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Comparative Assessment on Hospital Waste Management, Patient Safety Culture and Patient Satisfaction in District Hospitals of Cagayan, Philippines

Noelyn O. Bernal* and Julius T. Capili

Cagayan State University, Tuguegarao City, Cagayan, Philippines

***Corresponding author:** Noelyn O. Bernal

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Abstract **Original Research Article**

Patients are the most significant of the healthcare team and that different factors affect the overall quality of the healthcare system. Thus, this study generally assessed and compared the hospital waste management, patient safety culture, and patient satisfaction of the hospitals in the districts of Cagayan. Three different bed capacity hospitals of Cagayan are used namely 25-bed, 40-bed and 50-bed capacities. The data were gathered by administering the medical waste management practice questionnaire and patient safety culture questionnaire to the ten (10) medical- and ten (10) non-medical employees to each of the hospitals; the patient satisfaction questionnaires were administered to 28 patients or their "*bantays*" for each hospital. Descriptive statistics is applied to the collected data and results show that in terms of medical waste management practices, the 25-bed capacity hospitals have a favorable waste management system, while 40-bed and 50-bed capacity hospitals have neither favorable nor unfavorable practices. Considering patient safety culture, results show that all of the hospitals exhibited a very good patient safety culture, thus promoting patient safety within the hospital. In view of the patients' satisfaction as assessed by the patients or their watchers, all of the hospitals achieved a high satisfaction rate, reflecting that patients are pleased by their overall hospital experience. The study concludes that although the hospitals showed very good patient safety culture and achieved high satisfaction rates, the hospital waste management of the 40-bed and 50-bed capacity hospitals, namely Aparri and Tuao hospitals, respectively, needs further development, since improper waste management brings high risks to healthcare workers, the public and the environment at large.

Keywords: Comparative Assessment; Hospital Waste; Patient Safety; Patient Satisfaction; Management.

INTRODUCTION

Hospitals, as healthcare service providers, control and prevent the occurrence of communicable diseases. However, in the performance of such function, they generate hazardous and non-hazardous wastes that bring high risks to healthcare workers, the public and the environment at large. Improper waste management among hospitals can cause environmental pollution, unpleasant odors, and growth of insects, rodents and worms. It may also lead to transmission of diseases like typhoid, cholera, and hepatitis through injuries from sharps contaminated with human blood. In this regard, hospital waste management is a critical public health and environmental issue. Hospitals are called and challenged to manage medical waste in a proper manner to avoid health risks and damage to flora, fauna, and the environment.

In developing countries like the Philippines, medical wastes have not received sufficient attention. This is because of the frequent competition of health issues for the very limited resources. Hazardous and medical wastes are still handled and disposed together with domestic wastes, thus creating a great health risk to municipal workers, the public and the environment [1].

Very much related to hospital waste management is patient safety culture in as much as they both ensure quality healthcare service. Patient safety is the heart and basic principle of health care. It is the cornerstone of high-quality health care. Every point in the process of caregiving contains a certain degree of inherent danger. Adverse events may result from problems in practice, products, procedures, or systems. Patient safety improvements demand a complex system-wide effort among hospitals, involving a wide range of actions in performance improvement, environmental safety and risk management. This includes infection control, safe use of medicines, equipment safety, safe clinical practice, and safe environment of care.

Patient satisfaction is a fundamental part of health care quality. It is the degree to which the hospitals are assessed as to the quality care of care they

deliver to patients including their family members. The patients' care experience such as waiting times, the quality of basic amenities and communication with health-care providers all contribute in ensuring their health and well-being. It has been observed that satisfied patients are more compliant and more likely to participate in their treatment [2]. It describes how patients' value and regard their care, and among hospitals on how to improve their quality of care, enhance patient safety and lower the cost of health services.

Inspired by the challenge to ensure management of healthcare waste and patient safety culture which are some factors in guaranteeing patient satisfaction, the researcher conceptualized this study to determine, and compare the current medical waste management, safety culture and patients' satisfaction among the hospitals of different bed capacities in Cagayan. District hospitals in Cagayan are not spared from numerous criticisms from the different sectors of the society regarding their management and operations. Few of the issues hurled against district hospitals pertain to ineptitude of medical practitioners, lack of favorable medical waste management, poor health services and the like. Considering that these issues are mere conjectures unless subjected for empirical investigation, this study can serve as a baseline data on how the district hospitals fair in their mandate, particularly along their hospital waste management practices and in ensuring safety culture and patients' satisfaction. Results of the study may become a policy input for total quality health care management of the district hospitals in Cagayan with the goal of developing a research-based manual on healthcare waste management, patients' safety culture and patients' satisfaction.

MATERIALS AND METHODS

The researcher made use of the quantitative design in this study. Specifically, it utilized the descriptive-correlational method. The descriptive part of the study revolves around the determination of the medical waste management practices, patients' safety culture and patients' satisfaction of the district hospitals in Cagayan. The correlational part revolved around the investigation of the relationship of medical waste management, patients' safety culture and patients' satisfaction to that of their bed capacities.

This study was conducted on the five (5) district hospitals located in the three districts of Cagayan. The unit of analysis was based on geographical location and bed capacity. This is to have equal representation of the three districts in Cagayan as to medical waste management practices, patients' safety culture and patients' satisfaction. In this study, District 1 was represented by Aparri Provincial Hospital, a 40-bed capacity hospital and Gonzaga (Alfonso Enrile) District Hospital, a 25-bed capacity hospital. Meanwhile, District 2 was represented by Nuestra Senora de Piat District Hospital, a 50-bed capacity hospital and Lasam District Hospital, a 25-bed capacity hospital. Tuao District Hospital, the lone hospital in district 3 is a 25-bed capacity hospital.

The respondents of the study were the medical and non-medical staff as well as patients and watchers of the identified district hospitals. The total number of respondents in this study is 240. The distribution of the respondents is as follows:

Table-1: Distribution of Medical, Non-Medical, Patient/Watcher Based on District Hospital

District Hospitals	Medical Respondents	Non-Medical Respondents	Patients/ Watchers
Nuestra Senora de Piat District Hospital	10	10	28
Aparri Provincial District Hospital	10	10	28
Alfonso Enrile District Hospital	10	10	28
Lasam District Hospital	10	10	28
Tuao District Hospital	10	10	28
Total	**50**	**50**	**140**
Grand Total	**240**		

Three standardized instruments were used in this study. To measure hospital waste management practices of the district hospitals, the Hospital Waste Management Questionnaire crafted by Majdi Al-Habash and Ali Al-Zu'bi is utilized [3].

Descriptive statistics was used to analyze the medical waste management practices of the district hospitals as well as the patient safety culture and patients' satisfaction. This includes frequency counts and means.

To determine the significant difference in the medical waste management practice, patient safety culture and patients' satisfaction, One-way ANOVA was used. However, Pearson Product Moment Correlation was utilized to investigate the significant relationship of the medical waste management practice of the hospitals, patient's safety culture and patients' level of satisfaction to that of their corresponding bed capacities. Finally, the hypotheses in the study were tested at 0.05 level of significance.

RESULT AND DISCUSSION

Table-2: Comparison of the Waste Management Practices of Hospitals based on Bed Capacity

Waste Management Practices	Weighted Mean		
	25-bed capacity	40-bed capacity	50-bed capacity
A. Sorting	4.25	4.53	4.57
B. Classification	4.10	4.40	4.40
C. Collection	3.97	4.18	4.38
D. Storing	3.09	2.67	2.66
E. Circulation	3.28	2.65	3.08
F. Disinfection	3.56	2.87	2.84
G. Processing	3.46	2.59	2.72
H. Final disposal	3.86	3.48	3.49
Overall Weighted Mean	**3.61 (Very Good)**	**3.23 (Good)**	**3.31 (Good)**

Table-3: Assessment of the Hospital Patients' Safety Culture as Assessed by the Workers

Safety Culture	Weighted Mean		
	25-bed capacity	40-bed capacity	50-bed capacity
A. Teamwork within units	4.24	3.95	4.25
B. Supervisor/manager expectations and actions promoting patient safety	4.00	3.96	4.16
C. Organizational learning	4.02	3.96	4.40
D. Management support for patient safety	3.34	3.62	3.77
E. Overall perceptions of patient safety	2.87	2.98	3.28
F. Feedback and communication about error	3.95	3.65	3.85
G. Communication openness	3.67	3.70	3.23
H. Frequency of events reported	3.67	3.70	3.23
I. Teamwork across units	3.39	3.42	3.83
J. Staffing	2.41	2.72	2.88
K. Hand-offs and transition	2.62	2.99	3.31
L. Non-punitive response errors	2.60	2.96	2.77
Overall Weighted Mean	**3.40 (Very Good)**	**3.47 (Very Good)**	**3.58 (Very Good)**

Table-4: Assessment of the Patients' Satisfaction of the Hospital Services of the District Hospitals of Cagayan Based on Bed Capacity

Patient Satisfaction	Weighted Mean		
	25-bed capacity	40-bed capacity	50-bed capacity
A. Waiting time	3.85	4.06	3.90
B. Admission procedure	3.93	4.06	3.90
C. Treated with respect	4.20	4.06	4.17
D. Responsiveness of staff	4.17	4.00	4.14
E. Information communication	4.22	3.97	4.17
F. Management of pain	4.09	3.93	4.06
G. Privacy	4.19	3.96	4.14
H. Involvement in decision making	4.05	3.96	4.03
I. Information provided related to medicines	3.96	3.97	3.96
J. Physical environment	3.59	4.09	3.69
K. Management of suggestions and feedbacks	3.91	4.08	3.95
L. Discharge	3.95	4.02	3.96
Overall Weighted Mean	**3.95**	**4.04**	**3.97**

The 25-bed capacity hospitals have "very good" waste management practices as compared to the 40-bed and 50-bed capacity hospitals with only "good" rating.

All the three kinds of hospitals obtained a "very good" patient safety culture. However, among the three kinds of hospitals, the 50-bed capacity has the

highest mean followed by 40-bed capacity and 25-bed capacity.

The patients have given the three kinds of hospitals with a "high" satisfaction rating. Test of difference reveals that there is a significant difference in the waste management practices between the hospitals when grouped by bed capacity. The 25-bed capacity hospitals have more favorable waste management practices than that of the 40- and 50-bed capacity hospitals.

Analysis of Variance reveals there is no significant difference in the patient safety culture according to bed capacity. Irrespective of bed capacity, the patient safety culture remains the same. Thus, the null hypothesis of the study is accepted.

Finally, there is no significant difference in the patients' satisfaction of the services of the hospitals when grouped according to bed capacity.

CONCLUSION

Based on the data analyzed and findings of the study, the researcher deduced the following conclusions: Waste management practices of smaller hospitals are better than the larger hospitals because of their level of manageability. As there are fewer patients catered in these hospitals, there are also dismal wastes to be managed which ensure easier sorting, classification, collection, storing, circulation, disinfection, processing and final disposal. This poses more challenge for bigger hospitals to be more aggressive in implementing good waste management. Moreover, the different hospitals in the district of Cagayan follow a set of safety standard that warrant proper management of patients thus minimizing their exposure to danger and further sickness. Because of this, it follows that the patients are contented, happy and feel safe in their stay in the district hospitals. Finally, the size of the hospitals in the district of Cagayan shows no difference in their patient safety culture and patients' satisfaction.

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