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Patient-rated access to needed care: patient-centered medical home principles intertwined

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Abstract

Background: Primary care teams can facilitate access to care by helping patients determine whether and when care is needed, and coordinating care across multiple clinicians and settings. Appointment availability metrics may or may not capture these contributions, but patients' own ratings of their access to care provide an important alternative view of access that may be more closely related to these key functions of care teams.

Procedures: We used a 2015 telephone survey of 1,395 women Veterans to examine associations between key care team functions and patient-rated access to needed care. The care team functions were: care coordination; in-person communication (between patient and care team); and phone communication (timely answers to health questions). We controlled for sociodemographics, health status, care settings, and other experience of care measures.

Key Findings: Overall, 74% of participants reported always/usually being able to see a provider for routine care, and 68% for urgent care. In adjusted analyses, phone communication was associated with better ratings of access to routine care (OR=4.31, 95%CI:2.65–6.98) and urgent care (OR=2.26, 95%CI:1.23–4.18). Care coordination was also associated with better ratings of access to routine care (OR=1.66, 95%CI:1.01–2.74) and urgent care (OR=2.26, 95%CI:1.23–4.18). Associations with in-person communication were not statistically significant.

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Conclusions: Access, communication, and care coordination are interrelated. Approaches to improving access may prove counterproductive if they compromise the team's ability to coordinate care, or diminish the team's role as a primary point of contact for patients.

Introduction

Improving access to care is one of the central goals of the patient-centered medical home (PCMH) model. The model recommends access-related changes aimed at improving appointment availability; accordingly, much research on access and PCMH has focused on administrative indicators of the availability of appointments (Aysola, Rhodes, & Polsky, 2015; Leroux, Cote, Kum, Dabney, & Wells, 2017). However, the patient-centered care team – a core part of PCMH – plays an important role in access to care beyond improving appointment availability: the care team helps patients determine whether and when care is needed, and manages the scheduling of different services, in some cases across several clinicians and settings. Indeed, qualitative research has identified these care team functions among patients' top priorities for what PCMH should deliver (Van Berckelaer et al., 2012).

While administrative measures may be well-suited to evaluating appointment availability, patients' own ratings of their access to needed care provide an important alternative view that better captures key functions of care teams in directing patients to care. Patients' ratings provide an important, patient-centered view of access, which is why a 2015 Institute of Medicine report urged organizations to assess patient ratings of access as a vital part of transforming access to care (IOM (Institute of Medicine), 2015). Patient ratings are especially valuable in a PCMH context because the principle of patient-centeredness encourages success to be defined in a way that is recognizable and meaningful to patients (Aysola, Werner, Keddem, SoRelle, & Shea, 2015; Barksdale, Newhouse, & Miller, 2014).

In 2010, the Veterans Health Administration (VA) implemented a version of PCMH called Patient-Aligned Care Teams (PACT) (Rosland et al., 2013). Recent implementation efforts have focused on tailoring the PACT model to better meet the needs of special populations within the VA (Yano et al., 2016; Yano, Haskell, & Hayes, 2014). Women Veterans are a particularly fast-growing special population with unique needs that necessitate additional attention to their access to needed care (D. L. Washington, Farmer, Mor, Canning, & Yano, 2015). Because women Veterans are a numerical minority in the VA, VA providers may lack sufficient recent experience treating women, and may be unaccustomed or unable to provide gender-specific services (Yano, Hayes, et al., 2010). Women Veterans are also exposed to military sexual trauma at higher levels, which requires providers to be proficient and comfortable in providing trauma-sensitive primary care, and demands particular attention to the safety and security of clinic environments (deKleijn, Lagro-Janssen, Canelo, & Yano, 2015). The coordination of women Veterans' care is also more complex: for example, reproductive health needs often require additional visits within and outside of the VA (Yano, Rose, Bean-Mayberry, Canelo, & Washington, 2010).

Studies have examined various aspects of women Veterans' access to care, including the geographic accessibility of care, (Friedman et al., 2015) availability of mental health care (Kimerling et al., 2015), and extent of unmet healthcare need (D. Washington, Bean-

Mayberry, Riopelle, & Yano, 2011). These studies identified ways that women Veterans' access to care could be improved, for example, by offering broader services at community-based facilities, by expanding telemedicine, by providing designated women's mental health treatment settings, and by providing more opportunities for care outside of regular clinic hours. However, factors associated with women Veterans' ratings of access to needed care have been underexplored, and important questions remain: What aspects of PCMH might contribute to ratings of access? And how do women Veterans perceive their access to needed care? We sought to answer these questions by drawing on data from a multi-region telephone survey of women Veterans to examine the association between key care team functions and ratings of access to needed routine and urgent care. We examined the potential role of three functions played by care teams, as rated by patients: care coordination, in-person communication, and phone communication.

Methods

Study Design and Sample

Data in this study are drawn from a cross-sectional survey of women Veteran patients (n=1,395) conducted between January and March 2015 at 12 VA medical centers participating in a Practice-Based Research Network (PBRN) for women Veterans (Frayne et al., 2013). We used data from the baseline wave of a survey conducted as part of a cluster-randomized controlled trial, *Implementation of Women's Health Primary Care Teams Study* (Yano et al., 2016). In order to study factors related to care team functions in a population of active VA users, the survey sampled women Veterans with at least three primary care and/or women's health visits at a participating medical center in the last 12 months. Veterans who were found to be deceased or with invalid or missing contact information were excluded. The study was reviewed and approved by the Institutional Review Board at VA Greater Los Angeles.

Analyses of access to routine care excluded 14 respondents who were unsure of their routine access and 3 respondents who declined to answer the routine care access question. For analyses of access to urgent care, of 852 respondents who indicated having a health problem warranting immediate attention, we excluded 25 who were unsure of their urgent access. Listwise deletion due to missing covariates reduced the final analytic samples to 1,333 for routine care and 723 for urgent care. Participants in the analytic samples were younger and more likely to have seen a specialist compared to those excluded because of missing data. Participants in the routine access analytic sample had fewer comorbidities than those in the full sample. The two groups did not differ on any of the other characteristics we tested (ratings of care coordination, in-person communication, or phone communication; age, race/ethnicity, marital status, employment status, insurance status, children in household, education, overall rating of VA, mental/behavioral care, care outside VA, overall health, anxiety/depression, posttraumatic stress disorder, or military sexual trauma).

Data Collection and Measures

We used survey recruitment best practices (Dillman, Smyth, & Christian, 2014), which included sending potential participants an advance information packet with an introductory

letter, leadership endorsements, a magnet, and a brochure with the elements of informed consent. Interviewers made up to 12 attempts to contact each potential participant using a Computer Assisted Telephone Interviewing system. The survey response rate was 46%. Among eligible individuals, 30% could not be contacted within the survey period, 22% declined participation, and 2% began but did not complete the interview. Survey respondents were on average older than non-respondents, but did not differ significantly by the other observable characteristics (marital status and geographic region).

The telephone survey was administered by an independent VA-approved vendor and was framed with the following introduction: “This survey asks about the experiences that women Veterans have had with obtaining healthcare from the VA. It will be used to help the VA learn about improvements that may be needed to provide comprehensive health care to women.”

The measure definitions are shown in Appendix A and summarized below.

Dependent Variables: Our two dependent variables were access to routine and to urgent care in the prior 12 months. Access to routine care was assessed based on the question: “In the last 12 months, when you made an appointment for a checkup or routine care at VA, how often did you get an appointment with a VA provider as soon as you needed? Always, usually, sometimes, or never?” Among the respondents who reported having “a health problem that was serious enough that [they] wanted an appointment at the VA right away,” access to urgent care was assessed by the question: “In the last 12 months, when you needed care right away from the VA, how often did you see a VA provider as soon as you needed? Always, usually, sometimes, or never?” These questions are part of the Consumer Assessment of Healthcare Providers & Systems (CAHPS) “access to care” measure adapted for use in the VA (Hays et al., 2014). We pre-tested adapted items with women Veterans before including them in the survey. Our primary analyses compare responses of “always” or “usually” to “sometimes” or “never.” In this paper, we examine the proportion of participants who report reliably timely access (“always” or “usually”) as an indicator of access to care. The phrase “high ratings of access” is used as shorthand for “the proportion of participants who report ‘always’ or ‘usually’ having timely access.”

Primary Independent Variables: Our primary independent variables are three key care team functions: care coordination, in-person communication, and phone communication.

Care coordination and in-person communication were each measured using multi-item scales adapted from CAHPS, each standardized to a 10-point scale for analysis (Hays et al., 2014). “High” ratings were defined as scores of at least 8 out of 10 on these scales. The third independent variable, phone communication, was measured using a categorical variable indicating: a) whether the respondent had telephoned their care team to ask about their healthcare, and b) how often the respondent got an answer as soon as they needed. We combined these items to create three mutually-exclusive response categories: 1) did not call care team to ask about care; 2) team “always” or “usually” answered question by phone as soon as needed; and 3) team “sometimes” or “never” answered question by phone as soon as needed.

As with the dependent variables, we pre-tested adapted items with women Veterans before including them in the survey.

Covariates:

Sociodemographics: We adjusted for sociodemographic factors that have been associated with access in other contexts (Carrillo et al., 2011). We included self-reported measures of age, race/ethnicity, marital status, education, employment status, and insurance status. We also included a measure indicating the presence of children in the participant's household as a proxy for potential caretaking responsibilities that could complicate access to care (Kullgren, McLaughlin, Mitra, & Armstrong, 2012)

Health status: Because access to care is a function of each patient's need for care, we also adjusted for measures of participants' health status, including overall self-reported health, (DeSalvo, Fan, McDonell, & Fihn, 2005) the Seattle Index of Comorbidity,(Fan et al., 2002) and an anxiety/depression scale (PHQ-4) (Löwe et al., 2010). In addition, we included screeners for post-traumatic stress disorder (PTSD) (Lang & Stein, 2005) and military sexual trauma (MST) (Kimerling, Gima, Smith, Street, & Frayne, 2007) because of their high prevalence in the VA and their impact on care delivery and access.

Overall rating: Overall rating of VA care was measured with a 10-point scale adapted from CAHPS (D. L. Washington, Bean-Mayberry, Hamilton, Cordasco, & Yano, 2013). We dichotomized the rating to 8-or-higher (which we defined as a high overall rating) versus 7-or-lower. The inclusion of this measure helps limit the degree to which an overall tendency to give positive ratings, or an overall positive impression of the VA, might confound the relationship between care team functions and ratings of access to care.

Settings and Types of Care: We also accounted for the overall mix of services received because these services may determine the types of care coordination needed. We included measures identifying: use of any care from outside the VA (in addition to the care received at the VA), use of any mental or behavioral care, and use of any specialty care.

Statistical Analysis

To identify factors associated with routine and urgent access, we conducted multivariate logistic regression analyses for the odds of reporting access "usually or always," and the resulting odds ratios were interpreted as measures of the association between each care team function and ratings of access. We examined the correlations among care team functions to address the potential for multicollinearity. For example: care coordination and telephone access, while conceptually related, appear to be empirically distinct in this sample: their correlation coefficient is 0.27. We also conducted sensitivity analyses using a different cut-point for the routine and urgent care access outcomes ("always" vs "usually/sometimes/never") and analyses that specified dichotomized measures as continuous (ratings of access to needed care, care coordination, in-person communication, and overall rating of VA). We used weights created using variables from the sampling frame to account for the non-proportional sample design and for non-response. The application of these survey weights also accounts for clustering of participants within clinics. We also calculated the average

increase in the marginal probability of access to routine and urgent care associated with each of the key care team functions, calculated at the observed values of other factors in the model.

Results

As shown in Table 1, 73.5% of respondents indicated that they always or usually got an appointment for routine care as soon as they needed, while 66.5% reported that they always or usually saw a VA provider as soon as they needed for urgent care. 62.4% of patients gave high ratings of care coordination, and 76% gave high ratings of in-person communication. Among those who called their provider's office with a health care question, 63% always or usually got an answer as soon as needed.

Multivariate models provided estimates of the association between each care team function and the odds of reporting access "usually or always." Below, we present these odds ratios as indicators of the association between each care team function and ratings of access.

Two of the three care team functions examined were positively associated with high ratings of each type of access (Table 2). Phone communication had the largest associations with high ratings of access to routine and urgent care – specifically, respondents' reports that their care team answered questions by phone as soon as needed were highly associated with ratings of access to needed routine care (OR = 4.31, CI 2.66–6.98) and urgent care (OR = 6.28, CI 3.79–10.38). Care coordination was also associated with high ratings of access to both routine care (OR=1.66, CI 1.01–2.74) and urgent care (OR=2.26, CI 1.23–4.18). The associations between in-person communication and high ratings of access to routine and urgent care were not statistically significant. These associations are further illustrated in Figure 1, which shows the absolute average increase in the marginal probability of high ratings of access to routine and urgent care associated with each of the key care team functions.

The direction, approximate magnitude, and statistical significance of the observed associations were consistent across sensitivity analyses (Appendices B and C), with a few exceptions: in the models using a different cutoff for both outcomes (comparing a response of "always" to "usually/sometimes/never" regarding access), in-person communication became a significant predictor of high access ratings.

Discussion

We identified substantial associations between key care team functions and patient ratings of access to needed care. In particular, phone communication was strongly associated with ratings of access: among patients who called their care team with a health question, those who reported a timely response were on average 25 percentage points more likely to report good access (i.e. "always" or "usually" timely) to routine care, and 33 percentage points more likely to report good access to urgent care, after adjusting for the other variables in model. We found a smaller but nonetheless consistent association with care coordination: patients who gave high ratings for care coordination were 8 percentage points more likely to

report good access to routine care, and 13 percentage points more likely to report good access to urgent care.

A potential explanation of the association with phone communication is that a timely answer to a health question via phone may obviate the need for an in-person visit, or it may help patients better identify which situations require a visit – i.e. it may allow patients to "self-triage." This explanation would be consistent with a key premise of PCMH – that many care needs can be addressed without a provider visit. And indeed, the finding is consistent with studies suggesting that a substantial amount of primary care needs could be adequately addressed without an in-person encounter, e.g. via phone by the provider or by another member of the care team (Pelak, Pettit, Terwiesch, Gutierrez, & Marcus, 2015). This finding is particularly pertinent to women Veterans, many of whom have childcare or eldercare responsibilities that make convenient and multi-channel access to care even more important (Washington et al,, 2011).

The association between care coordination and access might be related to the process of scheduling follow-up visits. When care is well coordinated, follow-up visits with specialists or members of the extended primary care team (e.g. mental health professionals, pharmacists) might be scheduled immediately, or facilitated with an in-person warm hand-off from the primary care team, instead of patients having a general notion that they need to schedule an appointment with someone, but uncertainty about who to contact or what to request. Care coordination is particularly pertinent for women Veterans, who are frequently referred to providers outside the VA for services such as mammography or reproductive health (Frayne et al., 2014).

Although our primary analyses did not identify a statistically significant relationship between in-person communication and access, the study was inconclusive regarding these relationships. The results differ depending on the model specification – i.e. when we use a higher cutoff for access ("always" instead of "always or usually"), in-person communication becomes a significant predictor of ratings of access to both routine and urgent care. Therefore, we caution against drawing conclusions based on this result.

In interpreting the results of this study, it is important to consider its limitations. Our measures of care team functions (phone communication, in-person communication, and care coordination) do not represent the entirety of important care team functions. Successful care teams must also achieve good internal communication and trust among team members, must have a clear and shared understanding of individual roles and responsibilities, and must do other important work as a team that may be less visible to patients (Nembhard, Yuan, Shabanova, & Cleary, 2015; True et al., 2013). Future research could address how these and other care team functions not measured in this study influence ratings of access to care. Our study is also subject to the limitations inherent in cross-sectional research: it cannot identify a causal link between care team functions and access to needed care. The telephone-based administration of the survey is also a potential limitation in that verbally-administered surveys may be more vulnerable to social desirability response bias. The use of an independent survey vender may help minimize this bias, but does not eliminate it. The study's patient population should also be considered in its interpretation. Women Veterans

face substantial challenges to access, and it is therefore particularly important to understand the factors associated with their access to needed care. Future research should address the impact of specific characteristics of this population, for example, the high prevalence of PTSD and MST observed in this sample. In addition, our findings using a sample of women with 3 or more visits in the last year may not be generalizable to women who are less engaged in care at VA. While the overall levels of access that we observed in this sample are lower than have been reported in surveys of US women outside the VA (Agency for Healthcare Research & Quality, 2017), a direct comparison is beyond the scope of this study.

Implications for Policy and Practice:

This study characterizes the synergistic relationship between improvements to care team functions and improvements to access. Improvements in these domains are both goals of PCMH and are important on their own. However, it is all too easy to reduce PCMH to a collection of separate objectives, with separate strategies used to achieve each objective. Our study helps demonstrate the degree to which these seemingly separate PCMH objectives depend on one another.

In addition to overarching implications for PCMH, this study's findings have especially compelling implications for the VA. Improving access to care has been a top VA priority and has motivated the development of a mobile app for scheduling visits and changes to the staffing and structure of primary care (Yano, Bair, Carrasquillo, Krein, & Rubenstein, 2014). However, of the changes within the VA intended to improve access, the most substantial change may be the Veterans Choice Act, which increases reliance on providers outside the VA (Gellad, 2016). Research on this program to date has identified profound challenges in the coordination of care with providers outside VA (Mattocks, Mengeling, Sadler, Baldor, & Bastian, 2017). Our results suggest that approaches to improving access that compromise the care team's ability to coordinate care, or that diminish the care team's role as a primary point of contact for patients, may prove ineffective or counterproductive – particularly for women Veterans, who already face disproportionate challenges to coordinated care (Mattocks et al., 2010). This interpretation is consistent with other research emphasizing the important functions that care teams play (Nelson et al., 2014; Solimeo et al., 2016), but our findings elucidate these functions' connection to access.

Conclusions:

In this sample of women Veterans, our analysis identified both phone communication and care coordination as positively associated with patient ratings of access to routine and urgent care. The relationship between in-person communication and access was not statistically significant. Recognizing the degree to which ratings of access are intertwined with these key care team functions should inform the strategies used to improve access to needed care.

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Appendix A:

Primary constructs and definitions

Construct	Definition
Access to needed care	
Routine	In the last 12 months, when you made an appointment for a checkup or routine care at VA, how often did you get an appointment with a VA provider as soon as you needed? Always, usually, sometimes, or never?
Urgent	In the last 12 months, when you needed care right away from the VA, how often did you see a VA provider as soon as you needed? Always, usually, sometimes, or never?
Care team functions	
Coordination (α=.75)	In general, how easy or difficult has it been to coordinate your care between VA and non-VA providers of any kind over the last 12 months? Has it been very easy, somewhat easy, somewhat difficult, or very difficult?
	Thinking about the care you got from [VA or non-VA] specialists in the last 12 months, how often did your VA provider seem informed and up-to-date about the care you got from those specialists? Always, usually, sometimes or never?
	In the last 12 months, did you get all, some or none of the help you needed from your VA providers office to manage your care among different providers and health services?
In-Person Communication (α=.90)	In the last 12 months (response options: never, sometimes, usually, or always):
	How often did your VA provider seem to know the important information about your medical history?
	How often did your VA provider explain things in a way that was easy to understand?
	How often did your VA provider show respect for what you had to say?
	How often did your VA provider spend enough time with you?
	How often did your VA provider listen carefully to you?
	How often did your VA provider or member of your care team give you easy to understand information about your health questions or concerns?
Phone Communication	In the last 12 months:
	Did you ever telephone your VA provider or someone who works with your provider during regular office hours to talk about your healthcare, or ask a health-related question? [yes, no]
	[If yes]: When you phoned to talk about your healthcare or get an answer to your health-related question during regular office hours, how often did you get an answer as soon as you needed? [never, sometimes, usually, or always]
	(Combined to form mutually exclusive categories)

Appendix B:

Full Regression Models and Sensitivity Analyses (Routine Care)

	Full Primary Model	Alternative Specification of Predictors†	Alternative Specification of Outcome‡
	OR [95% CI]	OR [95% CI]	OR [95% CI]
Care Team Functions			
High rating of care coordination	1.66 * [1.01,2.74]	N/A	1.69 *** [1.33,2.14]
Care coordination score (0–10)	N/A	1.11 * [1.02,1.19]	N/A
High rating of in-person communication	1.44 [0.94,2.21]	N/A	1.81 * [1.08,3.03]
In-person communication score (0–10)	N/A	1.03 [0.96,1.10]	N/A
Phone Communication §			
Did not call care team	3.40 *** [2.13,5.42]	3.36 *** [2.14,5.26]	3.80 *** [2.46,5.85]
Timely answer “always/usually”	4.31 *** [2.65,6.98]	4.03 *** [2.46,6.62]	3.92 *** [2.74,5.61]
Sociodemographics			
Age (Ref: 18–44)			
45–64	1.73 * [1.03,2.90]	1.75 * [1.09,2.83]	1.36 [0.95,1.93]
65+	2.77 * [1.26,6.09]	2.53 * [1.11,5.77]	1.29 [0.83,2.02]
Race/ethnicity (Ref: white)			
Black	0.73 [0.48,1.10]	0.68 [0.44,1.04]	1.12 [0.72,1.76]
Other race/ethnicity	0.93 [0.64,1.36]	0.89 [0.57,1.38]	0.80 [0.51,1.24]
Marital status			
Divorced/Separated/Widowed	1.46 [0.98,2.20]	1.53 [0.96,2.43]	1.44 * [1.05,1.96]
Never Married	1.71 [0.83,3.54]	1.80 [0.88,3.69]	1.07 [0.67,1.71]
Employment (Ref: Employed)			
Unemployed	1.05 [0.49,2.27]	1.16 [0.51,2.64]	1.21 [0.61,2.41]
Not in the labor force / not seeking work	1.21 [0.82,1.79]	1.18 [0.78,1.78]	1.53 ** [1.20,1.95]
Insurance status (Ref: VA only)			
Private	1.47 [0.87,2.51]	1.49 [0.86,2.61]	1.23 [0.90,1.69]
Other	1.11 [0.65,1.89]	1.09 [0.65,1.83]	0.94 [0.59,1.50]
Any children in household	0.95 [0.53,1.72]	0.93 [0.51,1.69]	0.99 [0.56,1.77]
College graduate	1.19 [0.80,1.75]	1.18 [0.79,1.77]	0.90 [0.70,1.17]
Overall Rating			
High Overall Rating of VA=1	3.04 *** [1.87,4.95]	N/A	2.21 *** [1.69,2.89]
Rating of VA (0–10)	N/A	1.37 *** [1.18,1.59]	N/A
Settings and Types of Care			
Any care outside VA	1.01 [0.54,1.87]	1.12 [0.60,2.10]	1.10 [0.84,1.45]
Mental/behavioral care	1.01 [0.71,1.43]	0.97 [0.67,1.39]	0.84 [0.55,1.27]
Used any specialist	0.63 [0.36,1.09]	0.71 [0.43,1.19]	0.60 ** [0.46,0.79]
Physical and Mental Health			
Overall Health (1–5, 1=poor, 5=excellent)	0.96 [0.72,1.27]	0.93 [0.70,1.25]	1.00 [0.78,1.30]

	Full Primary Model	Alternative Specification of Predictors†	Alternative Specification of Outcome‡
	OR [95% CI]	OR [95% CI]	OR [95% CI]
Comorbidity score (SIC)	0.98 [0.89,1.07]	0.97 [0.88,1.08]	1.02 [0.96,1.09]
Anxiety/Depression (1–4, 1=none, 4=severe)	0.94 [0.74,1.21]	0.96 [0.74,1.25]	1.06 [0.93,1.21]
PTSD (screened positive)	0.67 [0.39,1.14]	0.66 [0.39,1.11]	0.84 [0.54,1.29]
MST (screened positive)	1.04 [0.63,1.73]	1.03 [0.64,1.66]	0.82 [0.55,1.21]
Observations	1133	1133	1133

* p < 0.05,
** p < 0.01,
*** p < 0.001

† Model with numeric rating (overall rating of VA) and scales (care coordination, in-person communication) specified as continuous variables instead of dichotomized.

‡ Model of “always” access to routine care (as opposed to “always/usually” in primary model)

§ Ref = Team answered question: never/sometimes

Appendix C:

Full Regression Models and Sensitivity Analyses (Urgent Care)

	Full Primary Model	Alternative Specification of Predictors†	Alternative Specification of Outcome‡
	OR [95% CI]	OR [95% CI]	OR [95% CI]
Care Team Functions			
High rating of care coordination	2.26 * [1.23,4.18]	N/A	2.49 *** [1.68,3.69]
Care coordination score (0–10)	N/A	1.18 *** [1.10,1.27]	N/A
High rating of in-person communication	1.56 [0.77,3.16]	N/A	1.78 * [1.08,2.92]
In-person communication score (0–10)	N/A	1.01 [0.88,1.16]	N/A
Phone communication §			
Did not call care team	2.75 *** [1.87,4.04]	2.73 *** [1.87,3.99]	3.95 *** [2.85,5.49]
Timely answer “always/usually”	6.28 *** [3.79,10.38]	5.82 *** [3.76,9.00]	4.68 *** [3.26,6.71]
Sociodemographics			
Age (Ref: 18–44)			
45–64	1.43 [0.75,2.73]	1.47 [0.81,2.67]	1.17 [0.68,1.99]
65+	2.80 * [1.09,7.19]	2.50 [0.97,6.42]	1.72 [0.95,3.12]
Race/Ethnicity (Ref: White)			
Black	0.95 [0.49,1.86]	0.86 [0.46,1.62]	0.84 [0.53,1.35]
Other race/ethnicity	0.89 [0.48,1.67]	0.88 [0.47,1.65]	0.63 [0.40,1.01]
Marital status (Ref: Married)			
Divorced/Separated/Widowed	1.48 [0.93,2.36]	1.54 * [1.00,2.39]	1.14 [0.72,1.82]
Never Married	2.12 * [1.11,4.03]	2.17 * [1.12,4.24]	1.21 [0.76,1.94]
Employment (Ref: Employed)			

	Full Primary Model	Alternative Specification of Predictors†	Alternative Specification of Outcome‡
	OR [95% CI]	OR [95% CI]	OR [95% CI]
Unemployed	1.02 [0.43,2.42]	1.08 [0.52,2.24]	1.07 [0.37,3.11]
Not in the labor force / not seeking work	1.13 [0.73,1.77]	1.12 [0.70,1.78]	1.01 [0.66,1.53]
Insurance status (Ref: VA only)			
Private	1.11 [0.45,2.74]	1.05 [0.46,2.41]	1.11 [0.56,2.20]
Other	0.78 [0.36,1.72]	0.75 [0.34,1.64]	0.75 [0.48,1.19]
Any children in household	1.04 [0.63,1.73]	1.05 [0.65,1.69]	0.90 [0.50,1.63]
College Graduate	1.19 [0.78,1.82]	1.16 [0.75,1.79]	0.90 [0.58,1.39]
Overall Rating			
High Overall Rating of VA	2.77 ** [1.66,4.60]	N/A	1.84 * [1.04,3.23]
Rating of VA (0–10)	N/A	1.34 *** [1.18,1.53]	N/A
Settings and Types of Care			
Any care outside VA	0.95 [0.52,1.73]	1.05 [0.60,1.85]	1.06 [0.71,1.58]
Mental/behavioral care	1.27 [0.79,2.07]	1.18 [0.73,1.91]	1.16 [0.75,1.78]
Used any specialist	0.77 [0.49,1.19]	0.90 [0.60,1.37]	0.56 [0.30,1.06]
Physical and Mental Health			
Overall Health (1–5, 1=poor, 5=excellent)	0.98 [0.67,1.42]	0.96 [0.67,1.37]	1.20 * [1.00,1.42]
Comorbidity score (SIC)	1.00 [0.85,1.17]	0.99 [0.85,1.14]	1.08 [0.98,1.19]
Anxiety/Depression (1–4, 1=none, 4=severe)	0.97 [0.75,1.24]	0.99 [0.77,1.29]	1.01 [0.86,1.18]
PTSD (screened positive)	0.62 [0.34,1.12]	0.60 [0.34,1.06]	0.85 [0.54,1.32]
MST (screened positive)	1.43 [0.99,2.07]	1.35 [0.91,1.99]	1.16 [0.76,1.78]
Observations	723	723	723

*p < 0.05,
**p < 0.01,
***p < 0.001

†Model with numeric rating (overall rating of VA) and scales (care coordination, in-person communication) specified as continuous variables instead of dichotomized.

‡Model of “always” access to urgent care (as opposed to “always/usually” in primary model)

§Ref = Team answered question: never/sometimes

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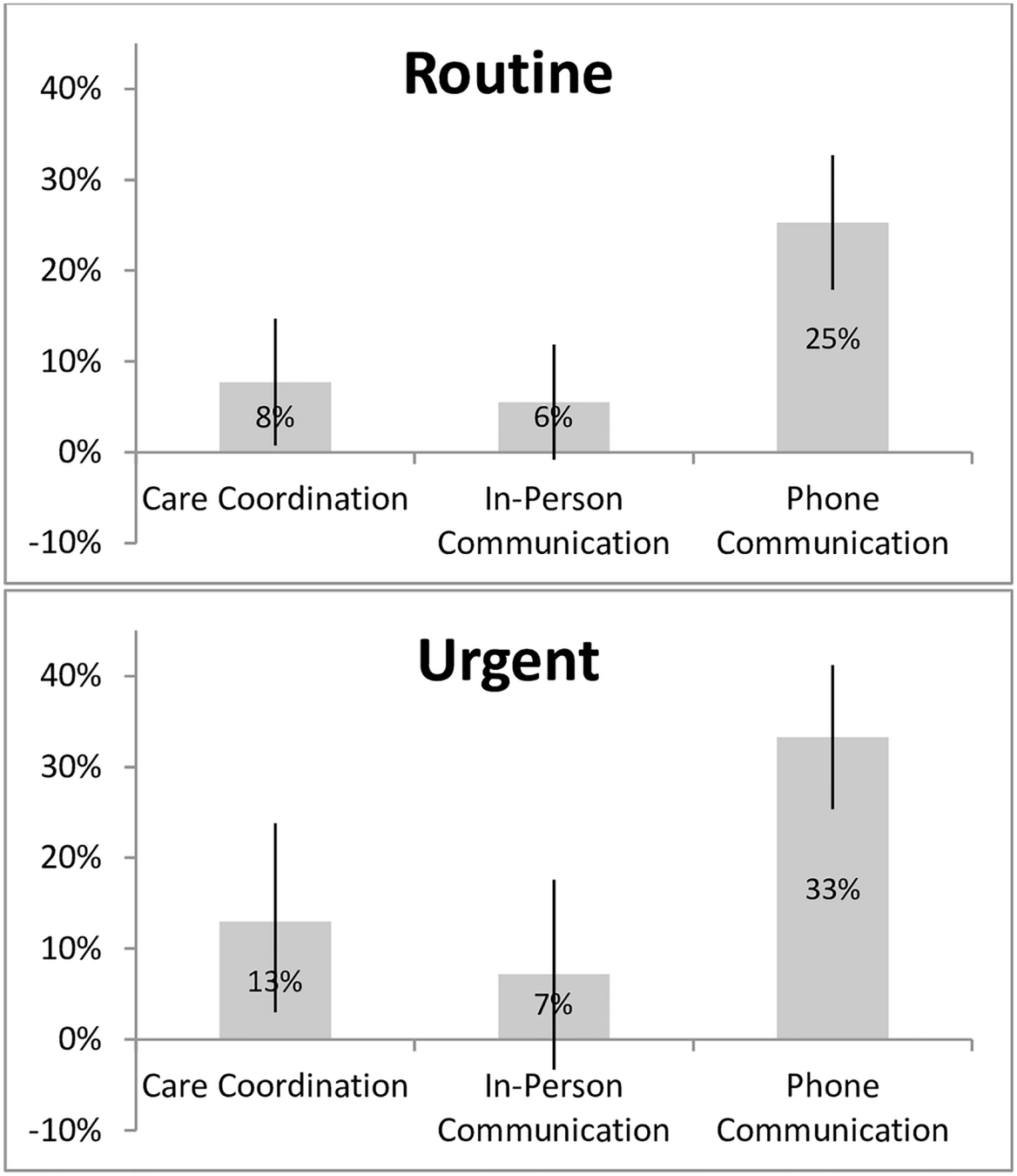

Figure 1: Increases in marginal probability of high ratings of access to routine and urgent care associated with high ratings of key care team functions

Absolute difference in probabilities of high access to routine and urgent care associated with high ratings of key care team functions, adjusted for sociodemographics, overall rating of VA, settings and types of care, and health status. Vertical lines indicate the 95% confidence interval for the marginal probability.

Table 1.

Participant characteristics

	Weighted % Routine Care Analysis; n= 1133	Weighted % Urgent Care Analysis; n= 723
Ratings of Access to Needed Care		
Always/Usually (high ratings of access)	73.5	66.5
Sometimes/Never	26.5	33.5
Care Team Functions		
High rating of care coordination	62.4	58.5
High rating of in-person communication	76.0	71.9
Phone communication		
Team answered question: always/usually	30.4	22.2
Team answered question: sometimes/never	20.0	23.6
Did not call care team	49.6	54.2
Socio-demographics		
Age		
18–44	36.9	39.2
45–64	49.8	51.0
65+	13.3	9.8
Race / ethnicity		
Black	25.0	25.1
White	59.3	57.6
Other race/ethnicity	15.7	17.3
Marital status		
Married	38.4	38.8
Divorced	38.6	38.9
Never married	22.9	22.3
Employment status		
Employed	43.7	44.8
Unemployed	6.1	6.2
Not in the labor force / not seeking work	50.2	49.0
Insurance status		
VA only	42.4	44.6
Private	20.8	19.8
Other	36.9	35.5
Any children in household	25.1	27.1
College Graduate	39.7	40.7
Overall Rating		
High Overall Rating of VA	72.6	67.5
Settings and Types of Care		

	Weighted % Routine Care Analysis; n= 1133	Weighted % Urgent Care Analysis; n= 723
Any care outside VA	39.1	39.9
Mental/behavioral care	56.8	62.4
Used any specialist	85.4	88.5
Physical and mental health		
Overall health: Mean (SD); 1–5 *	2.88 (0.98)	2.82 (0.99)
Comorbidity score (SIC): Mean (SD)	3.47 (2.94)	3.32 (2.84)
Anxiety/Depression: Mean (SD); 1–4 †	1.94 (1.11)	2.07 (1.13)
PTSD (screened positive)	40.6	46.3
MST (screened positive)	61.8	68.6

* 1=poor, 5=excellent

† 1=none, 4=severe

Table 2 –

Multivariate Analyses of High Ratings of Access to Needed Routine and Urgent Care

	Routine Care		Urgent Care	
	OR	**95% CI**	**OR**	**95% CI**
Care Team Functions				
High rating of care coordination	1.66*	[1.01,2.74]	2.26*	[1.23,4.18]
High rating of in-person communication	1.44	[0.94,2.21]	1.56	[0.77,3.16]
Phone communication†				
Team answered question: always/usually	4.31***	[2.65,6.98]	6.28***	[3.79,10.38]
Did not call care team	3.40***	[2.13,5.42]	2.75***	[1.87,4.04]
Overall Rating				
High overall rating of VA	3.04***	[1.87,4.95]	2.77**	[1.66,4.60]
Settings and Types of Care				
Any care outside VA	1.01	[0.54,1.87]	0.95	[0.52,1.73]
Mental/behavioral care (within or outside VA)	1.01	[0.71,1.43]	1.27	[0.79,2.07]
Used any specialist (within or outside VA)	0.63	[0.36,1.09]	0.77	[0.49,1.19]
Health Status				
Overall health (1–5, 1=poor, 5=excellent)	0.96	[0.72,1.27]	0.98	[0.67,1.42]
Comorbidity score (SIC)	0.98	[0.89,1.07]	1.00	[0.85,1.17]
MST (1=screen positive)	1.04	[0.63,1.73]	1.43	[0.99,2.07]
PTSD (1=screen positive)	0.67	[0.39,1.14]	0.62	[0.34,1.12]
Anxiety/Depression (1–4, 1=none, 4=severe)	0.94	[0.74,1.21]	0.97	[0.75,1.24]
Observations	1133		723	

* $p < 0.05$,

** $p < 0.01$,

*** $p < 0.001$

† Ref = Team answered question: never/sometimes

Also adjusting for respondent age, race/ethnicity, marital status, employment status, insurance status, children in household, and education. Full model results shown in appendices B and C.