

## RESEARCH LETTER

# Treatment Burden in People with Hypertension is Correlated with Patient Experience with Self-Management

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**Introduction:** New hypertension guidelines in the United States may require more people to take multiple medications or implement lifestyle changes. Increased treatment burden may be an unintended consequence and lead to worse health outcomes. Our study examined whether treatment burden is associated with factors related to self-management in those with hypertension.

**Methods:** We conducted a cross-sectional mailed survey of patients from 2 medical centers in Minnesota. Participants with 2 or more medical conditions completed the Patient Experience with Treatment and Self-management (PETS), a validated treatment burden questionnaire, as well as measures of confidence in self-management ability, health literacy, health care-related financial difficulties, and perception of provider interpersonal skills. We used partial correlation analyses, controlling for age, sex, race, and education, to test relationships among study variables.

**Results:** Of 254 respondents who had a diagnosis of hypertension, 54% were female, 74% were non-Hispanic White, and the mean age was 67 years. People with hypertension who reported having lower confidence in self-management ability, lower health literacy, more financial difficulties, and health care providers with poorer interpersonal skills reported higher treatment burden scores (PETS scales correlation magnitude range 0.09 to 0.62,  $P < .05$  on all but 4). The strongest associations were observed for medical information and physical/mental exhaustion with self-management (correlation magnitudes from 0.25 to 0.54,  $P < .01$ ).

**Discussion:** Hypertension treatment guideline stringent blood pressure criteria may lead to more interventions—medical or lifestyle—creating strains on populations already challenged by abstract disease self-management and at risk of experiencing disparities in cardiovascular health outcomes. (J Am Board Fam Med 2021;34:1243–1245.)

**Keywords:** Cardiovascular Diseases, Chronic Disease, Cross-Sectional Studies, Disease Management, Hypertension, Minnesota, Patient-Reported Outcome Measures, Self-Management, Surveys and Questionnaires

## Introduction

The 2017 US hypertension guidelines lowered blood pressure levels that define “hypertension,” resulting

in 63% of 45 to 75 year-olds being labeled “hypertensive.”<sup>1</sup> This will lead to more people taking multiple medications or implementing lifestyle changes,

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complicating self-management.<sup>2</sup> Treatment burden—the work of self-management and its impact on function and well-being<sup>3</sup>—is associated with decreased adherence and worse health outcomes.<sup>4</sup> Thus, the guidelines could increase disparities in hypertension control and cardiovascular outcomes in those who are already challenged by self-management.<sup>5</sup>

In this study, we assess several domains of treatment burden in people with multimorbidity, including hypertension, and attempt to identify the degree to which it is associated with factors related to self-management.

## Methods

Data come from a cross-sectional survey completed by patients with multiple chronic conditions from a safety-net hospital and a large, multi-specialty practice.<sup>3</sup> Surveys (in English) were mailed from October to December 2014 and included the Patient Experience with Treatment and Self-management questionnaire (PETS, version 1.0), a novel measure of treatment burden composed of 48 items

organized into 9 multi-item and 2 single-item scales (see Table). All scales are standardized from 0 to 100, with higher scores reflecting more burden. A description of the PETS and its validity can be found in Eton et al (2017).<sup>3</sup> The survey also included valid measures of factors related to chronic disease self-management:<sup>2</sup> confidence in disease self-management ability “self-efficacy”, subjective health literacy, provider interpersonal skills, and health care-related financial difficulties (see Table legend for detail). Demographics and the number of prescription medications were also part of the survey. Partial correlations examined relationships between variables, controlling for demographics (age, sex, race, and education). The study was deemed exempt by both site Institutional Review Boards.

## Results

Of 332 respondents (40% response rate), 254 (77%) had hypertension and were included (mean age = 67 years, 54% female, 18% Black, 67% college educated).

**Table 1. Partial Correlations of Treatment Burden Domains (PETS Scale Scores) with Factors Associated with Chronic Disease Self-Management in 254 People with Hypertension<sup>†</sup>**

Treatment Burden Domains (PETS scales) <sup>†</sup>	Scale Scores, Mean (SD) <sup>‡</sup>	Self-Efficacy§ (PMCSM scale)	Low Health Literacy <sup>  </sup>	Financial Difficulties <sup>¶</sup>	Relational Quality (HPRQ) <sup>#</sup>
Medical information	24.7 (19.2)	−0.52***	0.35***	0.42***	−0.54***
Medications	9.1 (16.3)	−0.34***	0.16	0.40***	−0.25**
Medical appointments	10.4 (20.0)	−0.34***	0.20*	0.40***	−0.35***
Monitoring health	16.1 (23.1)	−0.39***	0.17*	0.28**	−0.27**
Interpersonal challenges	11.4 (18.1)	−0.39***	0.38***	0.45***	−0.33***
Medical/healthcare expenses	36.5 (26.5)	−0.39***	0.32***	0.52***	−0.31***
Difficulty with healthcare services	30.0 (19.8)	−0.34***	0.16	0.30***	−0.62***
Role/social activity limitations	15.0 (23.0)	−0.29***	0.17*	0.49***	−0.22**
Physical/mental exhaustion	22.8 (24.4)	−0.48***	0.25**	0.51***	−0.38***
Medication reliance bother	20.5 (30.5)	−0.29***	0.07	0.41***	−0.24**
Medication side effects bother	15.9 (25.3)	−0.35***	0.22**	0.35***	−0.09
Mean correlation across PETS domains		−0.34	0.22	0.41	−0.33

HPRQ, Healthcare Provider Relational Quality; PETS, Patient Experience with Treatment and Self-management; PMCSM, Perceived Medical Condition Self-Management scale; SD, standard deviation.

<sup>†</sup>Analyses control for the following demographic characteristics: age, sex, race, and education status.

<sup>‡</sup>A higher PETS score indicates greater treatment burden, with a score range from 0 to 100.

<sup>§</sup>A higher PMCSM score indicates greater self-efficacy (Wallston et al., 2011).

<sup>||</sup>A higher single item literacy screener score indicates lower subjective health literacy. (Morris et al., 2006).

<sup>¶</sup>A higher single item score indicates more financial difficulties due to medical treatment or physical condition (Eton et al., 2017).

<sup>#</sup>A higher HPRQ score indicates better HPRQ (Eton et al., 2017).

\* $P < .05$ ; \*\* $P < .01$ ; \*\*\* $P < .001$ .

Although 85% reported insurance coverage for most health expenses, 26% experienced at least some health care financial challenges. Low health literacy (endorsement of needing at least some help reading health care material) was reported by 17%, and 66% took 4 or more prescription medications.

Treatment burden scores were highest in the medical/health care expenses (score = 36.5) and difficulty with health care services (score = 30.0; see Table). Furthermore, as shown in the Table, lower self-efficacy, lower health literacy, more financial difficulties, and poorer provider relational quality were associated with greater treatment burden. Health care-related financial difficulties were most strongly associated with burden domains (mean correlation with PETS scales = 0.41). Seven of 11 burden domains were significantly associated with all 4 of the self-management factors, with the strongest associations observed for medical information (correlation magnitudes from 0.35 to 0.54,  $P < .001$ ) and physical/mental exhaustion with self-management (correlation magnitudes from 0.25 to 0.51,  $P < .01$ ).

## Discussion

People with hypertension and other chronic conditions who reported higher treatment burden expressed challenges related to chronic disease self-management, including lower self-efficacy, lower health literacy, more health-related financial strain, and less patient-centered communication with providers. Intensifying self-management regimens to follow guidelines may disproportionately affect those already challenged to adhere to self-management. An unintended consequence of this guideline might then be to worsen disparities in patient experience and outcomes. How to mitigate such effects requires further research and proactive policies.

Study limitations include the use of cross-sectional, self-reported data, the inclusion of English-speaking participants only, and no measure of blood pressure. The correlational nature of the study precludes causal statements, and the clinical meaningfulness of PETS scores is unknown at present. Future research should consider whether addressing potentially modifiable factors might lessen treatment burden and lower the risk that hypertension treatment guidelines exacerbate health disparities.

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H. Abi has changed affiliation and is no longer with the University of Minnesota.

To see this article online, please go to: <http://jabfm.org/content/34/6/1243.full>.

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