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Predictors and Outcomes of Patient Safety Culture: A Cross-Sectional Comparative Study in the Public Tertiary Traditional Chinese Medicine Hospitals in Sichuan Province, China

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A B S T R A C T

Background: Developing a safety culture in public traditional Chinese medicine (TCM) hospitals is crucial for improving patient safety initiatives. However, recent knowledge regarding patient safety culture (PSC) in healthcare is limited. This research examined nurses' reports on PSC outcomes and predictors, and the variations in patient safety grades and incidents among PSC components.

Methods: A comparative cross-sectional study was undertaken in four tertiary public TCM institutions in Sichuan Province, China. A sample of 589 registered nurses (RNs) was recruited using a convenient sampling technique.

Results: The sample was gathered by distributing 1000 questionnaires via WeChat, leading to a response rate of 58.9%. Nurses reported PSC as "moderate," with strengths in teamwork and "non-punitive response to errors", but areas needing "improvement in staffing" and "supervisor expectations/actions". Significant correlations were found among.

Conclusions: Patient Safety Culture (PSC) components, leading to variations in patient safety grades. Factors like communication openness, feedback, hospital management support, and teamwork were predictors of PSC. Approximately half of the respondents gave high patient safety grades, with agreement on PSC items and reporting of events; significant correlations with outcomes were observed. In sum, cultivating a safety culture in public TCM hospitals is vital for enhancing patient safety initiatives.

INTRODUCTION

1.1 Background

A healthcare organization's common values, customers, and beliefs that shape staff members' behaviors are referred to as the patient safety culture (PSC). The foundation of patient safety is in creating a culture that emphasizes safety[1, 2, 3].There is limited research on patient safety culture in Chinese traditional medicine hospitals [4]; recent studies have examined predictors or outcomes of PSC separately, not both together.

Positive PSC in healthcare organizations is predicted by open communication, effective information flow, shared perceptions of safety messages, organizational learning, commitment from top leadership, and a non-punitive attitude to reporting errors and events[5]. Safety awareness, error reporting, the perspective from physicians and nurses, and position also predict PSC[6]. Nurses' perceptions of patient safety were predicted by occupational factors,

staffing levels, organizational learning and continuous improvement, hospital management support for patient safety, and job satisfaction.

1.2 Purpose and significance of the study

In nursing and healthcare, PSC is essential. Regretfully, there is a severe lack of recent international information concerning PSC in healthcare settings, despite the abundance of evidence supporting PSC [6， 7]. There is limited recent evidence about the link between PSC predictors and outcomes, and it was the PSC in the China world, but it was not about predictors and outcomes together [8]. Numerous researchers from other nations published the PSC study for comparative purposes, for example, In Australian, one research of emergency department evidenced that teamwork is the only dimension that rated positive by over 70% of participants[9]; another article showed Values below the minimum positive level in "staffing" and "non-punitive to error" are associated with lower nurse response rates compared to physician responses [10]; otherwise, a few published studies in Vietnam were about safety [5] and PSC [11]; and In China, a national study is about patient safety culture and patient safety Goal in Chinese hospitals across 26 provinces in China. The results estimated that patient safety culture was positively related to the practice of patient safety goals ([12]. The current study is one of few in the Tradition Chinese Medicine hospitals in Sichuan, China that examines PSC predicators and outcomes together and is Sichuan Province’ s first nursing study.

In China, in 2013, the first national survey on patient safety culture[13] was by Sichuan University West China hospital, the modified HSPSC questionnaire was used to survey 32 hospitals in 15 cities across China, the respondents were 1160 Chinese healthcare worker who were physicians and nurses. This study showed that the statistical difference of demographic of work units, positions and qualification levels. Meanwhile, the survey found that the positive rate on 5 dimensions were teamwork within units, organization learning-continuous improvement, communication openness, non-punitive response and teamwork across units. Likewise, in US AHRQ hospital surveys patient safety culture once every two years [14]. The current study is one of few in the Tradition Chinese Medicine hospitals in Sichuan, China that examines PSC predicators and outcomes together and is Sichuan Province’ s first nursing study.

This study examined predictors and outcomes of PSC. (1) What components (factors) of the hospital PSC in Sichuan province. (2) What area of strength and areas require improvements in PSC in hospitals? (3) What are the relationships between the components of PSC in hospitals? (4) what are the differences between the patient safety grades and number of events reported across the components of PSC? (5) What are the predictors of PSC in hospitals? (6) What are the outcomes of PSC in hospitals? (7) What are the relationships between the predictors and outcomes of patient safety in hospitals?

1.3 PSC Predictors

Studies usually use demographics only as predictors. Researchers found that females are better in-patient safety outcome variables of the overall perceptions of safety and frequency of events reporting [11]. Another research displayed that Age, gender, marital status, length of service in nursing, department or unit of employment, work hours, and hospital size were all shown to be highly predictive of nurses' patient safety culture, according to another study [15]. Similarly, age, work experience, education level and medical profession predicated PSC [16,17]. Young, nurse or technical staff, day night shift and long hospital experience predicated negative PSC perceptions [18] One of studies by Johan university hospitals using evidenced-based practice found that universities-affiliated hospitals were much more prioritized the PSC [19].

The China PSC studies suggested that culture as a uniqueness should be taken into consideration in different culture settings[20]. Especially, there is difference between Traditional Chinese Medicine and West hospitals on PSC. In fact, China has made progress in some PSC areas, such as hospital management support, non-punitive, speaking up and so on.

1.4 PSC and outcomes

PSC outcomes include staff’ s overall patient safety grade, willingness to report events, safety perceptions and the number of reported events [21,22,23].

METHODS

2.1 Design

A cross-sectional comparative study assessed PSC from Sichuan Traditional Chinese Medicine Hospitals nurses. A descriptive research design using online survey was employed. The HSOPSC was used to collect the data.

2.2 Setting

The study was conducted in four public Tertiary country city general Traditional Chinese Medicine hospitals in Sichuan. The detail description of these hospitals is shown in table1.

2.3 Sampling

The target population in the current study was all registered nurses (RNs) working in Sichuan hospitals in different settings. The accessible population include RNs who were working in the hospitals. Of 1000 survey distributed, a convenience sample of 589 RNs was recruited from 4 public TCM hospitals with a response rate of 58.9%. The inclusion criteria included RNs with at least 3-year diploma or 4-year baccalaureate with 1 year of experience. Exclusion criteria included practical nurses with diploma degrees because they have different job descriptions. Also, RNs with less than 1 year of experience were excluded to ensure that nurses were involved more in 'direct' patient care. According to Cohen's power primer at a level of significant 0.05 and power 0.80, and linear regression test, the minimum sample size should be 118 participants [24,25].

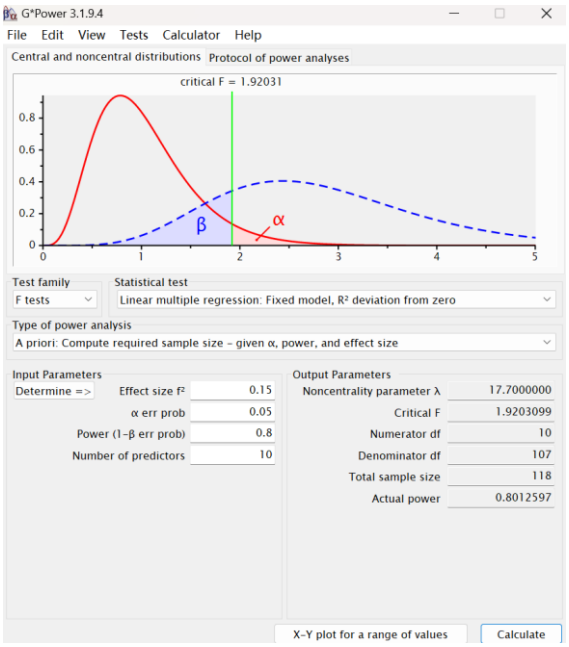

Figure 1 G*Power Calculation.

Figure 1 presents the results of a G*Power analysis, which illustrates the parameters set for a power analysis specific to linear multiple regression to detect a small effect size with sufficient power. The analysis specifies an alpha error probability of 0.05 and a power of 0.8, indicating a substantial likelihood of detecting an effect if one exists. With nine predictors in the model, the G*Power calculation suggests a total sample size of 118 respondents to achieve the desired power, which aligns with methodological requirements of the study. This figure validates the chosen sample size, ensuring that the study is statistically equipped to test the hypothesized effects with adequate power.

2.4 Data collection procedures

After completing a pilot study, the researcher collected data. The hospital administrator helps to collect data via WeChat. The participants are provided with an online form via WeChat. This form was created by Wen Juan Star. The form was consisted of the following three components: Part 1: introduction, Part 2: consent form, and Part 3: Questionnaire. The introduction was detailed the study's purpose and method. The participants must complete an

online permission form if they have fully comprehended and consented to participate. That is, privacy and confidentiality were ensured. Upon participant agreement and approval of the permission form, the questionnaire would be made available for distribution.

2.5 The instrument: Predictors and outcomes variables

The HSOPSC was used for data collection in the present investigation. The HSOPSC consists of 42 items that measure 12 components of PSC. The survey measures 10 dimensions of culture about patient safety (independent variable): (1) the supervisor's/manager's expectations and actions in promoting patient safety; (2) organizational learning/continuous improvement. (3) teamwork within units; (4) communications openness; (5) feedback and communications about the error; (6) non-punitive response to errors; (7) staffing; (8) hospital management support for patient safety; (9) teamwork across hospital units; (10) hospital handoffs and transitions. In addition, the HSOPSC measures four overall patient safety outcomes (dependent variables); (11) overall perceptions f safety and (12) frequency of events reported and their related items of the number of events reported; and the overall patient safety grade.

The overall reliability of the scale in the current study was 0.845. The low reliability of some items refers to the nature of the healthcare system in China. In addition, the sample was not big enough to locate the items on the variable and diversity of response.

2.6 Demographic form

The sample's characteristics (independent variables) were gender, age, marital status, level of education, the area of work, experience in the current hospital and current areas of work as well in the current profession, the number of work hours/week, and whether involved in 'direct' patient care or not (Table 1).

Table 1 Characteristics of the sample and patient safety culture outcomes (N=589)

Characteristics	**N**	**%**	P
Gender			**0.79**
Male	25	4.2	
Female	564	95.8	
Level of Education			**0.638**
Diploma level	226	38.4	
Bachelor	360	61.1	
Master or above	3	0.5	
Experience in current hospital			**0.324**
<5years	226	38.4	
6-10 years	186	31.6	
11-15 years or above	177	30.1	
Woke area			**0.278**
General ward	465	78.9	
Obstetrics, Gynecology and Pediatrics ward	46	7.8	
Emergency department	78	13.2	
Number of working hours			**0.188**
<8	13	2.2	
8	334	56.7	
>8	242	41.1	
Do you participate management of patient safety culture?			**0.156**

Yes	392	66.6	
No	197	33.4	
Job title			**0.035**
No	99	16.6	
Primary	330	56.0	
Middle	132	22.4	
Higher	29	4.9	
Your hospital			**0.001**
Teaching Status			**0.035**
Yes	263	46.8	
No	299	43.2	
Number of events reported during the past 1 year			
No event reports	288	48.9	
1-5	274	46.5	
>5	27	4.6	
	589		

2.7 Statistical analysis

The statistical Package for social science (SPSS) (V.27) was used to general statistics at a significance level of 0.05. The demographics and the scores of the PSC dimensions were summarized using descriptive statistics. The HSOPSC includes positively and negatively worded items; thus, the negatively worded items were reverse data (which were not replaced) and outliers. Items were scored using a five-point Likert scale reflecting the agreement rate on a five-point frequency scale (both including a neutral category). For each item, the mean score and the SD of the mean were calculated, and the percentage of responses of the items after collapsing the response into three choices: disagree (1+2) and neutral (3) and agree (4+5) and were presented using percentages.

The two components of frequency of events reported and overall perceptions of safety are two of the four PSC outcomes. The remaining two outcomes are the patient safety grade and the number of events reported. Peason correlation examined the associated between the frequency of event reported and overall perceptions of safety and the remaining 10 components of PSC and the sample's demographics were considered independent variables, while the overall mean of the outcomes was considered the dependent variable.

Because the researcher has no idea which variable holds more weight in the regression model, the stepwise regression analysis was conducted to derive potential predictions of PSC [26]. The overall mean of PSC components and the outcomes were computed. The 10 components of PSC and the samples' demographics were considered independent variables, while the overall mean of the outcomes was considered the dependent variable.

RESULTS

3.1 Sample's demographics

Of 600 questionnaires, 590 eligible nurses were obtained using a response rate of 98.33%. The majority of nurses were female (564, 95.8%), had a bachelor's degree (360, 61.1%) and worked in general ward (465, 78.9). They had 1-5 years of experience the current hospital (226,38.4%) and worked 40-49 hours/week (242, 41.1%) and were involved in direct patient care (562, 95.4%) (table 1). The overall mean of PSC components was 2.34 (SD= 0.207), and the overall mean of patient safety outcomes was 2.002 (SD=0.418).

3.2 PSC components: determining areas of strength and areas requiring improvement according to PSC components.

For the first and second research questions, areas of strength and others that required improvements were examined. The majority of items had negative response. However, as evidenced through the PSC components, two behaviors

were closely related to patient safety: the teamwork within units (Mean=3.06, SD=0.46) and organization learning and continuous improvement (Mean=2.88, SD=0.26). Nurses were very positive about the teamwork within units: staff support one another in this unit (534, 90.7% positive); when a lot of work needs to be done quickly, we work together as a team to get the work (522, 88.6% positive); In this unit, people treat each other with respect (522, 88.6% positive); when one area in this unit gets really busy, others help out (485, 82.3% positive). Nurses were very positive also about organization learning and continuous improvement: we are actively doing things to improve patient safety (566, 96.1% positive), mistakes have led to positive changes here (486, 82.5% positive), After we make changes to improve patient safety, we evaluate their effectiveness (540, 91.7% positive) (table 2).

The areas that require improvements are to be read while considering the low positive percentage of response. Areas that need improvements include dimensions of (1) hospital handoffs & transitions (Mean=1.42, SD=0.54); things " fall between the cracks" when transferring patients from one unit to another (87, 14.8% positive), problems often occur in the exchange of information across hospital units (44, 7.5% positive), important patient care information is often lost during shift changes (38, 6.5% positive), shift changes are problematic for patients in this hospital (56, 9.5% positive). (2) Non-punitive response to error (Mean=1.90, SD=0.59); staff feel like their mistakes are held against them (196, 33.3% positive), when an event is reported, it feels like the person is being written up, not the problem (89, 15.1% positive), staff worry that mistakes they make are kept in their personnel file (305, 51.8% positive). Additional areas of strength and those require improvements are detailed in table 2.

3.3 Correlations between PSC components

For the third research questions, correlation coefficients of the 10 components with the frequent of events reported and safety perceptions were presented in table 3. The strongest significant Pearson correlation was observed within the composite of frequency of events reported for organizational for feedback and communication about errors (r=0.228). The weakest significant correlation was for teamwork within hospital units (r=0.099). Interestingly, there is a weak correlation between the hospital handoffs and transitions and frequency of events reported (r=0.107).

The strongest significant correlations were observed between the overall perceptions of safety for non-punitive response to errors (r=0.358). The weakest significant correlation was for communication openness (r=0.115). It was interesting to observe a weak correlation between the overall perceptions of patient safety and feedback and communication about errors (r=0.085) (table 3).

3.4 Comparisons of means between patient safety components and outcomes variables.

For the fourth research question, significantly different means for patient safety grades in six out of the ten PSC components were reported and presented in table 4. The highest means were observed for respondents who indicated excellent/very good patient safety grades except hospital handoffs and transitions.

The outcomes variable of the number of events reported was significantly associated only with hospital handoffs and transitions (F=4.83, P=0.008), with the highest means observed for respondents who reported above 5 event reports (M=1.73, SD=0.70) (table 4).

3.5 Predictors of PSC

Clinical factors and the presence of a contemporary control group are also factors[27]. For the fifth research question, the result of the stepwise regression indicated that only teaching status, job title and hospitals reported have significant with PSC, and job title has the most significant for PSC. The results are different with the research in Jordanian hospitals [22] .

3.6 Outcomes of PSC

The HSOPSC measures four overall patient safety outcomes:(1) the overall perceptions of safety, (2) the frequency of events reported, (3) the number of events reported and (4) the overall patient safety grade. For the sixth research questions, approximately 17% of the nurses assigned their hospital a "very good" patient safety grade (101, 17.1%). Approximately half of the nurses reported no events (288, 48.9%), approximately a third reported above 5 events (27, 4.6%). These items represent two of four patient safety outcomes, and the remaining two were the overall perceptions of safety (M=2.35, SD=0.494) and frequency of events reported (M=2.09, SD=0.829) (table 2).

3.7 Correlations of predictors and outcomes of PSC

For the seventh research question, the highest correlation between the total score of PSC outcomes (dependent variable) and the 10 components of PSC and sample demographic (independent variables) were non-punitive response to errors (r=0.358, p=0.001), communication openness (r=0.115, p=0.001), feedback and communication about errors (r=0.085, p=0.05), hospital handoffs and transitions (r=0.303, p=0.001). hospital management support (r=0.167, p=0.001), organizational learning (r=0.143, p=0.001). staffing (r=0.262, p=0.001), the supervisor expectations and actions in promoting safety (r=0.145, p=0,001) and teamwork across hospital units (r=0.196, p=0.001).

Table 2 Means, SD and distribution of components and responses of the hospital survey on the patient safety culture instrument (N=589)

Components and Survey items	**Mean (SD)**	**Negative response**	**Neutral**	**Positive response**
		Disagrees	**N**	**Agree**
		N (%)	**N (%)**	**N (%)**
Communication openness	**2.25 (0.405)**			
Staff will freely speak up if they see something that may negatively affect patient car	2.86 (0.378)	6 (1%)	72 (12.2%)	511 (86.8%)
Staff feel free to question the decisions or actions of those with more authority.	2.12 (0.637)	89 (15.1%)	342 (58.1)	158 (26.8%)
Staff are afraid to ask questions when something does not seem right.	1.78(0.871)	301 (51.1%)	115 (19.5%)	173 (29.4%)
Feedback and Communications about Error	**2.82(0.359)**			
We are given feedback about changes put into place based on event reports.	2.76(0.506)	21 (3.6%)	101(17.1%)	467 (79.3%)
We are informed about errors that happen in this unit.	2.83(0.461)	20 (3.4%)	63 (10.7%)	506 (85.9)
In this unit, we discuss ways to prevent errors from happening again	2.87 (0.370)	8 (1.4%)	58 (9.8%)	523 (89.8%)
Hospital Handoffs & Transitions	**1.42(0.535)**			
Things “fall between the cracks” when transferring patients from one unit to	1.64 (0.726)	300 (50.9%)	202(34.4%)	87(14.8%)
Important patient care information is often lost during shift changes.	1.25 (0.562)	481(81.7%)	70(11.9%)	38 (6.5%)
Problems often occur in the exchange of information across hospital units.	1.38 (0.621)	409(69.4%)	136(23.1%)	44(7.5%)
Shift changes are problematic for patients in this hospital	1.42 (0.659)	399(67.7%)	134(22.8%)	56(9.5%)
Hospital Management support for patient safety	**2.30(0.292)**			
Hospital management provides a work climate that promotes patient safety	2.77 (0.454)	8(1.4%)	121(20.5%)	460(78.1%)
The actions of hospital management show that patient safety is a top priority	2.75 (0.530)	27(4.6%)	95(16.1%)	467(79.3%)

Hospital management seems interested in-patient safety only after an adverse event happens.	1.38 (0.664)	423(71.8%)	106(18%)	60(10.2%)
Non-punitive Response to Error	**1.90(0.589)**			
Staff feel like their mistakes are held against them.	1.94 (0.849)	230(39%)	163(27.7%)	196(33.3%)
When an event is reported, it feels like the person is being written up, not the problem.	1.47(0.743)	401(68.1%)	99(16.8%)	89(15.1%)
Staff worry that mistakes they make are kept in their personnel file.	2.29(0.817)	136(23.1%)	148(25.1%)	305(51.8%)
Organization Learning and continuous improvement	**2.88(0.263)**			
we are actively doing things to improve patient safety	2.95 (0.240)	4(0.7%)	19(3.2%)	566(96.1%)
Mistakes have led to positive changes here	2.77 (0.526)	30(5.1%)	73(12.4%)	486(82.5%)
After we make changes to improve patient safety, we evaluate their effectiveness.	2.90 (0.332)	7(1.2%)	42(7.1%)	540(91.7%)
Staffing	**2.21(0.452)**			
We have enough staff to handle the workload.	2.55 (0.652)	52(8.8%)	161(27.3%)	376(63.8%)
Staff in this unit work longer hours than is best for patient care.	2.46 (0.741)	88(14.9%)	140(23.8%)	361(61.3%)
We use more agency/temporary staff than is best for patient care.	2.05 (0.841)	195(33.1%)	172(29.2%)	222(37.7%)
We work in "crisis mode" trying to do too much, too quickly	1.79(0.834)	278(47.2%)	155(26.3%)	156(26.5%)
The supervisor's/manager's expectations and actions in promoting patient safety	**2.29(0.377)**			
My supervisor /manager says a good word when he/see a job done according to the patient safety procedure.	2.78(0.461)	12(2%)	105(17.8%)	472(80.1%)
My supervisor/manager seriously considers staff suggestions for improving patient safety	2.81(0.443)	13(2.2%)	84(14.2%)	493(83.6%)
Whenever pressure builds up, my supervisor/manger wants us to work faster, even if it means	1.58(0.762)	345(58.6%)	145(24.6%)	345(58.6%)
my supervisor/manager overlooks patient safety problems that happen over and over	1.45(0.744)	416(70.6%)	83(14.1%)	90(15.3%)
Teamwork across hospital units	**2.10(2.83)**			
There is good cooperation among hospital units that need to work together.	2.79(0.437)	7(1.2%)	111(18.8%)	471(80%)
Hospital units work well together to provide the best care for patients	2.79(0.467)	16(2.7%)	89(15.1%)	484(82.2%)
Hospital units do not coordinate well with each other	1.48(0.691)	373(63.3%)	149(25.3%)	67(11.4%)
It is often unpleasant to work with staff from other hospital units	1.33(0.601)	435(73.9%)	113(19.2%)	41(7%)
Teamwork within units	**3.06(0.455)**			
Staff support one another in this unit.	2.89(0.344)	7(1.2%)	48(8.1%)	534(90.7%)
When a lot of work needs to be done quickly, we work together as a team to get the work done.	2.87(0.385)	10(1.7%)	57(9.7%)	522(88.6%)
In this unit, people treat each other with respect.	2.88(0.359)	6(1%)	61(10.4%)	522(88.6%)

When one area in this unit gets really busy, others help out	2.77(0.523)	29(4.9%)	75(12.7%)	485(82.3%)
Frequency of events reported	**2.09(0.828)**	Never/rarely	Sometimes	Mostly/always
When a mistake is made, but is caught and corrected before affecting the patient, how often is this reported?	2.09(0.867)	197 (33.4%)	142(24.1%)	250 (42.4%)
When a mistake is made, but has no potential to harm the patient, how often is this reported?	2.10(0.886)	204(34.6%)	121 (20.5%)	264 (44.8%)
When a mistake is made that could harm the patient, but does not, how often is this reported?	2.09(0.894)	211(35.8%)	114(19.4%)	264(264%)
The overall perception of safety	**2.35(0.494)**			
It is just by chance that more serious mistakes don't happen around here	1.49(0.77)	402(68.1%)	87(14.7%)	101 (17.1%)
Patient safety is never sacrificed to get more work done	2.67(0.701)	80(13.6%)	32(5.4%)	478(81%)
We have patient safety problems in this unit.	1.70(0.826)	315(53.4%)	136(23.1%)	139(23.6%)
Our procedures and systems are good at preventing errors from happening	2.61(0.630)	47(8%)	135(22.9%)	408(69.2%)

Table 3 Correlations between patient safety culture components (N=589)

	The overall perceptions of safety (N=589)	Frequency of events reported (N=589)
	Pearson r	Pearson r
Communication openness	0.115***	0.151***
Feedback and communication about errors	0.085*	0.228***
Hospital handoffs and transitions	0.303***	0.107**
Hospital management support	0.167***	0.186***
Non punitive response to errors	0.358***	0.077
Organizational learning	0.143***	0.100*
Staffing	0.262***	0.079
The supervisor expectations and actions in promoting safety	0.145***	0.015
Teamwork within hospital units	0.034	0.099*
Teamwork across hospital units	0.196***	0.077

Table 4 Comparison of means between patient safety grades and number of events reported with patient safety culture components scores (N=589)

	Patient Safety grades				**Events Reported**			
	Poor or failing	Acceptable	Excellent/ Very good	F, Sig	No event reports	1-5 event reports	>5 event reports	F, Sig
	Mean (SD)	Mean (SD)	Mean (SD)		Mean (SD)	Mean (SD)	Mean (SD)	
Communication openness	2.56 (0.192)	2.21 (0.408)	2.32 (0.396)	2.040 (0.059)	2.26 (0.396)	2.25 (0.410)	2.21 (0.454)	0.167 (0.846)
Feedback and communication about errors	2.89 (0.192)	2.79 (0.383)	2.87 (0.303)	1.647 (0.132)	2.80 (0.376)	2.84 (0.344)	2.85 (0.311)	1.251 (0.287)
Hospital handoffs and transitions	1.00 (0.000)	1.30 (0.421)	1.63 (0.644)	9.854 (<0.001) (b)	1.41 (0.570)	1.40 (0.467)	1.73 (0.700)	4.832 (0.008) (b,c)
Hospital management support	2.56 (0.385)	2.26 (0.264)	2.37 (0.322)	4.204 (<0.001)	2.30 (0.317)	2.29 (0.258)	2.40 (0.334)	1.545 (0.214)
Non punitive response to errors	1.56 (0.509)	1.76 (0.520)	2.18 (0.598)	16.137 (<0.001)	1.88 (0.610)	1.91 (0.556)	2.00 (0.589)	0.675 (0.510)
Organizational learning	2.89 (0.192)	2.86 (0.288)	2.93 (0.184)	5.326 (<0.001) (c)	2.86 (0.287)	2.90 (0.243)	2.88 (0.263)	2.013 (0.135)
Staffing	2.25 (0.4333)	2.12 (0.406)	2.37 (0.477)	8.015 (<0.001) (c)	2.23 (0.471)	2.20 (0.434)	2.21 (0.452)	0.297 (0.743)
The supervisor expectations and actions in promoting safety	2.25 (0.250)	2.25 (0.316)	2.37 (0.460)	3.215 (<0.004)	2.32 (0.385)	2.26 (0.353)	2.34 (0.496)	2.307 (0.101)
Teamwork within hospital units	3.33 (0.289)	3.04 (0.447)	3.09 (0.475)	0.807 (0.565) (c)	3.09 (0.437)	3.04 (0.469)	3.06 (0.502)	0.660 (0.517)
Teamwork across hospital units	2.00 (0.000)	2.06 (0.222)	2.17 (0.357)	4.060 (<0.001) (c)	2.10 (0.303)	2.09 (0.245)	2.18 (0.283)	1.127 (0.325)

Patient Safety Grade: a. Significant different between 'Poor or Failing' and 'Acceptable. Significant difference between 'Poor or Failing' and 'Excellent/Very Good'; c. Significant difference between 'Acceptable' and 'Excellent/Very Good'.
Number of Events Reported: a. Significant difference between 'No events reported' and '1 to 5 events reported'; b. Significant different between 'No events reported' and ">5 events reported'; c. Significant difference between'1 to 5 events reported' and ">5 events reported'.One-Way ANOVA, df=2

Table 5 Predictors of nurse's perception of patient safety culture in TCM public Hospital

Predictors	Beta	P-value
Hospitals	-0.018	0.010
Teaching Status	0.001	0.034
Job title	0.010	0.020
Organizational learning	0.112	<0.001
Hospital management support	0.112	<0.001
Teamwork within hospital units	0.124	<0.001
Feedback and communication about errors	0.135	<0.001
The supervisor expectations and actions in promoting safety	0.153	<0.001
Teamwork across hospital units	0.161	<0.001
Communication openness	0.171	<0.001
Nonpunitive response to errors	0.207	<0.001
Staffing	0.233	<0.001
Hospital handoffs and transitions	0.246	<0.001
Frequence of Error report	0.293	<0.001
Numbers of Event Reports	0.000	0.998

DISCUSSION

The sample's characteristics are consistent with Sichuan TCM public hospital's nursing task force. On a 5-point Likert scale, the overall mean of PSC components was 2.32, and the overall mean of patient safety outcomes was 2.00. Both means indicate moderate nursers' perceptions of the PSC in Sichuan Province, China, which is similar to that in the USA[28] and[30, 31], yet is lower than that of Jodan[22].

This study is the first published on assessing PSC predictors and outcomes in Sichuan TCM public hospitals. Findings identified areas of strength include teamwork within hospital units and non-punitive response to errors. Areas that need improvement include staffing and the supervisor expectations and actions in promoting safety.

Significant correlations were found in the recent studies between the components of patient safety and outcomes [17, 32, 33]. Higher scores on organizational learning/continuous improvement across units were reported in present study, consistent with [22] findings. Components of patient safety were linked to the frequency of events reported and a higher likelihood of reporting a higher patient safety grade, which different with [29] and [22]. In the current study, high scores on non-punitive response to errors and hospital handoffs and transitions were linked to a greater likelihood of better perceptions of safety. However, these two higher scores were not related to frequency of event reported.

A weak correlation between the organization learning and teamwork within hospital units and the frequency of events reported and a weak correlation between feedback and communication about errors and the overall perception of safety in the present study. Those correlations pinpoint the need for supervisory safety communication practices as they play critical roles in shaping safety culture in hospital settings. However, this will not suddenly happen, nursing leaders should promote communication openness among the team.

In the current study, five out of the ten PSC components in the present study were significantly different on patient safety grades. The highest means were observed for respondents who indicated patient safety grades and events reported in Hospital handoffs and transitions.

This mean score was consistent with their reporting the following in the composited itself: things might go uncontrolled and get lost when transferring patients from one unit to another, problems often happen during the exchange of information across and within hospital units, and shift changes are problematic for patients in this hospital, and important patient care information is often lost during shift changes. This result is consistent with AHRQ, Wagner et al. and [22].

Studies usually use demographics only as predictors; however, as the ten components are conducive to PSC, they were entered into the stepwise regression model.

Results indicated that ten dimensions improvement PSC. Meanwhile, Job title, the research hospital and teaching status were predictors of PSC. Frequence of error report has the most significant with PSC, followed by hospital handoffs and transitions, then staffing and nonpunitive response to errors. In this study, teaching status high job title are expected to have better perceptions of PSC. From nurse perspective, high job tile means has more work experience and more PSC training at work may increase the awareness regarding safety practices undertaken in the hospital.

A “very good” patient safety grade and “no events” or “one to two events” were reported (similar to other studies [34]. Moreover, nurses “agreed” on the overall PSC and reported “most of the time” the events that occurred and consisted with [22], except the frequency of events reported was slightly lower in the current study, similar to other research studies [34]. Contrary to other research papers[22], the present findings revealed strengths in the safety culture at the TCM hospitals in China. However, reporting “no events” or one to two events” in the current sample could identify the issue of under-reporting of errors, which is a common problem even in specialized units in developed countries.

The overall mean of components of PSC and the overall mean of PSC outcomes yielded a significant and moderate correlation (r=0.358) non punitive response to the error, the result is opposite with studies [29] and [22].

This study offers baseline data about PSC in Sichuan, China, the main limitations of this study, including the use of a convenience sampling method, which could lead to selection bias. Besides, other healthcare professionals, such as physicians, laboratory technicians, and paramedics, were not included in this study. In addition, the length of collection data is one months. Finally, the study is dependent on a questionnaire based on self-reported that could lead to bias.

Regular assessment of PSC is mandated by all TCM public hospitals, especially the hospital involved in accreditation programmers. Patient safety should be prioritized and linked closely to clinical outcomes [35]. Benchmarking the hospitals within similar ones, especially the international ones, will motivate all organization to excel and achieve the best outcomes, particularly patient outcomes.

Area of strength related to patient safety, especially the handoff and transitions, should be promoted and maintained. Areas that need improvement such as communication openness and organization learning should be targeted.

Significant differences in PSC were reported; these differences point out other factors that hospitals and nursing leaders must consider when addressing patient safety in general and PSC in particular, especially regarding the “ poor or failing hospital handoffs and transitions. These are problematic issues that all professional, not only nurses, should immediately intervene in.

CONCLUSION

Nurses reported moderate PSC, agreeing on most items with a positive perception. They consistently reported events, highlighting hospital handoffs and non-punitive response as strengths, and organizational learning and management support as areas for improvement. Significant predictors and differences in PSC were noted. Strengthening patient safety practices is crucial for enhancing hospital performance and service quality. Prioritizing safety-focused

practices can improve PSC and overall medical quality outcomes. Nurses reported moderate PSC, agreeing on most items with a positive perception. T

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