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Organizational culture in cardiovascular care in Chinese hospitals: a descriptive cross-sectional study

Emily S. Yin¹, Nicholas S. Downing², Xi Li³, Sara J. Singer^{4,5}, Leslie A. Curry^{6,7}, Jing Li³, Harlan M. Krumholz^{2,6,7,8*} and Lixin Jiang³

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Abstract

Background: Organizational learning, the process by which a group changes its behavior in response to newly acquired knowledge, is critical to outstanding organizational performance. In hospitals, strong organizational learning culture is linked with improved health outcomes for patients. This study characterizes the organizational learning culture of hospitals in China from the perspective of a cardiology service.

Methods: Using a modified Abbreviated Learning Organization Survey (27 questions), we characterized organizational learning culture in a nationally representative sample of 162 Chinese hospitals, selecting 2 individuals involved with cardiovascular care at each hospital. Responses were analyzed at the hospital level by calculating the average of the two responses to each question. Responses were categorized as positive if they were 5+ on a 7-point scale or 4+ on a 5-point scale. Univariate and multiple regression analyses were used to assess the relationship between selected hospital characteristics and perceptions of organizational learning culture.

Results: Of the 324 participants invited to take the survey, 316 responded (98 % response rate). Perceptions of organizational learning culture varied among items, among domains, and both among and within hospitals. Overall, the median proportion of positive responses was 82 % (interquartile range = 59 % to 93 %). “Training,” “Performance Monitoring,” and “Leadership that Reinforces Learning” were characterized as the most favorable domains, while “Time for Reflection” was the least favorable. Multiple regression analyses showed that region was the only factor significantly correlated with overall positive response rate.

Conclusions: This nationally representative survey demonstrated variation in hospital organizational learning culture among hospitals in China. The variation was not substantially explained by hospital characteristics. Organizational learning culture domains with lower positive response rates reveal important areas for improvement.

Table 1. Characteristics of the sample

Panel A: Characteristics of participating hospitals			Panel B: Characteristics of respondents		
	#	%		#	%
ALL HOSPITALS	162	100.0	ALL RESPONDENTS	316	100.0 %
RURAL/URBAN LOCATION			GENDER		
Urban	63	38.9 %	Male	237	75.0 %
Rural	99	61.1 %	Female	79	25.0 %
GEOGRAPHIC REGION			EDUCATION		
Eastern	64	39.5 %	College (junior college)	222	70.3 %
Central	48	29.6 %	Postgraduate	94	29.7 %
Western	50	30.9 %	CLINICAL JOB TITLE [†]		
HOSPITAL LEVEL			Consultant (i.e., directors)	182	57.6 %
Secondary or below	97	59.9 %	Attendant	85	26.9 %
Tertiary	65	40.1 %	Resident	41	13.0 %
TEACHING STATUS			Nurse	4	1.3 %
Teaching	68	42.0 %	Other (non-clinical)	4	1.3 %
Non-teaching	53	32.7 %	SENIOR ADMINISTRATIVE POSITION IN HOSPITAL		
No response	41	25.3 %	Yes	198	62.7 %
			No	118	37.3 %
			NUMBER OF YEARS WORKING IN DEPARTMENT [‡]		
			x ≤ 5	67	21.2 %
			5 < x ≤ 10	57	18.0 %
			10 < x ≤ 20	106	33.5 %
			>20	85	26.9 %

[†]Percentages do not add to one hundred due to rounding

[‡]Percentages do not add to one hundred because one respondent did not answer this question

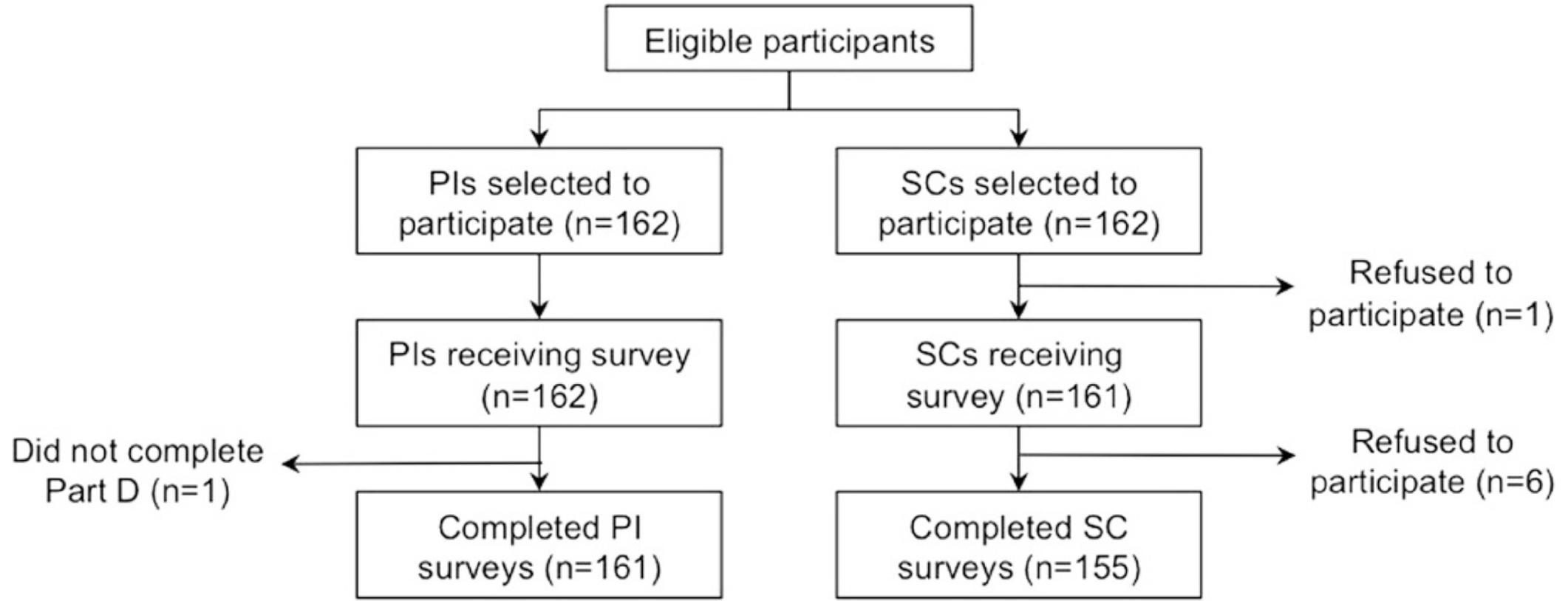


Figure 1. Study design showing participant selection.

Of the 324 eligible participants at each hospital (i.e., the pre-selected principal investigators (PIs) and study coordinators (SCs) of the China PEACE project), 162 PIs and 155 SCs agreed to participate. Of these, 161 PIs and all 155 SCs completed all organizational learning questions derived from the Learning Organization Survey (LOS)-27

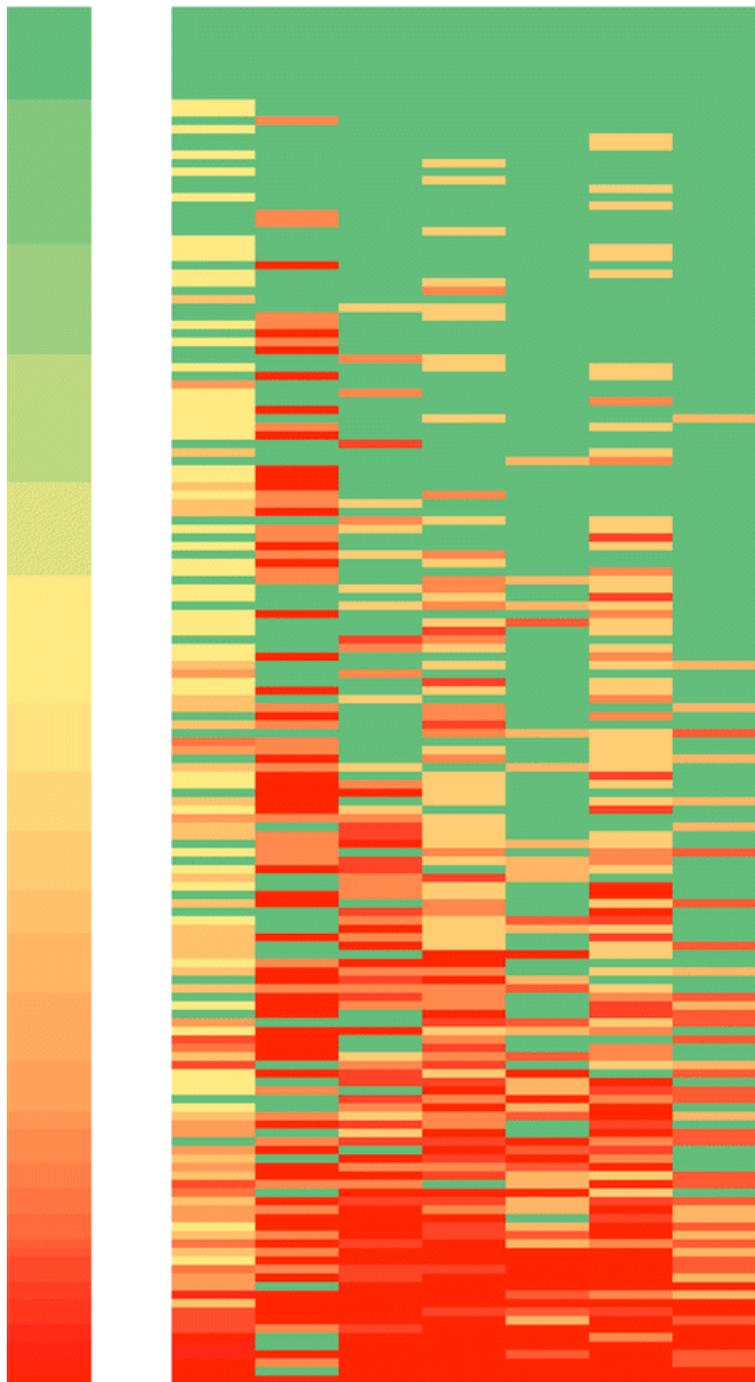


Figure 2. Heat map of positive response rates.

Heat map of domain-specific positive response rates (PRR) by hospital. Cell colors range on a scale from green (PRR = 100 %) to red (PRR = 0 %), where yellow represents the median. Each row represents 1 hospital. The left-most column represents the PRR of each hospital. Each of the following 7 columns represents an LOS-27 domain; from left to right: supportive learning environment, time for reflection, leadership that reinforces learning, experimentation, training, knowledge acquisition, and performance monitoring. Rows were sorted by overall PRR, with the hospital with the highest overall PRR displayed at the top and the hospital with the lowest overall PRR at the bottom

Table 2. Univariate analysis of hospital characteristics and PRRs

Covariates	Overall PRR		Time for Reflection		Customers/Clients*	
	Point estimate (95 % CI)	<i>P</i> value	Point estimate (95 % CI)	<i>P</i> value	Point estimate (95 % CI)	<i>P</i> value
Level						
Tertiary	Reference	–	Reference	–	Reference	–
Secondary or below	–0.079 (–0.157, –0.002)	0.045	–0.105 (–0.243, 0.033)	0.134	–0.063 (–0.520, 0.395)	0.787
Region						
Western	Reference	–	Reference	–	Reference	–
Central	0.083 (–0.013, 0.178)	0.090	0.041 (–0.132, 0.214)	0.638	–0.004 (–0.579, 0.571)	0.990
Eastern	0.162 (0.072, 0.251)	<0.001	0.166 (0.005, 0.328)	0.044	0.340 (–0.197, 0.877)	0.213
Location						
Urban	Reference	–	Reference	–	Reference	–
Rural	–0.085 (–0.162, –0.007)	0.033	–0.136 (–0.274, 0.002)	0.054	–0.118 (–0.577, 0.342)	0.614

*"Customers/Clients" corresponds to the survey question "This workgroup has forums for meeting with and learning from: Customers/clients"

Table 3. Multiple analysis of hospital characteristics and PRRs

Covariates	Overall PRR		Time for Reflection		Customers/Clients*	
	Point estimate (95 % CI)	<i>P</i> value	Point estimate (95 % CI)	<i>P</i> value	Point estimate (95 % CI)	<i>P</i> value
Level						
Tertiary	Reference	–	Reference	–	Reference	–
Secondary or below	–0.003 (–0.146, 0.140)	0.966	0.067 (–0.193, 0.327)	0.614	0.231 (–0.640, 1.102)	0.601
Region						
Western	Reference	–	Reference	–	Reference	–
Central	0.089 (–0.007, 0.184)	0.068	0.049 (–0.124, 0.222)	0.576	–0.007 (–0.587, 0.573)	0.981
Eastern	0.152 (0.062, 0.242)	0.001	0.155 (–0.009, 0.318)	0.063	0.348 (–0.199, 0.896)	0.210
Location						
Urban	Reference	–	Reference	–	Reference	–
Rural	–0.067 (–0.209, 0.075)	0.352	–0.171 (–0.429, 0.087)	0.192	–0.249 (–1.112, 0.615)	0.570

*“Customers/Clients” corresponds to the survey question “This workgroup has forums for meeting with and learning from: Customers/clients”

Conclusion

- Our study showed that respondents reported an overall positive organizational learning culture in hospitals in China.
- Among a representative group of hospitals in China, we found significant and substantial variation in organizational learning culture and an association between organizational learning culture and hospital characteristics such as region.
- This suggests that the geographical location of a hospital may affect the organizational context in which it functions. However, there may be other factors more predictive of variation in organizational learning cultures that we have not yet assessed.
- Our study also provides evidence that there are opportunities for organizational learning improvements in China, and identifies specific areas in which hospitals can improve their organizational learning cultures, such as providing staff with sufficient time for reflection.
- These findings will help lay the groundwork for future quality improvement initiatives aimed at enhancing the organizational learning culture in Chinese hospitals.