



Topic Brief: Big Data and Mental Health

Date: 10/6/2023

Nomination Number: 1065

Purpose: This document summarizes the information addressing a [topic nomination](#) submitted on September 19, 2023, through the Effective Health Care Website. This information was used to inform the Evidence-based Practice Center (EPC) Program decisions about whether to produce an evidence report on the topic, and if so, what type of evidence report would be most suitable.

Issue: The nominator is interested in knowing whether there are mental health consequences of “big data” on consumers, especially as pertains to shops going cashless and requiring consumers to provide personal data via card-based transactions for basic needs.

Findings: The EPC program will not develop a new evidence product for this topic because the nomination lacks sufficient information to scope an evidence product.

Background

The term “big data” is defined as an accumulation of data that is too large and complex for processing by traditional dataset management tools.¹ The concept of big data became more prominent in the early 2000s, when business analyst Doug Laney articulated the “three V’s” that comprise it: 1) volume of data collected and stored from various sources; 2) velocity, which describes how data now flows into businesses at an unprecedented rate and must be handled in a timely way; and 3) variety, which describes how data comes in all types of formats.² Businesses and other organizations analyze these enormous datasets and use the results to inform their approaches to everything from algorithmic model learning to improving patient outcomes.^{2, 3}

The rise of big data is a direct result of the digital age, which has caused a societal shift towards automation, digitization, and data collection from individuals. The move towards a cashless society is one element of this shift, and while surveys have revealed that most consumers in the United States and abroad prefer to work with merchants who offer cashless payment methods,⁴ there are privacy risks associated with cashless transactions, such as data privacy vulnerabilities and fraud.⁵ Furthermore, cashless transaction vulnerability has the potential to impact some groups more than others, including retirees, recent immigrants, people in rural areas, and people with disabilities.⁶

Privacy has been described as a “fundamental psychological need,” and concerns regarding privacy online and in the context of the digital age may contribute to negative mental health impacts.⁷ However, the scope of this nomination is too broad and undefined to inform a viable

approach to an evidence product within the EPC Program. In its present state, the nomination lacks sufficient information to be considered for a new review.

Assessment Methods

We assessed nomination for priority for a systematic review or other AHRQ EHC report with a hierarchical process using established selection criteria. Assessment of each criteria determined the need to evaluate the next one.

1. Determine the *appropriateness* of the nominated topic for inclusion in the EHC program.
2. Establish the overall *importance* of a potential topic as representing a health or healthcare issue in the United States.
3. Determine the *desirability of new evidence review* by examining whether a new systematic review or other AHRQ product would be duplicative.
4. Assess the *potential impact* a new systematic review or other AHRQ product.
5. Assess whether the *current state of the evidence* allows for a systematic review or other AHRQ product (feasibility).
6. Determine the *potential value* of a new systematic review or other AHRQ product.

Related Resources

We identified additional information during our assessment that might be useful.

- Americans and Privacy: Concerned, Confused and Feeling Lack of Control Over Their Personal Information: <https://www.pewresearch.org/internet/2019/11/15/americans-and-privacy-concerned-confused-and-feeling-lack-of-control-over-their-personal-information/>
- Cashless Society: Managing Privacy and Security in the Technological Age: <https://ieeexplore.ieee.org/abstract/document/9106653>
- Access to Cash Review (from the United Kingdom): <https://ieeexplore.ieee.org/abstract/document/9106653>

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Conflict of Interest: None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

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