

Patient Satisfaction in a University Health Center: A Malaysian Study

Shahab REZAIAN^{1,a} and Harihodin BIN SELAMAT^{2,b}

¹*Advanced Informatics School, UTM international campus, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia*

²*Advanced Informatics School, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia*

Abstract. Student satisfaction surveys can be a very useful tool for a university health center if they are used appropriately. Our objective was to assess the level of satisfaction of 132 randomly selected master and PhD students with services provided at Universiti Teknologi Malaysia (UTM) health center and to gather information regarding the capabilities of the health center information technology, the degree of user satisfaction and its anticipated impact on the satisfaction.

The results showed that over 63% of students were unsatisfied and about 10% of them very unsatisfied. The un-satisfaction was generalized and included all services provided by the health center and was irrespective of patients' demographic characteristics. Putting all the data together it appeared that the net benefit i.e. the patient satisfaction was not achieved.

Patient satisfaction is reportedly a useful measure to provide a direct indicator of quality in healthcare, hence needs to be measured frequently so that a domesticated and localized healthcare plan could be developed.

The importance of this study is that our student satisfaction survey results can be used by the university authorities to identify strengths and weaknesses of the services offered by the UTM health center and provide quality improvement initiatives and accreditation requirements.

Keywords. University health center; student satisfaction; Information technology.

1. Introduction

Patient satisfaction has been widely used to assess medical care in many medical centers across the globe and is considered to be an important outcome measure for health services.¹ Surveying patient satisfaction can be a useful tool for any medical practice if it is used properly. However, these surveys have received little attention in university settings.^{2,3} Measuring patient satisfaction requires assessment of the patient's perception of provided medical care and determining whether it has fulfilled his/her expectations.⁴ Therefore patient's views have become an

^a **Corresponding author:** Shahab Rezaian, PhD student, Advanced Informatics School, Universiti Teknologi Malaysia, Kuala Lumpur, Malaysia Tel #: +60-17-291-0632. email: srezaian@outlook.com

^b Associate professor, Advanced Informatics School, email: hariodin@utm.my

important mean in the process of monitoring and improving the quality of health care services.⁵

The patient satisfaction survey is becoming the primary tool of assessing this aspect of healthcare. Patient satisfaction surveys provide a “snap-shot of patients’ opinions” of one’s medical/healthcare practice.⁶ There is also an increase in patient satisfaction survey use in quality assurance-type activities.⁷ Overall, the purpose of patient satisfaction surveys has been for gaining feedback for use in prioritizing quality improvement activities. Patients are the best and sometimes the only source of information when it comes to evaluate healthcare services. There are a plethora of patient satisfaction surveys out there. Patient satisfaction surveys measure a variety of situations, such as effectiveness of treatments, effectiveness of patient care, and satisfactory (or unsatisfactory) doctor’s visits.

Patient satisfaction surveys can be and are utilized to make improvements in the healthcare services provided to patients. An effective survey of this kind is one that is patient-focused and conducted in a shorter time frame. Often times, these kinds of healthcare services satisfaction surveys are administered once a year; therefore, they “may lack sensitivity to measure the effects of patient-focused, quality improvement initiatives that could demonstrate results in a shorter time period.”⁸

In all universities, especially those with international students who reside in the university dorms, the presence of a good health center is quite mandatory. In western countries, the university health providers usually tend to conduct an annual student/patient satisfaction survey to get some clear insight into the inner workings of their health center and the quality of the medical services provided.⁹ As such they can find out the problems causing dissatisfaction. Since such survey has not been done in the Universiti Teknologi Malaysia (UTM) International Campus by now, this study was carried out to answer the following questions:

1. Are Master and PhD students happy and satisfied with the type of services provided in the UTM international campus health center?
2. Does socio-demographic characteristics of the local and international students such as their gender, nationality and educational status affect the level of satisfaction?
3. What are the dimensions of patient satisfaction and which type of services contribute more to the level of students’ satisfaction?

2. Subjects and Methods

2.1. Study Design

This is a cross sectional descriptive study conducted in the Universiti Teknologi Malaysia (UTM) to evaluate the level of satisfaction of Master and PhD students referring to the UTM International Campus Student Health Center (UTM-HC).

The health center is located in the “H”-building which is easily accessible to all students. It provides a “small-practice”-like service and has one physician (general practitioner), 2 nurses, a small medical laboratory and a pharmacy.

It offers outpatient services during the office hours from 9 am to 1 pm in the morning and 2pm to 5pm in the afternoon.

2.2. Sample size

The total number of master and PhD students was found to be 192. To calculate the sample size, the table of Krejcie and Morgan which is applicable to any population of a defined size was used.¹⁰ Therefore the closest number after 192 in the table is 200 was selected as the population size and 132 as the sample size.

The interviews were held in the campus but out of the health center and both male and female students who were randomly confronted with were asked for participation. The purpose of the study was briefly described and those willing to participate filled up the questionnaire.

A structured questionnaire was developed based on the published literature regarding the patient satisfaction. To assess its reliability and validity an electronic pilot study was done in a group of 40 UTM students, of whom 25 responded. The reliability of the questionnaire was confirmed using the Cronbach's alpha coefficient (0.803).

2.3. The questionnaire sections

The questionnaire included the following two main sections:

A) Socio-demographic data including the gender, residential status, nationality, educational level (master, PhD) and faculty.

B) Satisfaction section:

Satisfaction Items (1-10):

B-1 Reception & registration upon arriving at the Health Center

B-2 Amount of time spent with you by Doctor/Nurse Practitioner/Physician Assistant (Health care provider)

B-3 time in which you were seen (waiting time)

B-4 Amount of time spent with you by nursing staff (Nurse's services)

B-5 Explanation of your illness/treatment by the physician/nursing staff

B-6 Care received by nursing staff (Nurse's services)

B-7 Care received by laboratory staff (Availability of Health Care Services)

B-8 Care received by the pharmacy (Accessibility of Health Care)

B-9 Counseling about medications by a pharmacist

B-10 Guide line about the disease, especially the local problems & illnesses

B-11 Overall satisfaction

The satisfaction questions were scored as 0 to 4 as indicated below:

Very satisfied: 4, satisfied: 3, unsatisfied: 2, very unsatisfied: 1, no-answer (NA): 0.

2.4. Statistical analysis

The data were electronically computed and subsequently analyzed using SPSS-16 (Chicago-USA), the frequency and percentages were calculated for the demographic parameters, Chi-square, t-test and ANOVA were used to determine the relationship between the independent variables and the satisfaction levels as needed.

Cronbach's alpha and split-half coefficient were used to assess the reliability. Factor analysis was performed to check for construct validity of the questionnaire.

To determine the internal consistency of the satisfaction items, the Cronbach's alpha was used. The lower limit of 0.70 for Cronbach's alpha as suggested by Hair et al.¹⁰ was applied. Construct validity was established by carrying out factor analysis by Varimax rotation. A minimum factor loading of 0.5 was applied for the loading to be considered significant.¹¹ Two factors (dimensions) resulted for the satisfaction items. The first factor which grouped items relating to the clinical aspect such as the physician and nurses service and the care received by the laboratory staff, was labeled "clinical dimension of services". The second factor, which grouped items on the pharmaceutical aspect of service such as care received by the pharmacy staff or counseling about the medications was labeled as "pharmaceutical dimension of service".

3. Results

Of a total of 190 Master/Ph.D. students¹³², randomly selected ones voluntarily participated in the study and filled up the questionnaire. Students were residing either in or off the campus and were of different nationalities and 97% were Advance Information School (AIS) students (Table 1).

Table 1: Socio-demographic characteristics of the participants

Character	Number N=132	Percentage (%)
Sex		
Male	76	58
Female	56	42
Residential status		
On campus	58	44
Off campus	74	56
Nationality		
Malaysian	33	25
Iranian	59	45
Arab	24	18
African	9	7
Others	7	5
Educational status		
Master student	117	88
PhD student	15	12
Faculty		
AIS	128	97
Other	4	3

AIS= Advanced Information School

Over 70% of the students were unsatisfied or very unsatisfied with all the services provided in the HC and only 2.5% were very satisfied (Table 2).

Table 2: Grading (score) and their frequency for items 1-10 of the satisfaction section of questionnaire.

Grade	4		3		2		1		0	
	Very Satisfied		Satisfied		Unsatisfied		Very unsatisfied		No Response	
Item	NO	%	NO	%	NO	%	NO	%	NO	%
1	2	1.5	13	9.85	97	73.5	14	10.6	6	4.5
2	5	3.8	29	22.0	75	56.8	16	12.0	7	5.3
3	4	3.0	30	22.7	78	59.0	12	9.0	8	6.0
4	3	2.3	17	12.9	95	72.0	11	8.0	6	4.5
5	3	2.3	31	23.5	79	60.0	12	9.0	7	5.3
6	1	0.75	13	9.85	96	73.0	16	12.0	6	4.5
7	2	1.5	17	12.9	88	66.7	18	13.0	7	5.3
8	5	3.8	18	13.65	83	63.0	16	12.0	10	7.6
9	4	3.0	24	18.2	81	61.0	11	8.0	12	9.1
10	4	3.0	41	31.0	63	48.0	14	10.6	10	7.6

The factor loading of each component is indicated in table 3 and the scree plot (Figure 1). The split-half coefficient was 0.861.

Table 3: Showing the factor loading of satisfaction items 1-10

FACTOR	SATISFACTION * ITEMS	FACTOR LOADING
1 (CLINICAL DIMENSION)	1	0.791
	2	0.714
	3	0.655
	4	0.745
	5	0.694
	6	0.836
	7	0.777
2 (PHARMACEUTICAL DIMENSION)	8	0.743
	9	0.851
	10	0.775

Figure 1:

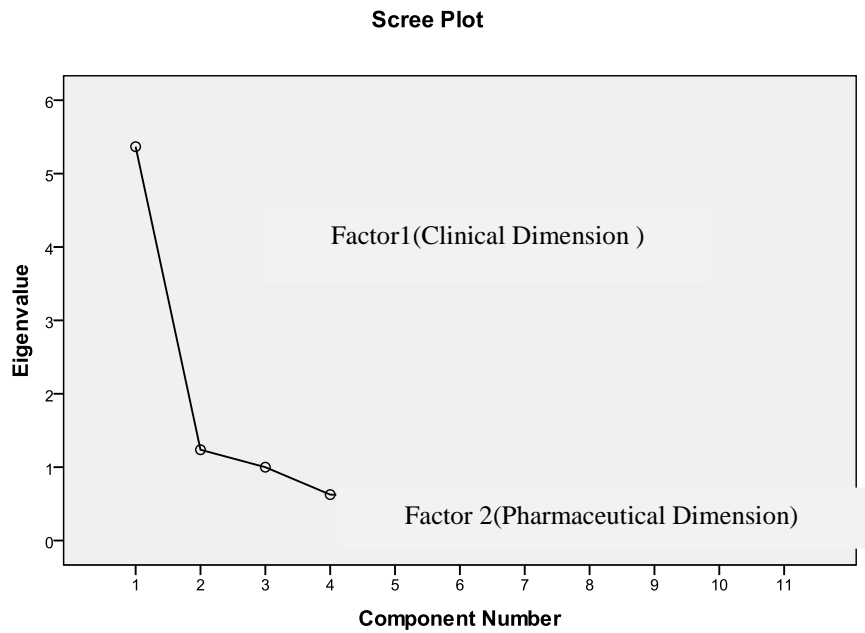


Figure 1: Clinical and Pharmaceutical Factors (dimension 1&2) have an Eigen value above one and together define about 60% of changes in the questionnaire items

As indicated, the questions of the questionnaire could be divided into two distinct factors or dimensions. Dimensions 1 and 2 explain 48.8% and 11.2% (total of 60%) of changes in the questionnaire respectively. By looking at Factor 1 (questions 1-7) one gets the impression that they imply satisfaction from the health care providers and laboratory personnel and questions 8-10 show satisfaction from pharmacy staff (Factor 2).

The assessment of the validity of the questionnaire:

Table 4 favors the validity of the questionnaire. Considering the results of factor analysis, one can assess structural (construct) validity of the questions. As such convergent and divergent validities were assessed. Questions with a high convergent validity showed a strong correlation with their own component and those with a divergent validity showed a low correlation with questions other than own components.

Table 4: Showing the Matrix correlation between the patient satisfaction questions and the clinical and pharmaceutical factors (Dimensions).

SATISFACTION ITEMS 1-10	Factor (Dimension)			
	CLINICAL		PHARMACEUTICAL	
	PCC*	P- value	PCC*	P- value
1	0.742	(p<0.001)	0.330	(p<0.001)
2	0.802	(p<0.001)	0.442	(p<0.001)
3	0.786	(p<0.001)	0.530	(p<0.001)
4	0.788	(p<0.001)	0.460	(p<0.001)
5	0.787	(p<0.001)	0.465	(p<0.001)
6	0.831	(p<0.001)	0.425	(p<0.001)
7	0.786	(p<0.001)	0.431	(p<0.001)
8	0.466	(p<0.001)	0.807	(p<0.001)
9	0.444	(p<0.001)	0.854	(p<0.001)
10	0.491	(p<0.001)	0.824	(p<0.001)

Pearson correlation coefficient*

Therefore it became evident that the questionnaire was valid and reliable and their items could reliably demonstrate the two component groups of patient satisfaction.

The overall level of satisfaction from the clinic visit is shown in table 5 which is indicative of the relatively strong correlation between the overall satisfaction and the services provided by the health service providers /lab personnel (Group A) and the pharmacy personnel (Group B)

Table 5: showing the correlation matrix between the patients overall satisfaction and Factors (dimensions) 1 and 2.

Item	Dimension 1 (Clinical)		Dimension 2 (Pharmaceutical)	
	PCC *	P- value	PCC*	P- value
Overall satisfaction	0.602	(p<0.001)	0.637	(p<0.001)
Factor 1	-	-	0.563	(p<0.001)

Pearson correlation coefficient*

The socio-demographic characteristics and the level of satisfaction:

Of 132 participants, there were 76 males and 56 females of whom 117 were master students and 15 were Ph.D. students. There was no statistically significant inter-group difference between the members of each of the socio-demographic parameter and the level of their satisfaction from the health care provider/laboratory personnel (Factor 1), pharmacy personnel (Factor 2) or the overall satisfaction. (Table 6)

Table 6: The socio-demographic parameters of the participants and their clinical, pharmaceutical and

Character	NO	Overall Satisfaction	Clinical Satisfaction (Factor 1)	Pharmaceutic al satisfaction (Factor 2)	P- value
Sex					
Male	76	2.01±0.72	1.99±0.45	1.96±0.71	>0.05
Female	56	2.10±0.89	2.05±0.73	2.12±0.72	
Residential status					
On campus					>0.05
Off campus	58 74	2.11±0.79 2.03±0.79	2.07±0.52 1.97±0.61	2.03±0.66 2.04±0.76	
Nationality					
Malaysian	33	1.82±0.88	1.97±0.71	1.85±0.87	>0.05
Iranian	59	2.2±0.82	2.07±0.57	2.23±0.63	
Arab	24	1.91±0.61	1.97±0.49	1.82±0.72	
African	9	2.25±0.46	1.95±0.20	2.04±0.21	
others	7	2.00±0.63	1.93±0.45	1.83±0.69	
Educational status					
PhD student	15	2.15±0.69	2.14±0.39	1.92±0.73	>0.05
Master student	117	2.04±0.81	2.00±0.59	2.04±0.72	
Faculty					
AIS	128	2.06±0.80	2.00±0.57	2.03±0.72	>0.05
Other	4	1.75±0.50	2.39±0.47	1.92±0.57	

overall satisfactions

AIS= Advanced Information School

4. Discussion

Our major finding was that the majority of the students (about 73%) were either unsatisfied or very unsatisfied and only a very minority (2.5%) was very satisfied.

The degree of un-satisfaction was universal and belonged to all levels of services provided by the health center personnel. These findings were not affected by the socio-demographic characteristics of the participants including their level of education which indicated that the expectations of the educated university students were high. This, of course was irrespective of the student's gender or nationality as well. In a similar manner people with higher educational classes were found to be more dissatisfied in the study by Bodur et al.¹²

Jones and colleagues¹³ have reported that there was no relation between patient satisfaction and gender, as was found in this study. However other investigators^{14,15} have found satisfaction to be higher among men than among women.

As of our findings, long waiting times, inadequate information given by physicians, insufficient health education by nurses¹³ have been reported as important sources of dissatisfaction in outpatient clinics.¹³

Surveying patient satisfaction can be a useful tool for any medical practice if it is used properly. However, these surveys have received little attention in university settings.^{2,3} Patient satisfaction surveys provide a short description of

patients views and opinions regarding the medical services they receive.⁶ There is also an increase in the kind of survey use in quality assurance-type activities.⁷

Since this study, to the best of our literature review, is the first of this kind among the Malaysian universities, our data couldn't be compared with other native universities. However compared to the reports from the United States of America,¹⁹ the degree of our student's satisfaction was much less. This difference, however, may be multifactorial namely the setting, the socio-cultural states, the magnitude, the availability of multiple medical services as well as the use of advanced electronic medical records with highly commendable web sites for health education.¹⁹ Another piece of information we obtained by factor analysis was that the students' overall satisfaction correlated well with the type of services offered by the health providers as well as the pharmacy personnel. In accordance with our finding, It has been shown that providing better access to quality pharmacies is one of the latest ways of improving patient satisfaction with health care.²⁰

In addition a better personal service, provider behavior and communication which all can also influence patients' satisfaction.^{21,22}

Another important determinant of patients' satisfaction with their health care is provider behavior which promotes positive health behaviors, such as compliance and continuity with providers.^{22,23} The overall satisfaction of students was inadequate in our study (20%). It has been shown that patients who are satisfied with their overall care are more likely to take medications properly and less likely to change from one health care professional to another.²³ Hall et al. reported that patients place a high value on strong sociopsychological and communicative relationships with their caregivers.²² The last but not the least important issue of students' satisfaction is the shortcomings of the IT systems of the health center which fails to meet all the students requirements while they are quite mandatory for all healthcare centers.^{24,25}

Generally speaking, the purpose of patient satisfaction surveys has been for gaining feedback to improve the health care quality. Just assessing the patient's overall satisfaction does not reflect quality of health care services. Therefore the trend in patient satisfaction surveys is moving towards measuring the patient's overall experience rather than just rating his/her satisfaction. Rating the overall health care as "good" or "poor" does not provide the manager or clinician a clear view of what they need to do to improve the quality of care in their center. However, by knowing the precise details of what went wrong with and during the patient's care, they can be a more effective agent of change for improving overall patient quality of care. As such measuring patients' experiences are coming to be seen as much more useful than measuring just their level of satisfaction.

5. Conclusion and Future Works:

Patient satisfaction is reportedly a useful measure to provide a direct indicator of quality in healthcare, hence needs to be measured frequently so that a domesticated and localized healthcare plans could be developed. User satisfaction is a very important part of any clinical practice therefore, it is imperative to consistently undertake surveys in the facility to introduce better services.

The regions, nations and communities that comprise the developing world face a wide variety of health-related challenges, and the health systems that deal with those challenges are struggling with limited resources and the university health centers are no exceptions. The health center leaders must therefore focus on maximizing the value of scarce resources and finding ways to make the center operate as efficiently as possible to fulfill the students' satisfaction. Successful strengthening of health centers will require relevant and accurate information on the performance of the health system itself. Health system survey, similar to what we have done, is recommended for all university health centers in our region and all developing countries to find out the shortcomings and properly solving the problem.

We also hope that the results of this study could provide a new and clearer insight to the UTM health leaders about the problems of the health center and hopefully help them improve the quality and quantity of its services and improve the students' satisfaction

References

- [1] Williams B. (1994) Patient satisfaction: a valid concept? *Soc Sci Med* **38**:509-516.
- [2] Hailey BJ, Pargeon K, Crawford V. (2000) Can healthcare providers at a university health clinic predict patient satisfaction? *J Am Coll Health* **49**:111-117.
- [3] Ausborn N, Reddy M, Seltz L, Deschner B, Patel R, Miller R, Hathaway, J. Patient satisfaction survey at the shade tree clinic: A tool for quality improvement measures in a student-run clinic. Available in: www.vanderbilt.edu/vhig/our-projects/ (8 Nov 2014).
- [4] Rhinehart E. (1997) Health care consumer report cards: what do patients and families really want to know? What should they want to know? *J Nurs Care Qual* **11**:38-41.
- [5] Arnetz JE, Arnetz BB. (1996) The development and application of a patient satisfaction measurement system for hospital-wide quality improvement. *Int J Qual Health* **8**:555-556.
- [6] White B. (1999) Measuring patient satisfaction: how to do it and why to bother. *Fam Pract Manag* **6**:40-44.
- [7] Scott A, Smith RD. (1994) Keeping the customer satisfied: Issues in the interpretation and use of patient satisfaction surveys. *Int J Qual Health Care* **6**:353-359.
- [8] Harris LE, Swindle RW, Mungai SM, Weinberger M, Tierney WM. (1999) Measuring patient satisfaction for quality improvement. *Medical Care* **37**:1207-1213.
- [9] Anderson EA. Measuring service quality at a university health clinic. (1995) *International Journal of Health Care Quality Assurance*. **8**:32-37.
- [10] Krejcie RV, Morgan DW. (1970) Determining sample size for research activities. *Educational and psychological measurement*.
- [11] Hair Jr. JF, Anderson RF, Tatham RL, Black WC. (1998) *Multivariate data analysis*, Prentice Hall, New Jersey.
- [12] Bodur S, Ozdemir YE, Kara F. (2002) Outpatient satisfaction with health centers in urban areas. *Turk J Med Sci* **32**:409-414.
- [13] Jones RB, Camon AG, Wylie H, Hedley AJ. (1993) How do we measure consumer opinions of outpatient clinics? *Public Health* **107**:235-241.
- [14] Cohen G. Age and health status in a patient satisfaction survey. (1996) *Soc Sci Med* **42**:1085-1093.
- [15] Biderman A, Camel S, Yeheskel A. (1994) Measuring patient satisfaction in primary care: a joint project of community representatives, clinic staff members and a social scientist. *Fam Pract* **11**:287-291.
- [16] McKinnam K, Champion PD, Edwards RHT. (1998) The outpatient experience: Results of a feedback survey. *International Journal of Health Care Quality Assurance* **11**:156-160.
- [17] Kojo-Austin H, Malin M, Hemminki E. (1993) Women's satisfaction with maternity health care services in Finland. *Soc Sci Med* **37**:633-638.
- [18] Mansour AA, Al-Osimy MH. (1993) A study of satisfaction among primary health care patients in Saudi Arabia. *J Comm Health* **18**:163-173.

- [19] Chan K. University health service result of patient satisfaction survey- 2011, is available at www.uhs.hku.hk/PATIENT_SATISFACTION_SURVEY.
- [20] Barry ST, ed. (1995) *Ciba Geneva report on member satisfaction within managed care*. White Plains, NY: Vericom Custom Publishing.
- [21] Larson LN, MacKeigan LD. (1994) Further validation of an instrument to measure patient satisfaction with pharmacy services. *J Pharm Mark Manage.* **8**(1):125-139.
- [22] Hall JA, Roter DL, Katz NR, et al. (1998) Meta-analysis of correlates provider behavior in medical encounters. *Med Care.* **26**:657-675.
- [23] Ware JE, Davies AR. (1983) Behavioral consequences of consumer dissatisfaction with medical care. *Eval Program Plann.* **6**:185-210.
- [24] Somu G, Bhaskar RK. (2011) Adapting Information Technology (IT) in healthcare for Quality patient care- Study conducted in a Hospital in South India. *Journal of Health Informatics in Developing Countries [JHIDC]* **5**(2).
- [25] Farzandipour M, Sadoughi F, Meidani Z. (2011) Hospital Information Systems User Needs Analysis: A Vendor Survey. *Journal of Health Informatics in Developing Countries [JHIDC]* **5**(1).