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Association of shared decision-making on patient-reported health outcomes and healthcare utilization

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ABSTRACT

Background: Shared decision-making (SDM) is a process that respects the rights of patients to be fully involved in decisions about their care. By evaluating all available healthcare options and weighing patients' personal values and preferences against available unbiased evidence, patients and healthcare professionals can make health-related decisions together, as partners. We sought to evaluate the impact of perceived SDM on patient-reported outcomes, healthcare quality, and healthcare utilization.

Methods: Patients were identified from the 2010–2014 Medical Expenditure Panel Survey (MEPS) cohort. The Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey was levied to create a weighted composite score of satisfaction with SDM on a 12-point scale, and then categorized as optimal, average or poor SDM based on weighted scores. Weighting and variance techniques were applied to assure results were representative of the U.S. civilian population. Chi-square analysis was used to estimate differences across SDM groupings and multivariate logistic regression was performed to generate odds ratios (OR) and confidence intervals (CI).

Results: The study cohort included 63,931 responses to the survey tool. Results of SDM satisfaction across the three categories were skewed, with 46.6% (n = 29,807) of the respondents reporting optimal SDM, 42.1% (n = 26,887) reporting average scores and only 11.3% (n = 7237) reporting poor perceived SDM. Non-white race, lower educational level, low socioeconomic status, non-married status, and uninsured or underinsured status were all associated with higher incidence of poor perceived SDM (p < .05). Poor SDM was associated with increased odds of poor physical health scores (OR: 1.17; 95% CI 1.01–1.36) and poor mental health scores (OR: 1.53; 95% CI 1.25–1.86). Poor SDM was associated with lower use of statins (OR: 0.77; 95% CI 0.68–0.87) and aspirin (OR: 0.86; 95% CI 0.77–0.95), both of which are established quality of care metrics. Poor SDM was also associated with increased emergency department (ED) utilization, with an increased likelihood of 2 or more ED visits associated with poor SDM (OR: 1.25; 95% CI 1.06–1.49).

Conclusions: Poor SDM was associated with worse patient-reported health outcomes, worse established quality indicators, and higher healthcare utilization. While increasing physician education may help optimize SDM, differences in patient-perceived SDM were also strongly driven by inherent patient characteristics.

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1. Introduction

Shared decision-making (SDM) is a process that respects the rights of patients to be fully involved in decisions about their care. By evaluating all available healthcare options and weighing patients' personal values and preferences against available evidence, patients and healthcare professionals can make health-related

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decisions together as partners.¹ This concept moves away from a paternalistic model of the patient–doctor relationship, in which the healthcare professional utilizes their expertise and personal experience to dictate most or all aspects of patient care. SDM emphasizes the practice of patient-centered care, taking the healthcare professional's knowledge and expertise to tailor the discussion around therapeutic decisions to the patient's sociocultural expectations.

In a systematic review of SDM, Makoul et al. summarized the essential elements that should be incorporated by healthcare professionals to implement effectively the spirit of SDM in the clinical setting.² These factors included explanation of the healthcare problem, presentation of options, discussion of risks and benefits for each option, clarification of patient values and preferences, assessment of patients' understanding, as well as the making or explicitly deferring a decision with subsequent follow-up.³ Though there has been a generalized acceptance of these SDM elements by healthcare professionals, a recent review using the "Observing Patient Involvement in Decision Making" (OPTION) instrument showed that the majority of healthcare professionals do not consistently and routinely include the essential elements of SDM in their practice.⁴ Multiple barriers to widespread implementation of SDM by clinicians have been described, including increased length of the consultation, patient-specific factors, sensitivity of the medical condition addressed, and lack of adequate time.⁵

The implementation of SDM has the potential to provide numerous benefits for patients, providers and the health care system, including increased patient knowledge, less anxiety over the entire care process, improved health outcomes, reductions in unnecessary variations in care and costs, and greater alignment of care with patients' values.^{6,7} Despite the importance of SDM, few studies have examined the role of SDM relative to patient outcomes. As such, the objective of the current study was to assess the impact of patient-reported SDM on patient-reported health outcomes, healthcare quality indicators, and healthcare utilization.

2. Materials and methods

Data were pooled from the Medical Expenditure Panel Survey (MEPS), which is supported by the Agency for Healthcare Research and Quality (AHRQ). MEPS has two major components: The Household Component and the Insurance Component. The Household Component collects data from individual households and their members by using an overlapping panel design, which features several rounds of interviews over the course of two full calendar years. The data set contains weighted and unweighted frequencies of most variables, including socio-demographic characteristics, health conditions/status, use of medical services, access to care, patient-reported healthcare experiences and outcomes, as well as health care expenditures. After data collection, person weights and variance estimation stratum were assigned to reflect survey non-response and total survey population.⁸ Individual unique identifiers were generated by AHRQ and applied to each survey response.

Five years of MEPS data (2010–2014) were merged and the full year consolidated file, medical conditions file, and prescribed medicines file were combined using the unique person-level identification numbers for each year. Individuals who were ≥ 18 years of age, had a body mass index (BMI) ≥ 18.5 kg/m², reported a usual source of care, and completed the survey themselves were included in the final sample (Fig. 1). Complete responses to the shared decision making (SDM) questions within the survey were also required for inclusion in the study cohort. MEPS is a de-identified, publicly available dataset, thus this study qualified for Institutional Review Board exemption.

2.1. Independent variables (shared decision-making)

The Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey captures patient-reported healthcare experience, including information about SDM. In this study, a composite SDM metric was derived by using four questions characterizing SDM from the CAHPS survey (Supplemental Table 1). Responses for the first two questions used a 4-point Likert scale: 1 = never, 2 = sometimes, 3 = usually, and 4 = always. Never/sometimes was generated by combining the response categories "never" and "sometimes" and was assigned 1 point. Responses for the final two questions were binary in the original survey. Therefore, to assure equal value attributed to each of the four questions, the following values were assigned: 3 points for a 'yes' response and 1 point for a 'no' response. Consequently, the final composite SDM scores ranged from 4 to 12, which were used to categorize an overall assessment of SDM. According to the actual distribution of responses, SDM was classified as "poor" (4–8 points), "average" (9–11 points), and "optimal" (12 points).

2.2. Study outcomes

The influence of SDM on outcomes was assessed by analyzing information collected within the MEPS, including patient-reported health scores, prescription drug use, utilization of health services (e.g. emergency room visits), and healthcare expenditures. Patient-reported mental and physical health status scores were developed by AHRQ researchers using responses to the questions suggested by the Short-Form 12 Version 2 (SF-12v2(r)), which ranged from "worst health status" (0) to "best health status" (100) in the MEPS full-year consolidated file. The summary physical and mental health scores were divided into quartiles and the physical or mental health status then coded as binary variables, by categorizing the lowest quartile as poor. Statin and aspirin utilization were assigned as quality of care indicators, as these metrics are closely related to health care management.^{9–11} Use of statins/HMG-COA reductase inhibitors was collected from the MEPS prescribed medication file. Data regarding aspirin use were collected from the response to the question "does the person take aspirin frequently?". Information regarding healthcare utilization was extrapolated from several variables within the MEPS full-year consolidated file, including number of emergency room visits, number of inpatient hospital stays, and annual healthcare expenditures. Increased utilization of healthcare resources was defined as ≥ 2 emergency room visits or ≥ 2 inpatient hospital stays. Annual healthcare expenditure and out-of-pocket expenditure were recorded for each medical event experienced during that calendar year and were pooled from the MEPS full-year consolidated file. The out-of-pocket expenditure referred to the amount of money paid by patients themselves, which is part of annual healthcare expenditure. Overall annual healthcare expenditure also included payments made by insurance companies or other payer groups, excluding out-of-pocket payments.

2.3. Covariates

In the adjusted analysis, age, gender, race/ethnicity, region, income level, education, and other modifiable risk factors obtained from the MEPS full-year consolidated file were included as covariates for multivariate regression models. Age was categorized into 3 groups, specifically 18–39 years, 40–64 years, and ≥ 65 years. Race/ethnicity was stratified as Hispanic, White/Caucasian, Black/African American, Asian/Pacific Islander, and other. Level of income was defined based on the percentage of the federal poverty level (FPL) and was defined as poor ($<125\%$ FPL), low (125%–200% FPL),

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