


# Does Your Patient Understand Their Treatment Plan? Factors Affecting Patient Understanding of Their Medical Care Treatment Plan in the Inpatient Setting

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## Abstract

The empathy and quality of communication between the physician and patient is believed to correlate with patient satisfaction and knowledge of the diagnoses and treatment plan. Examining patients' understanding of their plan can allow providers to better aid patients upon their discharge from the hospital in the hopes of improving home care compliance. We sought to evaluate factors that we hypothesized to have an impact on a patient's ability to understand their medical management plan in the inpatient setting. Over a 14-month period, patients were given a 10-question survey during their stay on the inpatient medical units at a safety-net tertiary care community hospital. The survey was given to patients to self-complete after our research team introduced it. A total of 366 patients were surveyed. Of the patients surveyed, more than two-thirds of participants had a clear idea of the management plan for their condition (68.5%), while 3.1% had no knowledge of their management plan. Significant associations between knowledge of the management plan and participants knowing their attending physician's name ( $P < .0005$ ), participants having a primary care physician ( $P < .0001$ ), and educational background ( $P < .0387$ ) were found. These assessed factors can be addressed with quality communication and a strong patient-physician relationship. Accomplishing these 2 objectives with the gained knowledge of patient beliefs and perceptions from our study will likely lead to the patient having a much clearer idea of how their medical condition is being treated by his/her team and have overall positive health implications.

## Keywords

patient satisfaction, communication, patient-physician relationship, patient feedback

## Introduction

Open and clear communication between the physician and patient is paramount to the delivery of excellent health care. The empathy and quality of this communication correlates with patient satisfaction and knowledge of the diagnoses and treatment plan (1,2). Patient understanding of their medical management plan helps enhance outcomes by improving compliance with treatment plans. Furthermore, the patient's knowledge of their plan helps open up a line of communication with their physician to better help tailor a plan that best suits the patient's physical, emotional, social, and economic states (3). Examining patients' understanding of their plan can allow providers to better aid patients upon their discharge in the hopes of improving home care compliance and decreasing readmission rates.

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For the above reasons, we aimed to evaluate certain factors that we hypothesized to have a correlation with a patient's understanding of their medical management plan. These specific factors included patients knowing the name of their physicians, utilization pattern of a primary care physicians (PCP), and level of education. Something as simple as the patient knowing their physician's name is often overlooked when it comes to physician interaction with patients. Studies have shown that patients do not know the name of their physician as well as physicians may think (4,5). The revolving door of physicians that a patient may encounter while admitted to the hospital can be quite intimidating and confusing for the patient. This can lead to the patient not knowing which doctor is from what service and thus eroding their ability to understand their medical management plan. Our aim is to directly look at the impact of the factors assessed in our survey upon patients' understanding of the medical management plan, something that has not been well studied in the past, with the anticipated hypothesis that the understanding of these factors along with their amelioration will improve patient understanding of their medical management plan and thereby lead to positive outcomes.

Follow-up with a patient's PCP can help augment a patient's understanding of their medical conditions and treatment plans. Few recent studies have looked at the direct correlation between medical understanding and the pattern of PCP usage. We are looking to see whether increased use of a PCP can lead to better patient understanding of their inpatient medical management plan. The anticipated hypothesis for further evaluation would lead to a positive correlation between PCP usage and understanding of the management plan. We believe repetition of discussion about a patient's health problems with a PCP will inevitably lead to an improvement in that patient's understanding of how their problem is managed.

Primary care physician usage and educational level go hand-in-hand when it comes to health literacy. There have been a plethora of studies showing the impact that a lack of health literacy has on poor understanding of counseling and other instructions given by health care providers and the negative outcomes associated with this (6,7). Improvement in the delivery of the communicated plan to patients, especially those of limited health literacy, would likely lead to improved outcomes.

Patients' knowledge of the diagnosis and treatment plan is a central component of patient education and is a crucial part of the Patients' Bill of Rights (8). For patients to be active decision makers in their own management plans, patients should be aware of all essential aspects of their plans, which can be achieved by having quality communication with their physicians. We sought to evaluate the above factors' impact on a patient's ability to understand their medical management plan in the inpatient setting.

## Methods

Over a of 14-month period, patients were given a 10-question paper survey during their stay on the inpatient medical units at a 531-bed tertiary care community hospital that is the safety-net hospital for the local area. The patients were given paper surveys (Table 1) to self-complete. Our institutional review board provided approval for this study prior to survey administration. The survey's answer choices had an accompanying sentence to define what that choice meant; this can be seen in Table 1. While many of our questions assess basic patient characteristics, other questions aim to assess essential factors to the patient-physician relationship such as recognition of name, understanding of ways patients would like to be treated and cared for, and overall understanding of patient perceptions of the health care system. The surveys were administered at nonuniform time periods during the patients' care. The survey was available in English and Spanish. For patients who were unable to see or write, they were verbally administered the survey by one of our researchers. Each patient was first screened to see whether they were capable of answering questions posed by our survey by establishing orientation to person, place, and time. Patients who were unable to satisfy the orientation requirements were excluded due to possibility for inaccurate information skewing the results. The following were also excluded: patients diagnosed with a terminal condition, patients diagnosed with a psychiatric condition, patients diagnosed with a continuing substance abuse problem including alcohol, those who are "do not resuscitate" (DNR), those under the care of the researchers, or those with a recorded pain score of 4 or greater as per current progress notes. These were the chosen exclusion criteria as each factor could alter the perception of how a patient viewed his/her management plan as well as alter their emotional state. All patients on non-intensive care unit medical floors that did not fall into the exclusion criteria above were evaluated.

Descriptive statistics (frequency, percentage, mean, standard deviation, median, quartiles) were used to describe the sample of patients and their survey responses. For categorical demographic factors, the  $\chi^2$  test or the Fisher exact test, as appropriate, was used to examine the association between demographic factors and (binary or nominal) survey questions. The Mann-Whitney  $U$  test or the Kruskal-Wallis test (for more than 2 groups) was used to compare ordinal survey questions (ie, medication compliance) between demographic factors. For continuous demographic factors (ie, age and day of hospital stay), logistic regression was used to model binary survey questions as a function of each demographic factor. Nominal survey questions with more than 2 categories were modeled using multinomial logistic regression as a function of each demographic factor. Spearman correlation coefficient was used to examine the relationship between ordinal survey questions and continuous demographic factors. The  $\chi^2$  test

**Table 1.** Survey Questionnaire Presented to the Patients.

Question 1 – How best would you describe your knowledge of HOW your medical team is handling your medical problem?

- I have a clear idea of the management plan for my condition. I understand my diagnosis/possible diagnosis, planned tests and what the medical team is doing to treat it
- I have some idea of the management for my condition. I have some understanding of my diagnosis/possible diagnosis, planned tests and what the medical team is doing to treat it
- I have no knowledge of what my diagnosis/possible diagnosis is, the planned tests and what is being done to treat it

Question 2 – Nassau University Medical Center is a teaching hospital. Medical students and residents accompany the attending physician in patient rooms forming a large group entering your room. What best describes your HONEST VIEW on this:

- It is ok for residents and students to accompany attending doctors forming a large team. I am comfortable with this.
- I am uncomfortable with a large team entering my room
- It is not ok for large groups to enter my room

Question 3 – How much information do you want to know about your management at the hospital? Please select what best describes your requirement:

- I want to know all details available to the doctors. This includes essential and nonessential lab results and other investigations (all test results)
- I want to know information that is essential about my condition and care
- As long as I am getting better, I don't really care

Question 4 – Do you have a primary care physician (general medical doctor)?

- Yes I do and I see my doctor regularly
- Yes I do but I do not go to every appointment
- Yes I do but I only go when I am sick
- No I do not have a primary care doctor

Question 5 – Do you take your medications as prescribed at home? What percentage BEST describes your compliance with your medication:

- 100%
- 90%
- 60%-80%
- 50%
- 20%-40%
- 10%
- 0%

Question 6 –

- Most likely reason/reasons why I may not take my medications as prescribed. Check all that apply:
- I always take my medication. This question does not apply for me.
- Medicines that cost too much
- No reason in particular, I am just lazy
- When I just forget to take my medication
- When I am worried about side effects
- When I don't think I need the medicine even if the doctor wants me to take it
- I start to take my medication as prescribed, and then I lose interest
- When I forget to refill my prescription
- When I run out of refills
- When I don't feel my medications are working/treating my condition
- When I don't know/cannot understand instructions on how frequently or how much I should take
- When I have to take medications many times a day
- When I feel like being my own doctor and change the amount or frequency of medicines myself
- When I don't like the doctor who prescribed the medication

Question 7 – Do you know the name of your attending physician involved with your care?

- Yes
- No

Question 8 – Do you know the name of the resident doctor (junior physician) involved with your care?

- Yes
- No

Question 9 – Do your primary team of physicians introduce themselves by?

- Their name
- Their name and business card
- They have not told their name

Question 10 – How much medical terminology does your doctor use that you are not able to understand?

- 1 - My doctor explains everything in plain language and whenever the doctor uses medical terminology, it is followed up with a clear explanation. I hardly ever have to ask for a clarification.
- 2 - My doctor explains most things in plain language and explains medical terminology most of the time. I sometimes have to ask for an explanation.
- 3 - My doctor does not explain in plain language and uses medical terminology a lot without explaining. I frequently have to ask for an explanation.

**Table 2.** Select Percentage Breakdown of Answers to the Survey Questionnaire.

- Question 1 – How best would you describe your knowledge of HOW your medical team is handling your medical problem?
- I have a *clear idea* of the management plan for my condition. I understand my *diagnosis/possible diagnosis*, planned tests and what the medical team is doing to treat it – (68.5%)
  - I have *some idea* of the management for my condition. I have some understanding of my *diagnosis/possible diagnosis*, planned tests and what the medical team is doing to treat it – (28.4%)
  - I have *no knowledge* of what my *diagnosis/possible diagnosis* is, the planned tests and what is being done to treat it – (3.1%)
- Question 4 – Do you have a primary care physician (general medical doctor)?
- Yes I do and I see my doctor regularly – (64.4%)
  - Yes I do but I do not go to every appointment – (6.4%)
  - Yes I do but I only go when I am sick – (11.1%)
  - No I do not have a primary care doctor – (18.1%)
- Question 7 – Do you know the name of your attending physician involved with your care?
- Yes – (48.6%)
  - No – (51.4%)
- Question 8 – Do you know the name of the resident doctor (junior physician) involved with your care?
- Yes – (70.2%)
  - No – (29.8%)

**Table 3.** Education Level of Patients Responding to the Survey Questionnaire.

Education				
Education	Frequency	Percent	Cumulative frequency	Cumulative percent
College degree	116	32.04	116	32.04
High school	199	54.97	315	87.02
Middle school	21	5.80	336	92.82
Elementary	20	5.52	356	98.34
No formal schooling	6	1.66	362	100.00
Frequency missing = 4				

or Fisher exact test, as appropriate, was used to examine the association between survey questions of interest. All analyses were conducted using SAS® version 9.4.

**Results**

A total of 366 patients were surveyed and responses to select questions are noted in Table 2. Approximately half of the patients (184) were women. Detail on the study population education level and ethnicity is noted in Tables 3 and 4, respectively. Of the patients surveyed, more than two-thirds of participants had a clear idea of the management plan for their condition (68.5%); meaning that patients understood their diagnosis, planned tests and the medical team’s treatment plan. Another 28.4% had some idea of their management plan. However, only 3.1% had no knowledge of their management plan (question 1).

Approximately two-thirds of participants had a PCP and saw them regularly (64.4%). A smaller percentage of the participants (6.4%) had a PCP but did not go to every appointment, and 11.1% had a PCP but only went when they were sick. The remaining 18.1% did not have a PCP at all (question 4).

**Table 4.** Ethnicity of Patients Responding to the Survey Questionnaire.

Ethnicity				
Ethnicity	Frequency	Percent	Cumulative frequency	Cumulative percent
Caucasian	149	40.71	149	40.71
Hispanic	73	19.95	222	60.66
African American	98	26.78	320	87.43
Asian	8	2.19	328	89.62
Haitian/Caribbean	12	3.28	340	92.90
Native American	10	2.73	350	95.63
Arab	2	0.55	352	96.17
Other	6	1.64	358	97.81
Indian	3	0.82	361	98.63
Multi	5	1.37	366	100.00

Almost half of the participants (48.6%) knew the name of the attending physician involved with their care, the other 51.4% did not know the name of their attending physician (question 7). A large majority of participants did not know the name of the resident doctor involved with their care (70.2%); while the minority (29.8%) knew the name of the resident physician (question 8). Percentage breakdown of select answer results is presented in Table 2.

There was a significant association between participants having a PCP and the participants’ knowledge of how the medical team is handling their medical problem ( $P < .0001$ ). Specifically, participants who only saw their PCP when sick were less likely to have a clear idea of their management plan (37.5%) as compared to participants who saw their PCP regularly (76.4%). The definition of regularity is influenced by diagnoses and comorbidities. For healthy patients with no risk factors or diagnosed diseases, regularly could mean once a year. For patients diagnosed with hypertension, regularly could mean every 2 months. There was also a significant association between age and PCP usage ( $P < .0006$ ).

Specifically, with each 10-year increase in age, the odds of having a PCP seen regularly as compared to not having a PCP increased by 36% (odds ratio: 1.36, 95% CI: 1.15-1.60;  $P < .0003$ ). In addition, a significant association between gender and having a PCP ( $P < .0286$ ) was noted. Specifically, males were more likely to not have a PCP (23.89%) as compared to females (12.22%)

There was also a significant association between educational background (Table 3) and the participants' knowledge of how the medical team was handling their medical problem ( $P < .0387$ ). Specifically, participants with less than a high school degree were less likely to have a clear idea of their management plan (54.6%) as compared to those with a high school degree (70.0%) and those with a college degree (73.0%).

There was a strong correlation ( $P < .0005$ ) between participants knowing their attending physician's name and their knowledge of how the medical team's treatment plan. Specifically, participants who knew the name of the attending physician were more likely to have a clear idea of their management plan (78.5%) as compared to participants who did not know the name of the attending physician (59.6%). A similar significant association between participants knowing their resident physician's name and the participants' knowledge of how the medical team was handling their medical problem was found ( $P < .0114$ ).

Our data also showed some interesting nonsignificant correlations when it came to patients' understanding of their medical management plan. We found that there was no significant correlation between age, gender, ethnicity, English language proficiency, or days in the hospital with patients' understanding of their care plan.

## Discussion

Although more than two-thirds of our patients (68.5%) had a clear idea of the management plan for their condition, we wanted to see which factors influenced these data. Having patients aware of their medical plan helps foster a better patient-physician relationship, which leads to improved patient outcomes (9). The main factors that we found to have the most significant impact on the patient's knowledge of their medical plan were the pattern in which these patients utilized their PCP, the patient's level of education, and knowledge of their attending and resident physician's name.

We did find that ethnicity (Table 4) played a significant role in the pattern of PCP utilization. Specifically, Caucasian participants were most likely to have a PCP who they see regularly (74.5%) as compared to African Americans (64.3%), Hispanics (52.1%), and others (52.3%), while the Hispanic participants were most likely to not have a PCP. A study by Shi (10) found paralleling results showing that American minorities were more likely to have their first-contact aspect in a hospital setting rather than a private clinic compared to Caucasian Americans. Our results also found that 18.1% of our participants did not have a PCP. This

statistic is similar to what the Henry J. Kaiser Family Foundation (11) found during their 2016 national survey. In that survey, they found that 17.3% of American adults did not have a place of usual medical care.

The relationship between PCP utilization and the patient's knowledge of their medical plan points to the development of a knowledge base via the frequency of exposure. The patients who visit their PCP on a regular basis, as per their medical conditions, risk factors, and comorbidities, are exposed more frequently to their medical problems and the ways by which their problems are managed. Theoretically, this knowledge base is what allows the patients, who visit their PCP regularly, to better understand the plan set forth by the hospital's treatment team. This statistical relationship only strengthens the importance of patients having regular access to PCPs.

As anticipated, there was a significant positive correlation between the patient's level of education and their knowledge of the treatment team's plan for their medical problem. This emphasizes the need for increased communication and time clarifying the plan to patients with lower levels of education. Effective and quality communication between the physician and patient has been shown to positively influence emotional and physical health statuses of patients (3,12,13). A study by Bartlett et al (14) found that quality patient-physician communication influenced patient outcomes and satisfaction more than quantity of teaching and instruction. The practice of quality communication ties into the last two significant factors in our study, which are the patient knowing the name of their attending and resident physicians.

Attending and Resident physician names were chosen, as they were the ones leading the medical management decisions for patients. Patients who knew the names of their physicians had a higher chance of having a clear idea of their management plan. Our data indicate that a patient knowing the names of the professionals treating them does assist in the understanding of their medical care plan. A patient knowing their physician's name is just the first step in creating that quality relationship. A way to improve this area is to have physicians provide their name in writing, for example, on a business card, to patients; that way patients can refer back to it as needed. This solution is supported by Makaryus and Friedman (5) where they found that 14.7% of patients were unable to correctly recite their physician's name. However, after they made a specific effort to have a smaller group of patients remember their physician's name, more than 75% of the patients were able to do so, compared to our study's 29.8%. Physicians at a teaching hospital have to do a better job at also identifying what level physician they are (Santen et al [15]). In that study, as many as 93% of resident physicians failed to identify their level of training and 94% of attending physicians failed to do the same (15). Especially in a teaching facility, this lack of introduction makes it tough for patients to know who is actually in charge of their treatment, thus eroding the crucial patient-physician relationship. Furthermore, emphasizing to patients the

importance of knowing the physician's name can also help improve this area (4).

We recognize a limitation of our study is that there are more factors not touched upon in our survey which play a critical role in a patient's understanding of their care. Follow-up data postdischarge would need to be collected in order to better illuminate the degree of home care compliance in our patients and further long-term follow-up would delineate actual influences of our survey findings on outcomes.

## Conclusion

The factors that significantly impacted a patient's knowledge of their medical treatment plan in our study revolve around quality communication between the patient and their physicians. This includes even the simple physician name recognition by the patient. Even though the level of education does not rely upon the communication in a patient-physician relationship directly, the physician must take the patient's level of education into account when attempting to develop a quality rapport with the patient. With quality communication and a good patient-physician relationship in place, the patient will likely have a much clearer idea of how their medical problem is being treated by his/her team. Further research is necessary to examine whether, with this improved knowledge of their condition, a patient may be able to improve their own self-care and improve health outcomes after discharge from the hospital. We believe if steps are taken to improve the patient's PCP usage and name recognition of their physicians, then we could see improvement in home health care compliance and possibly a decrease in readmission rates leading to improved medical treatment outcomes.


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