

Numeracy and Preventive Health Care Service Utilization among Middle-aged and Older Adults in the U.S.

Takashi Yamashita, Anthony R. Bardo, and Darren Liu

Introduction:

This study is focused on the following research questions:

RQ1: What cut-point(s) reflects a threshold for numeracy skills in the context of preventive health care service utilization among U.S. adults aged 45 to 74 years old?

RQ2: Is numeracy proficiency associated with preventive health care service utilization after accounting for predisposing, enabling and need factors among U.S. adults aged 45 to 74 years old?

Numeracy proficiency (i.e., quantitative literacy) reflects an essential set of skills needed to identify and comprehend numeric information. Numeric information is pervasive in American society, and numeric competency is critical in many aspects of daily life. A major area of life that often requires one to use and work with numbers surrounds health and health-related behaviors. Yet, the role that numeracy plays in relation to health care service utilization remains relatively unknown. Thus, the present study draws on nationally representative data from the Program for International Assessment of Adult Competencies (PIAAC) to establish some of the first generalizable associations between preventive health care service utilization and numeracy. We focus on middle- to older age—a time in life when health generally begins to deteriorate, and health care utilization becomes more frequent. Specifically, we examine whether there are meaningful numeracy score cut-points (e.g., low vs. high numeracy) in the context of preventive health care service utilization—including dental checkup, vision screening, influenza vaccination, and osteoporosis screening—among American adults age 45 to 74 years old.

Findings:

An evaluation of four possible numeracy proficiency level classifications (i.e., continuous, 5-level, 3-level, and dichotomous) revealed that a dichotomous cut-point (i.e., low vs. medium and high numeracy) presented the most robust association in the context of preventive health care service utilization. This dichotomous cut-point was associated only with dental checkup utilization after controlling for predisposing (e.g., age, gender, race, education, employment), enabling (i.e., health insurance, literacy skills, numeracy skill use at home), and need (self-rated health) factors. However, numeracy was not associated with vision screening, influenza vaccination, or osteoporosis screening.

Policy/Theory Implications:

Findings suggest that health care providers may want to give special attention to how numeric health information is communicated in the preventive care for dental health. Additionally, dental care providers could consider assessing patients' numeracy to identify at-risk populations. Given that the prevention of ill-health is typically an ongoing process, early education intervention may reflect a useful strategy to help at-risk adults identify and assess long-term risks and benefits associated with routine preventive health care service utilization. Future research needs to consider both the advantages and disadvantages of various numeracy assessment tools to locate their applicability in specific health care settings. Other health-related outcomes such as the use of specific health information sources and gender-specific cancer prevention (e.g., mammogram, pap test) should also be examined in relation to numeracy proficiency.