Perceived Safety Culture of Healthcare Providers in Hospitals in the Philippines

Fritz Gerald V. Jabonete[1], Leonora R. Concepcion[2]
[1]Assoc. Professor, College of Nursing, National University
[2] Dean, College of Nursing, National University

Abstract: Safety culture has been proposed as a means to keep patients safe. Identifying the level of culture and awareness on patient safety is essential in order to improve the quality of care is crucial. This descriptive, correlation study determined the perceived safety culture of healthcare providers in selected hospitals in central region in the Philippines. This study utilized the Manchester Patient Safety Culture Assessment Tool. Generally, healthcare providers in the public and private hospitals perceived their safety culture at proactive maturity level. Perception in almost all dimensions of safety culture must be enhanced. Greater emphasis on safety culture dimensions is needed such as recording and evaluating incidents and communication dimensions of safety culture. Staff education concerning safety issues and practice has been clearly established. Awareness of the existing safety culture of an individual or group is the initial step towards improvement of healthcare service through safe and quality care. Age group is significantly different among healthcare providers who perceived safety culture at reactive (F-5.45), bureaucratic (F-4.26), and proactive (F-3.66) maturity levels respectively. On the other hand, job position was found significantly different to those who perceived it at generative (F-3.95) level. However, no significant differences were found to those who perceived it at reactive, bureaucratic and proactive level respectively. According to area of assignment, only those who have perceived safety culture at reactive (F-2.26) level have significant differences in their scores together with length of experience at reactive (F-2.86) level. Interestingly, a significant difference was found to type of hospital to almost all safety culture level except at bureaucratic level. The findings will guide hospital leaders to give focus on strategies to improve patient safety. It suggests that group-specific interventions should be campaigned to improve patient safety.

I. INTRODUCTION

The key objective of any health system is to ensure the safety of the patients. However, it is not always clear how to establish robust patient safety systems across a range of departments and technical procedures. World Health Organization (2008) recommended that before engaging in interventions designed to achieve a cultural change in an organization, it is important to assess the current state of the safety culture.

The presence of safety culture is a potentially critical determinant of successes of other activities to improve patient safety (O'Connor, et al., 2007). This only emphasizes that addressing safety within the organization must be prioritized.

Listyowardojo et al (2011) determined how different professional groups perceive safety culture. It showed that there are differences in scores of organizational and safety cultures across professional groups. Physicians and non-medical workers tended to rate the dimensions of organizational and safety culture more positively than did nurses, clinical workers and laboratory workers.

There are other socio-demographic factors that have showed to influence perception toward safety culture. These include job position, area of assignment, age and sex, length of experience, and the type of hospital. However, no relationship was established between civil status and the perception of healthcare provider's patient safety culture. It is very important to know the relationship between safety culture among healthcare providers in public and private hospitals to build a proof of relationship which can possibly affect healthcare providers' perception to safety culture. A cross-sectional survey conducted by Al-Ahmadi (2010) in nine public hospitals and two private hospitals in Riyadh. The key areas that need improvement in public hospitals include handoffs and transitions, communication openness, staffing, and non-punitive response to error. The private hospitals need an improvement in two aspects; staffing and non-punitive response to error. It showed also that all types of mistakes were reported more frequently in private hospitals than in public hospitals. Interestingly to note that most respondents reported "no events" in the twelve months preceding the survey, with the percentage of not reporting being higher in private sector compared to public hospitals. It implied that high percent of "no event" reports may represent under-reporting in all hospitals.

At the present, there is no known study to assess the perception to safety culture between healthcare providers in selected public and private hospitals in the Philippines. Local literatures appeared that only few local studies were conducted on patient safety. If there be, most of it would focus on the medication errors and strategies to cope with it. To fill the gap, the Manchester Patient Safety Culture Assessment Tool (MaPSCAT) will be utilized to assess the perception of healthcare providers of safety culture.

This study determined the perceived safety culture of healthcare providers in selected public and private hospitals in Philippines.

1.1 Patient Safety as a Global Health Issue

According to World Health Organization (WHO), it is alarming to know that healthcare industry in general is far left behind by other high-risk industries such as aviation, nuclear energy and shipping in terms of addressing issues concerning safety. It is estimated that there is one in three hundred (1/300) chance of patient being harmed while receiving patient care while only there is only one in one million (1/1,000,000) chance of being harmed while in aircraft. To be said in another way, the number of deaths in healthcare related-mistakes would be equivalent to the lives lost if a full-passenger airplane crashed every day killing all on board. It is very dreadful to discover that most of these untoward events in healthcare happen in developing countries like the Philippines. This was confirmed in a study conducted by the World Health Professions Alliance Fact (2008) reiterating that developing countries like Philippines have higher probability that untoward events in healthcare industries are frequent to happen than in industrialized countries. This come to happen due to poor state of infrastructure and equipments, unreliable supply of quality medicines, qualified staff and personnel to perform healthcare procedures and low motivation of the staff to implement guidelines intended to prevent adverse events and to promote safety measures at all times.

In some literature, it was mentioned that inability to address safety in a proper channel is thought to happen because of lack of uniform classification of patient safety concepts. Battles and Lilford (2003) emphasized that the concept and terms used on safety need to be properly and operationally defined to organize patient safety activities that may contribute in achieving patient safety. In respond to this, the WHO Alliance for Patient Safety developed the International Classification for Patient Safety (ICPS) in 2009. ICPS aims to create a classification in which patient safety information gathered will be organized using a common format to facilitate aggregation, analysis and learning across disciplines, borders and time. In 2010, the WHO-ICPS agreed on definitions of 48 concepts related to patient safety. Consensus was arrived to define patient safety as 'the reduction in the risk of unnecessary harm associated with healthcare to an acceptable minimum, and risk as the probability that the incident will occur'.

1.2 Patient Safety in the Philippines

World Health Assembly (WHA) on Patient Safety made the challenge to recognize the need to promote patient safety as fundamental principle of all health systems. Along with this global call, former Department of Health (DOH) Secretary Francisco T. Duque released a memorandum under Administrative Order No. 2008-0023 with subject on National Policy for Patient Safety last July 30, 2008. With this, the country commanded to continually reinforce and institutionalize the establishment of culture where patient safety is highly regarded as one of the key elements of achieving quality care. Institutionalization of patient safety programs and mechanisms for monitoring and evaluation were highlighted. In keeping with AO 2008-0023, various organizations like Philippine Alliance for Patient Safety, Joint Commission International (Center for Patient Safety) and the Department of Health (DOH) corroborated to support patient safety programs. Findings showed that patient safety programs were established in many healthcare institutions. However, records are not enough to disclose the real score of the country in terms of valuing patient safety.

In 2008, the Philippine Alliance on Patient Safety in Surgery was launched to introduce the culture of safe surgery in the Philippine hospitals. The launching is aligned to the global call for patient safety by the WHO's World Alliance for Patient Safety. This coalition for patient safety was spearheaded composed of the Philippine College of Surgeon, Department of Health (DOH) and the Philippine Health Insurance Corporation (Philhealth).

Attempts to search on local literature regarding patient safety were made. It appeared that only few local studies were conducted on patient safety. If there be, most of it would focus on the medication errors and strategies to cope with it.

1.3 Difference of Perception of Safety Culture among Healthcare providers

It is evident there are differences in the responses of many professionals and their perceptions of the

culture of safety (Singer et al., 2003). This is an important finding as researchers must be aware of these differences when analyzing cultural data from one organization, or even unit level, with a number of different professions like in healthcare industries.

A survey study by Listyowardojo et al (2011) in the University Medical Center Groningen (UMCG) in the Netherlands determined how different professional groups perceive safety culture. It showed that members of any professional group were considered to hold an executive function if they led a sector, department, unit, sub-unit or clinic and were involved directly in organizational decision making or policy making. In general, ratings of organizational and safety culture were positive. Results showed that there are differences in ratings of organizational and safety cultures were found across professional groups. Physicians and non-medical workers tended to rate the dimensions of organizational and safety culture more positively than did nurses, clinical workers and laboratory workers. For example, physicians gave more positive ratings of "institutional commitment to safety" than did nurses, clinical workers and laboratory workers (mean=3.71 vs. 3.62, 3.61 and 3.58, respectively, p< 0.01) and non-medical workers gave more positive ratings than did physicians, nurses, clinical workers and laboratory workers to "perceptions towards the hospital" (mean= 3.69 vs. 3.39, 3.36, 3.49 and 3.47, respectively, p< 0.001). It concluded that interventions to promote safety culture should be tailored to the target group as attitudes and perceptions may differ among groups.

A cross-sectional survey using Hospital Survey on Patient Safety Culture (HSPSC) was carried out in 2008 by Al-Ahmadi. The questionnaire was distributed to all hospitals' staff in Riyadh, which included nine public hospitals and two private hospitals. Results showed that organizational learning was the safety culture dimension with the highest positive response (75.9%), while the non-punitive response to error received the lowest positive response (21.1%). The key areas that need improvement in public hospitals include handoffs and transitions, communication openness, staffing, and non-punitive response to error. The private hospitals need an improvement in two aspects; staffing and non-punitive response to error. The results show that all types of mistakes were reported more frequency in private hospitals than in public hospitals. Most respondents reported "no events" in the twelve months preceding the survey, with the percentage of not reporting being higher in private sector compared to public hospitals. It implied that high percent of "no event" reports may represent under-reporting in all hospitals.

1.4 Social and Work-Related Variables

There are other factors that have showed to influence perception toward safety culture.

1.4.1 Age

Kitch (2005) reviewed of patient safety culture survey instruments that measured perception towards safety culture among nurses. It was found out that perceived safety culture differs significantly according to age and level of education. Specifically, age was significantly correlated with overall organizational climate. This finding is consistent to the previous studies of Sveiby & Simons(2002) and Forte, CS. & Hansvick, C. L. (1999). Though very few researches revealed the same relationship between age and organizational culture, however, it is quite evident that older employees express more moderate opinions about actions in organizations as compared to the young workers. As employees' age increase, they develop a kind of occupational bond and become more oriented to their careers. They also enjoy seniority, freedom, playfulness and humor, sharing opposite view point and create a trust and openness at workplaces. They also reach a point of settling into their respective organizations and close other career options because they become limited by their efforts, promotions and other investments in the organizations (Colarelli & Bishop, 1990).

1.4.2 Job Position

Singer et al. (2003) found that the perceptions on safety culture varied significantly among individuals with different job position. Similarly, Abdou (2011) found out that job position in general affects the perception of nurses on their safety culture among nurses in twelve (12) inpatient units at Student University Hospital-Egypt. It was cited also that nurses in management positions have generally have more positive perception and recognize more events than frontline staff nurses.

1.4.3 Area of Assignment

Grant, Donaldson and Larsen (2006) noted that physicians reported a higher perception of teamwork than nursing and other staff members in the inpatient and operation room (OR) settings than in the outpatient department. This finding can be interpreted that area of assignment where an employee used to work might have influence their perception of safety culture.

1.4.4 Length of Experience

Older nurses are more committed than younger nurses and this can be manifested by an increase job satisfaction and having obtained better safety attitudes than younger nurses. This can be inferred that the longer the length of experience rendered in an organization by an employee the more he will embrace the culture of the organization. The longer employees are with the organization, the more time there is to evaluate the relationship (Buchanan, 1974). The later argued that member' perceptions of their organizational experiences vary with the length of time they have been employed by an organization (i.e. tenure). As a new employee enters an organization he or she likely to have some views of organizational practices that are different from the organizational codes (March, 1991).Therefore, the creative climate in general and how it is perceived by new employees in particular, influences the efficiency of labor mobility as a mechanism for idea diffusion in organizations. In support, Pant (2010) concluded that people with longer years in the service in an organization would assess their organizations as more creative. The longer an individual 's tenure or length of service in an organization, the better is their perception about the work environments for innovation in terms of generating new ideas for actions. However, the finding of Bodur and Filiz (2009) is different. It showed that patient safety culture scores in primary health services in Turkey decreased as seniority increased. This observation is maybe due to an increase in medical errors done by the senior staff possibly due to frustration with hospital regulations or increasing staff awareness of safety problems and thus additional reporting.

1.4.5 Type of Hospital

Al-Ahmadi (2009) compared the perceived safety culture of all medical and administrative staff in all public and private hospitals in Riyadh, Saudi Arabia. The results showed that all types of mistakes were more frequently reported in private than in public hospitals. A significant difference in the number of events reported between government and private hospitals was noted. This finding implies that the type of hospital, either public or private would also affect the perception of safety culture. Although a high percentage of healthcare providers in private than public hospitals reported errors and incidents, still, most of these incidents were not evaluated promptly as it happened especially when no harm occurred.

The interplay of variables directed the researcher to answer the following questions.

1. What is the perceived safety culture of healthcare providers (physicians, nurses, pharmacists, medical technicians and auxiliary workers) in public and private hospitals according to:
    1.1. continuous improvement
    1.2. priority given to safety
    1.3. system errors and individual responsibility
    1.4. recording incidents
    1.5. evaluating incidents
    1.6. learning and effecting change
    1.7. communication
    1.8. personnel management
    1.9. staff education
    1.10. teamwork?

2. Is there a significant difference in the perception of safety culture among healthcare providers in public and private hospitals in the Philippines according to:
    2.1. age
    2.2. length of work experience
    2.3. job position
    2.4. area of assignment
    2.5. type of hospital?

2. METHODOLOGY

A descriptive- correlation design was utilized in the study. A self-administered survey was conducted in two public and two private hospitals in central region in the Philippines to physicians (consultant, residents and general practitioner), nurses (supervisors, head nurse and staff) in different departments, pharmacists, medical technicians (medical technologist, x-ray technicians, CT scan and ultrasound technicians), and auxiliary (dietary, security, utility section).

A stratified random sampling was employed. The samples were selected from a population of healthcare providers based on the following criteria.

Inclusion Criteria
1. Registered professional in the Philippines. This applies only to physicians, nurses, pharmacists, medical technicians and dieticians but not to auxiliary group of workers.
2. Full-time/ part-time and contractual healthcare provider who have direct

contact to patient and to their fellow healthcare providers.

3. Had work commitment to hospital for at least one-year prior administration of the questionnaire to ensure that they are familiar with the organization's culture.
4. Had consented for the study.

Exclusion Criteria
1. Those who did not completely answer the survey.
2. Those who answer fewer than half of the items throughout the entire survey
3. Those who answer every item the same (eg. all "3"s or "4"s).

The sample size was computed using Yamane's simplified formula for proportions (1967). A 95% confidence level is assumed. Utilizing Yamane's formula required 238 respondents which include 40 physicians, 76 nurses; 19 pharmacists, 44 medical technicians and 59 auxiliary workers) from the public hospitals. On the other hand, on the private hospitals had required 245 respondents which composed of 48 physicians, 80 nurses, 21 pharmacists, 40 medical technicians and 56 auxiliary workers from the private hospitals. Hence, a total of 483 respondents was desired to be included in the study. Each respondent in each job category was assigned to a number. A computer- generated randomizer was used to allow the selection of samples.

The possibility of non-response bias can reduce estimated sampling size (Singer et al., 2003; Singer et al., 2009a; Singer et al., 2009b).To even out this, an oversampling of 10% was considered giving a total of 530 samples.

Out of 530 questionnaires distributed, 341 were returned; however, only 335 were completely answered. Among the respondents, 177 come from private hospitals and 158 from public hospitals.

2.1 Manchester Patient Safety Culture Assessment Tool (MaPSCAT)

Manchester Patient Safety Culture Assessment Tool (MaPSCAT) was originally developed by a group led by Dianne Parker in a collaborative project supported by the National Primary Care Research and Development Center, the University of Manchester. The MaPSCAT is the result of collaboration between researchers in the United Kingdom and Canada who were interested in developing a patient safety culture tool that is rooted in acute care setting.

MaPSCAT helps the organization recognize that patient safety is a complex multidimensional concept. It also facilitates reflection on the safety culture of a given healthcare organization. It shows any differences in the perception between staff groups. Given the framework, summary view of how a more mature safety culture looks like helps the organization visualize what it wants to achieve. MaPSCAT is designed not to be used to find blame when results show that the organization's safety culture is not sufficiently mature.

The MaPSCAT advances the research in safety culture measurement as it (1) measures ten (10) dimensions of safety culture, (2) examines these dimensions on the safety culture maturity scales, (3) aggregates scores to create a safety culture profile, and (4) provides guiding statements on how to improve the safety culture. With the MaPSCAT, decision-makers can examine the level of safety maturity in each dimension and refer back to the framework to see what types of statements and actions are aligned to higher levels of culture. This unique way of studying and presenting the results may help provide ideas and direction for moving the culture forward.

2.2 Dimensions of Safety Culture

The ten (10) dimensions of safety culture are 1.) Continuous improvement reflects the investment in the quality agenda and the purpose of policies and procedures for safety, 2) Priority given to safety reflects about how seriously safety is taken in the organization in relation to patient and public involvement and patient safety practices, 3.) System errors and individual responsibility reflects how reports are received and viewed- as either an opportunity to blame or improve, 4) Recording incidents which relates to the use of reporting systems and the types of incidents that are reported, 5.) Evaluating incidents relates to how the incidents are being investigated and analyzed and the output of the output of the investigations, 6.) Learning and effecting change reflected of what happens after an event, what mechanisms are in place to learn from the incident and how changes are introduced, 7.) Communication reflects systems in place to communicate, the quality of information sharing and communications with patient about safety, 8.) Personnel management discusses the way in which safety issues and staff problems are managed as well as the link between safety and recruitment and retention practices, 9.) Staff education and training reflects training aims, resources and the purpose of training in regards to patient safety information, 10.) Teamwork reflects the structure of

the teams, the function of the teams and how information is shared across team members.

2.3 Levels of Safety Culture Maturity

Within these 10 dimensions, descriptions were developed to reflect five progressive levels of safety maturity. The levels of maturity of safety culture range from pathological through reactive, bureaucratic, and proactive and, finally to, generative (Parker, 2001). Each dimension provides description of safety culture that would look like in each of the five (5) maturity levels. These maturity levels in increasing order are operationally defined as follow: 1.) Pathological-organizations have a prevailing attitude of 'why waste our time on safety', as such, there is little or no investment in improving safety, 2.) Reactive-organizations only think about safety after an incident has occurred, 3.) Bureaucratic- organizations are very paper-based and safety merely involves ticking boxes to prove to auditors and assessors that they are focused on safety, 4.) Proactive - the organization place a high value on improving safety. It actively invests in continuous safety improvements and reward staff who raised safety-related issues, 5.) Generative- the nirvana of all safety organizations by which safety has become an integral part of everything that they do. In generative organization, safety is truly in the hearts and minds of everyone, from senior managers to front staff.

Each dimension provides description of safety culture that would look like in each of the five (5) maturity levels. The respondent will have to choose only one maturity level that best describes their organization on specific safety culture dimension (Parker, 2001).

On deciding which level to discuss and highlight in the results and, for the applied aspect, where to focus strategies to enhance the patient safety culture, Fleming and Meakin (2004) emphasized that the level having the highest number of responses (expressed in percentage) in a particular dimension will decide the level of safety culture maturity. The same method of interpreting the responses was used in assessing safety culture in a community pharmacy in Manchester, United Kingdom (Ashcroft et al, 2005), in an acute care setting in Canada (Law et al., 2010) and in a pediatric department in Rockhampton Hospital in Queensland, Australia (2009). All of them have utilized the Manchester Patient Safety Culture Assessment Tool (MaPSCAT).

The English version of the tool was utilized by the professional healthcare providers group (physicians, nurses, pharmacists, medical technicians and dieticians), while a translated and validated Filipino version was used for the auxiliary workers group (dietary, security, utility section).

To enhance comprehension of the contents of the tool by non-professional healthcare providers (eg. auxiliary workers) who provide direct patient care, a Filipino translated version was made after consultation with the language experts from 'Sentro ng Wikang Filipino' (SWF) of the University of the Philippines Manila. A back translation of the tool was obtained.

2.4 Psychometrics

The content validity of the MaPSCAT was determined through review by the panel of experts, who were asked to comment on whether the questionnaire adequately sampled healthcare providers safety culture, if the questions and items in the questionnaire were accurate, clear and easy to understand, if the instructions were clear and complete, if any of the questions or statements were likely to discourage the participants from answering and whether or not the response options were adequate for the questions and statements. The Filipino translated tool was tested to a group of utility workers from Philippine General Hospital (PGH), face validity was confirmed. The reliability indices of the scales were assessed. The cronbach's alpha for this study is 0.79, which is considered as adequate value.

2.5. Data Gathering Procedure

Approval of the conduct of study was gained from UP Manila Review Ethics Board (UPMREB). The researcher sought permission from the Chief of the hospital and the chief nurses to administer the survey in their institution. After hospital approval was gained, the researcher with the aid of a research
assistant started to hand down the brown envelopes the different unit heads

Table 1. Distribution of respondents according to selected social and work-related characteristics

A self-administered survey was employed. The cover

Social and Work-related Characteristics	Type of Hospital		Total N=335
	Private (N=177)	Public (N=158)	
Age (in years)			
20-35	98 (55.5)	53 (33.8)	151 (45.1)
36-51	47 (26.8)	78 (49.5)	126 (37.6)
52-67	32 (17.7)	27 (16.7)	58 (17.3)
	Mean-36.63 SD-11.98	Mean-39.56 SD- 10.51	
Civil Status			
Single	112 (63.2)	47 (29.9)	159 (47.5)
Married	64 (35.9)	108 (68.6)	172 (51.3)
Widow/er	1 (0.9)	3 (1.5)	4 (1.2)
Length of Experience (in years)			
1-5	62 (35.1)	54 (34.3)	116 (34.7)
6-10	51 (28.6)	50 (31.4)	101 (29.9)
11-15	38 (21.6)	29 (18.10)	67 (20.0)
16-20	24 (13.4)	18 (11.3)	42 (12.4)
21-above	2 (1.30)	7 (4.9)	9 (3.0)
	Mean - 8.58 SD-5.48	Mean – 8.70 SD- 5.80	
Job Position			
Physicians	20 (11.3)	30 (17.7)	50 (14.9)
Nurses	87 (49.1)	84 (53.4)	171 (51.0)
Pharmacists	8 (4.6)	5 (3.1)	13 (3.9)
Medical Technicians	27 (15.3)	15 (9.8)	42 (12.5)
Auxiliary	35 (19.8)	24 (15.2)	55 (17.6)
Area of Assignment			
Medical-Surgical	64 (35.9)	30 (19.1)	94 (28.1)
Pediatrics	33 (18.6)	33 (20.6)	66 (19.7)
Orthopedics	13 (7.4)	15 (9.8)	28 (8.4)
ICU	11 (6.1)	5 (3.4)	16 (4.8)
Outpatient Dept.	11 (6.1)	11(6.9)	22 (6.6)
Emergency Room	15 (8.2)	14 (8.8)	29 (8.7)
Pharmacy	7 (3.9)	5 (3.4)	12 (3.6)
Laboratory	8 (4.8)	15 (9.8)	23 (6.9)
Auxiliary	9 (5.0)	24 (15.2)	33 (9.9)
Administration	6 (3.5)	6 (2.9)	12 (3.6)

letter addressed the purpose of the study and the direction for completing the survey. After two weeks that survey questionnaires were distributed, the researcher and the research assistant returned to collect the questionnaires. Respondents who did not answer

the questionnaires within the given period of time were followed up personally.

2.6 Data Analysis

Data were entered into Microsoft Excel and were verified and transferred to R statistical software for analysis.

Frequency and percentages were shown to describe the social and work related profile of survey respondents.

MANOVA was used to test the effects of the socio-demographic variables on perceived safety culture.

All tests were preset at $p<0.05$ level of significance.

3. RESULTS

3.1 Demographic

Table 1 shows the distribution of respondents according to selected social and work-related characteristics. Almost half the total number of respondents (45.1%) was aged 20-35 with higher proportion among healthcare providers in private hospitals (55.5%) than in public hospitals (33.8%). The mean age for healthcare providers from private hospitals is 36.63 years (SD=11.98) while 39.56 (SD=10.51) years for the public hospitals. Most respondents from private hospitals were single (63.2%) while from the public hospitals, most were married (68.6%). More than one-third of the healthcare providers both in public and private hospitals or 34.7% were employed for 5 years and below. The mean length of experience in the service of the healthcare providers in public is 8.70 years (SD=5.80), which is a little higher than those from the private hospitals (8.58 years). 171 (51%) of them were nurses which occupy the biggest proportion of healthcare providers in the public and private hospitals of this study. Most of the healthcare providers were assigned in medical-surgical department (28.1%). (Table 1)

3.2 Perceived Safety Culture of Healthcare Providers in Private and Public Hospitals

There are 10 safety culture dimensions in Manchester Safety framework that were considered in the study: 1) continuous improvement, 2) priority given to safety, 3) system errors and individual responsibility, 4) recording incidents, 5) evaluating incidents, 6) learning and effecting change, 7) communication, 8) personnel management, 9) staff education and training, and 10) teamwork.

Figure 1 showed the percentage distribution of perceived safety culture among healthcare providers across the ten dimensions of safety culture. As can be seen, majority of the healthcare providers perceived safety culture is at proactive level in all dimensions specifically to personnel management (231, 69%), system errors and individual responsibility (221, 66%), learning and effecting change (201, 61%), continuous improvement (181,54%), evaluating incidents (181, 54%), communication (161, 48%), priority given to safety (157,47%), recording incidents(147, 44%), and teamwork (134, 40%). It is interesting to note that respondents perceived staff education and training at generative level (181, 54%). Bureaucratic maturity level was only observed to teamwork at 110 (33%). Some respondents showed safety culture perception at reactive maturity levels were observed to dimensions recording (124, 37%) and evaluating (117, 35%) incidents and communication (97, 29%). None of the respondents answered in any of the safety culture dimension at pathologic maturity level. Generally respondents perceived safety culture at proactive to generative maturity level except to recording and evaluating incidents and communication

Using MANOVA, differences in the perception of safety culture among healthcare providers in public and private hospitals according to age, job position, area of assignment and type of hospital were tested (Table 2). It can be observed that age group is significantly different among healthcare providers who perceived safety culture at reactive (F-5.45), bureaucratic (F-4.26), and proactive (F-3.66) maturity levels respectively. In terms of job position, a significant difference in safety culture was found to those who perceived at generative (F-3.95) level. However, no significant differences were found to those who perceived it at reactive, bureaucratic and proactive level respectively. According to area of assignment, it can be seen that only those who have perceived safety culture at reactive (F-2.26) level was to have significant differences in their scores. The same finding was observed to length of experience at reactive (F-2.86) maturity level. Interestingly, a significant difference was found to type of hospital to

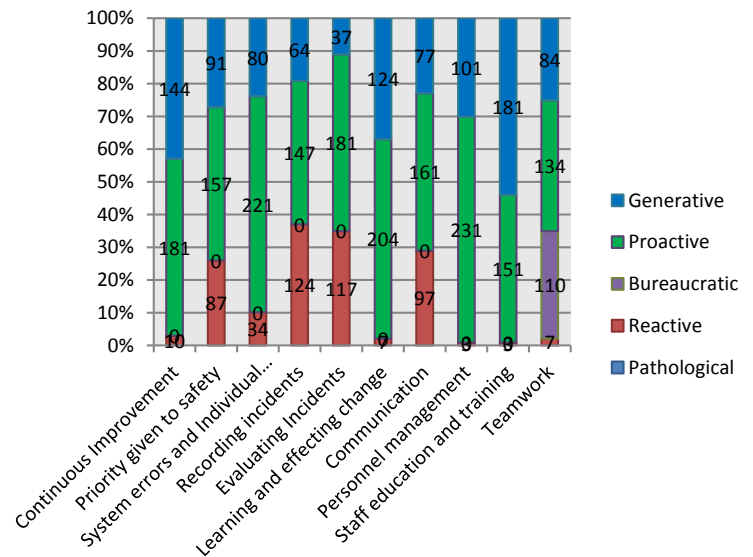almost all safety culture level except at bureaucratic level.

Figure 1. Percentage distribution of perceived safety culture among healthcare providers

4. DISCUSSION

Majority of the responses from the healthcare providers in public and private hospitals are at proactive level. This suggests that they feel that healthcare providers' organization has a genuine desire and enthusiasm for continuous safety improvement. This perception is further validated by the comments made by a hospital administrator, *"We are happy that you have conducted this study in us. We are eager to know the result of your study. It is a big help for us".* This finding is supported by Al-Ahmadi (2010) in which nurses (61%), pharmacist (9%) and auxiliary workers (6%) in a tertiary hospital are likely to express a positive perception to continuous improvement. However, Law (2010) found that pharmacists, nurses and support staff feel that continuous improvement in their organization is at a bureaucratic level. She also found out that nurses, medical technicians and support group in general in a health facility perceived that they are proactive in giving priority to safety. In the present study, an increase number of the healthcare providers who perceived recording and evaluating incident and communication at reactive level. This may be because of fear of reprisal attached from reporting of incidents.

Van Geest & Cummins (2003) reported that many errors in healthcare go unreported for many reasons including fear, humiliation, the presence of a punitive response to error, and the fact that reporting will not usually result in actual change. Thus, it discourages many health professionals, specifically nurses to report events because of the presence of a punitive environment when it comes on reporting of these incidents. Naturally, people are afraid to be blamed, thus they tend to hide incident making the situation more crucial in achieving patient safety. Law (2010) believed that healthcare providers have gone through to such effort in terms of making policies and procedures in reporting of incidents. However, she reiterated that further strategies are needed to enhance the implementation of safety practices. Further improvements shall be pushed on proper toleration and secretion of events reported especially by immediate superiors (Acuin, 2011). In contrast, Law (2010) reported that most of the health staff in Hamilton Science Center perceived that their organizations are taking it seriously when it comes to evaluating incidents. Although it was found that most healthcare providers have a positive regard on evaluating these incidents, it seems that learning a lesson from an incident will be obscured because of lack of feedback (Evans et al, 2006). Al-Ahmadi et al (2010) found out that organizational learning was one of the dimensions of safety culture that has positive response (75.9%) among nurses. However, some medical technicians from a private hospital in this study have told that no actions were done after an incident. They just file it in for recording purposes. Proper communication within and across healthcare teams is essential to remove any threats to safety of patients. Communication problems have been identified as major contributing factors to adverse events according to Cook et al (2007). An analysis of 2,455 sentinel events reported to the Joint Commission on the Accreditation of Healthcare Organizations showed that 70% of the cases were a result of failure in communication (Leonard et al, 2004). The present study revealed that there is an significant number of healthcare providers who perceived this at reactive level. The same finding also was found by Aboshaiqah (2010) to nurses in Saudi Arabia hospitals. Similarly, Singer et al (2003) noted that nurses were found to be inattentive to the "possible occurrence" of medical error, and a lack of open communication was reported. This can be due to the high volume of patients that are catered in public hospitals, thus, they may be busy enough to communicate with their immediate staff only. Furthermore, because of high volume of patients in

public hospitals, there might have been instances that error incidents that had happened were left unattended and unresolved. Law et al (2010) revealed that most healthcare providers in a certain health facility perceived personnel management on a reactive level. This may be due to the lack of support for most healthcare providers under personnel management and the destructive effect of blame culture. An integral part of creating a culture of safety is providing education and training. This present study showed that healthcare providers perceived generative maturity level on staff education. Education has positive effect on improvement of managers' attitudes towards safety culture and it can act as a motivating proof to the health centers to provide safety culture courses in their respective hospitals (Azimi L, 2012). This clearly indicates that training is clearly an important aspect of safety improvement (Reason JT, 1995) as this was observed in the present study.

The importance of teamwork in healthcare has been shown in many different studies (Baker et al. 2006). Good teamwork can help reduce patient safety problems and it can improve team members' morale and well being, as well as team viability - the degree to which a team will function over time (Cannon-Bowers et al, 1997). In this study, most healthcare providers in public and private hospitals perceived teamwork at a proactive level. This suggests that many healthcare providers understand that cohesiveness to perform safety activities is of great concern. Furthermore, El- Jardali (2011) revealed that higher scores on teamwork across hospital units increase the frequency of events reported. This indicates that having a high 'team spirit' plays a vital part in achieving improvements in patient safety.

In terms of test of difference between selected public and private hospitals and each dimensions of safety culture, healthcare providers at different age groups varies their perception on their existing safety culture either they perceived safety culture at different maturity level. Kitch (2005) identified that age differs significantly on his review of patient safety culture among nurses. This tells that as nurses' age increase, they develop a kind of occupational bond and become more oriented to their careers. However, present finding contrasted previous study. As can be observed, age group does not correspond to increasing level of safety maturity. This may be due to differences in distribution of age of the respondents. Singer et al. (2003) found out that the perception to safety culture among nurses varies significantly with different job position. The present study found significant difference in the perceived safety culture at generative

level. Similarly, Abdou (2011) emphasized that job position in general affects the perception of nurses on their safety culture. This predominant to nurses who handles managerial positions than frontline staff nurses. Thomas et al. (2005) reported higher levels of teamwork with surgeons than anesthesiologists, surgical nurses and surgical anesthetist in Utah and Colorado. This implies that the team cohesiveness portrayed among healthcare team members differ even they are working in the same unit. This indicates that maybe the complexity of nature of job that exists among healthcare providers has an effect on their perception on teamwork. Grant, Donaldson and Larsen (2006) noted that physicians reported a higher perception of teamwork than nursing and other staff members in the inpatient and operation room (OR) settings than in the outpatient department. This can be interpreted that area of assignment might have influence their perception of healthcare provider on their safety culture. A significant difference was found at reactive level in terms of the length of experience. This supported Pant (2010) who has concluded that people with longer years in the service in an organization would assess their organizations as more creative. The longer an individual's tenure (length of service) in an organization, the better is their perception about the work environments for innovation in terms of generating new ideas for actions. Safety culture mean scores as to type of hospital between private and public hospitals at reactive, proactive and generative maturity level showed a significant difference. This further supported Al-Ahmadi (2010) that all types of mistakes were more frequently reported in private than in public hospitals. Moreover, the former concluded that there is a significant difference in the number of events reported between government and private hospitals. It was further reiterated that there is a high percentage of healthcare providers in private than public hospitals reported errors and incidents. This finding implies that the type of hospital would also affect the perception of safety culture. However, still, most of these incidents were not evaluated promptly as it happened especially when no harm occurred. This explicitly show that safety culture among healthcare providers is not yet fully established.

The study is limited to a geographic region in which it was conducted. It did not attempt to determine the whole healthcare delivery system of the organization. Thus, generalizability cannot be assumed. It focused basically on the safety as this could possibly affect the delivery of a quality health services.

5. CONCLUSION

Generally, healthcare providers in the public and private hospitals perceived their safety culture at proactive maturity level. Perception in almost all dimensions of safety culture must be enhanced. Greater emphasis on safety culture dimensions is needed such as recording and evaluating incidents and communication dimensions of safety culture. Staff education concerning safety issues and practice has been clearly established. Recording and evaluating incidents and communication must be given greater emphasis in creating a positive safety culture. Age and type of hospital of the healthcare provider must be taken into consideration in determining the safety culture of any organization. The study finding indicates that awareness of the existing safety culture of an individual or group is the initial step towards improvement of healthcare service through safe and quality care.

Given the findings, it is recommended that a regular and multi- professional assessment of safety culture be done to reflect the status of the institution in terms of prioritizing patient safety. The hospital management should assess and redesign their current patient safety system including governance and reporting structures. The hospital administration must reduce the fear of blame culture and create a climate of open communication and continuous learning. Error-reporting should not be viewed as an end in itself, but rather as a means of learning from mistakes and the first step towards elimination of harm and improvement of patient safety. To ensure safety, patient safety issues and concerns should be included and emphasized in the orientation of the new staff. Re-evaluation/ revisiting existing guidelines on safety to give direction to strategic planning and program development must be prioritized. For future studies, the need to explore some other factors that could affect the perception of healthcare providers on the dimensions of safety culture specifically to the emotional and psychological aspects of the respondents must be emphasized.

Table 2. Test of Difference in the Perception of Safety Culture according to selected socio-demographic factors

Variable	Level	Group	Mean Score	F-value	p-value
Age	Reactive	young	0.53	5.45**	0.00
		middle	0.59		
		old	0.87		
	Bureaucratic	young	4.39	4.26**	0.01
		middle	4.97		
		old	4.59		
	Proactive	young	3.22	3.66**	0.03
		middle	2.92		
		old	2.80		
	Generative	young	1.87	2.18	0.11
		middle	1.52		
		old	1.74		
Job Position	Reactive	Nurses	0.59	1.70	0.15
		Physicians	0.81		
		Pharmacists	0.78		
		Medtechs	1.00		
		Auxiliary	0.64		
	Bureaucratic	Nurses	4.52	1.62	0.17
		Physicians	4.81		
		Pharmacists	4.17		
		Medtechs	4.57		
		Auxiliary	4.30		
	Proactive	Nurses	3.12	2.25	0.06
		Physicians	2.81		
		Pharmacists	2.22		
		Medtechs	3.23		
		Auxiliary	2.86		
	Generative	Nurses	1.78	3.95**	0.00
		Physicians	1.58		
		Pharmacists	1.83		
		Medtechs	1.20		
		Auxiliary	2.20		
Area of Assignment	Reactive	MS	0.42	2.26**	0.02
		Lab	0.94		
		Admin	0.64		
		Auxiliary	1.02		
		Pharmacy	0.75		
		ER	0.81		
		Pedia	0.62		
		OPD	0.96		
		ICU	0.38		
		Ortho	0.70		
	Bureaucratic	MS	4.39	1.14	0.33
		Lab	4.26		
		Admin	4.93		
		Auxiliary	4.50		
		Pharmacy	4.19		
Variable	Level	Group	Mean Score	F-value	p-value

cont. Area of Assignment		ER	4.76		
		Pedia	4.89		
		OPD	4.39		
		ICU	4.76		
		Ortho	4.54		
	Proactive	MS	3.14	0.86	0.56
		Lab	3.25		
		Admin	3.21		
		Auxiliary	2.75		
		Pharmacy	3.38		
		ER	2.68		
		Pedia	2.91		
		OPD	2.96		
		ICU	2.86		
		Ortho	3.08		
	Generative	MS	2.05	1.60	0.11
		Lab	1.45		
		Admin	1.21		
		Auxiliary	1.73		
		Pharmacy	1.69		
		ER	1.76		
		Pedia	1.58		
		OPD	1.68		
		ICU	2.00		
		Ortho	1.68		
Length of Experience	Reactive	1-5 years	0.71	2.86**	0.02
		6-10 years	0.72		
		11-15 years	0.55		
		16-20 years	0.43		
		>20 above	1.38		
	Bureaucratic	1-5 years	4.61	0.36	0.84
		6-10 years	4.45		
		11-15 years	4.54		
		16-20 years	4.69		
		>20 above	4.77		
	Proactive	1-5 years	3.04	0.67	0.61
		6-10 years	2.99		
		11-15 years	2.91		
		16-20 years	3.24		
		>20 above	2.62		
	Generative	1-5 years	1.64	0.97	0.10
		6-10 years	1.83		
		11-15 years	2.00		
		16-20 years	1.65		
		>20 above	1.23		
Type of Hospital	Reactive	Private	0.01	398.87**	0.00
		Public	1.42		
	Bureaucratic	Private	4.55	0.18	0.87
		Public	4.57		
	Proactive	Private	3.33	23.49**	0.00
		Public	2.65		
	Generative	Private	2.11	43.80**	0.00
		Public	1.36		

6. ACKNOWLEDGMENTS

7. REFERENCES

Abdou, HA and K.M Saber (2011). A baseline assessment of patient safety culture among nurses at Student University Hospital. *World Journal of Medical Sciences*, 6:17-26

Aboshaiqah, Ahmad E.(2010). Patients Safety Culture: A Baseline Assessment of Nurses' Perceptions in A Saudi Arabia Hospital. Wayne State University Dissertations.

Acuin, J.(2011). Assessment of hospital capacities in patient safety in the Philippines. Available at http://2011.colloquium.cochrane.org/es/abstracts/asessment-hospital-   capacities-patient-safety-philippines

Administrative Order 2008-0023. National Policy on Patient Safety. Department of Health, July 2008.

Al-Ahmadi HA (2010). 'Assessment of patient safety culture in Saudi Arabian hospitals.' *Qual Saf Health Care* 19(5):e17.

Ashcroft D, Morecroft C, Parker D, et al. (2005). Patient safety in community pharmacy: understanding errors and managing risk . London: Royal Pharmaceutical Society of Great Britain, 2005.

Azimi, L, Tabibi- Seyed J, Maleki M. (2012). Effectiveness factors for improving the personnel's attitude towards patient safety. *Academic Journals*. Scientific Research and Essays Vol. 7(40), pp. 3382-3389, ISSN 1992-2248.

Baker, D. P., Day, R., & Salas, E. (2006). Teamwork as an Essential Component of High-Reliability Organizations. *Health Services Research*, *41*(4 Pt 2), 1576–1598.

Battles, J. B., & Lilford, R. J. (2003). Organizing patient safety research to identify risks and hazards. *Quality & Safety in Health Care*, 12, II2-II7.

Bodur S, Filiz E: A survey on patient safety culture in primary healthcare services in Turkey. *International Journal for Quality in Health Care* 2009, 21:348-355.

Buchanan, B. (1974). Building organizational commitment: The socialization of managers in work organizations. Administrative Science Quarterly, 19, 533-546.

Cannon- Bowers JA, Salas E (1997). Teamwork Competencies: The Interaction of Team Member Knowledge, Skills, and Attitudes: Workforce Readiness: Competencies and Assessment. Mahwah, NJ:Erlbaum, 1997.pp.151-174.

Colarelli, S. M., & Bishop, R.C. (1990). Career commitment. Group and Organization Studies,15(2), 137-157.

Department of Health Memorandum 2011-0160. National Patient Safety Day. Department of Health, 2011.

El-Jardali F, Jaafar M, Dimassi H, Jamal D, Hamdan R (2010). The Current state of Patient Safety Culture in Lebanese Hospitals: A study at Baseline. *International Journal for Quality in Health Care,* 22: 386-395. 10.1093.

Evans, S. M., Berry, J. G., Smith, B. J., Esterman, A., Selim, P., O'Shaughnessy, J., & DeWit, M. (2006). Attitudes and barriers to incident reporting: a collaborative hospital study. *Quality & Safety in Health Care*, *15*(1), 39–43.

Fleming, M. and S. Meakin (2004), March. Health and Safety Culture Maturity Model: Improvement through Involvement. Paper presented at the 7th SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production, Calgary, Alberta.

Forte, C. S., & Hansvick, C. L. (1999). Applicant age as a subjective employability factor: Astudy of workers over and under age fifty. Journal of Employment Counseling, 36, 24-34.

Grant, M. J. C., Donaldson, A. E., & Larsen, G. Y. (2006). The safety culture in a children's hospital. Journal of Nursing Care Quality, 21(3), 223-229.

Human Resource Department- Record Section, EVRMC, TCH, Bethany and Divine Word Hospital, as of January 2013

Kitch, B.T., 2005. Patient safety culture: a review of survey instruments. Presented at: National Patient Safety Congress; Orlando.

Law MP, Zimmerman R, Baker GR, Smith T (2010). 'Assessment of safety culture maturity

in a hospital setting.' *Healthcare Quarterly*, 13 (Spec No): 110-5.

Leonard M, Graham S, Bonacum (2004). The Human Factor: The critical importance of effective teamwork and communication in providing safe care. *Qual Saf Health Care.* Oct; 13 Suppl 1:i85-90.

Listyowardojo., Tita Alissa, Raoul E.Nap, and Addie Johnson (2011). Variations in Hospital Worker Perceptions of Safety Culture. *International journal for Quality in Health Care*; Volume 24, Number 1; pp. 9-15.Advance Access Publication. Oxford University Press. UK.

March, J. G (1991). Exploration and exploitation in organizational Learning. Organization Science, 2(1).

Mardon, R.E., Khanna, K., Sorra, J., Dyer, N., Famolaro, T. Exploring relationships between hospital patient safety culture and adverse events. *J. Patient Saf.* 2010;6:226–232.

Sanders, J.,Cook (2007). G. ABC of Patient Safety. Blackwell, Oxford.

Singer, S. J., Falwell, A., Gaba, D. M., Meterko, M. Rosen, A., Hartmann, C. W. et al. (2009a). Identifying organizational cultures that promote patient safety. *Health Care Manage Rev, 34*(4), 300-311.

O'Connor , P., Campbell, J., Newon. J. et al (2007) Crew Resource Management training effectiveness: A meta-analysis and some critical needs. *International Journal of Aviation Psychology*, 18, 353-368.

Pant, P. L (2010). Assessing Innovations in International Research and Development Practice. Working paper series, United Nations University - Maastricht Economic and social Research and training centre on Innovation and Technology, The Netherlands.

Parker D, K. S. (2001). The Manchester Patient Safety Assessment Tool. Manchester: National Primary Care Research and Development Centre, University of Manchester.

Reason, J.(1995). Understanding adverse events: human factors. Quality Health Care, 4: 80-9

Singer SJ, Gaba DM, Geppert J.K et al (2003). The Culture of Safety: Results of an Organizational-Wide Survey in 15 California Hospitals. *Quality Safe Health Car*e, 2003; 12(2):112-118.

Sveiby KE, Simons R (2002). Collaborative climate and effectiveness of knowledge work – an empirical study. *J. Knowl. Manag*. 6(5): 420-433.

Thomas E., Sexton J., Neilands T., Frankel A., Helmreich R (2005).The effect of executive walk rounds on nurse safety climate. *BMC Health Services Research*, 5, 28.

Van Geest JB, Cummins DS(2003). *An educational needs assessment for improving patient safety*. White Paper Report Vol 3.

Yamane, Taro. 1967. *Statistics: An Introductory Analysis,* 2nd Ed., New York: Harper and Row.

World Alliance for Patient Safety: Summary of evidence on patient safety: implications for research. (2008) Geneva, Switzerland: World Health Organization.

World Health Organization (2008). The Research Priority Setting Working Group of the WHO World Alliance for Patient Safety. Summary of the evidence on patient safety: implications for research. Geneva.