

Examining Associations between Adult Health and Literacy, Numeracy, Technological Problem-Solving Skills, and Post-Initial Learning in the U.S.

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- **Focus:** Higher educational attainment is strongly associated with better health, but we know far less about how other social determinants, such as literacy and continuing participation in formal and non-formal education, shape health outcomes. This paper uses PIAAC data for U.S. adults to analyze the relationship between respondents' self-reported health and (a) literacy, numeracy, and technological problem-solving skills, and (b) post-initial learning, and to determine whether those relationships vary by race/ethnicity and formal educational attainment. Post-initial learning includes the pursuit of formal and non-formal education and training beyond the respondent's highest level of completed schooling (OECD, 2011).
- **Methods:** The dependent variable is self-rated health (excellent, very good, good, fair, poor). The independent variables were scores on the literacy, numeracy, and problem solving in technology-rich environments (PS-TRE) scales, and five types of post-initial learning during the previous 12 months: open or distance learning courses, workplace training, seminars or workshops, courses or private lessons, and participation in formal education. Ordinal logistic regression models controlled for demographic characteristics that are known to influence health (e.g., age, sex, marital status, health insurance, employment). Sample sizes ranged from 4,647 to 3,664 depending upon the outcome.
- **Results:** Literacy, numeracy, and PS-TRE scores were positively associated with self-rated health. However, after controlling for respondents' characteristics, only literacy was a significant predictor of self-rated health. Specifically, a 10-point increase on the literacy scale was associated with 2.6% greater odds of being in a better health category. Thus, U.S. adults may gain more health benefits from developing literacy than numeracy or technological problem-solving abilities, after accounting for other individual characteristics.
- However, literacy was not among the strongest predictors of self-rated health. Several control variables, including disability, formal educational attainment, health insurance, English proficiency, and nativity (being U.S.- vs. foreign-born), had much stronger relationships with health status. This suggests that to improve U.S. residents' health, basic literacy instruction needs to be accompanied by efforts to increase college attainment, access to health insurance, and English proficiency. These are promising venues for policy intervention.
- In unadjusted models (without control variables), four post-initial learning activities were related to better health: workplace training, seminars/workshops, courses/private lessons, and participation in formal education. After accounting for socio-demographic characteristics, only participation in courses/private lessons was significantly related to health (59% greater odds of reporting better health compared to those who did not participate). More research is needed to understand what these courses entail and how they contribute to health.
- There was no variation in the relationship between self-rated health and literacy, numeracy, PS-TRE skills, or post-initial learning activities by race/ethnicity. This indicates that whites and people of color accrue equal health advantages from strengthening their literacy proficiency and from participating in courses/private lessons. Of all the independent variables, only the relationship between health and PS-TRE skills differed by educational attainment. Our results show that only the most highly educated U.S. adults those with a master's degree or higher—experienced improved health (although very modest) with better PS-TRE skills.