



TRENDS IN SCIENCE  
AND SCIENCE EDUCATION  
2017 State University of Medan  
November 14<sup>th</sup> - 15<sup>th</sup>  
Grand Mercure Hotel, Jl. Sutomo, No. 1, Medan, Indonesia



## Analysis of Safety Climate and the Performance of Inpatient Hospital

Hasianna Nopina Situmorang<sup>1</sup>, Rini Dharmastiti<sup>2</sup>

<sup>1</sup>Master Students, Department of Mechanical and Industrial Engineering, Faculty of Engineering, Universitas Gajah Mada, JalanGrafika No. 2, Yogyakarta 55281, INDONESIA, Phone. +6281370339573, E-mail: hasiannas@yahoo.co.id

<sup>2</sup>Department of Mechanical and Industrial Engineering, Faculty of Engineering, Universitas Gajah Mada, JalanGrafika No. 2, Yogyakarta 55281, INDONESIA, Phone. +62-274-521673, Fax : +62-274-521673

### ABSTRACT

The analysis of safety climates and the performance of inpatient hospital is carried out in the study. The research is aimed to investigate the safety climate parameters that influenced the performance of inpatient hospitals. The study is carried out in the hospitals in Yogyakarta at June-October 2017. The data are collected by using standard questionnaire for hospital performance. The questionnaires are randomly distributed to respondents of patients and hospital staffs (nurse and doctors), and their opinions are counted and analysed for working performance of the hospitals. Safety climate parameters that were effected the hospital performance are worksatisfaction, patient satisfaction, and work performance are analysed. The results showed that patient satisfaction are very good (average 3.23) that were resulted from good team work condition, the leadership, the communication between the leader and staffs and among the staffs, and staff organization in patients' care. The work satisfaction are good (average 2.88) that are dealing with the payroll and incentive, supervision, work condition, partnership condition security system and the opportunities for staff achievement. Work performance of inpatient hospitals are very good (average 3.21) contributed from work achievements, staffs capabilities, and staffs behavior in work relationship.

**Keywords:** Safety climate, hospital performance, inpatient hospital, patient satisfaction, work satisfaction, work performance.

**Corresponding Author:** Hasianna Nopina Situmorang, Master Students, Department of Mechanical and Industrial Engineering, Faculty of Engineering, Universitas Gajah Mada, JalanGrafika No. 2, Yogyakarta 55281, INDONESIA, Phone. +6281370339573, E-mail: hasiannas@yahoo.co.id

### INTRODUCTION

Safety climate is an important aspect for the quality of working climate in the hospital and become a high concern as it directly influence the quality service of inpatient hospital. It was known that safety climate plays an important role to patient safety because hospital with high safety climate could protect the patient from incidents in the medication errors and would lower the rate of patient readmission (Hansen, et al., 2011). Patient safety is related to organization culture that are obtained from the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine the commitment, the style and proficiency of the health providers' safety management (Singer, et al., 2009). Many factors can be associated with patient safety culture such as organizational culture, hospital characteristics, work area, position, the extent of participation in a patient safety program, communication, patient safety management and resources. Safety culture is also related to beliefs, values, attitudes and behaviour in a hospital in relation patient safety (Singer and Vogus, 2013).

Safety climate becomes a key parameter to be used to evaluate the quality of service in the hospital, and it can be made as a program lists for improvement purposes. The study on safety climate in the hospital has been reported to measure the climate level and climate strength (Ginsburg and Oore, 2016; Liu, et al., 2014). Safety climate as a key factor influencing patient safety and involving various perspectives in order to fully understand differences and trends for choosing interventions related to the needs of the organization (Mascherek and Schwappach, 2017). The survey on patient safety culture as an implications of the safety culture in an outpatient has also been conducted. It was known that communication is assigned as a major safety culture problem along with the penalty become the greatest barrier to the encouragement of error reporting, and teamwork within units is counted as a strength for medical practice (Liu, et al., 2014). Investigation on safety attitudes among healthcare providers in Norwegian nursing homes by using the Safety Attitudes Questionnaire – Ambulatory Version (SAQ-AV) has also been reported to see the relationship between safety attitudes to professional background, age, work experience and mother tongue where the patient safety culture assessment may help nursing home leaders to initiate targeted quality improvement interventions (Bondevik, et al., 2017).

The use of questionnaire as an instrument to assess patient safety culture in general practice has been reported to be appropriate to obtain the data for patient safety culture measurement (Zwart, et al., 2011). The questionnaire has also been used to measure safety climate in hospitals (Gehring, et al., 2015). The analysis of climate profiles is becoming very interesting to analyse patient safety. It is then be done in this study to use questionnaire to evaluation safety climates and working performance of inpatient hospital. The aims of the present study was to investigate the relationship between the safety climate parameters with working performance of inpatient hospitals. The description of safety climate is analysed based on the patient satisfaction in the hospital, work satisfaction and work performance to make a decision of the performance of inpatient hospital. The staffs experience are used as data to obtain whole view of the activities in relation to patient satisfaction, work satisfaction and work performance.

## **MATERIAL AND METHODS**

The research was carried out at inpatient hospitals of general hospital and an academic hospital at Yogyakarta, Indonesia, with participation of medical doctors, nurses, hospital staffs and patients. The complete instruments and procedures are available in previous report (Situmorang, 2017). The samples are randomly selected from those are volunteer to fill and return the survey, and they are counted be able to represent the population. The dependent variable is the performance of the hospital where the independent variable is safety climate. The performance of the hospital are consisted of patient satisfaction, working satisfaction, and work performance.

The data was collected using a standard questionnaire adopted from previous study with modification for hospital performance at inpatient hospital (Agency for Healthcare Research and Quality, 2016; Hasibuan, 2014; Sundari, 2014). The components in the questionnaire are consisted of questions related to safety climate. All questions are raised in multiple choice options, starting from low to positive opinion in the range of 1-4, with preference criteria: (1) Very disagree or very unsatisfied, (2) Disagree or unsatisfied, (3) Agree or satisfied, and (4) Very agree or very satisfied.

**Data collection and data analysis:** The data obtained in this study were collected on June-October 2017 at Yogyakarta. The questionnaire was given to administrative keypersons in the hospital to allow the instrument to be distributed as a separate paper to their employees, and remind them one week before the deadline. Completed questionnaires were returned anonymously in boxes placed in the hospital. The items in the questionnaires were collected and made into SPSS files for analysis. The data was analysed statistically to obtain the mean values, standard deviations and multiple linear regressions, and considered significant at the  $P < 0.05$  level. An open statements are also provided in the questionnaire to allow the respondents to give their opinion for specific statements that are not listed in the questionnaire.

**Ethical considerations:** Ethical considerations is applied in the study regarding the patient safety culture in the hospital. It was conducted in compliance with the ethical guide of the university guideline. All participants received written information about the purpose of the study, and were assured that the data would be collected anonymously and treated in confidence. The study was approved by the university data services unit.

## RESULTS AND DISCUSSION

**Hospital safety climate based on patient satisfaction:** Hospital safety climate has been investigated at inpatient hospital in relation to patient satisfaction (Situmorang, 2017). There are 30 questions are submitted to respondents, those are dealing with team work condition, the leadership, the communication between the leader and staffs and among the staffs, and the staff organization that are based on the respondents experiences are summarised in Table 1. The results showed that patient satisfaction are very good (average 3.23). All indicators being asked on patient satisfaction are positive from respondents experience. The respondents stated that hospital leader already has adequate and clear understanding on patient risk and safety and put it as a priority in the patient handling.



Table 1. The description of safety climate of inpatient hospital in relation to patient satisfaction based on respondents opinion(A = General Hospital, B = Academic Hospital)

No	Survey Dimension	Indicators of hospital safety climate related to patient satisfaction	Respondents Opinion		
			A	B	Average
1	Team work	There are 6 questions related to team works	3.23	3.12	3.17
2	Leadership	There are 6 questions related to leadership in the hospital	3.04	2.98	3.01
3	Communication	There are 14 questions related to communication between staffs	3.32	3.34	3.33
4	Organization Staff	There are 4 questions related to organization staff in hospital	3.38	3.41	3.40
<b>Average</b>			<b>3.24</b>	<b>3.21</b>	<b>3.23</b>

Hospital leader has conduct safety evaluation to patient and staffs and in relation to patientsatisfaction. A leader give reprimand to staff that are engagedwith the work out of the procedures. Furthermore,a leader consider every suggestions on patient safety and eager to givemotivation to staffs to work hardto fulfill patient satisfaction eventhoughthey are already on an overloaded duty. In such cases, the staffs improved work performance by learning from others experience, and they keep to use current standard patient safety procedures in the safety handling. In the case of emergency handling, it is given the authority to staffs to do initial action on patient safety handling with reason to prevent dangerous event to patient (Hanskamp-Sebregts, et al., 2013). However, it is accostumed in the units to remind another staffs to do safety on patient handling. This situation make all staffs awake and careful to do patients safety and results in doing clear instruction to do patients handling.

The team work in the hospitals are very good to handle patient needs that resulted on patient satisfaction in the unitcare. It has been known that junior staffs are having accompaniment from expert to do unproficient work that has been delegated to them. It is given the authority to ask keypersons or unit leader when the staffs dealing with patient safety. Safety culture indicators should focus on the processes rather than the outcomes of care (Parker,et al.,2015). In the case of reporting system, it is easy for staffs to report the events in the hospital unit to the leader,and the staffs were given feedback and evaluate patient security and safety periodically before the incidents occured. It has been stated that the communication among staffs in the same profession is well established. The staffs have the obligation and commitment always to remind the colleagues to do thebest when there is faulty in patient care. Team-work within hospital and communication openness is very important to obtain good patient safety culture (Burström, et al., 2014),With this strategy the patient satisfactionhas been completed because the work in hospital care has been conducted properly.



**Hospital safety climate based on work satisfaction:** The safety climate at inpatient hospital has been investigated from respondents based on work satisfaction. The survey has used 36 questions to be answered by respondents regarding the payroll and incentive, supervision, work condition, partnership condition security system and the opportunities on staff achievement as summarised in Table 2. The results showed that the work satisfaction are good (average 2.88). The respondents gave positive opinion in most of the parameters that are being asked on work satisfaction. Good safety climate resulted from work satisfaction correspond to a good response from some question raised related to working satisfaction. They admitted that the incentive are given regularly, but they are not given chance to negotiate the amount of incentive of a payroll. It has been judged that the salary provided was sufficient and adequate compared to the responsibility to be taken in the hospital. The procedure to get salary in the payroll is easy and simple.

The work satisfaction are also generated from ability of manager to do two-way communication to staffs. It is known that the work in the hospitals are evaluated regularly by a leader. The respondents admitted that there is a commitment between the hospital leader and staffs to accept punishment for uncorrect treatment, and this is accounted as a strategy to keep all staffs to work properly and to keep them to stick to safety procedures. The survey has also showed that the supervision on the facility was provided by hospital leader and always improve the existence of supporting facility in the hospital. The ability of hospital manager to provide the need of staffs are adequate and kept the work situation comfortable in the office. The perceptions of patient safety climate were relatively positive among hospital employees and similar to that obtained in other countries (Zhou, et al., 2015). To facilitate a better environmental condition, the chance is given to staffs to get involve to arrange and to design comfort working environment and clean. There is space available to locate care tools in the hospital and make the condition of working space are accessible for the staffs. In relation to the hospital location and the availability of public transportation, it is said that the staffs are not difficult to access the hospitals without self transportation. Positive response on safety climate has resulted on good working satisfaction of staffs at inpatient hospital.

Table 2 Respondents opinion on safety climate resulted from working satisfaction of staffs at inpatient hospital (A = General Hospital, B = Academic Hospital)

No	Survey Dimension	Indicators of safety climate in hospital resulted from working satisfaction	Respondents Opinion		
			A	B	Average
1	Payroll and Incentive	There are 6 questions related to payroll and incentive in hospital	2.84	2.76	2.80
2	Supervision	There are 6 questions related to supervision system	2.78	2.76	2.77
3	Work Condition	There are 6 questions related to work condition in hospital	2.99	2.90	2.95
4	Partnership	There are 6 questions related to care partnership	3.01	2.89	2.96
5	Security	There are 6 questions related to	2.98	2.89	2.94



No	Survey Dimension	Indicators of safety climate in hospital resulted from working satisfaction	Respondents Opinion		
			A	B	Average
6	Opportunities and staff achievement	security care system There are 6 questions related to the staffs opportunities and achievement	2.86	2.94	2.90
<b>Average</b>			<b>2.91</b>	<b>2.86</b>	<b>2.88</b>

A good work satisfaction is generated from clear specification of job descriptions in the working room at inpatient hospital. When the dualism opinions exist, a decision was made by the hospital leader to get the best strategy in hospital care. This system makes the work participation of the team become optimum in a working room. The manager provided working structure in hospital to support working load and job descriptions. The situation has been provided to facilitate nurses to collaborate in hospital rooms, and the relationship of the team (medical doctors and nurses) are also very good. A good work satisfaction has been obtained because the work safety facility in the hospital has met safety standard. The hospitals are provided with working safety standard procedure for staffs. The standard operational procedures (SOP) to carry out medical action has been provided based on job security. With the aid of the SOP, the staffs knew what to do when working accident existed. All new staffs are trained and given the information on work safety. It is also said that the hospital gives opportunity to develop the knowledge on hospital caring through education. Every staff is given chances to continue their study and skills through formal and informal courses for future career in the hospital. The leader is also free to give suggestions to improve medical service at inpatient rooms on merit bases. All those actions provide work satisfaction at inpatient hospital.

**Hospital safety climate based on work performance:** The descriptions of safety climate at inpatient hospitals in relation to work performance have been studied with submitting 36 questions to respondents. The results showed that work performance of inpatient hospitals are very good (average 3.21). The work performance is contributed from work achievements, staff capabilities, and staff behavior in work relationship as summarised in Table 3. Respondents gave positive opinion on the safety climate in relation to work performance. The results revealed that patient services have been conducted properly followed the standard operational procedures given in the hospital. The staffs are working carefully in the hospital to write journal transaction and to provide accurate data, where patients satisfaction is the focus on the service. Work productivity is evaluated to see the handicap in the service. It is always suggested to do the work in good order and the staffs are working friendly related to the need of the patients without discrimination. The staffs are eager to learn new aspects in the unit care to provide better services. It is accustomed that senior staffs become models for junior staffs because they are working by example. The best strategy is chosen to provide the work and service very good, fast and on time. The staffs are



also having a persistent adherent to meet the steps in hospital career. These parameters made the work performance of inpatient hospitals categorised as very good.

Table 3 The respondents opinion on safety climate in relation to work performance of inpatient hospital (A = General Hospital, B = Academic Hospital)

No	Survey Dimension	Indicators in hospital safety climate in relation to work performance	Respondents Opinion		
			A	B	Average
1	Work Achievement	There are 10 questions related to work achievement in the hospital	3.46	3.51	3.48
2	Staffs Capability	There are 10 questions related to Staffs Capability in care units	3.37	3.39	3.38
3	Behavior and Relationship	There are 10 questions related to communication behavior and work relationship between staffs	2.68	2.82	2.75
<b>Average</b>			<b>3.17</b>	<b>3.24</b>	<b>3.21</b>

The safety climate of inpatient hospital in relation to work performance. It is known that the problem solving strategy is conducted to complete the work in the hospital but the working productivity is still not optimum. The working productivity is still not improved even though the staffs are given the critique and suggestion. Motivation is provided to staffs instead of critique to encourage them to do the job based on the standard operational procedures. The hospital leader is expected to give the right solution to optimise the work productivity such as to work in collaboration to obtain maximum results. It is admitted that the staffs are always stick on to a decision that has been made in the organization. The work performance can be improved by giving the right and fast information and conducting good communication, obey the rule, knowing the right and the obligation, and discipline to do the job. With this strategy the safety climate in relation to work performance of inpatient hospital has been met.

## CONCLUSIONS

The safety climate parameters of work satisfaction, patient satisfaction, and work performance that were effected the hospital performance have been analysed. The hospital performance such as patient satisfaction, work satisfaction, and work performance are assigned to be very good. Satisfaction assessment has been carried out to attain setting goals on hospital performance. The analysis was based on respondents' perception on the proceeding actions on inpatient hospital. It is found that safety climate influenced the performance of inpatient hospital. Hospital performance for the patient satisfaction are very good, work satisfaction are good, and work performance are very good. Patients satisfaction can be seen from patients emotional resulted from health services provided in the hospitals. Staffs' work satisfaction was observed from individual specific work attitudes in their working place. Staffs' work performance can be seen from their responsibility to complete

load work at high achievements in the hospital. The patients are satisfied with the service provided by the staffs in the hospital and overall has met the need of the patients.

## REFERENCES

- Agency for Healthcare Research and Quality, (2016), Hospital Survey on Patient Safety Culture: User's Guide, AHRQ Publication No. 15(16)-0049-EF.
- Bondevik, G.T., Hofoss, D., Husebø, B.S., and Deilkås6, E.C.T., (2017), Patient safety culture in Norwegian nursing homes, *BMC Health Services Research* 17: 424 (10 pages).
- Burström, L., Letterstål, A., Engström, M.L., Berglund, A., and Enlund, M., (2014), The patient safety culture as perceived by staff at two different emergency departments before and after introducing a flow-oriented working model with team triage and lean principles: a repeated cross-sectional study, *BMC Health Services Research* 14: 296 (12 pages) <http://www.biomedcentral.com/1472-6963/14/296>.
- Gehring, K., Mascherek, A.C., Bezzola, P., and Schwappach, D.L.B., (2015), Safety climate in Swiss hospital units: Swiss version of the Safety Climate Survey, *Journal of Evaluation in Clinical Practice* 21: 332–338.
- Ginsburg, L., and Oore, D.G., (2016), Patient safety climate strength: a concept that requires more attention, *BMJ QualSaf* 25: 680–687.
- Hansen LO, Williams MV, and Singer SJ (2011) Perceptions of hospital safety climate and incidence of readmission. *Health Serv Res* 46: 596-616.
- Hanskamp-Sebregts, M., Zegers, M., Boeijen, W., Westert, G.P., van Gorp, P.J., and Wollersheim, H., (2013), Effects of auditing patient safety in hospital care: design of a mixed-method evaluation, *BMC Health Services Research* 13: 226 (11 pages) <http://www.biomedcentral.com/1472-6963/13/226>.
- Hasibuan, C.H., (2014), *Pengembangan Instrumen Pengukuran Persepsi Tenaga Medis terhadap Iklim Keselamatan Unit Gawat Darurat di Rumah Sakit*, Jurusan Teknik Mesin dan Industri, UniversitasGadjahMada.
- Liu, C., Liu, W., Wang, Y., Zhang, Z., and Wang, P., (2014), Patient safety culture in China: a case study in an outpatient setting in Beijing, *BMJ QualSaf* 23: 556–564.
- Mascherek, A.C. and Schwappach, D.L.B., (2017) Patient safety climate profiles across time: Strength and level of safety climate associated with a quality improvement program in Switzerland DA cross-sectional survey study, *PLOS ONE* July 28, (11 pages) <https://doi.org/10.1371/journal.pone.0181410>.
- Parker, D., Wensing, M., Esmail, A., and Valderas, J.M., (2015), Measurement tools and process indicators of patient safety culture in primary care. A mixed methods study by the LINNEAUS collaboration on patient safety in primary care, *European Journal of General Practice* 21(Suppl 1): 26–30.
- Singer S, Lin S, Falwell A, Gaba D, Baker L (2009) Relationship of safety climate and safety performance in hospitals. *Health Serv Res* 44: 399±421.
- Singer SJ, Vogus TJ (2013) Reducing Hospital Errors: Interventions that Build Safety Culture. *Annu Rev Public Health* 34: 373-396.



- Situmorang, H.N., (2017), *Evaluasi Hubungan Iklim Keselamatan Terhadap Performansi Kerja Pada Unit Rawat Inap*, Draft Tesis, Jurusan Teknik Mesin dan Industri, Universitas Gadjah Mada.
- Sundari, M.N.D., 2014, *Kualitas Pelayanan Kesehatan di RSUP Sanglah Denpasar dari Perspektif Pelanggan Internal dan Eksternal*, Magister Ilmu Kesehatan Masyarakat, Universitas Udayana.
- Zhou, P., Bundorf, M.K., Gu, J., He, X. and Xue, D., (2015), Survey on patient safety climate in public hospitals in China, *BMC Health Services Research* 15: 53 (10 pages).
- Zwart, D.L.M., Langelaan, M., van de Vooren, R.C., Kuyvenhoven, M.M., Kalkman, C.J., Verheij, T.J.M., and Wagner, C., (2011), Patient safety culture measurement in general practice. Clinimetric properties of 'SCOPE', *BMC Family Practice*, 12: 117 (7 pages) <http://www.biomedcentral.com/1471-2296/12/117>.