility and harassment. *Health Psychol.* Nov 1993;12(6):459-468.
6. Siegman AW, Anderson R, Herbst J, Boyle S, Wilkinson J. Dimensions of anger-hostility and cardiovascular reactivity in provoked and angered men. *J Behav Med.* Jun 1992;15(3):257-272.
7. Laaksonen M, Prattala R, Lahelma E. Sociodemographic determinants of multiple unhealthy behaviours. *Scand J Public Health.* 2003;31(1):37-43.
8. Kivimaki M, Elovainio M, Kokko K, Pulkkinen L, Kortteinen M, Tuomikoski H. Hostility, unemployment and health status: testing three theoretical models. *Soc Sci Med.* May 2003;56(10):2139-2152.