



ISSN: 2091-2749 (Print)  
2091-2757 (Online)

#### Correspondence

Neeti Prasai  
Intern, Patan Hospital, Patan  
Academy of Health Sciences,  
Lalitpur, Nepal  
Email:  
neetiprasai@pahs.edu.np

#### Peer Reviewers

Ashis Shrestha  
Patan Academy of Health  
Sciences

Jay N Shah  
Patan Academy of Health  
Sciences

## Assessing patients' knowledge about their management plan

Neeti Prasai, Himang Man Singh Maskey, Pravakar Parajuli, Namita Shakya

Intern, Patan Hospital, Patan Academy of Health Sciences, Lalitpur, Nepal

### ABSTRACT

**Introductions:** Patients' compliance for better health can be achieved if patients are well aware about their disease and treatment plan. Patient's knowledge about diagnosis and treatment plan improves outcomes. This study aims to characterize patient's knowledge about their hospital admission and treatment plan in different wards of Patan Hospital.

**Methods:** This was a cross sectional study, undertaken in Patan Hospital. A pilot survey using purposive sampling was conducted to find out prevalence for the sample size (N=160) calculation and pre-testing of the questionnaire. Systematic random sampling was done. Finally, 154 patients agreed to be interviewed and data on their knowledge about treatment plan were analysed. The collected data were entered in Epi-Info (Free) and analysed in SPSS®.

**Results:** Out of 154 patients interviewed, 118 (76.6% knew about their diagnosis and 48 (31.2%) were able to recall in medical terms. Regarding 151 patients who had undergone investigations, 60 (39.7%) patients knew details of at least one test, 7 (4.6%) knew details of all the tests, 41 (27.2%) knew about the results of their tests. Out of 143 patients who were prescribed medications, 100 (69.9%) patients were not able to state any of the medicines given to them and 8 (5.6%) were able to tell each of them.

**Conclusions:** Most of our patient knew about their diagnosis and treatment plan; however, there are significant room for improvement in terms of educating patients about the tests being performed and drugs administered.

**Keywords:** hospital admission and treatment plan, patients' compliance, patient's knowledge, patient management plan, patient outcome

## INTRODUCTIONS

The ultimate aim of hospital management is to ascertain better health outcome. Despite all the best intention and efforts, those outcomes might not be achievable if patients are non-compliant.<sup>1</sup> Studies show that patient's knowledge and agreement with physicians regarding diagnosis and treatment plan is associated with improved outcomes.<sup>2</sup> This is also important for developing action plans for improvement of services. Many efforts to improve health care will be wasted unless they reflect what patient knows and wants from the service.<sup>3</sup>

Patient's knowledge in outpatient setting and during discharge has been documented, few studies are done to assess patient's knowledge on hospital admission and treatment plan. In a busy setting like Patan Hospital (PH), a tertiary care teaching hospital, there might be discrepancies in patient's understanding on admission and treatment plans.

This study aims to assess patient's understanding about their hospital admission and treatment plan in different wards of PH.

## METHODS

This was a cross sectional descriptive study conducted at PH from 5 to 11 September 2013. All the hospital beds that satisfy the inclusion criteria were included in the sample space. All the patients of age 15 years and above in Orthopedics, Medical, Medical Step Down, Surgical, Ear Nose Throat (ENT), Private, Gynecology and Obstetrics wards were included. Pediatrics, Active Labor, Post-partum, ICU, Psychiatry and Emergency wards were excluded.

A pilot survey was conducted taking 18 inpatients from different wards using a purposive sampling method. The prevalence was calculated taking patients' knowledge about their diagnosis as the indicator. It was calculated to be 88.89%. Hence the sample size was calculated as 160 at 95 % confidence

interval and 5% margin of error with 5% non-response rate. P value less than 5% was taken as significant.

All the beds satisfying the inclusion criteria were listed in ascending order and systematic random sampling was done. The questionnaire was extracted from Standard Discharge Knowledge Assessment Tool and Demographic and Health Survey tools.<sup>4</sup> The questionnaire was translated in Nepali language and pre-test of questionnaire was done. The structured interviewer administered questionnaire was used after taking verbal consent from patients. Selected beds were interviewed only once. Three visits were made before declaring nonresponse in case of empty bed. The collected data were entered in Epi-Info (Free) and analyzed in SPSS®v.15. Comparisons were done in between response from different wards. We assessed patient's knowledge about their diagnosis using logistic regression. The ANOVA and T-test were used to compare the mean numbers of test answered correctly. The patient's overall knowledge on medications was assessed by taking percentage from three parameters, viz. name, purpose and side effects of the medicine, for each of the patients. Further analysis of the overall knowledge of the medications was done using Kruskal Wallis-H test and Mann-Whitney test with tie correction.

## RESULTS

We identified 160 participants in the study among which 154 (96.25%) patients agreed to be interviewed. The demographic characteristics of these patients revealed that average age was 32 y and 63% were female (Table 1) and admission to the major service wards; medicine, surgery, orthopedic and gyne/obs were similar (Table 2).

### Patients' knowledge about their admission and diagnosis

Out of 154 patients interviewed, 129 (83.8%) patients were told about the reasons for their hospital admission and 119 (77.3%) about their disease condition (60 (50.4%) in the medical terms). Out of 154 patients, 118 (76.6%) were

correct about their diagnosis and 48 (31.2%) were able to recall the medical terms of their diagnoses.

**Table 1. Demographic characteristics of admitted patients (n=154) who participated in study about their knowledge of diagnosis and treatment**

Characteristics	Frequency (%)
Age, median	32 years
Sex (n = 154)	
Female	97 (63%)
Male	57 (37%)
<b>Ethnicity (n = 150)</b>	
Brahmin	34 (23%)
Chhetri	36 (24%)
Dalit	5 (3%)
Magar	11 (8%)
Newar	35 (23%)
Rai	5 (3%)
Tamang	21 (14%)
Tharu	3 (2%)
<b>Educational Level (n = 111)</b>	
Primary	16 (14%)
Secondary	44 (40%)
Higher secondary and above	51 (46%)
<b>Religion (n = 154)</b>	
Hindu	115 (75%)
Buddhist	29 (19%)
Christian	8 (5%)
Muslim	1 (<1%)
Kirat	1 (<1%)
<b>Permanent Address</b>	
Inside valley	81 (53%)
Outside valley	73 (47%)

Chi square test was used to assess the model fit and value  $<0.05$  was taken as cut off. Using binary logistic regression, the fitted model were analyzed which showed the likelihood of knowing the diagnosis increased by 7.45 times when admitted from outpatient department compared to emergency and by 5.14 times for literate patient than illiterate (Table 3). There was no significant association between knowledge of diagnosis and the maximum education level they have attained ( $p>0.05$ ). The odds of knowing the diagnosis decreased by 0.022 times for every year increase in age.

**Table 2. Ward wise distribution of admitted patients (n=154) who participated in study about their knowledge of diagnosis and treatment**

Ward	Frequency (%)
Medicine	29 (19%)
Surgery	25 (16%)
Orthopedics	24 (16%)
Gynecology & Obstetrics	36 (23%)
Medical Step Down	15 (10%)
ENT	5 (3%)
Private	20 (13%)
Total	154 (100%)

**Table 3. Binary logistic regression showing patients' likelihood of knowing the diagnosis**

Variables	Odds Ratio	95% Confidence interval	P value
OPD vs Emergency	7.45	2.49 to 22.47	$p<0.001$
Literate vs illiterate	5.14	2.12 to 12.44	$p<0.001$
Age	0.98	0.96 to 0.1	$p<0.016$

**Table 4. Multiple logistic regression showing patients' likelihood of knowing the diagnosis**

Variables	Odds Ratio	95% Confidence interval	P value
OPD vs Emergency	8.42	2.64 to 26.9	$p<0.001$
Literate vs illiterate	4.66	1.59 to 13.59	$P=0.005$
Age	0.99	0.97 to 1.011	$P=0.321$

Test used ( $p=0.378$ ), number of previous admissions ( $p=0.809$ ), sex ( $p=0.898$ ) and residence of the patient (from valley or outside) ( $p=0.373$ ) didn't show a proper model fit.

In multivariate logistic analysis, the fitted model was able to explain 28.3% variance in knowledge ( $p<0.001$ ), using admitted from emergency or OPD, age and literacy status as independent variables. It showed that the odds of knowing the diagnosis was high while being admitted from OPD compared to ER and being literate compared to illiterate, while age ( $p=0.321$ ) of the patient had no significant change in knowledge while keeping other variables constant (Table 4).

Table 5. Summary of admitted patients' knowledge about their investigations

Variables	Categories	N=151	Median Number of medications given	Median number of medication answered correctly	P-value
<b>Ward</b>	Medicine	28	5	5	<0.001*
	Surgery	24	3.5	2	
	Orthopedics	24	4	3	
	Gynae/OBS	36	3	3	
	Step Down	15	3	2	
	ENT	5	2	2	
	Private	19	4	4	
<b>Gender</b>	Male	96	3	3	<0.05
	Female	55	4	4	(0.038)#
<b>Literacy</b>	Illiterate	27	4	3	>0.05
	Literate	124	3	3	(0.219)#
<b>Age Group</b>	Economically Active	124	3	3	>0.05
	Economically Dependent	27	4	3	(0.396)#
<b>Permanent address (N=149)</b>	Valley in	80	3	3	>0.05
	Valley out	69	4	3	(0.067)#
<b>Admitted from</b>	OPD	61	3	3	<0.05
	Emergency	90	4	3	(0.047)#

\* Kruskal-Wallis Test # Mann Whitney U Test

Table 6. Summary of admitted patients' knowledge about medications

Variables	Categories	N=143	Median Number of medications given	Median number of medication answered correctly	P-value
<b>Ward</b>	Medicine	29	5	0	<0.05
	Surgery	24	4	0	
	Orthopaedics	22	4	0	
	Gynae/Obs	29	3	0	
	Step Down	15	7	0	
	ENT	5	6	0	
	Private	19	5	1	
<b>Gender</b>	Female	89	5	0	>0.05
	Male	54	5	0	(0.269)
<b>Literacy</b>	Illiterate	26	6	0	<0.05
	Literate	117	4	0	(0.007)
<b>Age Group</b>	Economically Active	117	4	0	>0.05
	Economically Dependent	26	7	0	(0.120)
<b>Permanent address (N=142)</b>	Valley in	75	5	0	<0.05
	Valley out	67	4	0	(0.015)
<b>Admitted from</b>	OPD	89	4	0	>0.05
	Emergency	54	5	0	(0.085)

\* Kruskal-Wallis Test # Mann Whitney U Test

### Patients' knowledge about their investigations (Table 5)

Among 154 patients interviewed, 151 (98.7%) patients had undergone some investigations during their hospital stay. The median number of test done was three per patient ranging from minimum of one test to maximum of eight tests.

Out of 151 patients who had investigations done, 108 (71.5%) correctly answered the number of tests, 60 (39.7%) knew details in at least one of the test and 7 (4.6%) knew all the tests, 47 (31.1%) knew the results of at least one test and 41 (27.2%) knew the results of all their tests.

The total number of tests answered correctly did not showed normal distribution using Shapiro-Wilk test ( $p < 0.001$ ). So, the results were compared using Mann-Whitney U test.

There was statistically significant difference ( $p < 0.001$ ) in knowledge about the tests done among the patients admitted in different wards of Patan Hospital (Table 5). Patients admitted in Medicine ward had statistically significant ( $p < 0.01$ ) higher median of the knowledge about the tests done than rest of the wards. Similarly, Private ward had higher median than Gynecology and Obstetrics ward and Step-Down ward ( $p < 0.05$ ). Other significant comparisons were between Surgery and Orthopedics ( $p < 0.05$ ) and Orthopedics and Step Down ( $p < 0.05$ ).

There was significant difference ( $p < 0.05$ ) in knowledge about the test done among the patients based on their gender and whether they were admitted form Emergency or OPD. Literacy, economic activity and address showed no significant differences ( $p > 0.05$ ) in patient's knowledge about the tests done (Table 5).

### Patients' Knowledge about their treatment plan and medications (Table 6)

Out of 154 patients, 143 (93.5%) were given some drugs during their hospital stay. The median number of medication given was 5 (IQ range=4) ranging from one to fifteen medicines.

About medication, 100 (69.9%) were not able to tell any of the medicines given to them, and 8 (5.6%) were able to tell all the medications.

Using Kruskal Wallis test, there was no significant difference of overall knowledge of medicine between gender ( $p = 0.269$ ), admitted from OPD or ER ( $p = 0.085$ ) and age group ( $p = 0.120$ ). There was significant difference between at least one group of ward admitted ( $p = 0.002$ ), address of patient ( $p = 0.015$ ) and literacy status ( $p = 0.007$ ). Among different wards, gynaecology and obstetrics had higher overall knowledge of medicines than medical ward using Mann-Whitney U test with tie correction (*adjusted*  $p = 0.001$ ). Except them, there was no significant differences among wards (*adjusted*  $p > 0.05$ ). There was statistically significant difference in knowledge between people from inside valley and outside the valley (*adjusted*  $p = 0.016$ ). Literate people had better score in knowledge than illiterate people ( $p = 0.007$ ) (Table 6).

## DISCUSSIONS

We found that maximum number, 2/3<sup>rd</sup>, 118 (76.6%) out of 154 of hospitalized patients knew about their diagnosis. On the contrary, study from United State observed that approximately 40.0% of physicians failed to provide patients with a clear and comprehensive explanation of their problem, and outpatient clinical encounters revealed that patient fail to understand their diagnosis.<sup>5,6</sup> Interestingly, patients in our study seemed to understand their diagnosis and treatment plan. Most of our patients admitted from the OPD were aware of their diagnosis than those from Emergency. One of the reasons may be because Emergency is more critical and relatively busy. In OPDs, doctor patient relationship is better and rapport is already established. A study of patient centered care can be accomplished only when patient take equal participation in their management. However, this participation can only be achieved when patient understand their disease condition and ongoing management plan.

We found that the chances of knowing the diagnosis are higher when person is literate. But there is no role of duration of hospital admission, number of previous admissions, gender, and address in determining patient's knowledge on their admission. This may be because in urban settings there may be no disparity in terms of gender, age and address of the patient while sharing information. We also found no difference in patient's knowledge among different wards. This may be because doctors should follow similar protocols when they admit patient in respective wards throughout the hospital.

Although many patients were able to correctly answer how many tests were done, only few were able to give the details and the reasons behind the tests being performed. This is more so in the case of investigative procedure being carried out. A survey also states that patients were often not given important information about, their condition or treatment, and particularly about tests and operations they had had.<sup>7</sup> A cross-sectional study conducted at a tertiary care center, Pakistan<sup>8</sup> and others,<sup>9</sup> showed similar finding in which majority of the patients reported that they were not told about the side effects of medications given to them or the rationale behind the investigations performed.

These findings show, we fail to take proper consent before investigations. Consents provide opportunity to the patients to know about the test being carried out. In our study, we found that mostly patients from the medicine ward were able to give details about their diagnostic procedures compared to other wards. One of the reasons for this might be that average tests performed per patients was more in medicine ward compared to other wards. Similarly, many patients admitted from OPD were more knowledgeable regarding the tests performed than those admitted from Emergency.<sup>10</sup>

Even though many patients stated that they knew what treatment was being done in hospital to get them better, many patients in fact were not able to tell the drugs that they

were being provided. Only few were able to correctly identify the medicines that they were being given along with their purpose and side effects. These findings are consistent with a study done during discharge at municipal teaching hospital. Only 27.9% were able to list all their medications, 37.2% were able to recount the purpose of all their medications, 14.0% were able to state the common side effect(s) of all their medications, and 41.9% were able to state their diagnosis or diagnoses.<sup>11</sup> This shows that there are still gaps in educating our patients. Most of the doctors tend to focus on curing the disease only. However, in a national survey conducted in the United States of America, about 90% of the patients said that medications, tests, and test results were explained in a way they could understand, but more than a fifth said that important side effects were not explained.<sup>9</sup> In a resource limited and busy setting like ours, time is always constraints resulting ineffective communications and knowledge gap.

Much time should be given while taking consent and patient should be offered time to ask questions about their management plan. Patients understanding should be confirmed before suggesting any test or prescribing any drugs. This helps in improving compliance resulting better health outcome.

## CONCLUSIONS

Most of our patients knew about their diagnosis; however, there are significant room for improvement in terms of educating patients about the tests being performed and drugs administered. Patient's literacy and admission from outpatient had positive influence on their knowledge.

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