

Satisfaction factor analysis for patients receiving nerve block in pain clinic at a medical center in southern Taiwan

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Objective: This study was designed to lead to an understanding of the factors influencing patient satisfaction in pain clinic at a medical center in southern Taiwan.

Methods: The data was collected from July 1 to December 1, 2013 via a 12-item questionnaire that included 6 treatment-related and 6 environment-related items. Patients in a pain clinic who needed to receive a nerve block were randomly selected and asked to fill out the questionnaire. A statistical analysis with a multiple ordinal regression was used to describe and examine the factors that influence patient satisfaction.

Results: A total of 96 patients completed this study. Among the 12 items in the questionnaire, staff follow-up, nurse attitude, and staff patience were among the highest 3 percentiles in the very strongly agree category [64/96(66.7%), 63/96(65.6%), 62/96(64.6%), respectively], which are all treatment-related satisfaction indices. On the other hand, waiting time and traffic were among the lowest 2 percentiles in the very strongly agree category [31/96(32.3%) and 41/96(42.7%), respectively], which are both environment-related satisfaction. Overall treatment-related satisfaction was higher than environment-related satisfaction. Visit frequency was the only significant predictor of treatment-related satisfaction. Meanwhile, marital status and visit frequency were significantly associated with environment-related satisfaction. In the multiple ordinal regression analysis, less frequent visits and poorer self-assessed health status were associated with lower satisfaction in both treatment-related satisfaction and environment-related satisfaction.

Conclusion: This study showed that patients were generally satisfied with the pain clinic in terms of both treatment and environment and that treatment-related satisfaction was higher than environment-related satisfaction. We found that patient satisfaction was associated with visit frequency and self-assessed health status and that environmental factors should also be considered to improve quality of health care.

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Key Words:

patient satisfaction; pain clinic; health status; hospital environment.

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***I*ntroduction**

Patient satisfaction is commonly used to evaluate the quality of health care and the performance of health care systems [1]. According to some studies, higher patient satisfaction is associated with improved compliance with treatment and follow-up, closer doctor-patient relationships, better clinical outcomes, and increased recommendations of the service to others [2, 3]. Therefore, there is no doubt that it is important to know what actually influences patient satisfaction. Predictors of patient satisfaction have been categorized into two groups: patient-related characteristics and health care provider-related characteristics [2]. Among patient-related characteristics, self-assessed health status is one of the strongest predictors [1, 4, 5], but the associations among socio-demographic factors (age, gender, education level, marital status, ethnicity, and religion) and patient satisfaction remain unclear [2, 3, 6-9]. In contrast, most health care provider-related characteristics, including interpersonal skills, technical competence, physical environment, and accessibility, are associated with patient satisfaction [2].

Although many studies discussing patient satisfaction across all medical specialties have been conducted, there is limited information related to outpatient satisfaction with their experiences in pain clinics. McCracken et al. demonstrated that treatment satisfaction is strongly associated with a thorough evaluation, explanation of procedures, and improvement following the treatment [10]. Trentman et al. suggested that the strongest predictors of patient satisfaction are thoroughness of the examinations and treatment, careful listening, and adequate time spent with the patient [11]. While both studies conducted in the United States provide important information, there has still been no research related to patient satisfaction of the outpatient population of pain

clinics in Asia. Culture and location factors are certainly important in medical care. In this study, we attempted to gain an understanding of factors that influence patient satisfaction in a pain clinic at a medical center in Taiwan with the goal of identifying the determinants of patient satisfaction with a pain clinic and to improve health care quality based on the results.

***M*ethods**

Study design and participants

Patients included in this study were randomly sampled from our pain clinic patients. Data was collected from July-December 2013. The institutional review board (IRB:B-ER-102-170-t) of the hospital approved this study. The inclusion criteria were: (1) aged above 18 years old, (2) lucid patients, and (3) patients who visited the pain clinic and received an interventional analgesic procedure. A self-designed structured questionnaire with a pain specialist validation was filled out by randomly-selected patients or their family members if the patients were illiterate. A total of 100 patients were sampled, and 4 were excluded due to incomplete responses.

Satisfaction Measurement

The structured anonymous questionnaire was composed of three parts: (1) patient characteristics, (2) self-evaluated health status, and (3) service satisfaction. Patient characteristics included gender, age, education level, marital status, residence, and transportation to the hospital. Self-evaluated health status included disease duration, frequency of hospital visits, severity of health status, and intention toward revisiting. There were 12 items in the service satisfaction section. The first 6 questions were treatment-related and included (1) doctor profession, (2) doctor attitude, (3) staff patience, (4) staff explanation of disease, (5) nurse attitude, and (6) staff follow-up. The last 6 were environment-related and

included (7) privacy, (8) hospital comfort, (9) waiting time, (10) hospital reputation, (11) medical facilities, (12) level of traffic during trip to and from hospital. The questionnaire used a seven-point Likert scale, where patients were asked to rank each item from 1 to 7: 1=very strongly disagree, 2=very disagree, 3=disagree, 4=neutral, 5=agree, 6=very agree, and 7=very strongly agree. Higher scores indicated higher patient satisfaction related to each item. Patients' illness duration and frequency of visits to the pain clinic were also collected.

Statistical analysis

A Mann-Whitney U (MW) test and the Kruskal-Wallis (KW) test were used to compare the degree of satisfaction between two or among more groups. The results were considered statistically significant if the *p* values were less than 0.05. The multiple ordinal regression analysis was then used for the factors demonstrated to have a significant influence on satisfaction. The analyses were conducted by using IBM SPSS statistics 22. The satisfaction score results were described as a median with an interquartile range. (IQR)

Results

Table 1 shows the median satisfaction scores for each item. Among the 12 items related to satisfaction, staff follow-up, nurse attitude, and staff patience were among the highest 3 percentiles in the very strongly agree category [64/96(66.7%), 63/96(65.6%), 62/96(64.6%), respectively], which are all treatment-related satisfaction. The lowest percentile in the treatment-related items was doctor profession (48/96, 50% in very strongly agree). Meanwhile, in the environment-related items, waiting time and traffic were among the lowest 2 percentiles in the very strongly agree category [31/96(32.3%) and 41/96(42.7%), respectively]. The total treatment-related satisfaction was statistically higher than environment-related

satisfaction. (41(36-42) vs. 37(33-41) $p=0.001$, Table 2)

Table 3 demonstrates the demographic parameters that may influence satisfaction with treatment and the environment. 37.5% of the patients were male, and 62.5% were female. 84.4% patients were older than 60 years-old, and 91.7% were married. Around 55% had an elementary education or less; 20.8% had graduated from high school, and 16.7% of the patients had a college degree or higher. Most of the patients lived in a local city (Tainan)(82.3%), and the majority of patients visited with family (81.3%). In terms of disease duration, 58.3% of the patients had been diagnosed for more than 2 years, 18.8% had been diagnosed between 1 and 2 years prior to the study, and 23% had been diagnosed for less than 1 year. Patients who had regular, frequent, or occasional visits to the clinic comprised around 30% each. Almost 80% of the patients believed that they were seriously ill. 95.8% of the respondents were willing to revisit and recommend the service to others. Visit frequency was the only significant predictor of treatment-related satisfaction ($p=.035$). Marital status ($p=.032$) and visit frequency ($p=.006$) were significantly associated with environment-related satisfaction and age was almost statistically significant difference ($p=.053$). Patients who were unmarried, or were regular visitors to the clinic had higher levels of satisfaction than patients who were married, or were visiting for the first time.

Table 4 shows the results of the multiple ordinal regression analysis with satisfaction as the dependent variable and visit frequency, age and self-assessed health status as independent variables. Visit frequency was the only factor that was significantly associated with treatment-related satisfaction, and visit frequency and self-assessed health status were significantly associated with environment-related satisfaction. In terms of treatment-related satisfaction, lower levels of satisfaction were significantly associated with frequent or occasional

visits to the clinic. In terms of environment-related satisfaction, the trend was similar, in that lower satisfaction was associated with frequent or occasional visits to the clinic and serious self-assessed health status. Age was not a significant factor in either measure of satisfaction.

Discussion

According to the results, we concluded that, in general, patient satisfaction was high in the pain clinic, and the patients were more satisfied with the staff than with the environment. Previous research has shown that thoroughness, listening, and time spent with the provider are the most important predictors of patient satisfaction [11]. Batbaatar et al. also suggested that interpersonal care is the most consistent and strongest determinant of patient satisfaction [2]. These studies suggested that satisfaction with staff is the factor patients care most about, and thus, it contributes to higher levels of satisfaction. Among the treatment-related satisfaction items, doctor profession had the lowest median scores but still obtained a score of approximately 6.5 (6-7). This also suggests a high quality of pain care in the pain clinic under consideration. However, among the environment-related satisfaction items, the waiting time and traffic accessibility obtained the lowest percentile compared to all other items, which indicates that the pain clinic needs to improve in these areas.

In this study, most of the patient characteristics, including gender, education level, residence, and disease duration, were not associated with patient satisfaction. On the other hand, marital status, and visit frequency were found to be significantly related to patient satisfaction. The effect of marital status has been inconsistent. Two studies showed married patients were significantly or nearly significantly related to

higher satisfaction [12, 13], while Quintana et al. found that single or divorced patients were more satisfied with specific aspects, including comfort, visiting, and cleanliness[14]. Our results for visit regularity were also consistent with those found in previous studies. Al-Qatari et al. found that patients who visited regularly tended to be more satisfied than those who visited infrequently [15], and Kersnik et al. found that the more often patients visited their family physicians, the more satisfied they were [16].

According to the results of the regression analysis, visit frequency and self-assessed disease severity were major factors related to satisfaction with health care providers and the physical environment in the pain clinic under consideration. Previous studies have also found increased visit frequency to be associated with higher levels of satisfaction [15, 16]. The results indicating that patients with poorer perceived health status had lower levels of satisfaction was consistent with the findings of other studies [4, 12, 17]. Rahmqvist et al. found that the highest proportion of satisfied patients comprised older patients with a very good or excellent health status [18]. Due to the shortage of transportation facilities, 5% of the patients were dissatisfied with the level of accessibility to the hospital. As shown in previous studies, accessibility is significantly related to patient satisfaction [19], and patients prefer health services to be accessible through their own source of transportation or by public transportation [20]. Hence, improvement of current transportation facilities may be done to reduce the dissatisfaction rate.

There were some limitations in this study. First, 84.4% of patients were older than 60 years-old, and 62.5% of the respondents' education level was junior high school or below. More research is necessary to determine whether this demographic characteristic could be representative of the general population. Second,

79.2% of the respondents felt they had serious diseases, and 82% suffered from chronic pain. They might have lower levels of satisfaction due to not having received adequate treatment in other clinics. Third, this study was conducted at only one medical center. This may have affected the generalizability of the results to all pain clinics in Taiwan. A larger or multicenter study may be needed.

In conclusion, the patients were generally satisfied with the staff and the physical environment in the pain management clinic. However, most of the patients had serious diseases and suffered from chronic pain, which may indicate that they hadn't received adequate treatment in other clinics. In addition, their satisfaction may have declined further because of the long waiting time and poor accessibility to the hospital. Being satisfied with the technical competence of the service providers may be the reason they planned to revisit the pain clinic. Thus, a continued emphasis should be placed on doctor attitude and degree of professionalism during health care. The hospital administration may also need to provide better systems to reduce patients' waiting time and to improve accessibility related to transportation and parking.

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Table 1. Satisfaction items and the patient number for each answer

Question	Very Strongly disagree	Very disagree	Disagree	Neutral	Agree	Very agree	Very strongly agree	Median	IQR.
1. Doctor profession				4	17	27	48	6.5	6-7
2. Doctor attitude		1		1	10	24	60	7	6-7
3. Staff patience				1	8	25	62	7	6-7
4. Staff explanation of the disease				1	8	31	56	7	6-7
5. Nurse attitude					8	25	63	7	6-7
6. Staff follow-up					7	25	64	7	6-7
7. Privacy				2	18	27	49	7	6-7
8. Hospital comfort					12	33	51	7	6-7
9. Waiting time			5	12	24	24	31	6	5-7
10. Hospital reputation				1	21	28	46	6	6-7
11. Medical facility				2	16	32	46	6	6-7
12. Traffic to hospital	1	2	2	11	15	24	41	6	5-7

IQR: interquartile range

Table 2. Difference between satisfaction with health care providers and satisfaction with the physical environment

Treatment-related Satisfaction		Environment-related Satisfaction		MW	p
Median	IQR	Median	IQR		
41	36-42	37	33-41	3338	.001

IQR: interquartile range. MW: Mann-Whitney U test.

Table 3. Patient demographic distribution and univariate analysis

	n (%)	Treatment-related Satisfaction			Environment-related Satisfaction		
		Median(IQR)	MW/KW	p	Median(IQR)	MW/KW	p
Gender			936.5	.256		1014.5	.617
Male	36(37.5)	39.5(36-42)			36.5(32.75-42)		
Female	60(62.5)	41(36.75-42)			37(33.75-41)		
Age			437.5	.157		418	.053
30-59	15(15.6)	37(36-41)			35(31.5-36.5)		
≥60	81(84.4)	41(36-42)			37(34-42)		
Marital status			246.5	.144		191.5	.032
Married	88(91.7)	40(36-42)			37(32.75-41)		
Unmarried	8(8.3)	42(40.5-42)			42(39.5-42)		
Education level			1.04	.904		0.72	.949
Illiterate	25(26.0)	42(37-42)			36(32-41)		
Elementary	28(29.2)	41(36-42)			37.5(32-41.25)		
Junior High	7(7.3)	42(34.5-42)			41(31-41.5)		
Senior High	20(20.8)	39(37-41.25)			37(34-40.25)		
≥College	16(16.7)	40(36-42)			36(35.75-42)		
Residence			671	.996		560.5	.282
Tainan City	79(82.3)	41(36-42)			37(34-41)		
Others	17(17.7)	41(36-42)			35(32-42)		
Accompany			0.24	.888		0.48	.788
Alone	15(15.6)	40(36.5-42)			37(33-42)		
Family	78(81.3)	41(36-42)			37(33-41)		
Friends	3(3.1)	37(36-39.5)			37(36-39.5)		
Illness duration			2.87	.580		2.507	.643
1-3 months	11(11.5)	39(35-42)			37(31.5-40.5)		
4-6 months	6(6.3)	42(41.25-42)			41.5(39.5-42)		
7-12 months	5(5.2)	40(35-41)			36(32-41)		
1-2 years	18(18.8)	40(37-42)			37.5(32.5-42)		
≥2 years	56(58.3)	41(36-42)			36(33.75-41)		
Visit frequency			8.62	.035		12.47	.006
First visit	2(2.1)	36.5(36.25-37.25)			29.5(29.25-29.75)		
Occasional	30(31.3)	40(36-42)			37(33-42)		
Frequent	29(30.2)	37(35-42)			36(31-40)		
Regular	35(36.5)	42(39-42)			39(36-42)		
Self-assessed disease severity			622.5	.194		554.5	.061
Mild to moderate	20(20.8)	42(38.75-42)			39.5(36.75-42)		
Severe	76(79.2)	40(36-42)			36(32-41)		
Intention to revisit			173	.833		164.5	.718
Yes	92(95.8)	41(36-42)			37(33-41.25)		
Not sure	4(4.2)	38.5(37.75-39.75)			35.5(33-38.25)		
Intention to recommend			183.5	.992		141.5	.431
Yes	92(95.8)	41(36-42)			37(33-41.25)		
Not sure	4(4.2)	39.5(36.25-42)			34(29.75-38.25)		

IQR: interquartile range. MW/KW: Mann-Whitney U test and Kruskal-Wallis test.

Table 4 Multiple ordinal regression analysis

	Treatment-related Satisfaction				Environment-related Satisfaction			
	Unstandardized coefficient	SE	p	95% CI	Unstandardized coefficient	SE	p	95% CI
Visit frequency								
First visit	-1.44	1.30	.269	-3.98~1.11	-3.12	1.34	.020	-5.73~-0.50
Occasional	-1.04	0.49	.032	-1.99~-0.09	-0.72	0.46	.115	-1.62~-0.18
Frequent	-1.20	0.47	.011	-2.13~-0.27	-1.30	0.46	.005	-2.19~-0.40
Regular	(Reference)							
Age								
30-59	-0.49	0.51	.341	-1.50~0.52	-0.74	0.50	.144	-1.72~-0.25
≥60	(Reference)							
Self-assessed disease severity								
Mild to moderate	0.76	0.50	.130	-0.22~1.74	0.93	0.48	.050	0.002~1.86
Severe	(Reference)							
Cox and Snell R	.115*	.186**						
Nagelkerke R	.118*	.187**						

*p < .05; ** p < .01

在台灣南部醫學中心疼痛門診接受神經阻斷術病人的滿意度因子分析

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目的：

本研究是要找出在台灣南部醫學中心的疼痛門診中，接受神經阻斷術病人的滿意度的因子分析。

方法：

於 2013 年 7 月 1 日至 12 月 1 日，隨機發放並收集治療與環境相關各 6 題的滿意度問卷給在疼痛門診需接受神經阻斷病人填寫。以統計和多重次序迴歸分析檢視影響病人滿意度的因子。

結果：

此研究總計 96 位病人回答。在問卷的 12 個項目裡，病人對於醫護人員後續聯絡，護理師態度及醫護人員耐心等有較高的滿意度，對等候時間和交通方便性最不滿意。整體上，病人對治療相關的滿意度較高。在治療相關的滿意度中，就診頻率是唯一達到統計意義的影響因子；在環境的滿意度中，婚姻狀況和就診頻率等影響因子皆具統計意義。根據多重次序迴歸分析的結果，較不常回診和自覺健康狀況較差的病人有較低的滿意度。

結論：

病人整體上在疼痛門診對醫護人員和環境感到滿意，而回診頻率與自覺健康狀況會影響病人滿意度，環境因子亦應考慮來改善醫療品質。

關鍵字：病人滿意度；疼痛門診；健康狀況；醫院環境

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