The Association Between Cultural Competence and Teamwork Climate in a Network of Primary Care Practices

Tina Kumra, MD, MPH^{a,c}, Yea-Jen Hsu, PhD, MHA^b, Tina L. Cheng, MD, MPH^c, Jill A. Marsteller, PhD, MPP^b, Maura McGuire, MD^{a,c}, and Lisa A. Cooper, MD, MPH^{a,b,c}

^aJohns Hopkins Community Physicians, Baltimore, MD

^bJohns Hopkins Bloomberg School of Public Health, Baltimore, MD

^cJohns Hopkins University School of Medicine, Baltimore, MD

Abstract

Background—A health system's commitment to delivering culturally competent care is essential in creating a culture of respect for patients, clinicians and administrative staff. As the diversity of the healthcare workforce grows, gaining an understanding of the perspectives among different health care personnel and the value that they place on organizational cultural competence is a first step in developing more effective team environments.

Purpose—To determine whether an association exists between perceptions of organizational cultural competence and teamwork climate among employees in a health system.

Methodology/Approach—1080 employees in a primary care network consisting of 49 ambulatory practices were surveyed on their perceptions of senior management's efforts in organizational cultural competence and teamwork climate in their own work setting using 5-point Likert scales. Linear regression models were used to evaluate the association between organizational cultural competence and teamwork climate.

Results—The overall organizational response rate for the survey was 84%. Higher perception of organizational cultural competence was associated with better teamwork climate (coef.=0.4, $P < 0.001$) after adjusting for gender, age, years in specialty, race, and position type. The association was stronger in magnitude for support staff compared to administrators and clinicians and stronger for younger compared to older age groups.

Corresponding Author: Tina Kumra, MD, MPH, Johns Hopkins Community Physicians, 2700 Remington Avenue, Suite 2000, Baltimore MD 21211, tkumra1@jhmi.edu, 667-312-2400 (office), 410-367-2203 (fax).

Tina Kumra, MD, MPH is Assistant Professor, Department of Pediatrics, Johns Hopkins University School of Medicine, Johns Hopkins Community Physicians

Yea-Jen Hsu, PhD, MHA is Assistant Scientist, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health

Tina L. Cheng, MD, MPH is Professor, Department of Pediatrics, Johns Hopkins University School of Medicine

Jill Marsteller, PhD, MPP is Associate Professor, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health

Maura McGuire, MD is Assistant Professor, Division of General Internal Medicine, Johns Hopkins University School of Medicine, Johns Hopkins Community Physicians

Lisa A. Cooper, MD, MPH is Bloomberg Distinguished Professor and James F. Fries Professor of Medicine, Department of Medicine, Johns Hopkins University School of Medicine and Department of Health, Behavior & Society, Johns Hopkins Bloomberg School of Public Health

Conflict of Interest Statement: No conflicts of interest were reported by any manuscript authors.

Conclusions—Higher employee perceptions of organizational cultural competence are associated with better self-reported teamwork climate, and this relationship is magnified for support staff and younger employees.

Introduction

The United States is projected to become majority-minority for the first time in 2044. (US Census Bureau, 2015) The Hispanic and Asian populations are expected to more than double from 2012 to 2060, with more gradual rises in the African-American, American Indian, and Alaskan Native populations during the same time period. Historically, racial and ethnic minorities in the U.S. have had higher rates of disease, disability, and death. Although efforts have been made to reduce these disparities, significant disparities persist that cannot be explained by access to healthcare or patient preference. (National Center for Health Statistics US, 2017) Racial and ethnic minority patients are more likely to perceive bias and a lack of cultural competence in the health system than Whites. (Johnson, R et al., 2004, Saha S., 2008, Paternotte, 2015) In order to overcome these disparities and biases and to achieve health equity, an ongoing organizational commitment and a systems approach focusing on delivering culturally competent care is necessary. (National Quality Forum, 2009)

Interpersonal cultural competence is the ability of individual health care professionals to establish effective interpersonal and working relationships with patients and each other, that supercede cultural differences. (Cooper, 2002) A culturally competent organization is one with policies in place to address diversity, creating a culture of respect and support for patients, clinicians and administrative staff. (Betancourt et al., 2002) Several terms have more recently been debated in the literature to capture the fluidity of culture and the lifelong commitment to self-evaluation and institutional accountability, including *cultural humility*. (Tervalon, 1998; Fisher-Borne, 2015) While many scholars continue to grapple with the term cultural competence, it is still commonly used to define the construct used by healthcare organizations to address healthcare disparities. (Betancourt, 2016) Health systems can actively intervene in the following ways in order to deliver culturally competent care: create programs to recruit and retain staff members who reflect the cultural diversity of the community served, systematically use interpreter services or bilingual providers for clients with limited English proficiency, create cultural competency training for healthcare providers, consistently use linguistically and culturally appropriate health education materials, and develop culturally specific healthcare settings, for example, a neighborhood medical center that provides access to care for refugees. (Anderson et al., 2003; Saha, Beach, and Cooper, 2008; Truong, Paradies, and Priest, 2014)

Limited progress has been made in reducing health care disparities related to race and socioeconomic status. (Agency for Healthcare Research and Quality, 2015) Despite the recognized role of health equity in achieving high quality health care (National Research Council, 2001), it has been demonstrated that health personnel perceive stronger organizational orientations toward quality and patient centeredness than toward cultural competency. (Cunningham et al., 2013) These attitudes vary by occupational role and race/ethnicity, with larger percentages of managers and Whites perceiving organizational cultural

competence more positively than front line staff and African Americans. (Cunningham et al., 2013) That is, while managers and Whites perceived their healthcare organization as being committed to addressing healthcare disparities, front line staff and African Americans viewed the commitment differently, with a larger gap to fill. Given the growing diversity of the population and the healthcare workforce, these differences in perception of organizational orientation toward cultural competency may impact other aspects of interest to healthcare managers such as teamwork. Diversity may potentially offer greater creativity, innovation and enhanced problem solving by integrating the knowledge, experience, and skillsets of people with different backgrounds. However, teams consisting of individuals with different backgrounds may have more conflict and be less cooperative due to differences in perspectives and less common understanding. Senior management can work to improve cross-cultural communication and can value others of different backgrounds in order to leverage diversity using the recommendations made by the National Quality Forum to shape an ongoing organizational commitment to cultural competence.

Theory

Increasing attention has been placed on team-based care and multidisciplinary collaborative decision-making among health and allied health professionals, particularly in chronic disease management and the delivery of primary care. (Richardson 2001; Dennis, 2008) The Institute of Medicine has emphasized the need for health care organizations that facilitate the work of high-performing, patient-centered teams yet there remains a wide range of contextual factors in organizations that influence effective interprofessional collaboration in primary care practice that need to be better defined. (Richardson, 2001; Morgan, 2015) Primary care has evolved from solo practitioners that made home visits to complex practices that subdivide tasks among receptionists, medical assistants, nurses, nurse practitioners, physician assistants, and others. The definition of a team in primary care has evolved from one that centers around the clinician (for example, one nurse and one medical receptionist per clinician) to one that centers around the panel of patients being seen by a medical practice (for example, a team of four doctors, one nurse, four medical assistants, two receptionists, and one social worker). Accordingly, the promotion of effective team functioning is delineated as one of the five principles for creating safe systems of care delivery and one of the ten characteristics of a high- performing chronic care system. (Kohn, Corrigan, and Donaldson, 2000; Ham, 2010)

Teamwork historically has been described using an input-process-output (IPO) framework. (McGrath, 1984) In this model, team inputs are comprised of individual, team, and contextual factors. Individual-level components include expertise and motivation, team-level components include team size and task structure, and contextual components include organizational policy. Team inputs influence team processes including communication, coordination, and respect, which in turn affect performance outputs. More recent studies have made modifications to this traditional model and it has evolved into the input-mediator-outcome (IMO) teamwork paradigm. (Ilgen et al., 2005; Mathieu et al., 2008) One of the major changes made in the IMO model is the greater emphasis of the context in which team processes are carried out. In this more recent model, individuals are nested within teams that are nested within organizations that are nested within environments. While influences can

occur from individual to environment, there is more impact demonstrated in the opposite direction: from environment to organization to teams to individuals. (Mathieu et al., 2008)

A conceptual model was adapted from the IMO model presented by Mathieu et al (see figure 1). The focus of the conceptual model was on the team inputs domain. The current model describes the nesting of organizational culture, team context, and team members and these elements were expanded upon within the adapted conceptual model. Within organizational context, organizational cultural competence plays a role in creating the higher-level environment in which teams function. This has a bidirectional impact on team context. Within team context, teamwork climate is placed. Teamwork climate is defined as the perceptions of healthcare professionals concerning their collaboration as a group to provide safe care for patients. (Kristenson, 2015) Both organizational context and team context have bidirectional relationships with team member characteristics. Within the team members section of the model, team member characteristics such as race/ethnicity, age, years of experience, and position in the organization are placed.

Although organizational characteristics are recognized to impact teams, little research has been done to identify and delineate these characteristics. Past research on organizations demonstrated that recognitions, rewards, and training systems within organizations were shown to have direct and indirect effects on group effectiveness. (Hyatt and Ruddy, 1997). Team-based human resource policies were also demonstrated to relate positively to team empowerment. (Kirkman and Rosen, 1999) More recently organizational culture, defined in management literature as the shared values and beliefs held by employees within an organization, is receiving growing attention as a contributor to team effectiveness. (Hartnell, Ou, and Kinicki, 2011; Körner et al., 2015) Organizational cultural competence is an important contributor to organizational culture. The largely accepted Competing Values Framework that defines organizational culture is made up four quadrants: the human relations model (cohesion), open system model (flexibility), internal process model (communication), and the rational goal model (planning). (Quinn, 1983) Looking through the lens of this framework, organizational cultural competence may have its largest impact on the human relations quadrant by fostering cohesion and morale within diverse team settings, although it influences all quadrants to some degree. While cultural competence is often defined at the level of the practitioner, organizational cultural competence is comprised of the strategic efforts made on a systems level to meet the needs of employees and patients of diverse backgrounds. Given the growing diversity of the healthcare workforce, gaining a better understanding of the perspectives among different health care personnel and the value that they place on organizational cultural competency may be an important step in creating more effective and more satisfied team environments.

The aim of this study was to examine whether an association exists between perceptions of organizational cultural competence and teamwork climate in a primary care organization. In addition, potential modifiers of this association were tested including race/ethnicity, occupational role, gender, age, and years in specialty. We tested the following hypotheses:

Hypothesis 1: Perceptions of organizational cultural competence are related to teamwork climate such that employees with perceptions of higher levels of

organizational cultural competence will perceive higher levels of teamwork climate in their practice units.

Hypothesis 2: Race/ethnicity, age, years of experience, and occupational position in the organization will modify the relationship between perceptions of organizational cultural competence and teamwork climate. The associations between teamwork and organizational cultural competence will be more positive and stronger among racial and ethnic minorities than among Whites, among younger than among older employees, among employees with fewer rather than greater years of experience in the organization, and among frontline staff than among managers.

Methods

Study Setting

We surveyed clinicians and staff in a large network of 49 outpatient primary care and specialty practices throughout the state of Maryland and Washington, D.C. At the time of the survey, the organization consisted of 1,080 employees that provided care for approximately 280,000 patients annually. We excluded the respondents working at specialty practices, such as pulmonology, cardiology, and surgery practices due to the lower survey response rates in these practices and our intention to focus on primary care. We included pediatrics, general internal medicine, family practice, and obstetrics/gynecology practices (since many women obtain their primary care from their gynecologist). The primary care medical practices within the organization includes a team of clinicians, nurses, administrators, medical assistants, and medical office assistants that together care for a panel of patients. Nurse practitioners, physicians assistants, and physicians were all included in the clinicians category given that they each functioned as primary care clinicians for patients in this organization. Practices are managed by a medical director and a practice manager and are considered “local management,” as defined by the survey. Medical directors and practice administrators report centrally to “senior management.” These terms regarding levels of management are used by this survey and other surveys distributed by this organization.

Data Collection

We developed the Organizational Cultural Competence Scale to be consistent with the National Quality Forum’s (NQF) Consensus Report, “A Comprehensive Framework and Preferred Practices for Measuring and Reporting Cultural Competency.” (National Quality Forum, 2009) The questions together capture organizational cultural competence, within the organizational context of our adapted conceptual model, and are listed below:

1. Senior management makes efforts to recruit, retain, and promote a diverse staff that is representative of the demographics of the service area.
2. Senior management makes efforts to recruit, retain, and promote a diverse leadership that is representative of the demographics of the service area.
3. Senior management collaborates with the community to implement programs to address differences in health that occur by race, ethnicity or cultural background.

4. Senior management recognizes and rewards care that meets patients' social, cultural and linguistic needs.
5. Senior management has a comprehensive plan that addresses patients' cultural concerns.
6. Senior management provides adequate training in how to work with patients and colleagues from different racial/ethnic groups (cross-cultural or diversity training).

The items within the survey were adapted from the NQF-endorsed interrelated domains: leadership, integration into management systems and operations, patient-provider communications, care delivery and supporting mechanisms, workforce diversity and training, community engagement, and data collection, public accountability and quality improvement. These items were measured on a 5-point Likert scale with 1 being strongly disagree and 5 being strongly agree. The responses to items in the scale were averaged in order to create a composite score for further analysis. The scale demonstrated a high degree of internal consistency (Cronbach alpha > 0.9) and factor analysis indicated the items loaded well onto a single scale.

Our teamwork data were abstracted from an ambulatory version of the Safety Attitudes Questionnaire (SAQ), a validated tool that assesses safety culture across six organizational domains, one of which is teamwork climate (Sexton et al., 2006). This survey also collected responses using a 5-point Likert scale and the responses on the items on this scale were averaged to create a composite score. Internal consistency of the teamwork climate scale in the ambulatory version of the SAQ, as measured by the Cronbach alpha, was demonstrated to be 0.82. (Modak, 2007) The practice network modified this survey language to assure it reflected the nature of ambulatory care teams, including office and clinical assistants (McGuire et al., 2012). For example, "the physicians and nurses here work together as a well-coordinated team" was modified to "the staff and doctors here work together as a well-coordinated team." The change from "nurses" to "staff" reflects the differences from historic primary care team models and hospital models where the majority of patient care was delivered by nurses rather than a team that includes nurses, medical assistants, social workers, etc. The term physician was changed to doctor to be more relatable to respondents.

The Organizational Cultural Competence Scale was added to the SAQ and administered between October 15 to November 11, 2013 to 1080 clinicians and staff, all employees of the healthcare organization. All surveys were anonymous in terms of respondent name but not to their position type or practice site and were completed online. Nonresponders were sent weekly reminders following the original request to complete the survey. This study was reviewed and approved by the Johns Hopkins School of Medicine Institutional Review Board. Statistical Analysis.

In examining the potential relationships that exist within our conceptual model (figure 1) we studied the correlation between organizational cultural competence and teamwork climate, and the influence that team member characteristics might have on that relationship. We used frequencies and percentages to describe characteristics of respondents. Scale scores for each respondent were generated using averages of the Likert-scale question items coded from 1 to

5. Higher scores represent more positive perceptions regarding teamwork or cultural competency of the organization. We reported means and standard deviations (SDs) for the scale scores across all the respondents. We also calculated Pearson's correlation coefficients to show the bivariate relationship between the two scales.

We considered the outcome variable of the study, the teamwork climate scale, a continuous variable and constructed mixed-effects linear regression models to examine the association between perceived cultural competency of the organization and teamwork. Although the scale scores are fundamentally ordinal in nature (Carifio and Perla, 2009), prior literature has demonstrated that scale scores generated from multiple individual question items can appropriately be treated as interval measures, and Pearson's correlation coefficient (a linear test) is robust with respect to skewness and nonnormality for analyzing scale scores. (Norman, 2010) Moreover, the results are easier to understand and interpret compared to ordered logistic regression models. We first examined the association between teamwork and cultural competency, and then tested each pre-hypothesized modifier of the association (including age, gender, race/ethnicity, type of position, and years in profession experience) by adding interaction terms. We included random intercepts to account for clustering of individuals working within the same practice sites and used fixed effects to adjust for respondents' age, gender, race/ethnicity, job position, and years of experience in current profession in all of the regression models.

Results

Nine hundred and eight surveys were returned for an overall response rate of 84%, ranging from 68–100% across all 49 ambulatory practices. In addition to excluding specialty practices, we also excluded respondents who did not answer at least half of the total questions in either the organizational cultural competence or teamwork scales and respondents with missing age, gender, race/ethnicity, position, or years of experience, which resulted in a total of 650 respondents in the analysis. (please see Table 1 for respondent characteristics). The average organizational cultural competency score was 3.61 (SD = 0.99) and the average teamwork climate score was 4.06 (SD = 0.89) (Table 1). While we are unable to benchmark the cultural competency subscale among other organizations at this point, the teamwork climate score of 4.06 in the organization studied is slightly greater than the average teamwork climate scale results reported in previous literature (Modak, 2007; Singh, 2008; Watts, 2010; Carney, 2011; McGuire, 2013) Table 2 presents the unadjusted association between respondents' characteristics and the two scale scores. Generally, respondents' demographic characteristics were significantly associated with the teamwork score they reported, but not their perception regarding cultural competency of organization.

Overall, the correlation coefficient between perceived cultural competency of the organization and reported teamwork climate was 0.484 (Table 3). Stratified correlation coefficients showed stronger association between the two scales among younger respondents (age ≤ 30 , $r = 0.616$), staff with less experience (less than 1 year, $r = 0.613$), and African American respondents ($r = 0.622$). Compared with administrators ($r = 0.362$) and clinicians ($r = 0.290$), the correlation coefficient was higher in nurses ($r = 0.559$), medical assistants ($r = 0.586$), office assistants ($r = 0.520$), and central support staff ($r = 0.660$).

Each of the 6 regression models in Table 4 included respondents' age, gender, race/ethnicity, job position, and years of profession as covariates. Model 1 examined the association between teamwork and cultural competency, adjusted for all of the covariates. Model 2 through 6 each tested one pre-hypothesized modifier by adding a set of interaction terms. The regression results showed a strong positive association between perceived cultural competency of the organization and teamwork climate with a 0.4-point increase in teamwork score for every 1-point increase in reported cultural competency of organization ($p < 0.001$; see Model 1 in Table 4). The interaction terms suggested that respondents' position and age modified the association. Compared to administrators/managers and clinicians, the association between perceived organizational cultural competency and teamwork climate were significantly stronger among nurses, medical and office assistants, and central support staff ($p < 0.05$, Model 3, Table 4). When perceived cultural competency of the organization was low, there was a significant gap in reported teamwork climate by both administrators/managers and clinicians, compared to the responses of other members of the staff. As perceived cultural competency of the organization increased, the gap decreased. Similarly, the gap in reported teamwork climate between younger and older respondents also disappeared when perceived cultural competency of the organization was high (Model 4). A U-shaped association between respondents' practice experience and teamwork climate score was found in Model 1 when no interaction terms were included. Respondents with a medium level of experience (i.e., 1–10 years) reported a lower score in teamwork climate than respondents with less than 1 year (coef. = 0.51, $p = 0.011$) or greater than 10 years of experience (coef. = 0.71, $p = 0.269$). We did not find that respondents' duration of experience in practice modified the association between cultural competency of the organization and teamwork climate (Model 6). Respondents' race/ethnicity did not modify the association between cultural competency of the organization and teamwork climate (Model 2); neither did respondents' gender (Model 5).

Discussion

The association found between perceptions of organizational cultural competence and teamwork climate further highlights the importance of building culturally competent health systems. Organizational cultural competence may be an important way to facilitate high-functioning teams. Within both the traditional (IPO) or the slightly modified (IMO) framework of teamwork, organizational climate and norms are categorized as teamwork input factors. (Kunzle, 2010) Although team inputs have not received a lot of attention in the literature to this point, it has been recognized that a fundamental element of a team is that it operates in an organizational context that influences its functioning. (Mathieu et al., 2008) Based on our conceptual model adapted from Mathieu et al, organizational cultural competence is associated with teamwork climate. Team member characteristics such as race/ethnicity, age, years of experience, and position also influence organizational cultural competence and teamwork climate and are nested within teamwork context which is nested within organizational context (see figure 1). Our findings suggest that investing in cultural competence on a systems level may positively influence the organizational context of team inputs.

Position type may modify the association between organizational members' perception of organizational cultural competency and teamwork within their work environment. We found that the relationship was stronger in magnitude among clinical and clerical support staff than among administrators and clinicians. Previous studies show that clinicians rate teamwork climate more positively than staff members such as nurses. (Sexton et al., 2006; Makary et al., 2006; Thomas, Sexton, and Helmreich, 2003) Understanding these differing perspectives is critical in developing better teamwork climate and its role in patient safety culture, particularly in ambulatory settings where an increasing number of position types are being introduced to meet the increasing workload. Certain dynamics of teamwork climate such as approachability of superiors and hesitancy to express concerns among subordinates may be influenced by cross- cultural interactions. When team members with less decision-making authority feel confident in the organization's ability to address cultural competence, they may feel more empowered to voice concerns to more autonomous members of the team, such as clinicians or administrators.

Age was also a modifier between organizational members' perception of organizational cultural competency and teamwork climate, and the effect was stronger in magnitude among employees 35 and younger than among employees 45 and older. Multigenerational differences in the workplace are greater now than at any other point in history. (Glass, 2007) The millennial generation is more diverse than generations that preceded them, with 42.2 percent being part of a minority race or ethnic group, (US Census Bureau, 2015) and is more receptive to cultural differences than older generations. (PewResearchCenter, 2010) Because the younger generation is more diverse, they may place more value on diversity than older generations and may also perceive organizational cultural competence to be a greater influence on their teamwork climate.

The results also showed that respondents with 1-10 years of experience in their current profession reported lower teamwork scores compared to their counterparts with less than 1 year of experience or with more than 10 years of experience. Research has suggested a non-linear relationship between age or organizational tenure with job satisfaction and burnout (Pitt-Catsoupes, 2008). It is not uncommon that people with medium level of experience lose their enthusiasm for their job or work environment compared to more junior or senior colleagues. However, in model 6, we did not find that respondents' duration of experience in practice modified the association between organizational cultural competency and teamwork climate. This indicates that respondents with different levels of profession experience had a similar cultural competency and teamwork relationship, even though those with medium years of experience on average reported lower teamwork scores. At different levels of organizational cultural competence, the relationship between tenure and teamwork climate changes, which further highlights the ways in which organizational competence may impact teamwork.

While we did note a stronger bivariate association between teamwork and perception of organizational cultural competence among African American respondents, this did not hold true when controlling for other influences such as position and age. Race/ethnicity was not found to be a significant modifier of the relationship between perceived organizational cultural competence and perceived teamwork climate in our study, but it is important to note

of those that were included in the survey analysis, sixteen percent selected “decline to answer” for the demographic question related to race/ethnicity and that may have impacted the results.

There are a variety of ways in which organizational cultural competence may influence teamwork climate. Developing a diverse staff and leadership structure may create more openness and approachability in the workplace. Providing diversity training may create awareness in how to work with patients and colleagues from different backgrounds. In fact, the major objectives of diversity training include enhancing self-awareness of attitudes toward people of different racial and ethnic groups and improving communication, an essential tool in effective teamwork. (Curtis, Dreachslin, and Sinioris, 2007) Organizational cultural competence may increase job satisfaction and retention by creating more effective teams. Perception of organizational cultural competency was one of the strongest predictors of job satisfaction among nursing assistants in long-term care facilities. (Allensworth-Davies et al., 2007)

There are some limitations to this study. Although perceptions of teamwork can vary over time, this survey captured respondent attitudes at one specific point. The cross-sectional design does not allow us to make causal inferences. Cultural competency of the organization may impact teamwork, teamwork climate may impact organizational cultural competency, or there may be a bidirectional, simultaneous relationship. In addition, the data were self-reported and were subject to recall and social desirability bias. Selection bias among respondents may also impact results, however the high response rate reduces the likelihood of such bias. Twenty percent of respondents were excluded due to missing data. Many of the missing values may be attributed to survey abandonment. Survey questions listed in the later sections in the questionnaire had higher missing rate, including cultural competency items and demographic questions. Further comparisons between respondents who were excluded and included in the analysis showed that the differences in age, gender and years in specialty between the two groups were not statistically significant. However, those excluded in the analysis were less likely to provide their race/ethnicity, and to be administrator/manager, nurse, or certified medical assistant. They also reported lower scores in both teamwork and cultural competency scales. Nevertheless, the degree of correlation between the two scales, the research question the study aimed to answer, were similar in the two groups (inclusion group: $r = 0.48$; exclusion group: $r = 0.42$). Sixteen percent of respondents declined to answer the demographic question related to race/ethnicity which may have affected our ability to test for modification by race/ethnicity. Lastly, while the organizational cultural competence scale was developed based on the NQF consensus report on measuring and reporting cultural competence, it has not yet been validated. However, the scale demonstrated high internal consistency (Cronbach alpha > 0.9) and factor analysis revealed the questions loaded well onto a single scale.

Strengths of the study include the large sample size, the diversity of the employee group surveyed and the high response rate. The teamwork climate subscale used is a validated tool. Also, the organizational cultural competence subscale used is derived from the National Quality Forum’s recommended domains.

Practice Implications

Our findings suggest that organizational leaders may positively influence the environment in which teamwork processes are carried out by investing in cultural competence in the seven domains endorsed by the National Quality Forum (leadership, integration into management systems and operations, patient-provider communications, care delivery and supporting mechanisms, workforce diversity and training, community engagement, and data collection, public accountability and quality improvement). Employee perceptions of organizational cultural competency are associated with their perceptions of teamwork climate. The association found between organizational cultural competence and teamwork climate is stronger in magnitude for support staff in comparison to administrators and providers. Additionally, the relationship is stronger for younger as compared to older age groups. As the diversity of primary care teams and patient panels continue to grow, organizations will need to maintain pace with addressing the needs of diverse healthcare teams through organizational cultural competence. Cultural competence training may improve not only patient interactions but also serve to strengthen colleague interactions. Recruiting and retaining a diverse staff may increase relatability and understanding in the workplace, and these efforts may become ever more important as younger, more diverse generations enter and lead the workforce. Staff in roles in the front lines of the organization perceive organizational cultural competence and teamwork differently than senior management, so their viewpoints must be included and understood before strategic objectives are set.

This study helps to fill the gaps in the existing literature on the impact of organizational context on teamwork. It suggests an increased emphasis on organizational cultural competence is a fruitful strategy to improve team performance in an increasingly diverse society. Future research should further investigate the potential causal relationship between organizational cultural competence and teamwork, explore the reasons for the differences seen between support staff and administrators as well as between younger and older ages. More research is also needed on the potential influence of race/ethnicity, and the impact of organizational cultural competence on other factors outside of teamwork climate that also contribute to quality of care, safety, and patient health outcomes.

Acknowledgments

Funding source: This work was supported, in part, by grants from the National Heart, Lung, and Blood Institute (P50 HL0105187 and K24 HL083113).

References

- Allensworth-Davies D, Leigh J, Pukstas K, Geron SM, Hardt E, Brandeis G, Parker VA. 2007; Country of origin and racio-ethnicity: Are there differences in perceived organizational cultural competency and job satisfaction among nursing assistants in long-term care? *Health Care Management Review*. 32(4):321–329. [PubMed: 18075441]
- Anderson LM, Scrimshaw SC, Fullilove MT, Fielding JE, Normand J, Task Force on Community Preventive Services. 2003; Culturally competent healthcare systems: A systematic review. *American Journal of Preventive Medicine*. 24(3):68–79. [PubMed: 12668199]
- Betancourt JR, Green AR, Carrillo JE, Ananeh-Firempong O 2nd. 2003; Defining cultural competence: A practical framework for addressing racial/ethnic disparities in health and health care. *Public Health Reports (Washington, DC: 1974)*. 118(4):293–302.

- Carifio J, Perla R. 2008; Resolving the 50-year debate around using and misusing Likert scales. *Medical education*. 42(12):1150–1152. [PubMed: 19120943]
- Carney BT, West P, Neily JB, Mills PD, Bagian JP. 2011; Improving perceptions of teamwork climate with the Veterans Health Administration medical team training program. *American Journal of Medical Quality*. 26(6):480–484. [PubMed: 21813506]
- Cooper, LA, Roter, DL. Patient-provider communication: The effect of race and ethnicity on process and outcomes of healthcare. In: Smedley, BD, Stith, AY, Nelson, AR, editors *Unequal Treatment: Confronting Racial and Ethnic Disparities in Healthcare*. Washington, DC: The National Academies Press; 2002. 552–593.
- Cunningham BA, Marsteller JA, Romano MJ, Carson KA, Noronha GJ, McGuire MJ, Yu A, Cooper LA. Perceptions of Health System Orientation: Quality, Patient Centeredness, and Cultural Competency. *Medical Care Research and Review*. 2014 Dec; 71(6):559–79. [PubMed: 25389301]
- Curtis EF, Dreachslin JL, Sinioris M. 2007; Diversity and cultural competence training in health care organizations: Hallmarks of success. *The Health Care Manager*. 26(3):255–262. [PubMed: 17938595]
- Dennis SM, Zwar N, Griffiths R, Roland M, Hasan I, Powell Davies G, Harris M. 2008; Chronic disease management in primary care: from evidence to policy. *The Medical Journal of Australia*. 188(8):53.
- Ham C. 2010; The ten characteristics of the high-performing chronic care system. *Health Economics, Policy and Law*. 5(1):71–90. DOI: 10.1017/S1744133109990120
- Hartnell CA, Ou AY, Kinicki A. 2011; Organizational culture and organizational effectiveness: A meta-analytic investigation of the competing values framework's theoretical suppositions. *Journal of Applied Psychology*. 96(4):677. [PubMed: 21244127]
- Hyatt DE, Ruddy TM. 1997; An examination of the relationship between work group characteristics and performance: Once more into the breach. *Personnel Psychology*. 50(3):553.
- Ilgen DR, Hollenbeck JR, Johnson M, Jundt D. 2005; Teams in organizations: From input-process-output models to IMOI models. *Annu Rev Psychol*. 56:517–543. [PubMed: 15709945]
- Johnson RL, Saha S, Arbelaez JJ, Beach MC, Cooper LA. 2004; Racial and ethnic differences in patient perceptions of bias and cultural competence in health care. *Journal of General Internal Medicine*. 19(2):101–110. [PubMed: 15009789]
- Kirkman BL, Rosen B. 1999; Beyond self-management: Antecedents and consequences of team empowerment. *Academy of Management Journal*. 42(1):58–74.
- Kohn, LT, Corrigan, JM, Donaldson, MS, editors *To err is human: building a safer health system*. Vol. 6. National Academies Press; 2000.
- Körner M, Wirtz MA, Bengel J, Göritz AS. 2015; Relationship of organizational culture, teamwork and job satisfaction in interprofessional teams. *BMC Health Services Research*. 15(1):243. [PubMed: 26099228]
- Makary MA, Sexton JB, Freischlag JA, Holzmueller CG, Millman EA, Rowen L, Pronovost PJ. 2006; Operating room teamwork among physicians and nurses: Teamwork in the eye of the beholder. *Journal of the American College of Surgeons*. 202(5):746–752. [PubMed: 16648014]
- Mathieu J, Maynard MT, Rapp T, Gilson L. 2008; Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future. *Journal of management*. 34(3):410–476.
- McGrath, JE. *Groups: Interaction and performance*. Englewood Cliffs, NJ: Prentice-Hall; 1984.
- McGuire MJ, Noronha G, Samal L, Yeh HC, Crocetti S, Kravet S. 2013; Patient safety perceptions of primary care providers after implementation of an electronic medical record system. *Journal of general internal medicine*. 28(2):184–192. [PubMed: 22887020]
- Morgan S, Pullon S, McKinlay E. 2015; Observation of interprofessional collaborative practice in primary care teams: an integrative literature review. *International journal of nursing studies*. 52(7): 1217–1230. [PubMed: 25862411]
- National Center for Health Statistics US. 2017 *Health, United States, 2016: With chartbook on long-term trends in health*.
- National Quality Forum (NQF). *A Comprehensive Framework and Preferred Practices for Measuring and Reporting Cultural Competency: A Consensus Report*. Washington, DC: NQF; 2009.

- Norman G. 2010; Likert scales, levels of measurement and the “laws” of statistics. *Advances in Health Sciences Education*. 15(5):625–632. [PubMed: 20146096]
- Paternotte E, van Dulmen S, van der Lee N, Scherpbier AJ, Scheele F. 2015; Factors influencing intercultural doctor–patient communication: A realist review. *Patient education and counseling*. 98(4):420–445. [PubMed: 25535014]
- Pitt-Catsoupes M, Matz-Costa C. 2008; The multi-generational workforce: Workplace flexibility and engagement. *Community, work and Family*. 11(2):215–229.
- Quinn RE, Rohrbaugh J. 1983; A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. *Management science*. 29(3):363–377.
- Richardson, WC. Crossing the quality chasm: a new health System for the 21st century. Institute of Medicine; 2001. <http://www.nap.edu/books/0309072808/html/>
- Saha S, Beach MC, Cooper LA. 2008; Patient centeredness, cultural competence and healthcare quality. *Journal of the National Medical Association*. 100(11):1275–1285. [PubMed: 19024223]
- Sexton JB, Helmreich RL, Neilands TB, Rowan K, Vella K, Boyden J, Thomas EJ. 2006; The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. *BMC health services research*. 6(1):1. [PubMed: 16403235]
- Thomas EJ, Sexton JB, Helmreich RL. 2003; Discrepant attitudes about teamwork among critical care nurses and physicians. *Critical Care Medicine*. 31(3):956–959. [PubMed: 12627011]
- Truong M, Paradies Y, Priest N. 2014; Interventions to improve cultural competency in healthcare: A systematic review of reviews. *BMC Health Services Research*. 14:99–6963-14-99. [PubMed: 24589335]
- Singh, G, Singh, R, Thomas, EJ, Fish, R, Kee, R, McLean-Plunkett, E, Anderson, D. Measuring Safety Climate in Primary Care Offices. In: Henriksen, K, Battles, JB, Keyes, MA, editors *Advances in Patient Safety: New Directions and Alternative Approaches (Vol 2: Culture and Redesign)*. Rockville (MD): Agency for Healthcare Research and Quality (US); 2008 Aug.
- US Census Bureau. Millennials Outnumber Baby Boomers and Are Far More Diverse. Census Bureau Reports. <http://www.census.gov/newsroom/press-releases/2015/cb15-113.html>
- Watts BV, Percarpio K, West P, Mills PD. 2010; Use of the Safety Attitudes Questionnaire as a measure in patient safety improvement. *Journal of patient safety*. 6(4):206. [PubMed: 21500606]

Practice Implications

Senior leaders of health systems should consider investment in cultural competence as a contributor toward team effectiveness. Specifically, organizations may help support cultural competence by committing resources to the following: developing a comprehensive plan that addresses patients' cultural needs, recruiting and retaining a diverse staff and leadership, collaborating with the community, recognizing and rewarding care that meets patients' cultural needs, and providing adequate diversity training.

Figure 1. A Conceptual Framework Organizational Cultural Competency and Teamwork
Adapted from “Team effectiveness 1997-2007: A review of recent advancements and a glimpse into the future,” by J. Mathieu, 2008, *Journal of management*, 34(3),p. 410.

Table 1

Characteristics of study respondents

	n = 650	%
Age		
45+	256	39.4
31-44	248	38.2
30	146	22.5
Gender		
Male	95	14.6
Female	555	85.4
Race/ethnicity		
White	343	52.8
African American	128	19.7
Asian	36	5.5
Other	37	5.7
Decline to answer	106	16.3
Position		
Administrator/Manager	93	14.3
Clinician	80	12.3
Nurse	61	9.4
Certified Medical Assistant	140	21.5
Medical Office Assistant	158	24.3
Central support	66	10.2
Other	52	8.0
Years in specialty		
Less than 1 year	59	9.1
1-10 years	384	59.1
11+ years	207	31.9
Teamwork climate scale score, mean (SD)	4.06	(0.89)
Cultural competency of organization scale score, mean (SD)	3.61	(0.99)

Crude relationship between respondent's characteristics and primary measures: teamwork climate and cultural competence (n=650)

Table 2

	Univariate analysis [/]			
	Teamwork climate scale		Cultural competency of organization scale	
	Coef.	S.E.	P value	P value
Age				
45+	(ref)		(ref)	
31-44	-0.30	0.08	<0.001	0.034
30	-0.42	0.09	<0.001	0.602
Gender				
Male	(ref)		(ref)	
Female	-0.19	0.09	0.047	0.712
Race/ethnicity				
White	(ref)		(ref)	
African American	-0.01	0.09	0.931	0.570
Asian	0.36	0.15	0.013	0.416
Other	-0.15	0.15	0.322	0.882
Decline to answer	-0.33	0.09	<0.001	<0.001
Position				
Administrator/Manager	(ref)		(ref)	
Clinician	-0.09	0.13	0.472	0.528
Nurse	-0.32	0.14	0.021	0.657
Certified Medical Assistant	-0.58	0.11	<0.001	0.863
Medical Office Assistant	-0.43	0.11	<0.001	0.392
Central support	-0.51	0.16	0.001	0.223
Other	-0.23	0.14	0.098	0.255
Years in specialty				
Less than 1 year	(ref)		(ref)	
1-10 years	-0.29	0.12	0.014	0.103
11+ years	0.06	0.12	0.606	0.189

[/] Linear regression with practice-level random intercepts to account for clusters of individuals working within the same practice sites

Table 3

Correlation between perceived organizational cultural competency and teamwork climate by respondent's characteristics (n=650)

	Pearson's correlation coefficient
All study respondents	0.484
Age	
45+	0.414
31-44	0.483
30	0.616
Gender	
Male	0.542
Female	0.472
Race/ethnicity	
White	0.448
African American	0.622
Asian	0.440
Other	0.350
Decline to answer	0.433
Position	
Administrator/Manager	0.362
Clinician	0.290
Nurse	0.559
Certified Medical Assistant	0.586
Medical Office Assistant	0.520
Central support	0.660
Other	0.487
Years in specialty	
Less than 1 year	0.613
1-10 years	0.511
11+ years	0.396

* High correlations (above 0.60) are bolded.

Table 4

Regression models[/] on the association between perceived cultural competency of organization and teamwork climate and its modifiers (n=650)

Model 1			Model 2			Model 3			Model 4			Model 5		Model 6		
Main effect; cultural competency																
Coef.	0.40		0.38			0.23			0.34			0.39		0.48		
S.E.	0.03		0.04			0.07			0.05			0.06		0.09		
P-value	<0.001		<0.001			0.001			<0.001			<0.001		<0.001		
Main effect; modifier		Race/ethnicity (reference: White)			Position (reference: Administrator/Manager)			Age (reference: 45+ years)			Gender (reference: Male)		Years in Specialty (reference: < 1 year)			
		African American	Asian	Other	Decline to answer	Clinician	Nurse	Certified medical assistant	Medical office assistant	Central support	Other	31-44 years	30 years	Female	1-10 years	11+ years
Coef.		-0.29	0.89	-0.01	-0.13	-0.10	-1.55	-1.39	-1.08	-1.61	-0.82	-0.31	-1.05	0.02	-0.09	0.48
S.E.		0.28	0.48	0.49	0.28	0.39	0.43	0.33	0.34	0.43	0.42	0.24	0.30	0.27	0.39	0.42
P-value		0.307	0.061	0.979	0.632	0.794	<0.001	<0.001	0.001	<0.001	0.051	0.198	<0.001	0.930	0.812	0.259
Interaction terms																
Coef.		0.10	-0.16	0.01	0.01	-0.02	0.34	0.25	0.18	0.32	0.18	0.04	0.22	0.01	-0.05	-0.18
S.E.		0.07	0.12	0.13	0.08	0.10	0.12	0.09	0.09	0.11	0.11	0.06	0.08	0.07	0.10	0.11
P-value		0.166	0.181	0.943	0.890	0.836	0.003	0.006	0.045	0.005	0.120	0.530	0.004	0.852	0.637	0.103