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Original research

Racial/ethnic and educational-level differences in diabetes care experiences in primary care[☆]

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ABSTRACT

Aims: To assess potential racial/ethnic and educational-level differences in the degree to which patients with diabetes who receive primary care from a Veterans Affairs Medical Center report that experiences with the diabetes care system are consistent with the Chronic Care Model (CCM).

Methods: A cross-sectional mailed survey of 296 patients included the Patient Assessment of Chronic Illness Care (PACIC), which measures components of the care system suggested by the CCM.

Results: Among 189 patients with complete information, non-white veterans had more than twice the odds of indicating that their diabetes care experience is in line with the CCM [measured by overall PACIC score ≥ 3.5] (OR 2.3; 95% CI 1.3–4.1). Non-white veterans were more likely to report high levels of assistance with problem solving and follow-up. Patients not completing high school had three times the odds of reporting care in line with the CCM (OR 3.0; 95% CI 1.2–7.6). Associations were also seen with implementation of the CCM in the areas of patient activation, perceived care teams, collaborative goal setting, and collaborative problem solving.

Conclusions: Non-white patients and those with less than a high school education had more than twice the odds of reporting that the diabetes care system is in line with the CCM.

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1. Introduction

Substantial failings of chronic illness care and care of diabetes in particular have been noted in the United States [1–3]. In addition to overall deficiencies in care, important disparities have been noted among patients of different racial/ethnic and socioeconomic groups [4–8], including educational level

[5,9,10]. While quality of the care in the United States Department of Veterans Affairs (VA) healthcare system in recent years has surpassed the private sector, significant room for improvement still exists [11,12].

The Chronic Care Model (CCM) postulates that effective chronic illness management requires an organized health-care system that is dedicated to chronic illness management

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and linked with necessary resources available in the broader community. Specifically, delivery systems that provide self-management support, are organized around integrated teams, utilize tools to support evidence-based guidelines, and include clinical information systems (e.g. computerized reminders, patient registries) are more likely to have “productive interactions between informed, activated patients and prepared proactive practice teams” [13,14]. The presence of elements of the CCM in primary care have been associated with better diabetes care and outcomes [15–17]. Further, quality improvement collaboratives designed to integrate CCM elements have been associated with better chronic illness care [18,19], including among Community Health Centers in the United States, which serve a large number of socially disadvantaged patients [18,20].

One potential explanation for healthcare disparities involves differences in which different racial and socioeconomic groups interact with the healthcare system [7]. As a result, the present study assesses potential racial/ethnic and educational-level differences in the degree to which primary care Veterans Affairs Medical Center (VAMC) patients report that experiences with the diabetes care system are consistent with the CCM.

2. Methods

We conducted a cross-sectional mailed survey of primary care patients with diabetes at one VAMC. The study was approved by the medical center’s institutional review board.

2.1. Eligible patients

We identified patients with diabetes from one primary care clinic in a tertiary care VAMC in the Southeastern United States who met the following eligibility criteria: (1) enrolled in the study primary care clinic with an assigned primary care provider in that clinic; (2) kept at least three appointments to the VAMC over the past 2 years; (3) had a primary care visit scheduled with the study clinic in the next 6 months; and (4) had prescription filled in the last 6 months in at least one of the following VA drug classes: HS501 (insulin) and/or HS502 (oral hypoglycemic agents). We drew a random sample of 300 patients from the 1557 patients meeting these criteria. Selected patients were assigned to one of 20 primary care providers in the clinic. These inclusion criteria were used to assure patients sampled are truly receiving their primary diabetes care in the VA. Such restrictive visit and medication criteria are necessary due to extensive dual use of the VA and other systems by veterans [21,22].

2.2. Survey measures

In addition to collecting patient demographics, socioeconomic status, satisfaction, and health status (detailed in the analysis section below), the survey included the validated 2005 version of the Patient Assessment of Chronic Illness Care (PACIC) [23]. The PACIC was developed by Glasgow et al. to measure aspects of the chronic illness care system that can be perceived by patients [23,24]. Patients are asked to indi-

cate whether they have had a series of experiences relating to their diabetes care over the last 6 months (e.g. “given choice about treatment to think about”). Individuals indicate how much of the time they had the experience on a 5 point-Likert scale anchored by none of the time (value = 1) to always (value = 5). The instrument produces the following subscale scores representing system components experience by the patients: (1) patient activation; (2) delivery system design (care teams)/decision support; (3) collaborative goal setting; (4) collaborative problem-solving/contextual counseling; and (5) follow-up/coordination. In addition, an overall PACIC summary scores (i.e. overall fidelity to the CCM) is produced. Scores range from 1 to 5 with higher scales indicating greater fidelity to the CCM.

2.3. Data analysis

Scores of 3.5 or higher on the scales were considered to represent “implemented” components of the CCM because this cut-off represents the top quarter of the scale range. This concept is similar to including the top quarter of possible scores in an a fully implemented category for CCM elements as measured by organization staff on the Assessment of Chronic Illness Care developed to assess the CCM [25]. Because others have not published results with this implantation cutoff system, a sensitivity analyses were also done using scores of ≥ 3 and ≥ 4 as the cutoffs.

Separate multivariate logistic regression models were developed with outcome variables indicating a high level of CCM concordance (i.e. score ≥ 3.5 as measured by each subscale of the PACIC and overall PACIC score). Explanatory variables included: (1) race [non-white vs. white (referent)]; (2) education level [less than high school vs. high school or greater (referent)]; (3) non-VA health insurance status [no non-VA insurance vs. having non-VA insurance (referent)]; (4) whether the individual has a person with whom the veteran is close (proxy for social support) [have person whom the person is close vs. not having such a person (referent)]; (5) whether the patient had difficulty obtaining VA benefits in the last year (had a problem vs. not having a problem (referent)) and (6) mean of the last two systolic blood pressure measurements prior to the study sample being drawn (continuous variable serving as a proxy for disease control). We report both adjusted and unadjusted odds ratios (OR) and 95% confidence intervals (CI).

Because VA patients have individually assigned primary care providers (i.e. clusters), we performed all logistic regression models with the Huber-White estimate of variance, which provides an unbiased variance estimate for linear statistics arising from cluster-correlated data [26]. These calculations were made using Intercooled Stata[®] version 8.2 (StataCorp, LP; College Station, TX).

3. Results

Of 300 patients originally to be surveyed, four died between their being identified and the administration of the survey. Of the 296 patients receiving the survey, 204 returned it (response rate of 69%); 189 (64% of surveys sent to living patients) had

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