Subjectivity on Patient Safety Recognized by Inpatients

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Abstract

The purpose of this study is to identify the subjectivity of patient and describe the characteristics of each type to understand the categorization of types on patient safety. Q methodology was applied to the study. A total of 40 patients admitted to the S hospital in Seoul were asked to categorize 33 statements on patient safety. The collected data was analyzed using QUANL PC Program. After analysis, patient safety as perceived by the admitted patient was categorized into 6 types. The types were as follows: Type 1 'Those who note adequate patient safety', Type 2 'Those who consider preventive safety to be lacking' Type 3 'Those who see the evaluation criteria to be met', Type 4 'Those who see the facility safety to be lacking', Type 5 'Those who find the patient and facility safety to be adequate', Type 6 'Those who see patient support to be lacking'. The study provides a basic set of data for developing mediation measures needed to identify the direction in which patient safety should be promoted.

Keywords: Subjective, Patient Safety, Patient, Nures

1. Introduction

1.1 The Need for the Study

Interest in patient safety increased in society with the publication of ʹTo Err Is Human: Building a Safer Health System' by the Institute of Medicine in the U.S. It has now become one of the most important topics in the medical services field [1].

In recent years, hospitals are proactively responding to the fast-changing medical environment. Over the 20 years, one of the most notable changes has been the way medical errors occur and the measures taken to minimize the resulting risk to patients. That is, the change in the perception and knowledge concerning patient safety has seen one of the biggest changes. Patient safety must be given priority as a common principle that is upheld by all members of the hospital when providing medical services and be applied to all processes in the hospital [2,3]. According to the report issued by the Institute of Medicine in 1999, about

44,000 to 98,000 patients a year die due to medical error. The national loss caused by incidents that could have been prevented amount to 17–20 billion dollars. This was over 50% of the U.S. total medical costs at the time [4]. In Korea, discourse on patient safety started but studies on the incidence of medical errors or the effects on patients have not been conducted and therefore accurate statistics are hard to come by. However, the results from the number of admission cases in 2011 as published in the medical statistics show that there were 40,695 people that die of harmful incidents a year, among which 17,702 were patients who died from preventable incidents. Compared to the 6,316 people who die of traffic accidents, the figure is six-fold, indicating the issue of patient safety is indeed serious [5.6]. Patients and their families who visit hospitals expect safe caring and protection during their diagnosis and treatment, and it is part of a patient's basic rights to receive safe treatment in a safe environment [7.8].

In Korea, too, evaluation on medical services started in 2004 through the institution of evaluation on medical service organizations. The discourse on approaching patient safety in a systematic manner started, which then led to the adoption of the authorized evaluation system for medical institutions in 2010. Through the authorized evaluation system, medical institutions are encouraged to constantly make efforts for improving patient safety and quality of services. Starting in July, 2016, the Act on Patient Safety took effect. This regulated the requirements to ensure patient safety so that hospitals can establish a patient safety system. In other countries, participation of and communication with patients is being emphasized for patient safety and patients are encouraged to take proactive part during the diagnosis and treatment. In the studies by Davis et al. that identified the factors affecting patients' participation in patient safety, it is noted that patients can play an important role in patient safety and serve as a buffer that reduces patient safety incidents [1]. A Study on the Recognition of Patient Safety for Nurses or Doctors, the patient safety reporting system have been conducted in Korea [9-11]. The Agency for Healthcare Research and Quality (AHRQ) and National Patient Safety Foundation (NPSF) in the U.S. also emphasize patients' participation and promote patient safety through various methods to empower the patient can be seen in such cases, the patient's participation is important. But studies on patient safety as perceived by the patient are lacking. As such, studies that verify the patient's perception of patient safety are needed [12.13].

This study seeks to verify the awareness of patient safety on the part of admitted patients and to identify methods to promote participation in patient safety to contribute to a better system at hospitals.

1.2 The Purpose of the Study

The purpose of the study is to apply Q- methodology to identify the subjective characteristics of patient safety. Specific goals are as follows.

1) Categorize the type of subjective perception of patient safety on the part of admitted patients.

2) Analyze and describe the characteristics of each type of subjective perception of patient safety on the part of admitted patients

2. Study Methodology

2.1 Study Design

To meet the purpose of the study, literature, media data and preceding studies on patient safety were reviewed. A survey was then conducted on admitted patients to see the various types of perception on patient safety. The methodology developed by Stephenson objectively measures the attitude or subjective views of an individual. This method was applied to the patient safety as perceived by admitted patients.

2.2 Study Procedure

The parent group consisted of patients currently admitted to hospitals. A literary review of domestic and international sources, open-ended questionnaires and individual in-depth interviews were used to extract comprehensive statements on patient safety as perceived by the patients. Using an open-ended questionnaire, data was collected to gather various opinions of admitted patients and employees of hospitals. The purpose of this study was admitted patients of S hospital. Those who took interest and wished to take part in the study was used as subjects. Through this process, a total of 4 areas and 33 of Q parent groups were concluded. This was done based on the assumption that for the selection of Q sample, 20~100 samples or 40~60 samples are common.

2.2.1 The P Sample

Q-methodology is used for qualitative studies that emphasize the subjectivity of individuals and not the difference between different individuals. The focus is on the significance or importance for each individual. This is based on the small sample doctrine that states that if the P Sample grows, multiple people correspond to one factor, making it difficult to identify each characteristic. Therefore about 33 people are generally used. The P Sample for this study was the group of 40 admitted patients at Sample [14].

2.2.2 Q Categorization

Q sample classification is a process that forcefully distributes the extracted Q sample onto the Q sample distribution table, using the principles of Q methodology so that it would be close to a normal distribution. First, the subjects were asked to read the prepared 33 samples and distribute cards that are most similar to their own opinion. They were asked to put 2 for statements they actively agree with (+4), 5 for statements they are neutral about (0), and 2 for statements they strongly disagreed with (-4). The subsequent scores given were 9 points for +4, followed by 8, 7, and 6. For neutral statements, one point was given to 4 and -4, followed by 2, 3, and 4 points.

2.2.3 Q Classification Process and Methodology

Q classification has the selected subjects apply a normal distribution method using the statements of the Q sample to determine a self-defined concept of patient safety. First the days where data collection is possible were assigned. Then the time during which the selected admitted patients for P Sample can respond to the questionnaire was discussed to collect data. The venue for data collection was a quiet meeting room or breakroom as desired by the participant where the participant's privacy could be protected. At a time when the participant wouldn't feel too exhausted the data was collected. Patients who have clear cognitive abilities, who can communicate their opinion and who gave consent to the study were used to collect data using Q cards. It took about 30-40 minutes for one participant to complete the Q classification.

2.2.4 Data Analysis

Data was analyzed using QUNAL pc program. For Q-factor analysis, a principal component factor analysis method was used. The mean and standard deviation of the factors were analyzed using SPSSWIN 21.0.

2.2.5 Moral Consideration for Q-study Participants

Before conducting the study, the voluntary consent of all subjects was acquired. They were given the option to drop out of the study at any point if they wish. In order to respect the privacy of the subjects, all

data was recorded anonymously and coded through Q sorting.

3. Results

3.1 Category Analysis

Using the QUNAL pc program, the subjective opinion of the admitted patients regarding patient safety was found to have three factors through the Q-factor analysis.

In order to analyze each type, the characteristics of each type were described with a focus on the statements of each type. The Q reaction of the P Sample (study subjects) was divided into higher level questions and lower level questions to extract three factors. In the Q methodology, those with a greater factor weight are seen as a more typical or ideal type of individual that is representative of each category.

Using the PC QUANL program, the subjective opinions on patient safety were analyzed to conclude three factors that explain 45.55% of the total variance. The explanatory power was 30.62% for factor 1, 8.44% for factor 2, and 6.49% for factor 3. Since factor 1 explained 30.62%, it was the factor that explains the most about patient safety as hown in Table 1. Of the total of 40 subjects, there were 23 people who were in factor 1, 13 people in factor 2, and four people in factor 3. In this study, the upper level questions and lower level questions for the three factors were compiled into one group. The factors were then interpreted into two types. That is, the negative values and positive values were seen as representing one natural trait [8]. This refers to the group that shows a similar reaction to patient safety corresponding to each factor.

The correlation coefficient between the 3 factors is as shown in Table 2. This shows the degree of similarity between the types. The correlation coefficient between type 1 and type 2 is 0.696, between type 1 and type 3 is 0.133, between type 2 and type 3 it is 0.188, and between type 1 and type 2 it is 0.696 which is higher than others. However, the correlation between the factors in the Q method, unlike in the factor analysis method for quantitative studies, the complete independence between each factor is not assumed. Instead, the focus is on identifying the factors. Therefore, there is no controversy in extracting factors based on the level of correlation shown in Table 2.

Table 1. Eigen value, variance, and cumulative percentage

	Type I	Type II	Type III
Eigen Value	2.2485	3.3757	2.5944
Variance(%)	30.62	8.44	6.49
Cumulative	.3062	.3906	.4555

Table 2. Correlations between Types

	Type I	Type II	Type III
Type I	1		
Type II	.6962	1	
Type III	.1338	.1885	1

3.2 Analysis of Each Type

Table 3. Q-statements on patient safety, by type of representative items and Z-scores. (N=40)

Representative items of type

Factor	Type	No	Representative items	Mean (SD)	Z-score
Factor1 (N=23)	Type1	1	The staff member verifies my name before administering medication to me.	8.09 (0.949)	2.21
		15	The staff member lets me ask questions I am curious about.	7.00 (1.595)	1.43
		26	The staff member washes his hands before treatment.	6.65 (1.898)	1.33
		5	The staff member verifies my name before treatment.	6.87 (1.576)	1.27
		10	The staff member gives an explanation before administering medication.	6.96 (1.821)	1.17
	Type2	33	I feel anxious about how patient safety is dealt with at the hospital.	1.43 (0.843)	-2.47
		30	The staff members treat infectious patients separately to prevent the diseases from spreading.	2.83 (1.642)	-1.70
		22	The hospital uses a low bed for patient safety.	3.17 (1.557)	-1.24
		28	The hospital has attached an information poster to prevent infections.	3.48 (1.675)	-1.18
		25	I have been told about the escape route in the case of a fire.	3.65 (1.799)	-1.01
Factor2 (N=13)	Type3	1	The staff member verifies my name before administrating medication.	8.46 (0.660)	2.23
		4	This hospital has undergone the authorized evaluation.	7.23 (2.421)	1.75
		2	The staff member verifies my name before taking blood (blood tests)	7.54 (1.198)	1.66
		12	The staff member explains caution required before tests for a safe test.	6.85 (2.115)	1.42
		3	The staff member verifies my name before tests (X-rays, ultrasound)	6.92 (1.891)	1.25
	Type4	33	I feel anxious about how patient safety is dealt with by the hospital.	1.23 (0.439)	-2.22
		28	The hospital has attached an information poster to prevent infections.	2.69 (1.932)	-1.73
		22	The hospital uses low beds for patient safety.	3.00 (1.414)	-1.30
		31	The staff members wash their hands thoroughly for at least 30 seconds when they wash their hands.	3.38 (1.895)	-1.24

Factor3 (N=4)					
	Type5	25	I have been told about the escape route in case of a fire.	3.23 (1.922)	-0.90
		2	The staff member verifies my name before taking blood (blood tests)	8.25 (1.500)	1.79
		27	The hospital has installed a wash basin in the patient room to prevent infections.	8.00 (2.000)	1.73
		1	The staff member verifies my name before administrating medication.	7.75 (0.500)	1.43
		22	The hospital uses a low bed for patient safety.	7.50 (1.000)	1.34
		21	The hospital has installed a fire extinguisher in the patient's room for patient safety.	7.75 (0.957)	1.20
	Type6	33	I feel anxious about how patient safety is dealt with by the hospital.	1.00 (0.000)	-1.99
		5	The staff member verifies my name before treatment.	2.00 (2.000)	-1.73
		14	The staff member explains the treatment process to me.	2.25 (0.500)	-1.42
		15	The staff member lets me ask questions I am curious about.	2.50 (0.577)	-1.35
		31	The staff members wash their hands thoroughly for at least 30 seconds when they wash their hands.	3.00 (1.414)	-1.20

3.2.1 The Type who Notes Adequate Patient Safety

There were 23 people in factor 1 shown in Table 3. The highest factor weight in Type 1 was found in number 17 (1.01) and number 15(1.01). The statements that showed the strongest agreement in factor 1 were: Statement number 1, "The staff member verifies my name before administering medication" (Z=2.21), Statement number 15, "The staff member lets me ask questions I am curious about"(Z=1.43). Statement number 26, "The staff member always washes his hands before treatment"(Z=1.33), Statement number 5, "The staff member verifies my name before treatment" (Z=1.27), and Statement number 10, "The staff member gives me an explanation before administering medication." (Z=1.17). The characteristics of Type 1 were found patient safety to be well abided by. Hence, the type was named "those who note adequate patient safety."

3.2.2 The Type who Considers Preventive Safety to be Lacking

The people in this type are those that correspond to number 13(0.22), number 2(0.25) and number 11(0.29) with the lowest factor weights. Statements that had the strongest opposition in type 2 were as follows: Statement number 33, "I feel anxious about how patient safety is dealt with by the hospital" (Z=-2.47), Statement number 30, "The staff members treat infections patients separately to prevent further infection" (Z=-1.70), Statement number 22, "The hospital uses low beds for patient safety" (Z=-1.24), Statement number 28, "The hospital has attached information posters to prevent infections" (Z=-1.18) and Statement number 25, "I have been told about the escape route in case of a fire" (Z=-1.01). Those in type 2 did not feel anxious about patient safety but were negatively perceiving the facilities or safety regarding infections. As such, this group was named "those who consider preventive safety to be lacking."

3.2.3 The Type who Sees the Evaluation Criteria to be Met

Those classified as factor 2 were 13 in total shown in Table 3. These were people who corresponded to Number 6(1.74), number 34(1.52) and number 40(1.36) with the greatest factor weights. The statements that those in type 2 agreed with strongly were as follows: Statement number 1, "The staff member verifies my name before administering medication" (Z=1.87), Statement number 4, "This hospital has undergone authorized evaluation"(Z=1.84), Statement number 2, "The staff member verifies my name before taking blood (blood test)"(Z=1.82), Statement number 12, "The staff member explains caution required before the test for safe tests" (Z=1.42), and Statement number 3, "The staff member verifies my name before tests (X-ray, ultrasound)"(Z=1.25). Those in this group highly evaluated the overall patient safety by the hospital. They saw that the protocols for verifying patients, safety before administering medication, as well as the facility for infection safety were seen to be of a high level. As such, those in this type were referred to as "those that see the evaluation criteria to be met."

3.2.4 The Type who Sees the Facility Safety to be Lacking

Those in factor 2 corresponded to number 18(0.31) and number 21(0.33) with the greatest weight factors. Statements where those in type 4 disagreed with most were as follows: Statement 33, "I feel anxious about how patient safety is dealt with by the hospital"(Z=-2.22), Statement no 28, "The hospital attached information posters to prevent infections" (Z=-1.73), Statement number 22, "The hospital uses low beds for patient safety" (Z=-1.04), Statement number 31 "The staff member washes their hands for more than 30 seconds when they wash their hands"(Z=-1.24), and Statement number 25 "I was told about the escape route in the case of a fire"(Z=-.90). Those in type 4 were relieved about how patient safety was dealt by the hospital but noted that posters or facilities to promote patient safety were lacking. The type was thus named those who see the facility safety to be lacking."

3.2.5 The Type who Finds the Patient and Facility Safety to be Adequate

There were a total of 4 people classified as factor 3 shown in Table 3. Number 38 had the greatest factor weight (2.89) in type 5. The statement that those in type 5 agreed the most strongly were as follows: Statement number 2, "The staff member verifies my name before taking blood" (Z=1.79), Statement number 27, "The hospital has installed a wash basin in the patient's room to prevent injections" (Z=1.73), Statement number 1, "The staff member verifies my name before administering medication"(Z=1.43), Statement number 22, "The hospital uses a low bed for patient safety" (Z=1.34) and Statement number 21, "The hospital has installed a fire extinguisher in the patient's room for safety" (Z=1.20). Those in type 5 saw patient safety and facility safety to be upheld well. As such, the type was named "those who find the patient and facility safety to be adequate."

3.2.6 The Type who Sees Patient Support to be Lacking

Number 36 was found to have the lowest factor weight in factor 3 (0.87). The statements that those in Type most strongly disagreed with were as follows: Statement number 33, "I feel anxious about how patient safety is dealt with by the hospital"(Z=-1.99), Statement number 5, "The staff member verifies my name before treatment" (Z=-1.73), Statement number 14, "The staff members explains the treatment process to me" (Z=-1.42), Statement number 15, "The staff member lets me ask questions I am curious about" (Z=-1.35) and Statement number 31, "The staff member thoroughly washes his hands for more than 30 seconds when washing hands" (Z=-1.20). Those in type 6 perceived support for the patient to be lacking, noting that they could not ask questions or express their opinions on tests or treatments. As such, the type was named as

"those who see patient support to be lacking."

4. Discussion

The study was conducted to understand the patient safety activities carried out by hospitals and to provide a basic set of data that can be used for developing training programs for both patients and hospital staff using data on subjective opinions. The patient safety as perceived by admitted patients were classified into types. The characteristics of the types were identified so that the data could be used for prevention of safety incidents in hospitals.

The study shows that the types of patient safety as perceived by admitted patients can be classified as follows: Type 1 "Those who note adequate patient safety', Type 2 'Those who consider preventive safety to be lacking' Type 3 'Those who see the evaluation criteria to be met', Type 4 'Those who see the facility safety to be lacking', Type 5 'Those who find the patient and facility safety to be adequate', Type 6 'Those who see patient support to be lacking'.

Type 1 are those who note adequate patient safety. In factor 1, those with the greatest factor weight were numbers 17 and 15. These people noted that the nurse would carry out activities for patient safety on numerous occasions throughout the day. The noted that staff members verified matters many times with patients and that when admitted to the hospital section that focused on making patients comfortable, there was frequent contact with the nurse. Comprehensive nursing services has let to assigning more nursing staff to be at the patient's bedside. Nurses spend a lot of time with patients and are always nearby. They need to show an awareness of safety and show behavior to prevent safety incidents. The environment as noted by these subjects was one where patients could be at ease during treatment in regards to patient safety [1].

Type 2 are 'Those who consider preventive safety to be lacking'. In factor 1, they are numbers 13 and 2 with the lowest factor weights. Number 13 noted patient safety activities of nurses or medical staff but commented that he did not remember explanations on infection to have been given. In particular, they were found not to have noted the posters or information offered. This also means that since the patient was admitted to be treated for an illness, he didn't take much interest of other illnesses and did not pay much attention to posters or information boards. From the perspective of the hospital, measures need to be taken so that awareness is raised on the part of patients so that the posters and information sheets serve their purpose.

Type 3 are those who see the evaluation criteria to be met. In factor 2, number 6 and 34 had the highest factor weight. These subjects perceived patient safety through the work process of nurses and staff members. As awareness of patient safety grows in Korea, many evaluations are also taking place by the government. Through such evaluations, hospitals are undergoing a systematic change in the various activities for patient safety. Changes in national policies and sustained support within the hospitals are needed to ensure that such changes can continue their momentum [7].

Type 4 are those who see the facility safety to be lacking.
In factor 2, numbers 18 and 21 had the lowest factor weights and recognized patient safety activities in the nurses' regular work. Meanwhile, they noted that the explanation on facility safety went by too fast and was difficult to understand. In particular, the small font size made it difficult for the elderly to read the content. As such, materials or content in the future would have to be developed separately to better cater to the elderly.

Type 5 are those who find the patient and facility safety to be adequate. In factor 3, number 37 with the high factor weight noted that he recognized facility safety or patient safety through frequent admission to hospitals. This shows that repeated safety education done in an easy to understand manner is needed. Repeated education is particularly needed for patients who are admitted, and this can be done by including

the relevant content to general guidance offered to patients who are being admitted.

Type 6 are those who see a lack of patient support. In factor 3, number 36 with the low factor weight noted that the explanations were hard to understand and he had a lot of questions but there was not enough time to ask questions. As a result, he said he only listened to the explanation once. This indicates a need for education that is easy to understand and an evaluation on the education itself. More time should also be allocated for questions. Type 4 and Type 6 were found to have a negative perception of safety activities in hospitals. During their stay in the hospital, they were not able to understand explanations given to them and felt they did not have time to ask questions to the busy staff. In other countries, the idea is that patients need to safeguard their safety, just as much as hospitals need to put in place a system for patient safety. As such, a speak-up campaign is being carried out. Hospitals need to develop an education program where a patient safety system can take root while patients themselves also take interest in their own safety.

The study clearly showed the patient safety as perceived by admitted patients. This perception was categorized into six types as follows: Type 1 'Those who note adequate patient safety', Type 2 'Those who consider preventive safety to be lacking' Type 3 'Those who see the evaluation criteria to be met', Type 4 'Those who see the facility safety to be lacking', Type 5 'Those who find the patient and facility safety to be adequate', Type 6 'Those who see patient support to be lacking' [9-11].

5. Conclusion

We studied to review the types of patient safety as perceived by admitted patients and to analyze the characteristics of each type to secure a basis for developing a safety training program for those in the medical services field. The findings showed 6 types of perceived patient safety and their characteristics were analyzed as follows.

The types were named as follows: Type 1 'Those who note adequate patient safety', Type 2 'Those who consider preventive safety to be lacking' Type 3 'Those who see the evaluation criteria to be met', Type 4 'Those who see the facility safety to be lacking', Type 5 'Those who find the patient and facility safety to be adequate', Type 6 'Those who see patient support to be lacking'. The awareness Koreans on patient safety or patient safety activities was found to be lower than in other countries. This implies a need to promote awareness and participation on the part of patients in patient safety activities.

The concept of patient safety was found to be undergoing change from one that focuses on errors by medical staff or institutions towards one that focuses on prevention of safety incidents and on patients. Patient-oriented medical services and nursing are both an obligation of the medical staff and the result of a culture where patient safety is valued. This concept is now growing, as seen through this study.

Based on these findings, patient safety as perceived by admitted patients in relation to the patient safety activities done by the medical staff in hospitals can be said to be significant. Depending on the awareness on patient safety by admitted patients, various training programs must be developed for safety training on medical staff and patients.

Based on the findings, the following is suggested.

First, by applying the classification of patient safety in this study, training programs on patient safety to be conducted on hospital staff need to be developed. Second, training materials that can promote better understanding by patients in each age group must be developed separately. Third, based on the patient safety perception types in this study, patient safety as perceived by admitted patients must be checked for a follow-up study through patient safety prevention activities

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