



Race, Ethnicity, and Factual Science Knowledge

A recent National Academies (NASEM 2016c) report on science literacy highlighted racial disparities in science knowledge as a topic in which scholars have done too little research. The report noted that studies done by the Pew Research Center highlighted consistent differences in knowledge scores using Pew's set of 12 questions (Funk and Goo 2015) but concluded that more research is needed to understand the factors that may be contributing to racial disparities in science knowledge.

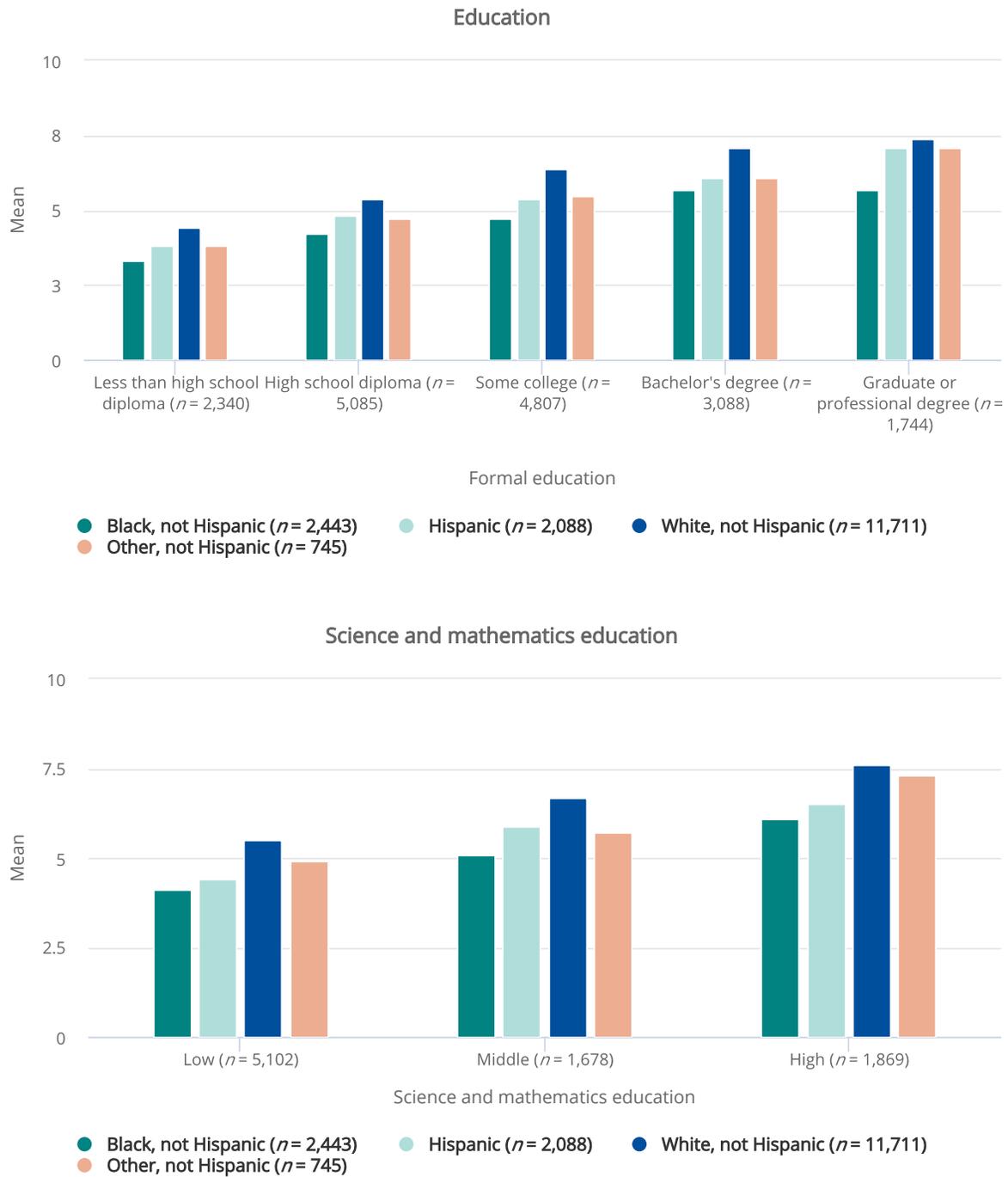
The biennial NSF S&T survey, which is a major data source for this chapter, typically has insufficient sample size to analyze knowledge scores by race and ethnicity. However, when data from the 2006–16 S&T surveys are combined, patterns similar to those reported by Pew emerge. White respondents not of Hispanic origin for whom a high school education was their highest degree, on average, answered 5.4 of the 9 factual knowledge questions correctly; their black counterparts answered an average of 4.2 of the questions correctly. This is a 1.2-point gap. White respondents whose highest education was a bachelor's degree answered an average of 7.1 questions correctly, whereas black respondents with the same overall education level answered 5.7 questions correctly. This remains a similar 1.4-point gap. The same pattern was evident when comparing white and Hispanic respondents (Figure 7-A).

Looking at the number of science and mathematics courses taken in high school and college reveals a similar pattern. Among those who took relatively few science and mathematics courses (those who were in the bottom third of all respondents for the number of such course taken), white respondents answered an average of 5.5 science knowledge questions correctly, and black respondents answered 4.1 questions correctly. This represents a 1.4-point gap. The corresponding gap between white and black respondents was 1.5 points among those who took relatively more science and mathematics courses (those who were in the top third of all respondents). The patterns are again similar when comparing white and Hispanic respondents (Figure 7-A).

As suggested by the National Academies report (NASEM 2016c), fully understanding why differences in science knowledge scores vary will require additional research. There may be systematic differences, for example, in the quality of the education that different groups are receiving. Also, alternative types of science knowledge questions might result in a different pattern. Another line of research could examine how these differences might affect how different groups think about science both in terms of their willingness to choose scientific careers or their support and appreciation for science.

FIGURE 7-A

Correct answers to factual knowledge questions, by respondent characteristic: 2006–16 (combined)



Note(s)

See notes to Appendix Table 7-2 for an explanation of the trend factual knowledge of science scale. Categories do not add to total n because "don't know" responses and refusals to respond are not shown. For science and mathematics education, "low" equates to five or fewer high school and college science or mathematics courses, "middle" is six through eight courses, and "high" means nine or more courses. "Don't know" responses and refusals to respond count as incorrect. Hispanic includes respondents of any race who identify as Hispanic. Other includes American Indian or Alaska Native, Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, Other Asian, Native Hawaiian, Guamanian or Chamorro, Samoan, Other Pacific Islander, and some other race.

Source(s)

NORC at the University of Chicago, General Social Survey (2006–16).

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