Do Safety Culture Scores in Nursing Homes Depend on Job Role and Ownership? Results from a National Survey.

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ABSTRACT

Objectives: Identify facility- and individual-level predictors of nursing home safety culture

Design: Cross-sectional survey of individuals within facilities

Setting: Nursing homes participating in the national AHRQ Safety Program for Long-Term Care: HAIs/CAUTI Project

Participants: 14,177 responding nursing home staff from 170 (81%) of 210 participating facilities

Measurements: Staff responses to the Nursing Home Survey on Patient Safety Culture (NHSOPS), focused on 5 domains (teamwork, training/skills, communication openness, supervisor expectations, organizational learning) including individual respondent characteristics (occupation, tenure, hours worked), were merged with facility characteristics (from CASPER: ownership, chain membership, percent residents on Medicare, bed size). Data were analyzed using multivariate hierarchical models.

Results: Nursing assistants rated all domains worse (p<0.001) than administrators, with the largest differences for communication openness (24.3 points), teamwork (17.4 points), and supervisor expectations (16.1 points). Clinical staff reported all domains worse than administrators. Nonprofit ownership was associated with worse training/skills (by 6.0 points, p<0.05) and communication openness (7.3 points, p<0.01), and nonprofit and chain ownership were associated with worse supervisor expectations (5.2 points, p<0.01 and 3.2 points, p<0.05, respectively) and organizational learning (5.6 points, p<0.01 and 4.2 points, p<0.05). Yet variation in safety culture attributable to facility characteristics was <22%, with ownership having the strongest effect.

Conclusions: Perceptions of safety culture vary widely among nursing home staff, with administrators consistently perceiving safety culture better than clinical staff who spend more time with residents. Reporting safety culture scores by occupation may be more important than facility-level scores alone to describe and assess barriers, facilitators, and changes in safety culture.

Key words: nursing home; patient safety, safety culture

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INTRODUCTION

Developing nursing home environments that promote patient safety can improve resident outcomes, with some evidence linking better safety culture to

decreases in falls, pressure ulcers, restraint use, and other quality of care measures.[1-3] Safety culture is measured through individual staff expectations for common behaviors and processes regarding safety within a facility, and the Nursing Home Survey on Patient Safety Culture (NHSOPS) tool, and its predecessor the Patient Safety Culture (PSC) instrument, have been widely used to assess safety culture through surveying multiple individuals working in a nursing home, including those coming from different clinical, support, and administrative roles.[1] Previous studies have found that individual-level characteristics,[4, 5] including job role and turnover, and facility-level characteristics,[1, 6] such as ownership, size, and resident case-mix, predict ratings for safety culture. However, the relative importance of these factors on safety culture has not been assessed, and could help inform what is most critical for the development of a facility's safety culture.[7]

Within a patient safety collaborative, sponsored by the Agency for Healthcare Research and Quality (AHRQ), we evaluated associations between individual- and facility-level characteristics and safety culture based on individual-level responses to several safety domains assessed as part of the NHSOPS. Based on previous research, we hypothesized that nonprofit and smaller facilities and facilities with a greater proportion of residents on Medicare would have higher safety culture ratings.[3, 8] We also expected that healthcare staff with the most resident contact, including the Certified Nursing Assistants (CNAs) and the Licensed Practice Nurses (LPNs) would rate safety the poorest, because they more frequently confront complications in resident care.[9-11]

METHODS
Study Design and Data Sources

This cross-sectional study examined predictors of individual safety culture ratings from the first two cohorts of the AHRQ Safety Program for Long-term Care: HAIs/CAUTI Project.[12] This collaborative was focused on improving safety knowledge and infection prevention practices to reduce healthcare-associated infections (HAIs), with a strong focus on catheter-associated urinary tract

infections (CAUTIs). Safety culture was reported by staff in a range of roles in the nursing homes participating in the collaborative; these roles included clinicians, nursing professionals and support, and administrative personnel.[12]

Methods for recruiting facilities and collecting survey data have been described previously by Mody and colleagues.[12, 13] Facilities were encouraged to have as many staff as possible, regardless of occupation or role, complete the survey, and the national project set a goal of 60% response rate within facilities.[14] This analysis included non-federal nursing homes from Florida, Michigan, New Hampshire, New York, South Carolina, South Dakota (from Cohort 1) and Arkansas, Connecticut, Massachusetts, Missouri, Pennsylvania, Oklahoma, Oregon, Rhode Island, and Tennessee (from Cohort 2). This study was reviewed by the University of Michigan Institutional Review Board and determined to be non-regulated quality improvement activity. Subsequent cohorts also added nursing homes from the Veterans' Affairs (VA) Administration and remaining states but those data were not available at the time analyses were completed. Finally, facilities with fewer than five respondents were dropped from this analysis because AHRQ discourages the use of NHSOPS data from fewer than five individuals.

Our analyses utilized two sources of data: 1) baseline individual surveys of safety culture, collected at the time each facility enrolled in the collaborative using AHRQ's NHSOPS instrument,[15] and 2) structural information on facilities from the most proximate state inspection report in the Centers for Medicare and Medicaid (CMS) Certification and Survey Provider Enhanced Reporting (CASPER) system in 2012 or 2013. Structural characteristics of facilities in our data were compared to the full population of U.S. nursing homes in 2013 using the 2013 CASPER data (on 15,579 facilities). The NHSOPS instrument used for this study was developed from frequently-used safety culture tools, informed by expert opinion and an extensive literature review, and has been used to report on patient safety culture in hundreds of facilities, in which the instrument's reliability proved strong.[16] CASPER data used here were from the annual inspection

closest in time to our survey date, retrieved from LTCFocus.org and accessed on September 10, 2015.[17] Facilities that could not be matched to the CASPER data were dropped from analyses.

Measures of Safety Culture

Our survey instrument included all 43 NHSOPS items within the 13 domains; a full description of all the items in the NHSOPS is available in Supplementary Table S1. Previous AHRQ reports in 2011 and 2014 have demonstrated high consistency and reliability in the NHSOPS domains for nursing homes across the country that voluntarily shared data.[16, 18] Our data are consistent and reliable in comparison to statistics reported by AHRQ.

We focused on five NHSOPS domains that we expected to be impacted the most by the collaborative's subsequent work. These domains included: teamwork, training and skills provided in patient safety, communication openness, supervisor expectations, and organizational learning. These domains were key to the types of culture change promoted by the collaborative, including increasing teamwork, improving communication skills, and building teams in nursing homes that encourage changes in work practices. Each of these safety culture domains was measured using 3-4 statements for which respondents indicated how accurately the statement described their facility using a 5-point Likert scale from strongly disagree (1) to strongly agree (5). The teamwork domain evaluated staff perception of aspects of collaboration with colleagues for patient safety, the training and skills domain evaluated adequacy of safety training, and the communication openness domain evaluated the extent to which others listen to staff comments. Supervisor expectations promoting safety included three statements on the extent to which staff and supervisors communicate regarding safety. Organizational learning included four statements that focus on the extent to which the facility routinely makes changes and responds to safety issues.

We coded response categories of "strongly agree" and "agree" as positive. Negatively worded items were reverse coded, such that "strongly disagree" and "disagree" were coded as positive. Percent positive scores were then computed for each domain as the number of items with positive responses divided by the number of items with non-missing responses in the domain. Supplementary Table S2 reports the percent positive and Cronbach's Alpha, a statistical measure of reliability, for all the NHSOPS cultural domain scales and a comparison to reliability of AHRQ self-reported data from 2011.[16] Our data indicate that a high percent of nursing home staff rated safety culture domains positively, while the domains that received the lowest percent positive from staff were staffing in safety and non-punitive responses to mistakes. And, our data were generally consistent and reliable using a cut-off level of .70 or higher on the Cronbach's Alpha, which is similar to what is reported from AHRQ-reported safety culture data. The domains with the lowest level of consistency (under 0.70), which includes the non-punitive responses to mistakes, compliance with procedures, and staffing in safety, were not used in the main analyses for this paper; among the domains included in our analyses, organizational learning had the lowest reliability score of 0.72.

Analytic Methods

Respondents' percent positive scores for each of the five domains were used as outcomes in models that included facility-level predictors of ownership, chain membership, percent residents on Medicare, and bed size (from CASPER), and the respondent-level predictors of role, tenure, and hours worked (from NHSOPS). Hierarchical linear regression models were used to account for respondent clustering within facilities. For each patient safety domain, we estimated a series of multivariate models beginning with a null model that included no covariates, a second model including just individual-level characteristics, and a full model including both individual and facility characteristics. The intraclass correlation (ICC) was calculated from the null

model and indicates the percent of the variance in the dependent variable that is attributable to organizational rather than individual factors. We also report estimates of the variance explained across models, which identifies how much the factors in the models explain variation both at the individual- and facility-level.

RESULTS

Survey responses from 170 facilities (81%) of the 210 enrolled in these two collaborative cohorts were included in our analyses. Twelve facilities were excluded because less than 5 employees responded to the culture survey, and another 28 were excluded because they were missing CASPER data. **Table 1** provides descriptive statistics for the 170 facilities and the 14,177 respondents in our sample. Nursing homes in our study are similar in characteristics to the national population of nursing homes. In our study, approximately 31.2 percent of the nursing homes were nonprofit, as compared to 30.7 percent nationally, and 49.4 percent belonged to a corporate chain in our study, as compared to 55 percent nationally. Facilities participating in the collaborative were slightly larger on average in bed size than nursing homes nationally, with approximately 125 beds on average (as compared to 106 nationally) and the percent of residents on Medicare was 14.4 percent (as compared to 15.7 percent nationally).

Data were not available on individual response rates within facilities; however, the mean number of staff responses per facility was 83 with a range from 5-336 (median 72). Among individual respondents: 36 percent were nursing assistants, 31 percent were support personnel, 21 percent were licensed nurses (either LPNs or registered nurses), nearly 8 percent of respondents were administrators or managers, and <1 percent of respondents were physicians. While we have too few physicians to generalize to this population, we differentiated them from other roles in analyses because they have a distinct role. Among individual respondents, the median tenure in a nursing home was approximately 3-5 years, and 20 percent reported working in the facility for less than a year. Most respondents reported working 25-40 hours per week (see

Table 1). Respondents' tenure is similar to that reported in AHRQ's database of self-reported culture data, for which the median tenure of respondents across job categories was 3-5 years.[18]

Parameter estimates from the multivariate model results describing the association between the NHSOPS domain culture scores and facility and employee characteristics are shown in **Table 2.** For training and skills, communication openness, supervisor expectations, and organizational learning domains, the strongest facility-level predictor was ownership, although not in the direction that we predicted. Nonprofit and government facilities had significantly lower scores for training and skills, communication openness, supervisor expectations, and organizational learning (6.0, 7.3, 5.2, and 5.6 points respectively). Supervisor expectations and organizational learning were also lower in chain-owned facilities (3.2 and 4.2 points respectively). Percent positive scores for communication openness and organizational learning were also significantly lower (3.8 and 2.8 points respectively) for larger facilities, measured in total beds (100s). Individual-level respondent characteristics, including occupational role, tenure at the facility (compared to new hires), and hours worked per week, were all highly statistically significant as predicted.

The percent of variance in safety culture scores explained by individual and facility characteristics is presented in **Table 3**. The ICC ranged from 7 percent in supervisor expectations to 21 percent for both teamwork and training and skills. The various individual characteristics added to the model explained a minimal amount of variance: 2.5, 3.4, 2.7 and 1.4 percent variance for teamwork, communication openness, supervisor expectations, and organizational learning domains, respectively, and as little as less than 1 percent of variance (0.5%) for the training and skills domain. Facility-level predictors added to the models explained 2.4 percent of variance for teamwork and 2.6 for training and skills, to as much as 11.2 percent of variance in communication openness and organizational learning (reported in column 3). At the facility-level, our predictors did well in explaining the variance between facilities in communication openness,

supervisor expectations, and organizational learning, and were less able to explain variance in training and skills and teamwork. At the individual-level, our predictors were highly significant but explained little of the variation within facilities.

Finally, **Figure 1** depicts predicted mean safety culture scores across individual roles, giving an estimate of the range of safety culture scores expected within facilities. Administrators rated culture the highest, while nursing assistants and physicians rated culture the lowest across domains. The percent positive rating for safety culture scores were over 60 percent for all domains except communication openness, which had a mean of 55 percent. Scores for supervisor expectations were the highest with a mean of 81 percent (Table S2).

DISCUSSION

Several important findings emerged from our study examining individual- and facility-level predictors of safety culture in nursing homes. First, we observed a relatively high average percent positive ratings across safety culture domains assessed in the NHSOPS. Second, we found that bedside clinical staff generally have lower ratings of safety culture compared to administrators, highlighting the importance of surveying multiple individuals on safety culture to obtain more comprehensive ratings – versus solely relying on facility administrator reports, which often include the highest safety culture scores, to generate facility-level culture scores. Third, ratings of safety culture tended to be highest among employees with minimal tenure, and lowest among employees who are not new employees with tenure more than 2 months. Fourth, although our results indicated that approximately 20 percent of variance in safety culture measures was attributable to facility-level variation, our set of facility variables explained at most twelve percent of that variation. The key facility-level predictors of safety culture scores included ownership, with nonprofit and chain status unexpectedly associated with worse staff perceptions of safety.

Our set of organizational predictors, which are based on previous studies of safety culture in nursing homes, did not explain fully the facility-level variance in either teamwork or training and skills. Furthermore, across the five safety domains studied, 80 percent or more of the variance could be attributable to individual-level variation; however, our set of individual-level predictors, including occupational role, explained less than 5 percent of the variation in safety culture scores. These results imply that we need to do substantially more work on what motivates individuals' perceptions of safety culture, a key issue if we are to change perceptions of safety culture within facilities.

There are several limitations in data collection to our study. The observed effects of facility and individual predictors on safety culture scores may be influenced by our sample design, which depended on voluntary recruitment of facilities and participants into the AHRQ Safety Program for Long-term Care: HAIs/CAUTI Project. The nursing homes participating in the collaborative were less likely to be chain-owned and were larger in number of beds than the general U.S. nursing home population.[12] Sampling may have impacted the observed and unexpected result that for-profit and chain ownership led to more positive scores across multiple domains of safety culture (i.e., communication openness, supervisor expectations, and organizational learning), which may reflect unique cultural values within the select group of for-profits participating in the collaborative. At the same time, our study also had limited capacity to reach individual participants within facilities because survey distribution within facilities was led by the key facility lead, and no information was provided on how surveys were distributed within facilities. Facilities were encouraged to distribute the surveys to at least 60% of their staff in order to get broad individual representation. While these methods may limit our generalizability, it provided a simple and accessible method for reaching a range of stakeholders within facilities.

Future efforts to improve facility safety practices should focus on reducing the variation in perceptions of safety culture among employees and on better

understanding the reasons behind individual variation in safety culture ratings. Further qualitative and in depth research is necessary to explore further the reasons behind individual differences in safety culture scores as we can only speculate as to why demographic characteristics such as tenure impacted staff' perspectives on safety practices. There may be specific events or interactions that prompt the lower safety culture assessment by those with the most bedside interaction and longer tenure.[19] Successful culture change should also engage nursing home administrators, who rated safety culture the highest, in spending more time at the bedside with clinicians to understand challenges, concerns, and resource needs impacting resident safety. Administrators often lead the challenge to improve safety culture scores but to be successful in that, they must reconsider their overly positive views of culture. Facility leadership can also play an important role in addressing the safety culture items rated poorest across facilities, including non-punitive responses to mistakes and communication openness.

Finally, in order to more effectively monitor and respond to safety culture, nursing homes must address the individual-level variation in safety culture readings within facilities. Onboarding could be used to make expectations clear regarding safety practices, which may address the notably higher safety culture ratings among those staff with the shortest tenure. And, reporting safety culture scores by occupation may be more important than facility-level scores alone to describe and assess barriers, facilitators, and changes in safety culture.

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Analysis and interpretation of data: all authors

Preparation of manuscript: all authors

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MANUSCRIPT FIGURES AND TABLES

Table 1. Descriptive statistics for facility and employee characteristics

Table 2. Multivariate models predicting percent positive scores by NHSOPS domain

Table 3. Variance explained in multivariate models predicting percent positive scores

Figure 1. Marginal means and 95 percent confidence intervals for percent positive scores by domain and worker role

Table 1. Descriptive statistics for facility and employee characteristics

	Summary Statistic
Facility Structural measures (N=170)	
Government or non-profit ownership, n (%)	53 (31.2)

Facility is part of a chain, n (%)	84 (49.4)
Number of beds, mean (SD)	125.3 (69.0)
% residents on Medicare, mean (SD)	14.4 (12.4)
Employee measures (N=14,177)	
Role in the facility	
Administrator/manager, n (%)	1123 (7.9)
Physician/other provider, n (%)	116 (0.8)
Licensed nurse (LPN or RN), n (%)	2991 (21.1)
Certified nurse assistant (CNA), n (%)	5109 (36.1)
Support, n (%)	4398 (31.0)
Not specified, n (%)	440 (3.1)
Tenure in the facility	
<2 months, n (%)	623 (4.4)
2-11 months, n (%)	2284 (16.1)
1-2 years, n (%)	2783 (19.6)
3-5 years, n (%)	3057 (21.6)
6-10 years, n (%)	2682 (18.9)
11+ years, n (%)	2382 (16.8)
Not specified, n (%)	366 (2.6)
Hours per week worked in the facility	
<= 15 hours/week, n (%)	420 (3.0)
16-24 hours/week, n (%)	1219 (8.6)
25-40 hours/week, n (%)	9430 (66.5)
> 40 hours/week, n (%)	2762 (19.5)
Not specified, n (%)	346 (2.4)

Table 2. Multivariate models predicting percent positive[a] scores by NHSOPS domain[b]

	Teamwork $\hat{\beta}$ (95% CI)	Training and Skills $\hat{\beta}$ (95% CI)	Communication Openness $\hat{\beta}$ (95% CI)	Supervisor Expectations $\hat{\beta}$ (95% CI)	Organizational Learning $\hat{\beta}$ (95% CI)
Facility Characteristics					
Non-profit or Govt[c]	-6.0 (-12.2,0.1)	-6.0 (-11.8,-0.2) *	-7.3 (-12.3,-2.4) **	-5.2 (-8.4,-2.0) **	-5.6 (-9.7,-1.4) **
Chain-owned[d]	-2.2 (-7.9,3.5)	-2.7 (-8.0,2.6)	-3.2 (-7.8,1.4)	-3.2 (-6.1,-0.2) *	-4.2 (-8.1,-0.4) *
% on Medicare	0.1 (-0.1,0.3)	0.1 (-0.2,0.3)	0.1 (-0.1,0.3)	0.1 (-0.1,0.2)	0.1 (-0.1,0.3)
Total beds (100s)	0.1 (-4.0,4.1)	1.6 (-2.2,5.4)	-3.8 (-7.0,-0.5) *	-0.9 (-3.0,1.1)	-2.8 (-5.5,-0.1) *
Respondent Characteristics					
Role[e]					
Physician/Other provider	-7.7 (-14.6,-0.9) *	-8.4 (-15.0,-1.9) *	-14.2 (-21.7,-6.6) ***	-7.2 (-13.7,-0.6) *	-11.6 (-17.8,-5.3) ***
Licensed nurse	-9.7 (-12.2,-7.1) ***	-4.2 (-6.6,-1.8) ***	-15.2 (-18.0,-12.4) ***	-8.4 (-10.7,-6.1) ***	-5.6 (-8.0,-3.3) ***
Certified nurse assistant	-17.4 (-19.8,-15.0) ***	-3.8 (-6.1,-1.5) **	-24.3 (-26.9,-21.6) ***	-16.1 (-18.3,-13.9) ***	-10.1 (-12.3,-7.9) ***
Support	-11.9 (-14.4,-9.5) ***	-5.3 (-7.7,-3.0) ***	-16.8 (-19.4,-14.1) ***	-7.2 (-9.4,-5.0) ***	-10.5 (-12.7,-8.2) ***
Tenure at current facility[f]					
2-11 months	-12.0 (-15.2,-8.9) ***	-7.4 (-10.4,-4.4) ***	-9.4 (-12.9,-6.0) ***	-7.6 (-10.6,-4.7) ***	-5.3 (-8.2,-2.4) ***
1-2 years	-12.7 (-15.8,-9.5) ***	-9.1 (-12.0,-6.1) ***	-12.4 (-15.8,-9.0) ***	-9.0 (-11.9,-6.1) ***	-5.3 (-8.1,-2.4) ***
3-5 years	-13.9 (-17.0,-10.8) ***	-9.2 (-12.2,-6.2) ***	-13.3 (-16.7,-9.8) ***	-9.5 (-12.4,-6.7) ***	-5.9 (-8.7,-3.0) ***
6-10 years	-13.3 (-16.5,-10.1) ***	-8.4 (-11.4,-5.4) ***	-12.9 (-16.4,-9.4) ***	-9.2 (-12.1,-6.2) ***	-3.7 (-6.6,-0.8) *
11+ years	-11.4 (-14.6,-8.1) ***	-6.8 (-9.9,-3.7) ***	-11.4 (-14.9,-7.9) ***	-7.2 (-10.2,-4.2) ***	-0.5 (-3.5,2.5)
Hours worked per week[g]					
16-24 hours	-6.1	-3.8	-4.3	-5.1	-2.9

	(-10.1,-2.1) **	(-7.6,0.1)	(-8.7,0.0)	(-8.8,-1.4) **	(-6.5,0.8)
25-40 hours	-7.5 (-11.0,-3.9) ***	-3.8 (-7.2,-0.4) *	-4.2 (-8.1,-0.4) *	-2.5 (-5.8,0.8)	-1.1 (-4.3,2.2)
>40 hours	-7.4 (-11.2,-3.7) ***	-5.0 (-8.6,-1.4) **	-2.3 (-6.4,1.8)	-3.3 (-6.9,0.2)	-0.6 (-4.1,2.8)
Intercept	98.5 (89.4,107.6) ***	86.1 (77.6,94.7) ***	96.9 (88.8,105.1) ***	105.7 (99.7,111.7) ***	91.4 (84.6,98.2) ***

[a] Percent positive is defined as the percent of all domain items coded by the respondent as "Agree" or "Strongly Agree". Negatively worded items were reverse coded.

[b] NHSOPS is the Nursing Home Survey on Patient Safety Culture and within this table, levels of significance are: * p<.05, ** p<.01, *** p<.001. See Supplementary Table S1 for NHSOPS items and domains.

Facility Characteristics: [c] Reference group is Non-government, for-profit ownership, [d] Reference group is Facility is not part of a chain

Respondent characteristics: [e] Reference group is Administrator, [f] Reference group is <2 months, [g] Reference group is <=15 hours.

Table 3. Variance explained in multivariate models predicting percent positive[a] scores (N=170 facilities)

	Null Model	+Individual Characteristics[b]	+Facility Characteristics[c]
Teamwork Domain (N=13,398 Individuals)			
Variance within facilities	1249.4	1217.7	1217.7
Variance between facilities	327.3	328.1	319.4
Intra-class correlation (ICC)	0.21		
Variance explained within facilities		2.5%	
Variance explained between facilities			2.4%
Training and Skills Domain (N=13,317)			
Variance within facilities	1094.5	1088.5	1088.5
Variance between facilities	286.4	288.0	278.9
Intra-class correlation (ICC)	0.21		
Variance explained within facilities		0.5%	
Variance explained between facilities			2.6%
Communication Openness Domain (N=13,426)			
Variance within facilities	1512.0	1460.8	1460.8
Variance between facilities	218.7	214.7	194.0
Intra-class correlation (ICC)	0.13		
Variance explained within facilities		3.4%	
Variance explained between facilities			11.2%

Supervisor Expectations Domain (N=13,173)			
Variance within facilities	1028.7	1001.0	1000.8
Variance between facilities	81.5	79.7	72.9
Intra-class correlation (ICC)	0.07		
Variance explained within facilities		2.7%	
Variance explained between facilities			10.6%
Organizational Learning Domain (N=13,422)			
Varian within facilities	1040.1	1025.1	1025.1
Variance between facilities	154.1	151.1	136.7
Intra-class correlation (ICC)	0.13		
Variance explained within facilities		1.4%	
Variance explained between facilities			11.3%

[a] Percent positive is defined as the percent of all domain items coded by the respondent as "Agree" or "Strongly Agree". Negatively worded items were reverse coded.
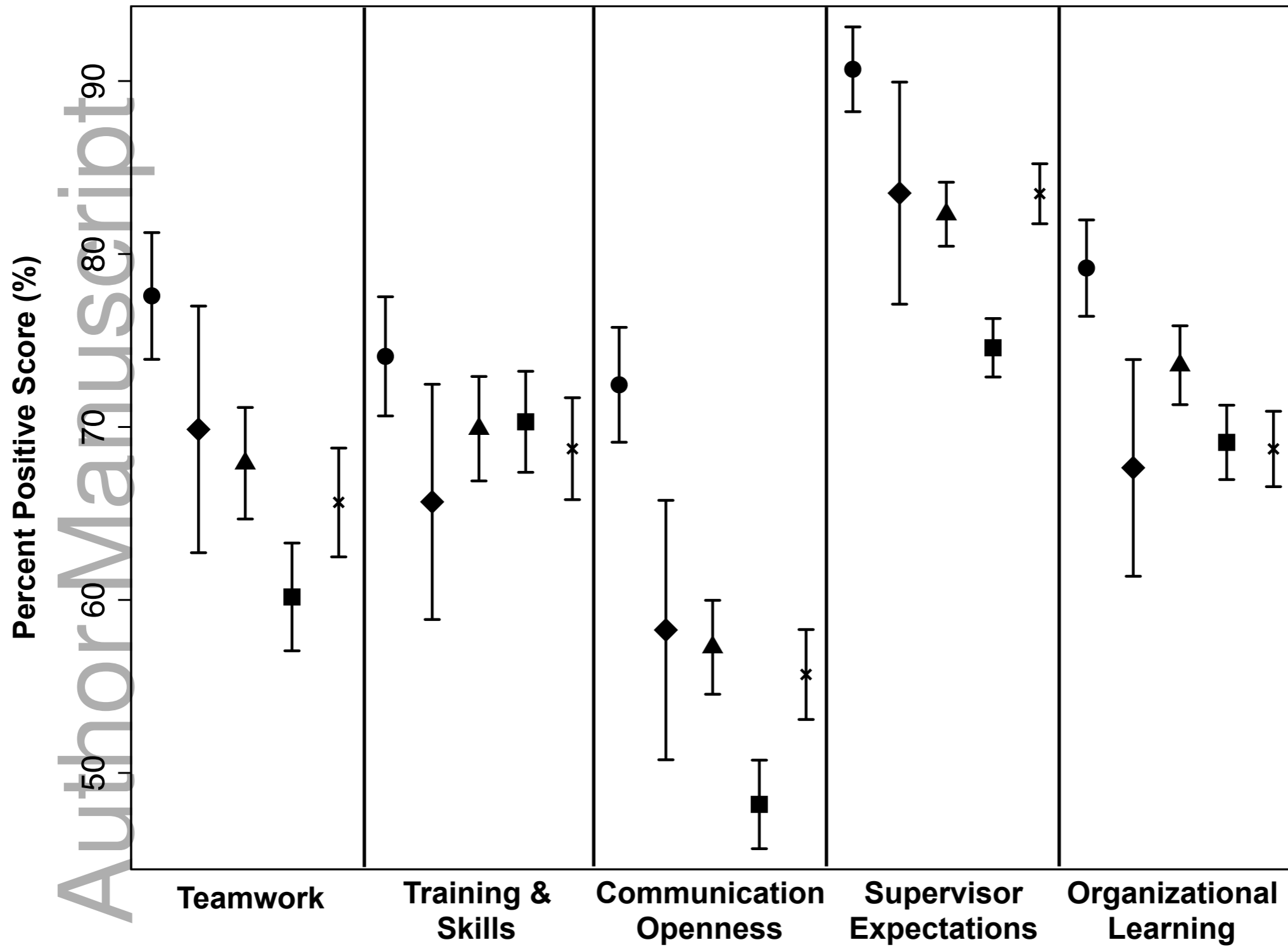
[b] Individual characteristics included in this model include occupational role, job tenure, and job hours per week.

[c] Facility characteristics include whether non-profit or government owned, whether chain owned, the percent of residents on Medicare and the total number of beds in the facility.

SUPPLEMENTAL FILES (additional files not for review or publication)

Supplementary Table S1. AHRQ Nursing Home Survey on Patient Safety Culture (NHSOPS) Domains (43 items)

Supplementary Table S2. Summary statistics for NHSOPS domains

Percent Positive Score (%)

Teamwork | Training & Skills | Communication Openness | Supervisor Expectations | Organizational Learning

● Administrators ▲ Licensed Nurses ✗ Support Staff
◆ Physicians ■ Nurse Assistants