Published in final edited form as:

Health Care Manage Rev. 2015 ; 40(2): 104–115. doi:10.1097/HMR.000000000000017.

The relationship between voice climate and patients' experience of timely care in primary care clinics

Ingrid M. Nembhard, PhD, MS,

Associate Professor, Yale School of Public Health and Yale School of Management, New Haven, Connecticut

Christina T. Yuan, MPH, MPhil,

PhD Candidate, Yale School of Public Health, New Haven, Connecticut

Veronika Shabanova, MPH, and

PhD Candidate, Yale School of Public Health and Yale Center for Analytical Sciences, New Haven, Connecticut

Paul D. Cleary, PhD

Anna M. R. Lauder Professor of Public Health and Dean, Yale School of Public Health, New Haven, Connecticut

Abstract

Background—Aspects of the patient care experience, despite being central to quality care, are often problematic. In particular, patients frequently report problems with timeliness of care. As yet, research offers little insight on setting characteristics that contribute to patients' experience of timely care.

Purpose—The aims of this study were to assess the relationship between organizational climate and patients' reports of timely care in primary care clinics and to broadly examine the link between staff's work environment and patient care experiences. We test hypotheses about the relationship between voice climate—staff feeling safe to speak up about issues—and reported timeliness of care, consistency in reported voice climate across professions, and how climate differences for various professions relate to timely care.

Methodology—We conducted a cross-sectional study of employees ($n = 1,121$) and patients ($n = 8,164$) affiliated with 37 clinics participating in a statewide reporting initiative. Employees were surveyed about clinics' voice climate, and patients were surveyed about the timeliness of care. Hypotheses were tested using analysis of variance and generalized estimating equations.

Findings—Clinical and administrative staff (e.g., nurses and office assistants) reported clinics' climates to be significantly less supportive of voice than did clinical leaders (e.g., physicians). The greater the difference in reported support for voice between professional groups, the less patients reported experiencing timely care in three respects: obtaining an appointment, seeing the doctor within 15 minutes of appointment time, and receiving test results. In clinics where staff reported

climates supportive of voice, patients indicated receiving more timely care. Clinical leaders' reports of voice climate had no relationship to reported timeliness of care.

Practical Implications—Our findings suggest the importance of clinics developing a strong climate for voice, particularly for clinical and administrative staff, to support better service quality for patients.

Keywords

communication; organizational climate; patient experience; primary care; timeliness; voice

A positive care experience is a core component of patient-centered (Browne, Roseman, Shaller, & Edgman-Levitan, 2010) and thus quality health care (Institute of Medicine, 2001). A positive care experience has occurred when patients report that they experienced what they desired during their interactions with care providers and the system (Balik, Conway, Zipperer, & Watson, 2011; Browne et al., 2010). Research has shown that a key contributor to patients' care experience is the perceived timeliness of care received, that is, their assessment of whether inappropriate waits or delays have occurred in the course of care (Gerteis, Edgman-Levitan, & Daley, 1993; Sofaer & Firminger, 2005). In primary care clinics, for example, timeliness is assessed by the time to obtain an appointment, in-office wait time, and the timing of follow-up care.

From a normative perspective, the patients' experience of timely care is inherently important (Gerteis et al., 1993; Sofaer & Firminger, 2005) because the health care system should be patient centered, serving its customers in an efficient way. That is, neither patients nor staff should expend more time than needed to receive or deliver high-quality care. From a practical viewpoint, patients' experience of timely care is also important because good experiences have a significant effect on other factors related to patient care including care choices (e.g., whether patients delay follow-up visits or switch providers to avoid another negative experience; Keating et al., 2002), patient adherence to care recommendations (DiMatteo, 1994), system utilization (e.g., emergency department visits; Brousseau, Gorelick, Hoffmann, Flores, & Nattinger, 2009), and health outcomes (Isaac, Zaslavsky, Cleary, & Landon, 2010). In addition, care experiences are associated with organizational performance metrics such as overall satisfaction with provider, employee satisfaction, and financial performance (Browne et al., 2010; Sofaer & Firminger, 2005). Thus, a timely experience is important for both patients and organizations.

Despite the appreciation for the importance of the patient care experience, care experiences often fail to satisfy patients' desires, particularly with respect to timeliness of care. In national surveys, only 43% of adults reported that they are always able to get routine care as soon as desired (Soni, 2010) and 15% of adults with an urgent condition indicated that they are sometimes or never able to receive care at the time needed (Agency for Healthcare Research and Quality, 2010). In general, patients' positive scores for timeliness of care are 10–30 percentage points lower than their scores for other aspects of the patient care experience such as realized access and patient–physician communication (Brousseau et al., 2009; Rodriguez, Von Glahn, Rogers, & Safran, 2009).

To improve timeliness of care, it is important to understand what influences this key dimension of the patient care experience. Yet, timeliness of care (perceived and actual) remains one of the least studied aims of health care systems (Leddy, Kaldenberg, & Becker, 2003). Research conducted in other service industries, however, suggests that customer experience is linked to employee experience (Heskett, Jones, Loveman, Sasser, & Schlesinger, 2008; Wiley & Brooks, 2000). When employees have positive work experiences, they engage in behaviors that facilitate positive customer experiences. Despite this association in other settings, with few exceptions (e.g., Rathert & May, 2007), there is a paucity of research that explores how staffs' work experience contributes to the service experience in health care and none that considers how any specific element of the work environment contributes to patients' experience of timely care.

In this article, we examine whether patients' (reported) experience of timely care in primary care clinics is related to a core aspect of the work environment for clinic employees: the organizational climate, that is, the collective perception about the behaviors that are supported and rewarded in the organization (Schneider, 1990). Specifically, we focus on whether the climate supports voice—the discretionary communication of ideas, suggestions, concerns, or opinions about work-related issues with the intent to improve organizational or unit functioning (Morrison, 2011). In organizations with such climates, individuals believe that it is safe to speak their thoughts (ideas, questions, concerns, or suggestions); they will not suffer punishment or other negative repercussions because of speaking up (Morrison, Wheeler-Smith, & Kamdar, 2011). We focus on voice climate, because voice influences operational performance in other (non-health care) settings (Morrison, 2011).

A nuance of our study is that we assess voice climate for different professional groups within primary care clinics and how differences in climate for them relate to reported timeliness of care. Although research in other settings has suggested the general importance of a climate that supports voice, this aspect of organizations has yet to be studied in primary care. We posit that voice climate is relevant in this context as well and that there is insight to be gained from studying the effect of relative differences in climate, which have yet to be explored in the medical setting, although we know that there are differences in work experience for different professionals. Furthering the understanding for timeliness in primary care is especially important as timeliness there can set the stage for patients' timely access to care overall, particularly in delivery models that place primary care at the center such as patient-centered medical homes. Through this research, we aim to contribute knowledge of how the environment for staff influences the patient care experience in primary care.

Theory and Hypotheses

Prior research suggests that health care professionals perceive their work environments differently, depending on their position within the medical professional hierarchy. For example, research conducted in hospitals has found that physicians feel that it is safer to take interpersonal risks (e.g., asking questions, which carries the risk of being perceived as ignorant or incompetent) than do nurses, who report greater safety than allied health professionals (Nembhard & Edmondson, 2006; Singer, Falwell, Gaba, & Baker, 2008).

Organizational theory suggests that the differences in perception about what is acceptable, that is, differences in climate for different professional subgroups, can exist because individuals experience the workplace differently based on their role or task (Schein, 1992). Those higher in professional and organizational hierarchies experience the work-place as inviting and appreciative of their voice because of their status and role as decision-makers. In contrast, those lower in the hierarchy often experience the workplace as less welcoming and appreciative of their contributions. In health care, this difference is supported by hospital data showing that nurses report that their input is less well received than physicians report (Thomas, Sexton, & Helmreich, 2003). This finding implies that differences in climate's supportiveness of voice often exist between professional groups in hospitals.

We contend that there are similar differences in voice climate between professional groups in primary care clinics. Although most primary care clinics are smaller and have less employee turnover and rotation than hospitals units, which should generally lead to a more cohesive voice climate, the voice climate in clinics is likely to be similar to that found in hospitals, because most health professionals complete much of their training in hospitals. The effect of this early training is significant and difficult to change, often carrying over to new settings. Research shows that most physicians are influenced by the professional and interpersonal norms that they learned during their training long after they have moved to another hospital (Freshman, Rubino, & Chassiakos, 2010).

We propose that differences in perceived safety of voice within workgroups adversely affect the timeliness of care that patients experience, because they result in behaviors that create process inefficiencies. Groups with low climate consensus (Hackman, 1992; Zander, 1982) devote considerable time and effort to managing their differences rather than to efficiently performing tasks. Nursing staff, for ex-ample, sometimes selectively present information to physicians during clinical rounds as a strategy for influencing care without directly having to address physicians (Manias & Street, 2001). Although these behaviors enable staff to circumvent uncomfortable interactions, they undermine timely delivery of care because time is devoted to correcting failures stemming from misunderstood or incomplete information. In addition, differences in voice are likely to threaten timeliness of care by limiting the group's development of shared meaning, memory, and purpose, predictors of effective and efficient completion of interdependent tasks (Kellogg, Orlikowski, & Yates, 2006) such as health care delivery. Thus, we propose:

Hypothesis 1: The greater the difference in voice climate between those higher in the hierarchy and those lower in the hierarchy, the less patients experience timely care.

The hypothesized negative effect of voice climate differences notwithstanding, we propose that voice climate is positively associated with the patient care experience, particularly the timeliness of care. However, the climate for those lower in the professional hierarchy has greater impact than the voice climate for those higher in the hierarchy because of the formers' central and boundary-spanning role in care delivery. Individuals lower in the professional hierarchy (e.g., nurses) tend to interact more often with patients—relaying information, delivering aspects of patient care, scheduling appointments, and coordinating follow-up care. They also serve as liaisons between patients and professionals higher in the

hierarchy (e.g., physicians). Thus, they influence care in many ways and have the distinct opportunity to assess care delivery from multiple perspectives.

Research has found that those who are centrally located in the work flow possess extensive knowledge about processes, problems (e.g., bottlenecks), and possible solutions (Field & Sinha, 2005). Medical assistants, for example, likely know whether one physician's schedule is causing havoc, the workarounds used, and the impact on patients. Such information, important for ensuring and improving timely care, is more likely to be shared when the organizational climate is perceived to embrace voice. Thus, the climate for employees with critical information is important.

Studies suggest that voice in a safe setting leads to constructive conversations that increases collaboration and coordination within groups, both of which are associated with more efficient completion of routine tasks (Gittell, 2002; Young et al., 1997). Also, the learning and implementation of new practices and technologies that enable timely care such as advanced access systems for patient-driven scheduling (Rose, Ross, & Horwitz, 2011) is likely to be more successful when the climate allows for open communication as issues often arise during innovation implementation (Tucker, Nembhard, & Edmondson, 2007). Given the insight that those lower in the hierarchy possess about work processes, the information that they voice is likely to have significant impact on efforts to achieve, improve, and sustain timely care. The information that those higher in the hierarchy voice can be important as well, but is likely to have less breadth and depth by virtue of their role. Research in other industries suggests that managers often have less information about the intricacies of frontline operations than their staff (Nonaka, 1991). Thus, although the climate may be more supportive of voice for them, the impact of their voicing is likely to be less. Thus:

Hypothesis 2: The voice climate for those lower in the professional hierarchy will be a better predictor of patients' experiencing timely care than the climate for those higher in the hierarchy.

Methods

Sample and Data Collection

We tested our hypotheses using 2008 data from primary care clinics collected as part of a statewide demonstration project on the public reporting of the performance of medical providers. As part of the project, four medical groups, consisting of 39 primary care clinics, agreed to allow the surveying of their clinics' employees and patients about the work environment and the patient care experience, respectively. Our sample included the 37 primary care clinics that had data from both sources. The characteristics of these study clinics are shown in Table 1.

Employees were surveyed using the Leading a Culture of Quality (LCQ) survey, which was administered online. The LCQ survey was developed by (and is available from) Satisfaction/Performance/Research Center (www.sprcenter.com). It is a 25-item survey that assesses voice climate, organizational focus, alignment with the leadership, and the relationship quality among staff (SPR Center, 2005). Of the 1,993 employees in the 37 clinics, 1,224

members (mean = 33 per clinic; range = 4–233 per clinic) completed the LCQ survey, for a response rate of 61%. The respondents reported their profession as providers (e.g., physicians; $n = 282$, mean = 8 per clinic), clinical support staff (e.g., registered nurses; $n = 489$; mean = 14 per clinic), administrative support staff (e.g., medical office assistants; $n = 350$; mean = 10 per clinic), or managers or supervisors ($n = 97$; mean = 3 per clinic); six respondents did not indicate their profession.

The professions included in each category were listed on the survey. For this research, we use the term “clinical leaders” in place of “providers” to capture more accurately the role of these individuals, all of whom had clinical decision-making authority, and to delineate them from supporting staff, both clinical and administrative. We excluded managers from our primary analysis, because we wanted to focus on the climate for those working closely with patients, although we included manager data in robustness tests. We also excluded those who did not indicate their profession, resulting in a final sample of 1,121 nonmanagerial employees for our primary analyses.

Patients served at the participating clinics were mailed the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Clinician and Group Visit Survey, which assesses patients’ experience of care, including timely access to care and information. The survey was mailed in two waves during a 3-month survey period to a random sample of patients who had had at least one visit with a primary care physician at the clinic during the prior 4 months. The time window was chosen to obtain an adequate sample of patients able to report on a recent visit. A total of 8,164 patients (45%) returned completed surveys, with a mean of 220 respondents per clinic (range: 95–453). As shown in Table 2, most respondents were older than 45 years of age (81.5%), White (90.1%), female (59.5%), college-educated (68.8%), and in good or better health (84.4%).

Measures

Voice Climate—We assessed how safe staff felt it was to voice using the three-item communication scale from the LCQ survey: “I feel free to express my opinion without worrying about the outcome,” “Staff will freely speak up if they see something that may improve patient care or affect patient safety,” and “The climate in the organization promotes the free exchange of ideas.” Staff indicated their agreement with these items using a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). The reliability of this three-item scale was good, as indicated by a Cronbach’s alpha of .85, which is above the generally accepted threshold of .70 (Nunnally, 1978) and similar to survey developers’ reported reliability ($\alpha = .80$; SPR Center, 2005). A confirmatory factor analysis of all the items in the LCQ survey for our sample also supported the convergent validity and unidimensionality of this scale ($\chi^2(df) = 511(125)$, $p < .0001$, TFI = .96, RMSEA = .04, SRMR = .03).

Patients’ Experience of Timely Care

We assessed this experience using the four items from the CAHPS survey’s timely access to care section. The items ask patients about their ability to obtain appointments as soon as needed, see the physician as soon as needed, and receive test results. An additional item asked patients whether the wait time for an appointment to start was reasonable (i.e., 15

minutes). Patients indicated whether they experienced each of these by responding “Yes, Definitely,” “Yes, Somewhat,” or “No.” To be consistent with guidelines for CAHPS data (Aligning Forces for Quality, 2008) and because of our interest in whether patients experienced the most desirable (i.e., timely) care in each respect, we used the “top-box” approach for each item; that is, we created a binary variable for each to indicate whether a patient answered “Yes, Definitely.” We did not create a composite scale using the items because Cronbach’s alpha for the scale in our sample was .33, significantly less than the accepted threshold of .70 (Nunnally, 1978). In addition, using individual items allowed us to examine associations with specific elements of timely care.

Covariates

We included two sets of covariates in our models. Our first set included patient characteristics that could influence patient assessment of care: age (7 categories; 1 = 18–24 years old, 7 = 75+ years old), gender (Male = 1), race (White = 1), education level (6 categories; 1 = less than eighth grade, 6 = more than 4-year college), and perceived health status (5 categories; 1 = excellent, 5 = poor). The second set of covariates included four clinic characteristics that might influence clinics’ provision of timely care: medical group affiliation, number of clinical leaders/providers, number of patients, and workload. Medical groups can have different structures, resources (e.g., technology), and practices that shape the capacity and performance of their affiliate clinics, whereas the number of staff and patients may affect timeliness of care through economies of scope and scale as well as supply and demand effects. Finally, workload can influence the ability to deliver timely care (Mohr, Benzer, & Young, 2013). Workload was measured by the average staff response to the LCQ workload item (“The quality of work suffers because of the amount of work staff are expected to do” ($r_{wg} = .54$)).

Analytic Strategy

Our analysis consisted of several steps. First, we examined the level of within-clinic agreement about voice climate between the three professional groups in our sample using repeated measures analysis of variance implemented with SAS PROC MIXED. This allowed us to account for the within-clinic correlation of employee responses. We assessed the significance of the overall effect of professional group as well as the differences in least squares means between professional groups, using t tests of fixed effects and pair-wise tests adjusted for multiple comparisons using the Bonferroni method. Our model included the aforementioned clinic covariates. As discussed in the Results section below, we found significant differences between professional groups. Therefore, we assessed the appropriateness of using clinic level measures of the voice climate for each professional group. We compared the between-clinic variance and within-clinic variance for clinical leaders and for staff (clinical and administrative) using analysis of variance. The F ratios were significant for each group ($p < .001$), supporting aggregation to the clinic level. Furthermore, the mean interrater agreement (r_{wg}) was .87 for clinical leaders and .84 for staff, both of which are above the minimally acceptable value of .70 (LeBreton & Senter, 2008). Standard deviations for clinical leaders and staff within clinic were also low (.32 and .36, respectively). On the basis of these results, we aggregated climate responses within each clinic to create average clinic level scores for clinical leaders and average clinic level scores

for staff separately. We then calculated sample means, standard deviations, and correlations with all other clinic level variables.

We used a series of generalized estimating equations models, a population-averaged approach used for correlated data, to examine the relationship between the within-clinic difference in perception of voice climate between those higher and lower in the professional hierarchy and our measures of timely care (Hypothesis 1). We calculated clinic level differences by subtracting average clinic level staff scores from average clinic level leaders' scores. We conducted the analyses at the patient level, using SAS PROC GENMOD procedure with a logit link function and cluster indicator (REPEATED command) to model the effect of clinic membership. The former mathematically transformed our binary measures of timely care (at the patient level) into log odds outcomes, and the latter accounted for the correlation between patients within clinics. Analyzing the effect of our clinic level climate variable on patient level data in this manner allowed us to model the heterogeneity of patient responses, taking into account correlated residuals within clinics. All models included the patient level and clinic level covariates discussed earlier. We exponentiated the coefficients derived from our models to obtain more easily interpreted odds ratios (ORs) and 95% confidence intervals (CIs). ORs significantly less than 1 were regarded as supporting the negative, hypothesized relationship.

In the final step of our analysis, we used a series of generalized estimating equations models to examine the relationship between voice climate for each of the two professional groups and our four measures of timely care. For each timeliness measure, we estimated a model that included measures of climate for each group. Similar to the analyses used to test Hypothesis 1, we conducted our analyses at the patient level, included all covariates, and exponentiated the coefficients derived from our models. In essence for testing Hypotheses 1 and 2, for each timeliness measure, we modeled:

$$Timeliness_{i,c} = \beta_1 Intercept + \beta_2 VoiceClimate_c + \beta_3 Covariates_i + \beta_4 Covariates_c + \varepsilon_i,$$

where $Timeliness_{i,c}$ is patient i 's report of timely care in his or her clinic (c), $VoiceClimate$ is either the clinic-level difference between leader and staff-reported voice climate or clinic-level leader and staff-reported voice climate entered in-dividually, $Covariates_i$ are patient-level covariates, $Covariates_c$ are clinic-level covariates, and ε is the error term. With approximately 200 patients per clinic, we had 80% power to detect statistically significant ($p < .05$) effects in a change of 0.40–0.50 in the log odds for every unit increase on the voice climate scale.

To examine the robustness of our results, we assessed whether our results remained the same when managers' report of voice climate was included in our models. We also examined all of our hypotheses at the clinic level, in addition to the aforementioned patient-level analyses.

Results

Profession-Related Differences in Perception of Voice Climate

Our analysis showed significant differences by professional group in the perception of voice climate ($F = 12.03$, $p < .0001$). Clinical leaders (e.g., physicians) reported that the climate was significantly safer for voice (mean = 3.76, $SE = 0.06$) than did clinical support staff (e.g., nurses; mean = 3.48, $SE = 0.05$) and administrative support staff (e.g., receptionists; mean = 3.47, $SE = 0.06$). The differences in perception between clinical leaders and clinical staff (0.28) and between clinical leaders and administrative staff (0.29) were statistically significant ($p < .0001$). There was not a statistically significant difference between clinical and administrative staff's perceptions (diff = .01, $p = .81$). Thus, for the rest of our analysis, we treated them as one group of "staff" ($n = 839$). The average interrater agreement within clinics for staff was 0.84 and for clinical leaders was 0.87, indicating a shared perception of voice safety within each group. The correlation between staff and leaders' reports of the voice climate was negative but not significant (Pearson $R = -.25$, $p = .14$). Table 3 shows the clinic level mean and standard deviation for both climate variables as well as their correlation with the clinic level covariates in our study.

Voice Climate and Patients' Experience of Timely Care

In our sample, over 85% of patients reported being able to obtain an appointment as soon as needed, seeing the physician as soon as needed, waiting a reasonable time for their appointment, and receiving their follow-up test results (see Table 4). The models in Table 4 indicate a significant, negative relationship between differences in voice climate for clinical leaders relative to staff and patients obtaining an appointment as soon as they needed (Model 1), seeing the doctor within 15 minutes of their appointment time (Model 3), and having someone from the doctor's office follow-up to give test results (Model 4). Thus, these models provide support for Hypothesis 1 and suggest that the more the climate favored the voice of those higher in the hierarchy over those lower in the hierarchy at the frontline of care, the less patients experienced timely care in several respects. Model 2 shows that there was not a significant relationship between differences in voice climate and patients seeing the doctor as soon as needed. Seeing the doctor as soon as needed was more strongly related to patient characteristics than clinic climate, suggesting that patient attributes are a greater determinant of patients' reports about the time it takes to see their physician.

The models in Table 5 show a significant, positive relationship between staff's reports that the organizational climate supports voice and patients obtaining an appointment as soon as they needed (Model 1), seeing the doctor within 15 minutes of their appointment time (Model 3), and having someone from the doctor's office follow-up to give test results (Model 4). Model 2 shows that there was not a significant relationship between staff's reports of voice climate and patients seeing the doctor as soon as needed. All models show that there was no relationship between clinical leaders' perception of the voice climate and the measures of timely care. Thus, we find support for Hypothesis 2—voice climate for individuals lower in the professional hierarchy (i.e., clinic staff) is more positively associated with patients' reports of timely care than the climate for those higher the hierarchy (i.e., clinical leaders) at the frontlines of care.

Our results were similar when we included managers' data about the voice climate in our analyses to test of the robustness of our results. Like clinical leaders (mean = 3.76), managers (mean = 4.02) who are also high in the professional hierarchy perceived the climate for voice to be significantly safer than did staff (mean = 3.48, $p < .001$). Managers also felt the climate was safer than clinical leaders did ($p = .02$). When we added the manager–staff difference in voice climate to the models in Table 4, our results remained the same, except for those pertaining to Model 1, which assessed obtaining an appointment as soon as needed. In that model, the clinical leader–staff difference became insignificant (OR = 0.83, 95% CI [0.59, 1.19]) and the manager–staff difference was significant (OR = 0.59, 95% CI [0.45, 0.77]). In models for the other timeliness measures, the manager–staff difference had no significant effect ($p > .05$) above the impact of the clinical leader–staff difference. These results confirm Hypothesis 1—differences in voice climate between those higher in the hierarchy and those lower in the hierarchy are associated with less timely care for patients, with the relevant difference (manager–staff vs. clinical leader–staff) varying by aspect of timeliness.

We found greater support for Hypothesis 2 as well when we included manager-reported voice climate in the models in Table 5. The significant, positive relationship between staff's reports that the organizational climate supports voice and the timeliness measures in Models 1, 3, and 4 became even stronger, with the least significant effect being for Model 1 ($p = .02$). Clinical leaders-reported voice climate continued to have no association with any timeliness measures, whereas managers-reported voice climate was only a significant predictor in Model 1. In that model, in contrast to the staff results, there was a negative relationship between managers' reports about voice climate and patients obtaining an appointment when needed (OR = 0.55, 95% CI [0.37, 0.83], $p = .004$). It may be that more time spent on managers' voicing translates into less time listening to staff concerns' about patients' obtaining appointments when needed. Our results were the same when we conducted the analyses using clinic level data.

Patients' Experience of Timely Care and Nonclimate Factors

In addition to the climate's support of voice, patient and clinic characteristics were associated with patients' reports of more timely care. Summarizing across models in Table 4, patients who were older, male, less educated, Black (vs. other minorities), and in better perceived health generally reported experiencing timelier care. In addition, being seen in a clinic with more providers and/or a clinic with a larger number of patients was associated with patients' reports of timelier care. These clinics may be timelier because they have more clinicians available to serve patients and more expertise with managing patient flow because volume demands developed this skill.

Discussion and Practical Implications

Providing timely care is a “cardinal goal” of health care organizations that often remains unrealized (Murray & Berwick, 2003). Our findings indicate a relationship between the climate for voice that clinical and administrative support staff (e.g., nurses and medical office assistants)—not clinical leaders (e.g., physicians)—experience and the timeliness of

care that patients report experiencing in primary care clinics. Notably, staff perception that the climate supported voice was associated with greater reports of timelier care not just in one aspect of the office visit experience but throughout—from appointment scheduling to in-office wait time for appointment to receiving follow-up test results. This finding adds to research that suggests that cli-mate is an important attribute of the work environment that influences the performance of health care organizations (e.g., Benzer et al., 2011). Our study also extends this body of work by showing that voice climate in particular predicts important aspects of the patient care experience (e.g., timeliness). Past work has focused on other aspects of organizational climate but has not shown a direct link to the patient care experience and timeliness in particular. For example, Mohr et al. (2013) recently showed that relational climate, defined as a climate supporting team-work, although moderating the effect of staff workload on aspects of the care experience, does not have a direct effect. Our study identified a type of climate (i.e., voice climate) that has a direct effect on the patient care experience. Interest in the predictors of this experience has been increasing because of calls for more patient-centered care and better service quality in health care (Kenagy, Berwick, & Shore, 1999).

Our finding that reported timeliness is related to voice climate provides not only a possible explanation for the variance in patients' experience of timely care from primary care clinics but also insight on efforts to implement practices and processes to improve the timing of care. Although the implementation of practices such as advanced access and others derived from industrial engineering and operations management principles (e.g., queuing theory) have resulted in improvement for some organizations, not all organizations have successfully implemented such practices or benefited from adopting them (Rose et al., 2011). Research has identified four factors that predict the extent of implementation of advanced access in primary care: local management support, clinic team knowledge and skill, rooms per clinician, and patients on wait list (VanDeusen Lukas et al., 2008). Our findings suggest that voice climate experienced by staff may be a fifth factor contributing to whether time-improving practices are fully implemented and whether their benefits are realized and experienced by patients. This climate may have a direct link to implementation success as well as an indirect link because the voice climate may be critical for leveraging clinic team knowledge and skill.

It is notable that we found patients' experience of timely care linked to the voice climate for staff (e.g., nurses) supporting clinical leaders (e.g., physicians) but not for clinical leaders. Furthermore, the difference in climate between the two groups was associated with more negative experiences for patients. Together, these findings suggest the importance of minimizing the difference in climate between professional groups by elevating the climate for nurses and other primary care staff. When they experience the work-place as supportive and appreciative of their voice and presumably more engaging, it is reflected in the patients' experience. Given this, our findings suggest an area in which the hierarchy is reversed. Traditionally, nurses and other staff rank lower in the medical professional hierarchy based on technical expertise (Freidson, 1970). Our data indicate that they may rank higher in shaping patients' service experience and receipt of patient-centered care.

On the basis of our findings, clinics that provide care deemed as untimely might need to improve the voice climate experienced by staff. This raises the practical question: How can clinics cultivate safer climates? Empirical research suggests focusing on leader behavior, relationship quality between staff, and effective interventions (see Nembhard & Edmondson, 2010, for a review of the research). Leaders whose words and actions indicate that they are accessible, desire open communication, and believe in learning from failure create work environments perceived as safe for speaking up. Staff relationships characterized by respect, trust, and cooperation also contribute to the perception of a safe voice climate. Lastly, studies of programs in health care (e.g., CREW intervention in the Veterans Health Administration; Osatuke, Moore, Ward, Dyrenforth, & Belton, 2009) and outside of health care (e.g., police departments; Green, 1992) show that programs that highlight communication problems and their effects, provide time for discussion of these issues, and teach strategies for effective communication are associated with climate change.

To assess the impact of efforts to change organizational climate, organizations may wish to measure their climate. Our finding of differences in perception by professional group suggests that using organizational level measures or leader assessments of climate may mask meaningful differences in perception of climate that may need to be addressed for organizations to achieve their goals. As Payne and Mansfield (1973) argued, aggregate measures “may be too gross to be useful in the prediction of behavior in complex social systems...knowledge of the pattern of role-set climates may be more useful than mean scores and variances” (p. 525–526). To gain a better understanding of climate, researchers and managers may also need to separately assess lower-ranking staff’s perception of the climate or differentially weigh the responses of different professional groups.

Our study offers insight on how organizational climate, specifically voice climate, relates to patients’ experience of timely care. However, our study has several limitations. Our sample was limited to a subsample of clinics in one state, and therefore, our results may not generalize to other locations. In addition, although we had over 1,200 employees and 8,000 randomly sampled patients respond to our surveys, our response rates were only 61% and 45%, respectively. Nonrespondents may differ from our sample, and thus, our results may not apply to them. Furthermore, because our data are cross-sectional, we cannot make causal inferences about the relationship between staff perceiving voice safety and reported timeliness of care.

On the basis of prior research, we proposed a climate–behavior relationship: Climates that are safe for voice foster proactive voice (Morrison et al., 2011), which facilitates coordination, learning and the implementation of effective and efficient work practices, and thus better service quality, including timelier care observed by patients. Our theory is consistent with research suggesting that, when staff experience the work environment as enabling, they are more satisfied and therefore engage in more behaviors to better serve customers, resulting in greater customer satisfaction (Heskett et al., 2008; Wiley & Brooks, 2000). Unfortunately, in this study, we did not have measures of the mediating variables proposed. An important focus for future research would be to assess the behaviors thought to mediate the relationship between the climate for staff and patient care experiences and to evaluate the associations we suggest herein. Also, we hope future studies will include

objective measures of the timing of care to complement patient assessments of timeliness. Understanding the relationship between these two types of timeliness and what influences them—similarly or differently—is important for improving the ability to deliver timely care in both regards. In particular, greater understanding of the link between staff experience and patient experience may help organizations to devise strategies that enable the delivery of more patient-centered care.

Acknowledgments

We thank Dale Shaller for his services as a consultant, Phil Jury and Joan Krebs of SPR Center for their administration of the LCQ survey, Westat for preparing the CAHPS Clinician and Group Visit Survey data set for our use, and the leadership and staff of the clinics that participated in this study for their willingness to be involved. Christopher Morrow and Israel Labao provided literature assistance, and the Yale Center for Analytical Science provided statistical assistance. This study was approved by the Human Investigations Committee at Yale University.

This research was funded by a Cooperative Agreement from the Agency for Healthcare Research and Quality (AHRQ; U18 HS016978). Dr. Nembhard was also supported by a Career Development Award from AHRQ (K01HS0189701). The content is solely the responsibility of the authors and does not necessarily represent the official views of funding agencies.

References

- Agency for Healthcare Research and Quality. National healthcare quality report 2009 US Department of Health and Human Services. Mar. 2010 AHRQ Pub No 10-000
- Aligning Forces for Quality. How to report results of the CAHPS Clinician & Group Survey. Robert Wood Johnson Foundation; 2008.
- Balik, B., Conway, J., Zipperer, L., Watson, J. Achieving an exceptional patient and family experience of inpatient hospital care. Institute for Healthcare Improvement; Cambridge, Massachusetts: 2011. IHI Innovation Series white paper available on www.IHI.org
- Benzer JK, Young G, Stolzmann K, Osatuke K, Meterko M, Caso A, Mohr DC. The relationship between organizational climate and quality of chronic disease management. *Health Services Research*. 2011; 46(3):691–711. [PubMed: 21210799]
- Brousseau DC, Gorelick MH, Hoffmann RG, Flores G, Nattinger AB. Primary care quality and subsequent emergency department utilization for children in Wisconsin Medicaid. *Academic Pediatrics*. 2009; 9(1):33–39. [PubMed: 19329089]
- Browne K, Roseman D, Shaller D, Edgman-Levitan S. Measuring patient experience as a strategy for improving primary care. *Health Affairs*. 2010; 29(5):921–925. [PubMed: 20439881]
- DiMatteo MR. Enhancing patient adherence to medical recommendations. *JAMA*. 1994; 271(1):79–79. 83. [PubMed: 8258895]
- Field JM, Sinha KK. Applying process knowledge for yield variation reduction: A longitudinal field study. *Decision Sciences*. 2005; 36(1):159–186.
- Freidson, E. Professional dominance: The social structure of medical care. Chicago, IL: Aldine Publishing Company; 1970.
- Freshman, B., Rubino, LG., Chassiakos, YR. Collaboration across the disciplines in health care. Sudbury, MA: Jones & Bartlett Publishers; 2010.
- Gerteis, M., Edgman-Levitan, S., Daley, J. Through the patient's eyes: Understanding and promoting patient-centered care. San Francisco, CA: Jossey-Bass; 1993.
- Gittell JH. Coordinating mechanisms in care provider groups: Relational coordination as a mediator and input uncertainty as a moderator of performance effects. *Management Science*. 2002; 48(11):1408–1425.
- Green SM. Total systems intervention: Organizational communication in North Yorkshire Police. *Systemic Practice and Action Research*. 1992; 5(6):585–599.

- Hackman, JR. Group influences on individuals in organizations. In: Dunnette, MD., Hough, LM., editors. *Hand-book of industrial and organizational psychology*. 2nd. Vol. 3. Palo Alto, CA: Consulting Psychologists Press; 1992. p. 199-267.
- Heskett JL, Jones TO, Loveman GW, Sasser JWE, Schlesinger LA. Putting the service-profit chain to work. *Harvard Business Review*. 2008; 86(7/8):118–129.
- Institute of Medicine. *Crossing the quality chasm: A new system for the 21st century*. Washington, DC: National Academy Press; 2001.
- Isaac T, Zaslavsky AM, Cleary PD, Landon BE. The relationship between patients' perception of care and measures of hospital quality and safety [article]. *Health Services Research*. 2010; 45(4):1024–1040. [PubMed: 20528990]
- Keating N, Green D, Kao A, Gazmararian J, Wu V, Cleary P. How are patients' specific ambulatory care experiences related to trust, satisfaction, and considering changing physicians? *Journal of General Internal Medicine*. 2002; 17(1):29–39. [PubMed: 11903773]
- Kellogg KC, Orlikowski W, Yates J. Life in the trading zone: Structuring coordination across boundaries in postbureaucratic organizations. *Organization Science*. 2006; 17(1):22–44.
- Kenagy JW, Berwick DM, Shore MF. Service quality in health care. *JAMA*. 1999; 281(7):661–665. [PubMed: 10029131]
- LeBreton JM, Senter JL. Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods*. 2008; 11(4):815–852.
- Leddy KM, Kaldenberg DO, Becker BW. Timeliness in ambulatory care treatment. An examination of patient satisfaction and wait times in medical practices and outpatient test and treatment facilities. *Journal of Ambulatory Care Management*. 2003; 26(2):138–149. [PubMed: 12698928]
- Manias E, Street A. The interplay of knowledge and decision making between nurses and doctors in critical care. *International Journal of Nursing Studies*. 2001; 38(2):129–140. [PubMed: 11223054]
- Mohr D, Benzer J, Young G. Provider workload and quality of care in primary care settings: Moderating role of relational climate. *Medical Care*. 2013; 51(1):108–114. [PubMed: 23222471]
- Morrison EW. Employee voice behavior: Integration and directions for future research. *The Academy of Management Annals*. 2011; 5(1):373–412.
- Morrison EW, Wheeler-Smith SL, Kamdar D. Speaking up in groups: A cross-level study of group voice climate and voice. *Journal of Applied Psychology*. 2011; 96(1):183–191. [PubMed: 20718517]
- Murray M, Berwick DM. Advanced access: Reducing waiting and delays in primary care. *JAMA*. 2003; 289(8):1035–1040. [PubMed: 12597760]
- Nembhard IM, Edmondson AC. Making it safe: The effects of leader inclusiveness and professional status on psychological safety and improvement efforts in health care teams. *Journal of Organizational Behavior*. 2006; 27(7):941–966.
- Nembhard, IM., Edmondson, AC. Psychological safety: A foundation for speaking up, collaboration and experimentation. In: Cameron, K., Spreitzer, G., editors. *The Oxford Handbook of Positive Organizational Scholarship*. New York, NY: Oxford University Press; 2010. p. 490-503.
- Nonaka I. The knowledge-creating company. *Harvard Business Review*. 1991; 69(6):77–91.
- Nunnally, J. *Psychometric theory*. 2nd. New York, NY: McGraw-Hill; 1978.
- Osatuke K, Moore SC, Ward C, Dyrenforth SR, Belton L. Civility, respect, engagement in the workforce (CREW). *Journal of Applied Behavioral Science*. 2009; 45(3):384–410.
- Payne RL, Mansfield R. Relationships of perceptions of organizational climate to organizational structure, context, and hierarchical position. *Administrative Science Quarterly*. 1973; 18(4):515–526.
- Rathert C, May DR. Health care work environments, employee satisfaction, and patient safety: Care provider perspectives. *Health Care Management Review*. 2007; 32(1):2–11. [PubMed: 17245197]
- Rodriguez HP, Von Glahn T, Rogers WH, Safran DG. Organizational and market influences on physician performance on patient experience measures. *Health Services Research*. 2009; 44(3):880–901. [PubMed: 19674429]
- Rose KD, Ross JS, Horwitz LI. Advanced access scheduling outcomes: A systematic review. *Archives of Internal Medicine*. 2011; 171(13):1150–1159. [PubMed: 21518935]

- Schein, EH. Organizational culture and leadership. 2nd. San Francisco, CA: Jossey-Bass Publishers; 1992.
- Schneider, B. Organizational climate and culture. San Francisco, CA: Jossey-Bass; 1990.
- Singer SJ, Falwell A, Gaba DM, Baker LC. Patient safety climate in U.S. hospitals. *Medical Care*. 2008; 46(11):1149–1156. [PubMed: 18953225]
- Sofaer S, Firminger K. Patient perceptions of the quality of health services. *Annual Review of Public Health*. 2005; 26(1):513–559.
- Soni, A. Getting routine care, US adult noninstitutionalized population, 2007. Rockville, MD: Agency for Healthcare Research and Quality; 2010.
- SPR Center. ICSI 2005 culture survey: Statistical analysis and illustrations. Minneapolis, MN: Satisfaction/Performance/Research Center; 2005.
- Thomas E, Sexton J, Helmreich R. Discrepant attitudes about teamwork among critical care nurses and physicians. *Critical Care Medicine*. 2003; 31(3):956–959. [PubMed: 12627011]
- Tucker AL, Nembhard IM, Edmondson AC. Implementing new practices: An empirical study of organizational learning in hospital intensive care units. *Management Science*. 2007; 53(6):894–907.
- VanDeusen Lukas C, Meterko M, Mohr D, Nealon Seibert M, Parlier R, Levesque O, Petzel RA. Implementation of a clinical innovation: The case of advanced clinic access in the Department of Veterans Affairs. *Journal of Ambulatory Care Management*. 2008; 31(2):94–108. [PubMed: 18360170]
- Wiley, JW., Brooks, SM. The high-performance organizational climate. In: Ashkanasy, NM, Wilderom, CPM., Peterson, MF., editors. *Handbook of organizational culture and climate*. Thousand Oaks, CA: Sage Publications; 2000. p. 177-191.
- Young G, Charns MP, Daley J, Forbes MG, Henderson W, Khuri SF. Best practices for managing surgical services: The role of coordination. *Health Care Management Review*. 1997; 22(4):72–81. [PubMed: 9358262]
- Zander, A. Making groups effective. San Francisco, CA: Jossey-Bass; 1982.

Table 1Characteristics of study clinics ($n = 37$)

Characteristic	n (%) or mean (SD)
Medical group affiliation	
Group 1	2 (5%)
Group 2	5 (14%)
Group 3	10 (27%)
Group 4	20 (54%)
Ownership—not-for-profit	37 (100%)
Clinic size	
Number of providers	12.85 (8.44)
Number of patients	2,903.08 (2,000.80)
Primary care services include	
Family and/or internal medicine	37 (100%)
Also pediatrics separate from family medicine	24 (65%)
Also obstetrics and/or gynecology	19 (51%)
Staff workload (1–5 score) ^a	3.12 (0.47)

^aAs reported by clinical and administrative staff in response to “The quality of work suffers because of the amount of work staff are expected to do” (1 = *strongly disagree*, 5 = *strongly agree*).

Table 2Characteristics of patients ($n = 8,164$) in 37 study clinics

Characteristic	<i>n</i> (%)
Age (years)	
18–24	249 (3.1)
25–34	519 (6.4)
35–44	739 (9.1)
45–54	1,390 (17.2)
55–64	1,882 (23.2)
65–74	1,538 (19.0)
75+	1,790 (22.1)
Missing	57 (0.7)
Gender	
Male	3,288 (40.5)
Female	4,823 (59.5)
Missing	53 (0.7)
Education: Highest grade completed	
8th grade	168 (2.1)
Some high school	307 (3.8)
High school grad or GED	2,035 (25.4)
Some college/2-year degree	2,503 (31.2)
4-year college graduate	1,421 (17.7)
More than 4-year college	1,593 (19.9)
Missing	137 (1.7)
Race	
White	7,233 (90.1)
Black	305 (3.8)
Other	491 (6.1)
Missing	135 (1.7)
Ethnicity	
Non-Hispanic	7,699 (98.1)
Hispanic	150 (1.9)
Missing	315 (3.9)
Health status	
Excellent	1,068 (13.3)
Very good	2,876 (35.8)
Good	2,836 (35.3)
Fair	1,035 (12.9)
Poor	215 (2.7)
Missing	134 (1.6)

Table 3

Descriptive statistics and correlations for clinic level variables

Variables	Mean	SD	1	2	3	4
1. Voice climate: staff-reported	3.52	0.36				
2. Voice climate: leader-reported	3.81	0.32	−0.25			
3. Number of providers	12.85	8.44	0.22	−0.17		
4. Number of patients	2903.08	2000.80	0.14	−0.04	0.75**	
5. Workload	3.12	0.47	0.64**	−0.23	0.05	0.06

**
 $p < 0.01$.

Table 4

Results of testing the relationship between difference in voice climate between professional groups and measures of patients' experience of timely care

	Model 1	Model 2	Model 3	Model 4
Dependent variable = Patients' experience of timely care as measured by				
	Obtained appointment as soon as needed?	Saw physician as soon as needed?	Waited reasonable time for appointment?	Received follow-up test results?
	Mean (SD): 96% (2%)	Mean (SD): 96% (2%)	Mean (SD): 86% (3%)	Mean (SD): 94% (3%)
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Independent variable				
Difference in reported climate (clinic leaders–staff)	0.62 (0.41, 0.93) *	1.05 (0.70, 1.57)	0.61 (0.47, 0.80) **	0.79 (0.66, 0.96) **
Covariates: clinic level				
Number of providers	0.93 (0.90, 0.95) **	0.96 (0.94, 0.98) **	0.99 (0.97, 1.01)	0.98 (0.97, 0.99) **
Number of patients ^a	1.35 (1.11, 1.49) **	1.22 (1.11, 1.22) **	0.90 (0.82, 1.11)	1.00 (0.90, 1.11)
Workload	1.03 (0.60, 1.74)	1.63 (0.93, 2.86) †	0.72 (0.43, 1.19)	0.98 (0.76, 1.27)
Medical Group 1	0.98 (0.29, 3.30)	1.16 (0.52, 2.62)	0.45 (0.16, 1.23)	0.36 (0.20, 0.64) **
Medical Group 2	0.83 (0.23, 3.02)	0.85 (0.35, 2.03)	0.37 (0.13, 1.11)	0.52 (0.28, 0.97) *
Medical Group 3	1.21 (0.30, 4.82)	0.95 (0.40, 2.29)	0.42 (0.13, 1.39)	0.57 (0.28, 1.16)
Medical Group 4	Reference	Reference	Reference	Reference
Covariates: patient level				
Age group				
Ages 18–24	0.38 (0.12, 1.20) †	0.23 (0.10, 0.56) **	0.58 (0.40, 0.85) **	0.27 (0.13, 0.56) **
Ages 25–34	0.38 (0.24, 0.60) **	0.33 (0.18, 0.62) **	0.52 (0.38, 0.72) **	0.41 (0.25, 0.66) **
Ages 35–44	0.62 (0.38, 1.01) †	0.56 (0.29, 1.09) †	0.62 (0.44, 0.87) **	0.49 (0.31, 0.78) **
Ages 45–54	0.56 (0.35, 0.90) *	0.64 (0.39, 1.05) †	0.75 (0.57, 0.97) *	0.53 (0.38, 0.73) **
Ages 56–74	0.73 (0.51, 1.05) †	0.87 (0.50, 1.50)	0.82 (0.67, 1.00) †	0.92 (0.62, 1.35)
Ages 65–74	0.97 (0.68, 1.37)	1.73 (0.86, 3.49)	0.89 (0.73, 1.09)	0.86 (0.57, 1.29)
Ages 75 and older	Reference	Reference	Reference	Reference
Gender				
Male	1.05 (0.70, 1.57)	0.94 (0.68, 1.31)	1.17 (1.01, 1.37) *	1.24 (0.98, 1.57) †
Female	Reference	Reference	Reference	Reference
Education				
8th grade or less	1.24 (0.52, 2.97)	0.81 (0.31, 2.15)	0.72 (0.48, 1.08)	0.71 (0.36, 1.39)
Some high school, no graduation	1.42 (0.56, 3.59)	1.44 (0.58, 3.62)	0.83 (0.56, 1.23)	1.32 (0.72, 2.42)
High school graduate or GED	1.78 (1.00, 3.17) *	1.75 (0.90, 3.39) †	1.03 (0.78, 1.35)	1.32 (1.00, 1.74) *
Some college or 2-year degree	1.01 (0.70, 1.45)	1.36 (0.97, 1.91) †	0.85 (0.71, 1.01) †	1.16 (0.87, 1.53)

	Model 1	Model 2	Model 3	Model 4
Dependent variable = Patients' experience of timely care as measured by				
	Obtained appointment as soon as needed?	Saw physician as soon as needed?	Waited reasonable time for appointment?	Received follow-up test results?
	Mean (SD): 96% (2%)	Mean (SD): 96% (2%)	Mean (SD): 86% (3%)	Mean (SD): 94% (3%)
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
4-year college graduate	0.81 (0.52, 1.28)	1.23 (0.75, 2.01)	0.90 (0.72, 1.12)	0.91 (0.66, 1.26)
More than 4-year college degree	Reference	Reference	Reference	Reference
Race				
White	1.45 (0.89, 2.39)	0.89 (0.46, 1.73)	1.11 (0.85, 1.45)	1.38 (0.94, 2.01) [†]
Black	1.21 (0.43, 3.44)	0.77 (0.29, 2.03)	1.49 (1.02, 2.19) [*]	1.91 (0.97, 3.76) [†]
Other	Reference	Reference	Reference	Reference
Health status	0.80 (0.72, 0.90) ^{**}	0.75 (0.62, 0.92) ^{**}	0.88 (0.80, 0.96) ^{**}	0.96 (0.85, 1.08)
<i>n</i>	4,959	3,473	7,212	5,820

Notes: Health status was rated on a 5-point scale: 1 = *excellent health* to 5 = *poor health*. Thus, patients with poorer health status were more likely to report receiving less timely care. Ethnicity (i.e., Hispanic vs. not) is excluded from the models presented for parsimony. It had no significant relationship to any of the timeliness of care measures, likely because of the homogeneity of the sample (98% non-Hispanic). OR = odd ratios; 95% CI = 95% confidence interval.

^aReported per 1,000 increase in patient number.

[†]*p* .10.

^{*}*p* .05.

^{**}*p* .01.

Table 5

Results of testing the relationship between voice climate and measures of patients' experience of timely care

	Model 1	Model 2	Model 3	Model 4
Dependent variable = Patients' experience of timely care as measured by				
	Obtained appointment as soon as needed? (n = 4,959)	Saw physician as soon as needed? (n = 3,473)	Waited reasonable time for appointment? (n = 7,212)	Received follow-up test results? (n = 5,280)
	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Independent variable				
Climate: staff reported	1.72 (0.91, 3.24) [†]	1.22 (0.59, 2.53)	2.08 (1.35, 3.19)**	1.54 (1.18, 2.01)**
Climate: leader reported	0.66 (0.36, 1.21)	1.32 (0.75, 2.32)	0.77 (0.52, 1.15)	0.97 (0.79, 1.20)

Notes: Models include all covariates presented in Table 3. Covariates have the same level of significance as in Table 3. OR = odd ratios; 95% CI = 95% confidence interval.

[†]
p < .10.

*
p < .05.

**
p < .01.