Principal Component Analysis Results from Surveys used in Non-Power Plant Settings

Examples from Healthcare

Comparing Culture Surveys

Table 1 Patient safety climate surveys: summary of characteristics

	Name of survey								
	SLOAPS	PSCHO	VHA PSCQ	HSOPS	CSS	SAQ	SCS	MSSA	HTSSCS
Setting appropriate for use	General	General	General	General	General	Multiple units	Multiple units	Pharmacy	Transfusion
General characteristics									
To be completed by individuals	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
No of items demographics not included	58	82/32	71	42	34	60	19	194	27
Uses 5 point Likert scale	Yes	Yes	Yes	Yes	Partial	Yes	Yes	Yes	Yes
Measures implementation of actions	Yes	No	No	No	No	No	No	Yes	No
Common dimensions covered									
Leadership	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Partial
Policies and procedures	Yes	Partial	Yes	Partial	No	Partial	Partial	Yes	Partial
Staffing	Yes	Partial	Yes	Yes	Partial	Yes	Partial	Yes	No
Communication	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reporting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Total no of dimensions	9	5 (16)	13	12	4	6		20	8
Psychometrics performed									
Item analysis	No	Partial	Yes	Yes	No	Yes	Partial	No	Yes
Exploratory factor analysis	No	No	Yes	Yes	No	Yes	No	No	Yes
Confirmatory factor analysis	No	Yes	Yes	Yes	No	Yes	Partial	No	Yes
Cronbach's alpha	No	No	0.45–0.90	0.63–0.83	"Poor"	0.68–0.81	"Good"	0.44–0.84	0.61–0.85
Test/retest reliability	No	No	No	No	Yes	Yes	Partial	No	No
Correlated composite scores across dimensions	No	No	Yes	Yes	No	Yes	No	Partial	Yes
Analysis of variance across services	No	Yes	No	Yes	No	Yes	Yes	Partial	Yes
How used in studies									
Intra institutional comparisons	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Inter institutional comparisons	No	Yes	No	Yes	Yes	Yes	Partial	Yes	Yes
Inter industry comparisons	No	Yes	No	No	No	Yes	Partial	No	No
Association with reporting rates	No	No	No	Yes	Yes	Yes	No	Yes	No
Association with process measures	No	No	No	No	Yes	Yes	No	No	No
Association with patient outcomes	No	No	No	No	No	Yes	No	No	No
Pre v post intervention studies	Partial	No	No	No	No	Yes	No	No	No

SLOAPS, Strategies for Leadership: An Organizational Approach to Patient Safety;[16 24 31] PSCHO, Patient Safety Cultures in Healthcare Organizations;[25 32] VHA PSCQ, Veterans Administration Patient Safety Culture Questionnaire[19] (McKnight and Lee, unpublished data, September 2001); HSOPS, Hospital Survey on Patient Safety;[21 33] CSS, Culture of Safety Survey;[18] SAQ, Safety Attitudes Questionnaire;[22 23 26 34–39] SCS, Safety Climate Survey[40] (10 item version called Safety Climate Scale[24 40]); MSSA, Medication Safety Self Assessment;[17 41] HTSSCS, Hospital Transfusion Service Safety Culture Survey.[20]

Qual. Saf. Health Care 2005;14;364-366

Agency for Healthcare Research and Quality (2010)

Factors	Definition
Communication openness	Important patient care information is transferred across hospital units and during shift changes
Feedback & communication about error	Management provides a work climate that promotes patient safety and shows that patient safety is a top priority
Frequency of events reported	Staff feel that their mistakes and event reports are not held against them, and that mistakes are not kept in their personnel file
Handoffs & transitions	There is a learning culture in which mistakes lead to positive changes and changes are evaluated for effectiveness
Management support for patient safety	Procedures and systems are good at preventing errors and there is a lack of patient safety problems

Agency for Healthcare Research and Quality (con't)

Factors	Definition
Non-punitive response to error	Staff feel that their mistakes and event reports are not held against them, and that mistakes are not kept in their personnel file
Organizational learning—Continuous improvement	There is a learning culture in which mistakes lead to positive changes and changes are evaluated for effectiveness
Overall perceptions of patient safety	Procedures and systems are good at preventing errors and there is a lack of patient safety problems
Staffing	There are enough staff to handle the workload and work hours are appropriate to provide the best care for patients

Agency for Healthcare Research and Quality (con't)

Factors	Definition
Supervisor/manager expectations and actions promoting safety	Supervisors/managers consider staff suggestions for improving patient safety, praise staff for following patient safety procedures, and do not overlook patient safety problems
Teamwork across units	Hospital units cooperate and coordinate with one another to provide the best care for patients
Teamwork within units	Staff support one another, treat one another with respect, and work together as a team

http://www.ahrq.gov/qual/hospsurvey10/

Safety Culture Dimensions Measured by the Safety Attitudes Questionnaire

Dimension	Definition	Example Items
Safety climate	Perceptions of patient safety norms and behaviors	–ICU personnel frequently disregard rules or guidelines
Teamwork climate	Perceived quality of collaboration among personnel	–Our doctors and nurses work together as a well coordinated team
Perceptions of management	Approval of managerial action	–Management supports my daily efforts in this ICU
Working conditions	Perceived quality of the work environment and logistical support	–Our levels of staffing are sufficient to handle the number of patients
Job satisfaction	Positivity about the work experience	–This ICU is a good place to work
Stress recognition	Acknowledgment of how performance is influenced by stressors	–When my workload becomes excessive, my performance is impaired

Sexton JB, Helmreich RL, Neilands TB, et al. The safety attitudes questionnaire: Psychometric properties, benchmarking data, and emerging research. *BMC Health Serv Res* 2006;6:44.

Examples from Construction

Siu, O., Phillips, D. R., & Leung, T. W. (2003). Age differences in safety attitudes and safety performance in Hong Kong construction workers. Journal of Safety Research, 34, 199–205.

- Management commitment
- Human resources management practices
- Supervisor support
- Internal group processes
- Work pressure

Safety Climate : Construction Workers in Pakistan

Factors	Example Items
Attitudes and Beliefs	Management acts decisively when a safety concern is raised Working safely is a top priority for site managers, foremen and supervisors
Physical Work Environment	Construction sites are dangerous places Usually I don't get the right equipment to do the job safely
Supportive Environment	I believe that prevention of accidents is the responsibility of everyone Good working relationship among the workers is often necessary for safety

Ali, Tauha. Influence of National Culture on Construction Safety Climate in Pakistan. Griffith University, May, 2006.
http://www4.gu.edu.au:8080/adt-root/uploads/approved/adt-QGU20070110.173625/public/02Whole.pdf

Example from Manufacturing

Nielsen. K. J., Rasmussen, K., Glasscock, D., and Spangenberg, S. (2008). Changes in safety climate and accidents at two identical manufacturing plants. *Safety Science*, 46, 440-449.

Factor	Example
Immediate supervisor general leadership	My immediate supervisor uses methods of leadership that are satisfying
Immediate supervisor safety leadership	My immediate supervisor intervenes immediately if safety regulations are broken
Safety instruction	I have been shown how to perform my work safely at my current place of work
Convenience violations	I ignore safety regulations to get the job done
Safety oversight	It is of no use to bring up safety issues
Commitment to the workplace	Do you feel that your place of work is of great personal importance to you?

Small Business Examples

BSMS Online Survey
http://bsmsinc.com/survey.html

Factors	Factors
Management Commitment	Housekeeping
Perceived Risk	Personal Commitment
Job-Induced Stress	Accident Causation Beliefs
Safety Training	Emergency Procedures
Feedback	Safe Systems of Work
Managerial Actions	Safety Behaviors
The Required Workpace	Safety Communications
Safety Personnel	

AHRQ Factors for Medical Offices

Factor	Factors
Patient Safety and Quality Issues • Access to Care • Patient Identification • Charts/Medical Records • Medical Equipment • Medication • Diagnostics & Tests	Patient Care Tracking/Follow-up
Information Exchange with Other Settings	Communication about Error
Teamwork	Owner/Managing Partner/Leadership Support for Patient Safety
Work Pressure and Pace	Organizational Learning
Staff Training	Overall Perceptions of Patient Safety and Quality
Office Processes and Standardization	Overall Ratings on Quality and Patient Safety
Communication Openness	

http://www.ahrq.gov/qual/patientsafetyculture/mosurvindex.htm