MEASURING SAFETY CULTURE ATTITUDE OF HEALTH PROFESSIONALS AT KING NARAI HOSPITAL, LOP BURI PROVINCE, THAILAND

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ABSTRACT: The objectives of this research were to determine the perception and compare the patient safety culture (PSC) attitudes among different types of health professional. It was a cross- sectional study with a total of 380 respondents covering physicians, registered nurses, dentists, technicians, pharmacists, physiotherapists, dieticians and academicians. They were asked to complete a self-administered patient safety culture survey over during January to February 2012. This study employed Hospital Survey on Patient Safety Culture (HSOPSC) form designed by the Agency for Health Care Research and Quality (AHRQ) to assess health professionals' perspective of PSC. HSOPSC questionnaire was translated into Thai language by the Clinical Research Collaboration Network (CRCN) and acquired an ethical review from King Narai Hospital on 30 December 2011. Data was analyzed by applying descriptive statistics to describe variables and One-way ANOVA to examine the relationship between independent and dependent variables. The results revealed that HSOPSC dimensions did not significantly differences among these eight health professional groups. The highest mean score of positive attitude responses was from "Organizational learning /continuous improvement" (3.89±0.60) while "Staffing" dimension received the lowest mean score (3.10±0.74). The positive attitude of PSC fell in the group of registered nurses and pharmacists had the least. Patient safety grade with the most acceptable level was at 55.53%. Future studies should consider others groups of medical healthcare employees besides health professionals. To facilitate cultural behavior changes, hospital managers should assess and pay serious attention to make an improvement to issue necessary policies where health professionals can be actively encouraged to participate for patient safety.

Keywords: Attitude, Health professional, Measurement, Patient safety, Safety culture

INTRODUCTION

Patient safety is becoming an issue of concern worldwide [1]. Magnitude of the problem with adverse events resulting fault use of contaminated medical devices. According to medical record audits, 1 in 10 employees in health care institutions among industrialized countries experienced some forms of unintended harm. While less well-documented, the scope of the patient safety problem in developing countries, including South East Asia Region, is believed to be far more serious [2]. The World Health Organization (WHO) estimates that tens of millions of patients worldwide endure disable injuries or death annually, injuries that can be attributed directly to unsafe medical practices and care [3] The incidence of medical errors during healthcare procedures is estimated at 7.5%, and a majority of the adverse events are identified as preventable [4, 5]. Safety experts believe that patient safety begins with the enforcement of safety system in healthcare organizations [6-8]. In addition, safety culture is typically defined as "the shared attitudes, beliefs, values and assumptions that underlie how people perceive and act upon safety issues within their organizations" [9].

Measuring safety culture in health care received increased attention at the end of the 1990s. This was contributed to by the publication of the report *To Err is Human* by the Institute of Medicine (IOM) [10]. The importance of patient safety culture (PSC) measurement in healthcare settings is well-documented [11] and measures of PSC are proliferating [12].

In case hospitals want to improve patient safety system. It is important to learn more about patient safety culture. Several instruments are available to make an assessment of the safety culture in

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hospitals [13]. One of these instruments is the Hospital Survey on Patient Safety Culture (HSOPSC) originated by the Agency for Healthcare Research and Quality (AHRQ) [14]. The HSOPSC is a commonly used instrument to measure multiple dimensions of patient safety culture. The aims of this study were to determine the perception and compare the patient safety culture attitudes among different types of health professional at King Narai Hospital, Lob Buri province, Thailand.

MATERIALS AND METHODS

The research was a cross-sectional study utilizing a customized Thai version of HSOPSC. A pilot test was conducted to ensure the reliability of the Thai version translated by the Clinical Research Collaboration Network (CRCN) and Research for Quality (R4Q), both of which are the research institutes in Thailand.

Reliability values were computed based on the pilot test data from 60 health professionals at Phra Putthabat Hospital, Saraburi Province, Thailand. The reliability test by Cronbach's Alpha for the AHRQ ranged from 0.63 to 0.84 whereas for the data in this research Cronbach's Alpha ranged from 0.63 to 0.85, Cronbach's Alpha, slightly different in the *hospital handovers and transition* dimension. The other dimensions reached acceptable reliability coefficients [14].

At King Narai Hospital, the actual study site, targeted the health professionals including (40) physicians, (9) dentists, (285) registered nurses, (14) technicians (radiological technicians, medical technologists), (9) pharmacists, (4) physiotherapists, (5) academicians and (4) dieticians, with informed consent. This research conducted in all target of health professionals because of larger sample sizes generally lead to increased precision of statistics resultant and decreasing of the result from the presence of systematic errors. The questionnaires were distributed to 447 health professionals and a total of 380 respondents returned the questionnaires thus a response rate was 85.01%. The investigation was conducted from January to February 2012.

The subscales of HSOPSC included 12 dimensions regarding "safety measure":

(1) manager expectations and actions promoting safety; (2) organizational learning and continuous improvement; (3) teamwork within units; (4) communication openness; (5) feedback and communication about error; (6) non-punitive response to errors; (7) staffing; (8) management support for patient safety; (9) teamwork across units; (10) handovers and transitions; as well as

Table 1 Number and percentage of respondents by socio-demographic characteristics (n=380)

Socio-demographic characteristics	n	(%)
Age (Years)		
20 – 29	77	20.26
30 – 39	126	33.16
40 – 49	131	34.47
≥ 50	46	12.11
Gender		
Male	51	13.42
Female	329	86.58
Education level		
Bachelor's Degree	289	76.05
More than Bachelor's Degree	91	23.95
Marital status		
Single	137	36.05
Marriage	217	57.11
Widow	5	1.32
Divorce/Separate	21	5.53

'outcome measures': (11) number of events reported; (12) overall perception of safety.

Items were scored using five-point Likert scale: 1 = demographic characteristics of respondents, characteristics of professional background, and average percentage and standard deviation of positive responses on patient safety culture were computed. One-way analysis of variance (ANOVA) was employed to test the differences among the groups and mean test for similarity was analyzed by repetitive One-way ANOVA to determine the extent to which composite scores on these safety culture scales differentiated across health professional groups at King Narai Hospital (KNH).

RESULTS

Demographic statistics

The characteristics of the respondents were summarized in Table 1. The most age bracket was between 40 to 49 years old (34.47%) and most of them were female (86.58%). Table 2 showed the highest numbers of respondents across departments were registered nurses 75% (285 respondents), followed by physicians 10.53% (40 respondents). The respondents had their service time in the bracket of 21 years or more for 26.84% (102 respondents). The most respondents 16.05% (61 respondents) worked in medical units followed by surgery 12.89% (49 respondents) and obstetrics 8.95% (34 respondents).

The respondents working hours ranged from 40 to 59 hours per week at 57.63 % (219 respondents), 60 to 79 hours per week at 19.74% (75 respondents) and 80 to 99 hours per week at 9.21% (35

Table 2 Number and percentage of respondents by professionals' background information (n=380)

Background Information	n	(%)
Professional background		
Physicians	40	10.53
Registered Nurse	285	75.00
Dentists	9	2.37
Pharmacist	19	5.00
Technician	14	3.68
Physiotherapist	4	1.05
Dietician	4	1.05
Academician	5	1.32
Length of Service time in hospital		
Less than 1 year	36	9.48
1 to 5 years	70	18.42
6 to 10 years	52	13.68
11 to 15 years	75	19.74
16 to 20 years	45	11.84
21 years or more	102	26.84
Length of Service time current department		
Less than 1 year	51	13.42
1 to 5 years	103	27.11
6 to 10 years	87	22.89
11 to 15 years	65	17.11
16 to 20 years	32	8.42
21 years or more	42	11.05
Weekly working hours		
Less than 20 hours	0	0
20 to 39 hours	32	8.42
40 to 59 hours	219	57.63
60 to 79 hours	75	19.74
80 to 99 hours	35	9.21
100 hours or more	19	5
Tenure in current experty		
Less than 1 year	21	5.53
1 to 5 years	61	16.05
6 to 10 years	54	14.21
11 to 15 years	78	20.53
16 to 20 years	58	15.26
21 years or more	108	28.42
Contacts with patients		
Yes	358	94.21
No	22	5.79

respondents). Twenty-eight point four two percent of the respondents had been working in their current departments. The respondents had direct contacts with the patients at 94.21% and only 5.79% of them did not e.g., academicians, pharmacists and dieticians as shown in Table 2.

Survey findings

The highest mean score of positive attitude responses was obtained from "*Organizational learning / continuous improvement*" dimension (3.89 ± 0.60); whereas items in the "*Staffing*" dimension received the lowest mean score of positive response (3.10 ± 0.74). Comparison between the perception on patient safety culture of outcome and safety culture measurement in two overall pictures of HSOPSC, the survey result found that outcome measurement

had the lowest score of mean (2.73 ± 0.97) than safety culture (3.49 ± 0.40).

The result indicated that most of respondents in this study felt supportive and possessed good understanding of patient safety culture in positive way with a good result in HSOPSC dimensions did not significantly among health professionals group. One-way analysis of variance (ANOVA) was employed to test the differences among the groups and mean test for similarity was analyzed by repetitive One-way ANOVA to determine the extent to which composite scores on these safety culture scales differentiated across health professional groups.

Cutting score in 3 levels of each dimension in HSOPSC indicated the level of positive attitude in respondents. Cut-off mean score in 3 levels was set as follow [15].

- 3.50 - 5.00 High level of positive attitude
- 2.50 - 3.49 Moderate level of positive attitude
- 1.00 - 2.49 Low level of positive attitude

Analysis showed that six dimensions had significant difference among the eight health professional groups (the significance < 0.05). HSOPSC dimensions were not significantly among these eight groups as shown in Table 3. The first rank of positive attitude on PSC fell in registered nurse group and the last in pharmacists.

Patient safety grade

From the total of 380 respondents, most of them were on an acceptable level for patient safety grade at 55.53%, followed by very good level at 42.37%, excellent level at 1.32 %, and poor level at 0.79% as shown in Figure 1.

DISCUSSION

The major finding of the study was that perceptions of safety culture in 12 dimensions across health professional groups with ranking of positive attitudes fell in the group of registered nurses and the last in physicians and pharmacists respectively. The researcher assumed that registered nurses were in frequent contacts with patients than the physicians and had to spend time with patients round the clock. Thus, they needed to be aware of and concerned with every task they did for the patients [16]. The pharmacists were less in direct contacts with patients, thus reflected in their positive attitudes toward patient safety culture [17, 18]. The results of socio-demographic characteristics made it important to consider whether or not the long working hours may have an effect toward their behavior and attitudes on patient safety (40 to 59 hours per week at 57.63 %; 19.74% for 60 to 79

Table 3 Relationship among health professionals with one-way ANOVA analysis for HSOPSC dimensions composite score across respondents (n=380)

HSOPSC dimensions		Average of mean±SD score on positive attitude	*p*-value
Overall perceptions of safety		3.47(0.56)^2	0.01*
Frequency of event reporting		3.27(0.97)^2	0.00*
Supervisor / manager expectations and actions promoting patient safety		3.85(0.67)^1	0.12
Organizational learning /continuous improvement		3.89(0.60)^1	0.00*
Teamwork within units		3.76(0.69)^1	0.16
Communication openness		3.60(0.67)^1	0.00*
Feedback and communication about error		3.83(0.60)^1	0.00*
Non-punitive response to error		3.13(0.90)^2	0.24
Staffing		3.10(0.74)^2	0.13
Hospital management support for patient safety		3.40(0.65)^2	0.03*
Teamwork across units		3.68(0.61)^1	0.78
Hospital handovers and transition		3.12(0.75)^2	0.35
Outcome Measurement	(1-2 dimensions)	2.73(0.97)^2	0.01*
Safety Culture Measurement	(3-12 dimensions)	3.49(0.40)^2	0.04*
HSOPSC	(1-12 dimensions)	3.45(0.51)^2	0.05

*Significantly different at *P* < 0.05 level
Number mark with: 1= 3.50 - 5.00   High level of positive attitude
                         2= 2.50 - 3.49   Moderate level of positive attitude } Ranking of mean score
                         3= 1.00 - 2.49   Low level of positive attitude
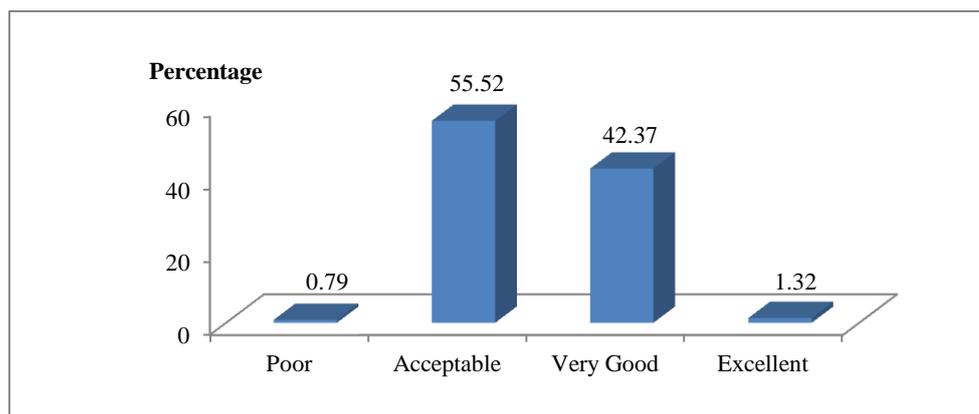
Figure 1 Percentage of patient safety grade

hours per week and 9.21% for 80 to 99 hours per week respectively**).** If so, it may have an influence on the interpretation of the survey results. Similarly, time offers support for the workers to adjust and make it a better evaluation of their practice, thus mediating the negative impact over their work [19]. The pace of work and work load factors are considered as work pressure [20]. It is suggested that balancing between pressure for production and safety culture attitude is a related theme recognized as a key component of safety culture [21].

The relatively hard- to-access respondent groups were pharmacists and physicians due to their time constraints [22]. They have been found to have less

participation than other health professionals [17].

The results of this study were based on a cross-sectional study with the response rate of 85.01% (380 respondents out of 447). The respondents were asked to fill-in the self-administered patient safety culture survey while some were in face- to- face interview Self- administered instruments are commonly used in research as they provide a good solution when researchers need to administer a large number of tests in a relatively short period of time. Scoring of the tests can also be standardized and is based on previously established norms. The weaknesses of self-administered instruments are also widely recognized because of people are sometimes not the best judges of their own

behavior. Some individuals may try to hide their feeling, thoughts and attitudes.

RECOMMENDATION

The study results demonstrated that patient safety culture should be a top strategic priority for health care organizations so that the leaders can achieve success rates for patient safety culture. In fact, some unsatisfactory survey results can serve as warning signs to healthcare authorities, hospitals, and public at large.

Further research is required to study the association between patient safety culture and clinical outcomes with a consideration to include other employee groups in healthcare settings. To facilitate change in cultural behaviors, the director of the hospitals should assess and pay serious attention to make an improvement to issue necessary policies where health professionals can be actively encouraged to participate for patient safety culture.

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