

Ready for Change?

The Role of Physician and Staff Engagement, Burnout, and Workplace Attributes

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Abstract: We examined factors associated with change readiness among 343 primary care physicians and 590 nonphysician staff undergoing “Lean”-based process improvements. Baseline levels of engagement were associated with greater readiness for change across all measured domains. Job-related burnout correlated with greater need for change, but lower self-efficacy and perceived support, whereas a personal sense of accomplishment was associated with higher efficacy to implement changes. At a department level, teamwork, participation in decision making, and change history were associated with higher engagement and lower burnout among physicians and staff; conversely, a busy or stressful department correlated with lower engagement and higher burnout.

Key words: *generalized linear mixed models, implementation initiatives, job-related burnout, lean quality/process improvement, participation in decision making, primary care, readiness to change, stressful clinic environment, workforce engagement, workplace/organizational attributes*

HEALTH CARE organizations are implementing an array of initiatives to provide more affordable, high-quality care to a rapidly growing patient population. These efforts are notoriously difficult, as they involve complex interactions ranging from staffing and workflow changes to altered incentives

and decision-making processes. Many initiatives result in only partial success, with failures often because of a basic lack of readiness to change among the workforce (Kotter, 1996). Readiness to change can be defined as the extent to which organizational members are psychologically and behaviorally prepared to implement a planned change effort (Weiner et al., 2008). Similar to the “preparation” stage described by Prochaska and Di Clemente (1982), it is the stage whereby individuals are positively inclined to accept, embrace, and adopt a particular plan to purposefully alter the status quo. As a precursor of decisions that ultimately result in either resistance or adoption behaviors, it is also the degree to which employees hold favorable beliefs and emotions about a proposed change, including whether it would have positive implications for themselves and for the organization as a whole (Armenakis et al., 1993; Miller et al., 1994).

Research on change management shows that readiness for change is a critical precursor to successful implementation of organizational initiatives (Amatayakul, 2005; Kuhar

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et al., 2004; O'Connor & Fiol, 2006; Sweeney & Whitaker, 1994; Van de Ven, 1995). Despite the impact of change readiness on success, there is a lack of study on factors that facilitate or impede readiness for changes among frontline primary care providers. This study examines both individual and organizational features that influenced change readiness in a primary care delivery system undergoing major efforts to implement "Lean" process improvements (Womack et al., 2005). Lean is a leading change strategy that is increasingly being used in the health care sector to facilitate delivery of more affordable, high-quality care. Lean techniques rely on frontline employees to identify problems, propose solutions, and execute plans for continuous improvement. Because of this reliance, efforts to implement Lean changes are particularly appropriate contexts for studying change readiness among primary care providers.

Our research aim was to examine associations between change readiness and work-related characteristics among physicians and nonphysician staff, such as baseline levels of engagement and burnout, before their organization's implementation of Lean redesigns. Because of potential influences of surrounding workplace attributes, including the degree of teamwork or stress within clinic environments, we also sought to explore the effect of these organizational features on individual experiences of work. By uncovering relationships between both individual and organizational factors and their associations with change readiness, we sought to understand how frontline providers and the conditions in which they work can be most effectively prepared when introducing process improvements in health care.

METHODS

Setting and Data Source

This study was conducted in a large, nonprofit, ambulatory care delivery system serving nearly one million patients. The payer mix for patients is approximately 70% commercial fee-for-service, 12% commercial health maintenance organizations, 13% Medi-

care/Medicaid, and 5% self-pay or other form of payment, similar to many health care delivery systems located across the United States (Centers for Medicare & Medicaid Services, 2013; Cothran, 2013). In efforts to improve efficiency, the organization began implementing Lean redesigns with clinical operations beginning in the area of primary care. Lean redesigns included standardizing equipment and patient education materials in all examination rooms, redesigning call center functions, physically co-locating physician and staff care teams in a shared workspace, and creating new care team workflows.

Before the implementation of Lean changes, we fielded a baseline survey to 1388 physicians and nonphysician staff (eg, nurses, medical assistants, and patient service representatives) in 46 primary care departments located across the delivery system. The survey assessed readiness for Lean changes—current experiences of work, including levels of employee engagement and job-related burnout; and perceptions of workplace attributes within departments, such as levels of teamwork, participation in decision making, and busyness or stress in the clinic environment. The overall response rate for the survey was 70% across all departments (average range of 63%-86% per department) with a differential response rate of 73.2% and 68.5% among physicians and nonphysician staff, respectively. Small departments with a total of fewer than 5 returned surveys were excluded from analyses to avoid biasing model estimates because of small sample sizes. Also, staff members of one call center that was shared between 2 separate clinic locations were excluded because of potential confounding of clinic characteristics. Thus, of the 973 responses received, 933 respondents comprising 343 physicians and 590 nonphysician staff were eligible for analysis.

Measures

Individual-Level Measures

Readiness to Change

A well-validated, multidimensional Organizational Change Recipients' Beliefs Scale

(Armenakis et al., 2007) was used to assess change readiness as a composite of 5 domains: (1) *discrepancy* reflects the belief among employees that a legitimate need for change exists, as indicated by perceived differences between the current state and a more desired state—in essence, the perception of a current performance gap (eg, “We need to change the way we do things in this organization”); (2) *appropriateness* refers to the extent to which the proposed change effort is justified and matches the situation in need of corrective action (eg, “The change we are implementing is correct for our situation”); (3) *valence* indicates the perceived attractiveness of outcomes anticipated from the change, with personal benefits that are either extrinsic and tangible, or intrinsic and intangible (eg, “With this change in my job, I will experience more self-fulfillment”); (4) *principal support* refers to perceived support for the change among management as well as opinion leaders (eg, “Most of my respected peers embrace the proposed organizational change”); and (5) *efficacy* refers to the perceived capability of an individual or organizational unit to implement the change (eg, “I have/My department has the capability to implement the change that is being initiated”). Each domain consisted of 3 items measured on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). These items were averaged to calculate the domain-specific readiness scores for each respondent. Domain scores were then averaged to create a composite score reflecting the respondent’s overall readiness for Lean changes.

Physician and Staff Engagement

Also as part of the baseline survey, an adapted version of a work experience survey (The Advisory Board, 2015) was fielded to assess existing levels of employee engagement. To identify specific domains of work experience, exploratory factor analysis with varimax rotation was conducted yielding 2 separate factors (eigenvalues >1) with Cronbach α coefficients of 0.84 and 0.82, respectively. We labeled these factors or domains as: (1) *personal motivation*, reflecting the

degree to which physicians and staff perceive their work contributions as being valued and are given adequate resources to grow (eg, “My ideas and suggestions for improvement are valued by my department” and “My manager provides me with sufficient opportunities to improve myself”); and (2) *work satisfaction*, reflecting the degree to which physicians and staff are satisfied in the workplace and seek the good of their larger organizational unit (eg, “Overall, I think this is a great place to work” and “I am willing to put in a great deal of effort to help my department succeed”). Responses to these questions were measured on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree), which were then averaged for each domain.

Job-Related Burnout

The Maslach Burnout Inventory (Human Services Version) (Maslach et al., 1986) was used to assess physician and staff burnout and how these health professionals view their daily work activities. The Maslach Burnout Inventory measures 3 a priori domains: (1) *emotional exhaustion*, referring to the extent to which professionals are fatigued from delivering patient care (eg, “I feel emotionally drained from my work”); (2) *depersonalization*, referring to the hardening of care providers toward patients (eg, “I feel I treat some patients as if they were impersonal objects”); and (3) *personal accomplishment*, describing the positive aspects of patient care (eg, “I feel I’m positively influencing other people’s lives through my work”). All statements were assessed on a 6-point scale, ranging from 1 (never) to 6 (every day), and domain scores were averaged for each respondent.

Respondent Characteristics

Demographic features of all responding physician and nonphysician staff were also included as covariates in analyses. These characteristics included tenure in the department, sex, age, ethnicity, and race. All variables were treated as categorical variables with corresponding reference groups of over 5 years’

tenure, male, 60 years and over, non-Hispanic, and white/black, respectively.

Organization-Level Measures

Workplace Attributes

We assessed characteristics of the work environment using a survey originally developed to measure organizational attributes of primary care practices (Ohman-Strickland et al., 2007). Using this survey, we assessed specific attributes of each primary care department in our study organization. These workplace attributes included: (1) *teamwork*, describing the extent to which members from different disciplines work together collaboratively (eg, “Staff and clinicians in this department operate as a real team”); (2) *participation in decision making*, referring to collective problem solving (e.g., “All staff members participate in important decisions about clinical operations”); (3) *clinic busyness/stress*, reflecting department activity levels and whether employees felt overwhelmed by their workload (eg, “This department is almost always in chaos”); and (4) *change history*, indicating the extent to which changes in management or care approaches had been experienced by employees in the workplace (eg, “Our department has changed in how it takes initiative to improve patient care”). Responses ranged from 1 (strongly disagree) to 5 (strongly agree). All workplace attributes were aggregated to the department level before being converted into a binary variable (eg, high vs. low levels of teamwork) based on median scores among respondents.

Practice Characteristics

To account for differences in organizational features such as practice size and location, we categorized clinics ranging from small (<45 primary care physicians and non-physician staff) to large (>100 physicians and staff). Each clinic was located in geographically distinct regions that varied by extent of urbanization. Thus, we also categorized clinics according to their location in rural, suburban, or urban areas. Last, we classified clinics according to their location

within specific regional divisions of the study organization.

Statistical Analysis

We first provided descriptive statistics on readiness for change, employee engagement, job-related burnout, demographics, and practice features, stratified by physicians and non-physicians. We conducted hierarchical generalized linear models, adjusted for individual demographic and practice characteristics, and clustering of respondents by clinical department, to investigate factors associated with readiness for change. Overall change readiness and each of the 5 readiness domains were analyzed in separate regression models. Based on these results, we then examined associations between the identified correlates of individual change readiness and surrounding workplace attributes. In all analyses, dependent variables excluding burnout were analyzed as continuous outcomes. Because of the skewed distribution of the burnout domains, we used multivariate logistic regression to analyze these domains as binary-dependent variables.

Finally, we conducted supplementary analyses to evaluate variations in change readiness scores by comparing results both before and after controlling for respondent characteristics. Similarly, we also conducted a bivariate analysis to identify predictors that had an independent, statistically significant relationship with the composite change readiness score, followed by an “all-in” multivariate analysis containing only significant predictors from the bivariate analysis. The results for these supplementary analyses are provided in the supplement digital content appendix available at <http://links.lww.com/JACM/A58>.

All regression analyses leveraged random intercept models to adjust for the hierarchical (ie, nested) structure of individuals clustered within departments. To ensure the necessity of hierarchical modeling, intercept-only models were first used to calculate the intraclass correlations for each outcome variable. All intraclass correlation values were above 0.10 suggesting the appropriateness of the hierarchical approach (Snijders & Bosker, 1999).

Robust standard errors were estimated in all models to avoid violating the assumption of independence because of correlated observations within the same department. Models were adjusted for respondent sex, age, race/ethnicity, tenure, practice size, locality, and regional division. Each model was fitted excluding outliers that were identified in diagnostic plots of residuals. Multivariate analyses were conducted in SAS 9.2 using *PROC GLIMMIX* with a linear or logit link (SAS Inc, Cary, North Carolina).

RESULTS

[T1] Table 1 presents univariate results for all survey respondents. Among both physicians and nonphysician staff, the domain reflecting the highest level of readiness for Lean changes was the discrepancy domain (ie, perceived need for change), whereas the lowest was with regard to valence or anticipated benefits from Lean changes. Table 2 summarizes regression results on readiness for change among physicians. A high level of physician engagement in the form of *personal motivation* was associated with change readiness in nearly every domain, including perceived appropriateness of Lean changes, anticipated benefits, perceived support among leaders and respected peers, and efficacy in implementing Lean changes (all $P < .05$). Physician engagement in the form of *work satisfaction* was strongly associated with every aspect of change readiness (all $P < .01$). Job-related burnout in the form of *emotional exhaustion* was associated with change readiness particularly in the discrepancy domain (ie, perceived need for Lean changes) ($P < .001$).

[T2]

[T3] Table 3 shows similar regression results for nonphysician staff members. Among nonphysicians, engagement in the forms of *personal motivation* and *work satisfaction* was strongly associated with overall readiness to change ($P < .001$). More specifically, as seen with physicians, *personal motivation* was associated with nearly all domains of change readiness, while *work satisfaction* was consistently associated with every domain ($P < .05$). Interestingly, staff burnout in the form

of *emotional exhaustion* was significantly related to greater discrepancy or need for change ($P < .01$), but lower perceived support and efficacy in implementing changes ($P < .05$). In contrast, a *sense of personal accomplishment* was associated with both the need for change and also self-efficacy in implementing Lean changes ($P < .05$).

Relationships between surrounding workplace attributes and individual experiences of work (as reported earlier) are summarized in Table 4, adjusting for respondent demographics and practice characteristics. A high level of *teamwork* within the department was associated with physician engagement, specifically personal motivation, whereas a high level of *participation in decision making* was associated with both forms of engagement (ie, personal motivation and work satisfaction) among physicians and nonphysician staff ($P < .10$). A clinic atmosphere of *busyness or stress* was universally correlated with lower work satisfaction among all physicians and staff, and lower personal motivation among nonphysician staff ($P < .01$). A *history of change* within departments correlated with greater satisfaction among all respondents and particularly among physicians ($P < .05$). Lastly, Table 5 summarizes relationships between workplace attributes and the 2 burnout domains previously identified as being associated with change readiness. Nonphysician staff in departments with high levels of *participation in decision making* were 64% less likely to feel emotionally exhausted ($P < .05$), whereas those in departments with high levels of *busyness or stress* were almost twice as likely to report burnout ($P < .05$).

DISCUSSION

This study identified physician and nonphysician staff characteristics that were associated with readiness for Lean-based changes in primary care clinics. We found that physician and staff engagement in the forms of personal motivation and work satisfaction was associated with greater readiness for change across all measured domains. Specifically, higher levels of engagement among

[T4]

[T5]

Table 1. Individual and Organizational Characteristics (N = 923)

	Mean (SD) or N (%)	
	Physicians (N = 343)	Nonphysicians (N = 590)
Readiness to change		
Composite score	3.7 (0.7)	3.8 (0.6)
Discrepancy (need for change)	4.2 (0.6)	4.0 (0.6)
Appropriateness	3.6 (0.8)	3.8 (0.7)
Valence (personal benefits)	3.3 (0.8)	3.6 (0.8)
Principal support	3.6 (0.7)	3.7 (0.7)
Efficacy	3.8 (0.7)	4.0 (0.6)
Employee engagement		
Personal motivation	3.8 (0.8)	3.7 (0.8)
Work satisfaction	3.9 (0.7)	4.2 (0.6)
Job-related burnout		
Emotional exhaustion	2.8 (1.4)	1.8 (1.3)
Depersonalization	1.1 (1.1)	0.8 (1.0)
Personal accomplishment	5.2 (0.7)	4.9 (1.0)
Tenure in department, y		
>5	239 (51.6%)	224 (48.4%)
2-5	65 (24.7%)	198 (75.3%)
1-2	20 (20.6%)	77 (79.4%)
<1	17 (17.0%)	83 (83.0%)
Sex		
Male	110 (68.8%)	50 (31.3%)
Female	222 (29.9%)	520 (70.1%)
Age, y		
≥60	24 (53.3%)	21 (46.7%)
50-59	73 (42.0%)	101 (58.0%)
40-49	133 (53.8%)	114 (46.2%)
<39	103 (23.4%)	337 (76.6%)
Hispanic		
Yes	10 (5.3%)	180 (94.7%)
No	333 (44.8%)	410 (55.2%)
Race		
White	194 (45.8%)	230 (54.2%)
Black	1 (5.3%)	18 (94.7%)
Asian	102 (50.7%)	99 (49.3%)
Other	14 (8.2%)	156 (91.8%)
Workplace attributes		
Teamwork	3.6 (0.6)	3.6 (0.7)
Participation in decision Making	3.0 (0.8)	3.1 (0.8)
Busyness/stress	3.0 (0.7)	2.9 (0.8)
Change history	3.5 (0.6)	3.6 (0.6)
Practice size		
Small	44 (37.0%)	75 (63.0%)
Medium	79 (37.4%)	132 (62.6%)
Large	220 (36.5%)	383 (63.5%)
Locality		
Rural	15 (38.5%)	24 (61.5%)
Suburban	175 (36.8%)	301 (63.2%)
Urban	153 (36.6%)	265 (63.4%)

(continues)

Table 1. Individual and Organizational Characteristics (N = 923) (Continued)

	Mean (SD) or N (%)	
	Physicians (N = 343)	Nonphysicians (N = 590)
Regional division		
Division 1	43 (31.9%)	92 (68.1%)
Division 2	210 (36.8%)	361 (63.2%)
Division 3	18 (37.5%)	30 (62.5%)
Division 4	72 (40.2%)	107 (59.8%)

Abbreviation: SD, standard deviation.

physicians and staff correlated with greater perceived need for and appropriateness of Lean changes, anticipation that proposed changes would be personally beneficial, perceived support for change among leadership and respected peers, and sense of efficacy in implementing changes successfully. According to prior research in this area, subjective beliefs about an initiative are a more powerful predictor of adoption than objective characteristics of the intervention itself (Rogers, 2003). Thus, elucidating factors that are strongly associated with and perhaps facilitative of such beliefs is critical to the acceptance and subsequent uptake of new innovations.

These study findings highlight the important connection between engagement among the workforce and their readiness for potential disruptions to the status quo. One form of engagement—personal motivation as termed in this study—reflected beliefs among physicians and staff that their ideas are valued and recognized by their department, that they are given sufficient opportunities to improve, and are inspired to perform their best. The association that we observed between this type of engagement and change readiness is consistent with research in other settings. For example, high hospital performance and positive responses to change were driven by employee perceptions that their work contributed to organizational goals and that opportunities to make improvements were available to them (Lowe, 2012). Related to this finding, we also observed that engagement in the form of work satisfaction and commitment to or-

ganizational goals was a strong predictor of every aspect of change readiness—ranging from perceived legitimacy of the need for change, to efficacy in implementing changes successfully. This type of engagement among rank-and-file members is critical, and has been cited as the most dominant contributor to the success or failure of organizational efforts (Conner & Patterson, 1982).

In order for implementation efforts to be successful, members must be committed to the initiative, expend great effort in the change process, and persist when encountering obstacles or setbacks. Establishing such norms of behavior has great implications for success when proposing changes, especially in health care where there is a strong correlation between provider work satisfaction and patient satisfaction (Lowe, 2012; Nedrow et al., 2013). High levels of provider satisfaction can lead to excellence not only in implementing the proposed change itself, but ultimately in the outcomes that the change is intended to impact, such as clinical quality or patient experiences of care. The overwhelming evidence that we found for relationships between work satisfaction and change readiness across all personnel is also particularly relevant to Lean implementations, as the aim of Lean is ultimately to enhance value to patients as direct consumers of health care.

Employee beliefs are built and reinforced by organizational cultures, which are often reflected in tangible features or attributes of the workplace. Because cultures build environments in which employees are either

Table 2. Associations Between Change Readiness (Composite and Domain Scores), Engagement, and Burnout Among Physicians

Independent Variables ^a	Composite Change Readiness				Principal Support	Efficacy
	3-41	3-40	3-40	3-41		
<i>Sample size</i>	3-41	3-40	3-40	3-41	3-41	3-41
Physician engagement	0.12 ^b	0.00	0.16 ^b	0.16 ^b	0.17 ^c	0.14 ^b
Personal motivation	0.38 ^d	0.21 ^c	0.40 ^d	0.45 ^d	0.37 ^d	0.45 ^d
Work satisfaction						
Job-related burnout	0.06 ^b	0.15 ^d	0.07	0.06	0.00	0.05
Emotional exhaustion	-0.02	-0.03	-0.04	0.00	0.02	-0.04
Depersonalization	0.00	0.03	-0.02	0.04	-0.06	0.01
Personal accomplishment						
<i>Demographics</i>						
Tenure (reference: > 5 y)						
<1 y	0.06	-0.01	0.02	0.09	0.02	0.13
1-2 y	-0.11	-0.28	-0.10	-0.27	-0.06	0.04
2-5 y	-0.09	-0.09	-0.14	-0.10	-0.10	-0.08
Female	-0.02	-0.13	-0.02	0.11	-0.04	-0.04
Age (reference: ≥60 y)						
<39 y	0.18	0.13	0.30	0.40 ^b	0.20	0.03
40-49 y	0.08	0.15	0.11	0.28	0.16	-0.13
50-59 y	0.11	0.14	0.16	0.33 ^b	0.12	-0.06
Hispanic	0.09	0.02	0.08	0.22	-0.11	0.21
Race (reference: white)						
Other	0.28 ^b	0.45 ^c	0.39 ^b	0.29	0.12	0.04
Asian	-0.02	0.02	-0.01	0.01	-0.07	-0.06

^aAll models adjusted for organization-level covariates including practice size, locality, and regional division.

^b $P < .05$; ^c $P < .01$; ^d $P < .001$.

Table 3. Associations Between Change Readiness (Composite and Domain Scores), Engagement, and Burnout Among Nonphysicians

Independent Variables ^a	Composite Change Readiness	Discrepancy	Appropriateness	Valence	Principal Support	Efficacy
<i>Sample size</i>	588	586	587	588	588	586
Nonphysician engagement						
Personal motivation	0.20 ^b	0.05	0.27 ^b	0.27 ^b	0.30 ^b	0.09 ^c
Work satisfaction	0.29 ^b	0.14 ^d	0.32 ^b	0.37 ^b	0.24 ^b	0.45 ^b
Job-related burnout						
Emotional exhaustion	-0.03	0.07 ^c	-0.05	-0.05	-0.05 ^d	-0.05 ^d
Depersonalization	0.02	0.01	0.03	0.01	0.03	0.03
Personal accomplishment	0.02	0.05 ^d	0.01	0.01	0.03	0.04 ^d
<i>Demographics</i>						
Tenure (reference: > 5 y)						
<1 y	0.02	0.15	0.04	-0.02	0.01	-0.10
1-2 y	0.03	0.13	0.07	-0.04	0.01	0.01
2-5 y	0.06	0.10	0.06	0.03	0.03	0.04
Female	0.06	-0.01	0.03	0.04	0.13	0.09
Age (reference: ≥60 y)						
<39 y	0.07	0.01	0.12	0.13	-0.07	0.13
40-49 y	0.09	0.00	0.16	0.24	-0.03	0.04
50-59 y	0.07	0.03	0.10	0.08	0.02	0.13
Hispanic	0.01	-0.03	0.01	0.05	-0.01	0.07
Race (reference: white)						
Other	0.08	0.02	0.05	0.16 ^d	0.16 ^d	0.02
Asian	0.11	-0.05	0.11	0.26 ^c	0.17 ^d	0.06

^aAll models adjusted for organization-level covariates including practice size, locality, and regional division.
^b $P < .001$; ^c $P < .01$; ^d $P < .05$.

Table 4. Associations Between Employee Engagement and Workplace Attributes Among Physicians and Nonphysician Staff

Independent Variables ^a	Employee Engagement			
	Personal Motivation		Work Satisfaction	
	Physicians	Nonphysician Staff	Physicians	Nonphysician Staff
<i>Sample size</i>	341	583	341	588
<i>Workplace attributes</i>				
Teamwork	0.21 ^b	0.04	-0.03	-0.06
Participation in decision making	0.22	0.20 ^d	0.32 ^c	0.16 ^b
Busyness/stress	-0.09	-0.28 ^d	-0.40 ^d	-0.20 ^d
Change history	0.03	0.13	0.22 ^c	0.12 ^b
<i>Respondent demographics</i>				
<i>Tenure (reference: >5 y)</i>				
<1 y	0.49 ^d	0.23 ^d	0.48 ^d	0.16 ^c
1-2 y	0.15	-0.06	0.14	-0.02
2-5 y	-0.16 ^b	-0.16 ^c	-0.06	-0.09 ^b
Female	-0.08	0.05	-0.21 ^d	-0.01
<i>Age (reference: ≥60 y)</i>				
<39	-0.05	-0.40 ^c	0.04	-0.10
40-49	-0.08	-0.52 ^d	0.00	-0.13
50-59	-0.12	-0.53 ^d	0.02	-0.16
Hispanic	0.12	0.11	0.14	0.04
<i>Race (reference: white)</i>				
Other	-0.02	-0.04	-0.11	0.04
Asian	-0.05	0.12	-0.00	0.12 ^b

^aAll models adjusted for organization-level covariates including practice size, locality, and regional division.

^b $P < .01$; ^c $P < .05$; ^d $P < .10$.

empowered are discouraged from influencing organizational outcomes, these environments may in turn affect levels of professional engagement and commitment among members of the workforce (Ingersoll et al., 2000). Thus, to explore the potential influence of surrounding workplace attributes on individual experiences of work, we conducted additional analyses of physician and staff engagement per se as the outcomes of interest.

We found that higher levels of departmental teamwork, participation in decision making, and change history were positively associated with individual engagement. Specifically, teamwork was associated with a greater sense of personal motivation among physicians, whereas participating in clinical and operational decision making was associated with

higher satisfaction among both physicians and nonphysician staff. This finding resonates with seminal work in the organizational literature, where Coch and French (1948) demonstrated the effect of employee participation on satisfaction and productivity, such that the greater the extent of participation, the more satisfied employees were and the quicker they met production goals. Thus, while participation has been thought to increase the acceptance of new initiatives within health care organizations, we offer a plausible mechanism by which this occurs. Dynamic, participative environments foster a greater sense of engagement among its members, which we found was consistently associated with change readiness across all measured domains.

In contrast to these findings, busy/stressful work atmospheres were associated with

Table 5. Associations Between Job-Related Burnout and Workplace Attributes Among Physicians and Nonphysician Staff

Independent Variables ^a	Job-Related Burnout			
	Emotional Exhaustion		Personal Accomplishment	
	Physicians n = 341	Nonphysician Staff n = 582	Physicians n = 341	Nonphysician Staff n = 582
	OR (95% CI)			
Workplace attributes				
Teamwork	1.33 (0.38-4.63)	1.57 (0.86-2.87)	1.06 (0.49-2.31)	0.77 (0.43-1.37)
Participation in decision making	0.70 (0.19-2.57)	<i>0.36 (0.19-0.67)^b</i>	0.93 (0.42-2.05)	1.35 (0.76-2.40)
Busyness/stress	2.24 (0.77-6.52)	<i>1.95 (1.19-3.20)^b</i>	0.61 (0.32-1.15)	0.78 (0.49-1.24)
Change history	0.82 (0.28-2.42)	0.98 (0.61-1.56)	1.66 (0.87-3.18)	1.54 (0.97-2.42)
Respondent demographics				
Tenure (reference: > 5 y)				
< 1 y	0.47 (0.11-1.93)	0.58 (0.32-1.07)	0.94 (0.28-3.14)	0.76 (0.43-1.33)
1-2 y	<i>0.18 (0.06-0.59)^b</i>	0.85 (0.47-1.52)	1.26 (0.46-3.46)	0.88 (0.51-1.54)
2-5 y	1.20 (0.57-2.54)	0.93 (0.60-1.42)	0.79 (0.43-1.46)	0.67 (0.44-1.02)
Female	1.34 (0.74-2.41)	0.91 (0.48-1.73)	0.90 (0.54-1.51)	0.98 (0.53-1.82)
Age (reference: ≥ 60 y)				
< 39 y	<i>3.47 (1.07-11.23)^b</i>	0.83 (0.31-2.22)	0.80 (0.27-2.37)	0.79 (0.30-2.08)
40-49 y	2.62 (0.91-7.51)	0.71 (0.26-1.98)	0.59 (0.21-1.62)	0.70 (0.26-1.90)
50-59 y	1.32 (0.46-3.80)	0.60 (0.21-1.67)	1.14 (0.40-3.28)	1.46 (0.53-4.02)
Hispanic	0.38 (0.08-1.96)	1.11 (0.69-1.79)	2.08 (0.46-9.35)	<i>0.55 (0.35-0.87)^b</i>
Race (reference: white)				
Other	0.89 (0.22-3.60)	0.95 (0.58-1.54)	1.19 (0.37-3.89)	0.75 (0.47-1.19)
Asian	0.73 (0.36-1.50)	0.78 (0.45-1.35)	0.65 (0.36-1.17)	0.62 (0.37-1.04)

Abbreviations: CI, confidence interval; OR, odds ratio.

^aAll models adjusted for organization-level covariates including practice size, locality, and regional division.

^bValues in italics are significant based on a 95% CI that does not bound 1.0.

lower engagement among physicians and non-physician staff, and higher burnout among nonphysicians. Moreover, burnout among nonphysicians was associated with not only greater perceived need for change, but also less perceived support and efficacy for implementing changes. This finding highlights the notion that readiness for change is a 2-dimensional construct referring to organizational members' desire *and* capability to implement change (Weiner et al., 2008).

In other words, readiness connotes being both *willing* and also *able* to execute change. When emotional exhaustion was reportedly high and a sense of personal accomplishment was low (both were indicators of burnout), non-physicians in particular expressed more need for Lean changes, but felt less able to implement the changes successfully. This reported tension must be held in delicate balance among this section of the health care workforce, as successful Lean implementation involves engagement from the full range of care team members—from physicians to clinical support staff—and change preparedness among this latter group is crucial. When process improvements involve a high level of task interdependence among care team members as is often the case with Lean redesigns, confidence in the team's collective ability to

accomplish the change is a key factor for success.

CONCLUSION

This study explored associations between readiness for change, individual work experiences, and surrounding features or attributes of the workplace. Findings should be interpreted in light of certain study limitations, which include analysis of a single delivery system, a single type of practice (ie, primary care), and the cross-sectional nature of data collected at one point in time. However, health care organizations are indeed complex systems consisting of specialized professionals operating within a known structure. Almost by definition, any change to that structure presents a potential threat or challenge for the workforce. The readiness domains examined in this study provide a useful heuristic for aiding in the preparation of such change, and offer insight into strategies that may facilitate implementation of new organizational efforts. Fostering a sense of engagement, personal motivation and work satisfaction, and building a workplace culture of participation and continuous improvement, may enable change readiness and enhance uptake of innovations among frontline physicians and staff in primary care.

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