



**การศึกษาความสัมพันธ์ระหว่างกระบวนการให้บริการทางคลินิก สภาพแวดล้อมของ
คลินิก และความพึงพอใจต่อการให้บริการทางคลินิกในคลินิกกุมารเวชศาสตร์จังหวัดน่าน**
**The Study of Correlations of Clinical Services Process, Clinical Environment,
and Clinical Services Satisfaction at Pediatric Clinics in Nan**

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บทคัดย่อ

วัตถุประสงค์ของงานวิจัยนี้คือ การศึกษาความพึงพอใจของผู้ปกครองของผู้ป่วยที่มีต่อการให้บริการทางคลินิกในคลินิกกุมารเวชศาสตร์ในจังหวัดน่าน โดยผู้วิจัยทำการเก็บรวบรวมข้อมูลจากผู้ปกครองของผู้ป่วยแทนการเก็บข้อมูลจากตัวผู้ป่วยโดยตรง เนื่องจากผู้ป่วยในคลินิกกุมารเวชศาสตร์เป็นเด็กหรือเยาวชนซึ่งผู้ปกครองเป็นผู้มีบทบาทสำคัญในการตัดสินใจเลือกคลินิกกุมารเวชศาสตร์ที่เหมาะสมสำหรับบุตรหลานของตน ผู้วิจัยใช้การสุ่มตัวอย่างแบบสุ่มในการเก็บรวบรวมข้อมูล โดยมีผู้ให้ข้อมูลจำนวน 112 คน ซึ่งเป็นผู้มีประสบการณ์ในการเข้ารับบริการจากทางคลินิกกุมารเวชศาสตร์และมีความยินยอมในการให้ความร่วมมือในการตอบแบบสอบถาม การวิจัยนี้ใช้ระเบียบวิธีวิจัยเชิงปริมาณ โดยมีการแจกแบบสอบถามเพื่อเก็บข้อมูลเกี่ยวกับกระบวนการให้บริการทางคลินิก สภาพแวดล้อมของคลินิก และความพึงพอใจต่อการให้บริการทางคลินิก ข้อมูลที่ได้จากการเก็บรวบรวมถูกนำมาวิเคราะห์โดยใช้สถิติเชิงพรรณนาและการวิเคราะห์แบบโมเดลสมการโครงสร้าง (Structural Equation Modeling: SEM)

ผลการวิจัย พบว่า ปัจจัยทั้งสอง ได้แก่ กระบวนการให้บริการทางคลินิก และสภาพแวดล้อมของคลินิก มีความสัมพันธ์เชิงบวกอย่างมีนัยสำคัญกับความพึงพอใจต่อการให้บริการทางคลินิก

คำสำคัญ : กระบวนการให้บริการทางคลินิก สภาพแวดล้อมของคลินิก ความพึงพอใจต่อการให้บริการทางคลินิก คลินิกกุมารเวชศาสตร์

Abstract

This research objective is to study satisfaction of patients' parents on clinical services at the pediatric clinics in Nan province, Thailand. The researcher collected data from patients' parents instead of the patients because patients in pediatric clinics are kids or children, and their parents are decision makers in selecting which Pediatric clinics are appropriate for their children. Random sampling was used in the data collection. Only 112 informants who experienced pediatric clinical services were willing to complete the survey questionnaires. The quantitative research methodology was conducted in this study. The set of questionnaires was distributed to collect data related to clinical services process, clinical environment, and clinical services satisfaction. The data gathered were analyzed using descriptive statistics and Structural Equation Modeling (SEM).

The research findings indicate that both factors-clinical services process and clinical environment significantly have positive relationships with clinical services satisfaction.

Keywords : Clinical Services Process, Clinical Environment, Clinical Services Satisfaction, Pediatric Clinics

Introduction

Healthy children could become potential adults in the future. Therefore, health care for children has been seen as important for many decades. One of several units in society which are responsible for children's health care is known as a pediatric clinic. Pediatric clinics are another option for parents who have some limitations to taking their children to the hospital. Expectations are used to indicate the elements of satisfaction. Satisfaction of patients on health services is explained by the level of patients' needs. According to Sowole (2007), cited in Fuad Husain, Rini, Rasmidar, and Fanissa (2017)¹, literature reviews indicated that research designs based on the concepts of satisfaction are distinguishing under the variety of contexts of sociology, psychology, and marketing and health care management. Satisfaction could be influenced by lots of factors. Furthermore, the SERVQUAL model and the Expectancy-disconfirmation theory as the popular theories linked to customer satisfaction were applied in this research.

¹ Fuad Husain, A., Rini, P., Rasmidar, S., & Fanissa, F., "Patient Satisfaction on Health Service Center In Urban and Rural Area" (Paper presented at the Proceedings of the Health Science International Conference, Malang, 4-5 October 2017) 193-199.



This research aims 1) to examine the relationship between clinical services process and clinical services satisfaction, 2) to test the relationship between clinical environments and clinical services satisfaction, and 3) to propose ways to enhance the clinical services satisfaction.

Literature Review

Related Theories

The SERVQUAL model (“SERVQUAL,”), created by Parasuraman, Zeithaml, and Berry in the 1980s, is instrumental to evaluate the service quality, consisting of five key dimensions used to indicate service quality. These five dimensions include 1) reliability (be able to run the service precisely and rapidly), 2) assurance (the ability and politeness of workers to make customers believe in their good service and use the service), 3) tangibles (be obtained through evaluation of the circumstances and facilities), 4) empathy (pay attention to each customer and make them be very important and valuable persons), and 5) responsiveness (Be patient to listen to customer). This theory has been popularly applied to academic and practical areas. However, the service quality from the viewpoint of Oliver (1997) was defined as the outcome of customer comparisons between their expectations about the service they will use and their perceptions about the service company. Thus, the Expectancy-disconfirmation theory by Oliver (1980) describes that consumers judge products and services based on their previous expectations about the features or benefits offered by the given goods or services. Obviously, these two theories are crucial to identify services satisfaction.

All variables: Clinical services process, clinical environment, and clinical services satisfaction

According to Balkaran et al. (2014) and Naskar P et al. (2016), factors such as technical skills, interpersonal factors, patient comfort, expenditure, and facilities could be influential to patient satisfaction. Hence, clinical services process and clinical environment are likely to affect clinical services satisfaction.

The clinical services process shows how clinical services are delivered. So, the quality of clinical services process refers to making the patients’ experiences in the process of the clinic proceed with effectiveness and efficiency. The personalization and patient-service provider interaction are used to indicate process quality². A low level of process quality could lead to poor clinical quality according to Collier (1994).

² Marley, K., Collier, D., & Goldstein, S., “The Role of Clinical and Process Quality in Achieving Patient Satisfaction in Hospitals” (2004) 35;3 *Decision Sciences* 349, 349-369.

Clinical environment is also crucial to satisfaction of patients. Building good facilities for health deals with many iterative phases, which can be viewed at macro and micro levels³. Creating good environment in a clinic requires many stages such as the planning stage for determining functional and capacity needs, the schematic stage for creating exterior and interior plans of building floor plans and room layouts, and the detailed design stage for acquiring appropriateness of technical equipment, interior finishes, lighting, seating, painting, and any other finer details⁴

According to Johnston (1995), the entire satisfaction is seen as the consequence of satisfaction with a series of transactions happening in the period of service process. The higher value of the service customers has experienced could lead to a higher level of satisfaction (Heskett, Jones, Loveman, Sasser, & Schlesinger, 1994). The guidelines for improving services come from customer opinions and feedback (Berry, & Parasuraman, 1997).

A relationship between clinical services process and clinical services satisfaction

According to Osman et al (2015) and Jannah (2003), their study demonstrated that patients had dissatisfaction with the doctors and medical staff because they had a lack of communicative skills. Moreover, the imbalance between the number of health workers and the number of populations could lead to poor health care services according to the World Health Organization, Alotaibi (2016). It was implied that inadequate medical staff could lower patient satisfaction because the process of providing clinical services to patients could be rough. Hence, it implies that the process of pediatric clinical services conducted by the staff could be crucial to satisfaction of patients' parents. Hence, the following hypothesis was predicted.

Hypothesis 1: Clinical services process could have a positive relationship with clinical services satisfaction of patients' parents.

A relationship between clinical environment and clinical services satisfaction

Berkowitz (2016) viewed patient satisfaction as part of components of patient experience. Patient satisfaction was found to be directly or indirectly affected by environmental factors. MacAllister et al. (2016) found two overarching categories for patient satisfaction – the physical ambient environment and

³ Rowe, A., & Knox, M., "The Impact of the Healthcare Environment on Patient Experience in the Emergency Department: A Systematic Review to Understand the Implications for Patient-Centered Design. *Herd*" (2023) 16;2 *Health Environments Research & Design Journal* 310, 310-329.

⁴ Halawa, F., Madathil, S. C., Gittler, A., & Khasawneh, M. T., "Advancing evidence-based healthcare facility design: A systematic literature review" (2020) 23;3 *Health Care Management Science* 453, 453-480.

the interpersonal aspects of the care environment. The physical ambient environment refers to elements of the environment that patients can sense. Among the factors improving patient satisfaction as part of the physical ambient environment are outside views to nature (Ulrich, 1984), color (Gray et al., 2012; Ulrich et al., 2008), full-spectrum lighting (Gray et al., 2012), as well as aesthetics and decor (Becker et al., 2008; Siddiqui et al., 2015). On the other hand, some environmental features support patients by providing space for their different caregivers, which MacAllister et al. (2016) refers to as interpersonal aspects of the care environment. For example, unit layouts and the presence of accommodation for families are two examples of the interpersonal aspects of health care environment, which influence patient satisfaction (Siddiqui et al., 2015). Hence, the following hypothesis was predicted.

Hypothesis 2: Clinical environment could have a positive relationship with clinical services satisfaction of patients' parents.

Regarding the previous theories and research, the author designed the conceptual framework of this study as below.

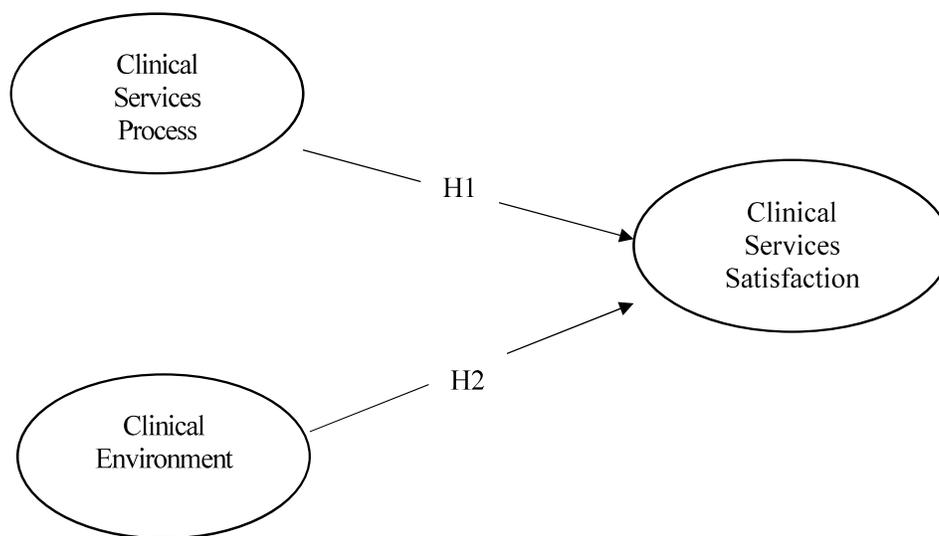


Figure 1 Conceptual Framework



Methodology

Sample

Participants of 112 in this research were children's parents who have experienced to take their children to see the doctor at pediatric clinics in Nan, Thailand. The 112 participants were enough in this study because the samples were very difficult to access and get trust or good collaboration during the data collection. The number of parameters in the research model was 19. Five times of the parameters were acceptable in a case of rare samples. Therefore, the minimum of samples in this study was 95 coming from 19 multiplied by 5 (Hair, Black, Babin, & Anderson, 2010).

Measures

The SERVQUAL model was applied to assess the variables of clinical services process and clinical environment. The 'clinical services process' variable was measured by a set of questions which are 5 items such as "The que arrangement of a pediatric clinic is run with equality" and "The waiting time for getting treatment is short". The 'clinical environment' variable was measured by a set of questions which are 7 items such as "The environments inside and outside a pediatric clinic are clean" and "A pediatric clinic provides you with facilities like drinking water, newspaper, magazines, and so on". The 'clinical services satisfaction' variable was measured by a set of questions which are 3 items such as "You have satisfaction with clinical services process" and "You have satisfaction with clinical environment". For all variables, informants expressed their attitudes based on a five-point Likert rating scale. Codes used in the survey questions related to the 'clinical services process' and 'clinical environment' variables are 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree, while codes used in in the survey questions related to the 'clinical services satisfaction' variable are 1 = lowest, 2 = low, 3 = moderate, 4 = high, and 5 = highest.

Data Collection

Self-administered questionnaire surveys were implemented in gathering data from the samples who were randomly selected to participate in this research. The author made an appointment with pediatric clinics and asked for permission to collect data before sending the questionnaires with a cover letter through the registered post. The informants filled out the questionnaires in a pediatric clinic. After the process of data collection, the author took the 120 questionnaires to the stage of analyzing data. After the data cleaning process, there were only 112 properly answered questionnaires for the data analysis.



Table 1 Descriptive characteristics of the sample (n = 112)

Variables	Descriptive Statistics
Gender	Male: 10 (8.9%); Female: 102 (91.1%)
Age	Less than 20 years old: 4 (3.6%); 20-30 years old: 24 (21.4%) ; 31-40 years old: 65 (58%); 41-50 years old: 10 (8.9%); 51-60 years old: 9 (8%)
Marital status	Single: 18 (16.1%); Married: 94 (83.9%)
Salary	Not over 10,000 baht: 13 (11.6%); 10,001-20,000 baht: 47 (42%); 30,001-40,000 baht: 5 (4.5%); 40,001-50,000 baht: 5 (4.5%); Over 50,000 baht: 9 (8%)
Educational levels	Vocational or high vocational certificate: 33 (29.%)

Table 1 Descriptive characteristics of the sample (n = 112)

Variables	Descriptive Statistics
	Bachelor's degree: 52 (46.4%);
	Master degree: 18 (16.1%);
	Others-High school: 9 (8%)

Data Analysis

In analyzing the data, structural equation modeling (SEM) was implemented to test the relationship between clinical services process and clinical services satisfaction, and to examine the relationship between clinical environment and clinical services satisfaction. When the measurement model was satisfactory, the structures' model was examined using the maximum likelihood estimation in AMOS 23.0. SPSS program. The 'clinical services process' variable with five items, the 'clinical environment' variable with five items, and the 'clinical services satisfaction' variable with three items were formed to control measurement errors. Goodness-of-fit indices, needed to seek the sufficient model fit to the collected data, are comparative fit index (CFI) higher than 0.95 for most desirable, and the relative chi-square value lower than 2.00. Moreover, the GFI, AGFI, TLI, and NFI values should be higher than 0.95, whereas the RMSEA and RMR should be lower than 0.05. (Hu, & Bentler, 1999; Schumacker, & Lomax, 2016)



Result

Measurement Model

Hypotheses testing was carried out after the measurement model was assessed. First, AMOS 23.0. SPSS program was used to run the confirmatory factor analysis (CFA) of all variables. And table 2 shows consistency with empirical data.

Table 2 Construct reliability⁵

Measurement Items	Cronbach's Alpha Coefficient
Clinical Services Process	0.866
CSP1	
CSP2	
CSP3	
Clinical Environment	0.752
CE1	
CE2	
CE3	
Clinical Services Satisfaction	0.920
CSS1	
CSS2	
CSS3	

Hypothesis Testing

Hypothesis 1 concerns with a positive relationship between clinical services process and clinical services satisfaction of patients' parents. The result of AMOS-SEM confirmed a satisfactory goodness of model fit indices (Hu, & Bentler, 1999; Schumacker, & Lomax, 2016) with Relative Chi-square =0.526, p-value=0.888, RMR=0.011, GFI=0.989, AGFI=0.953, CFI=1.000, NFI=0.993, TLI=1.022, and RMSEA=0.000. Also, clinical services process had a significant (p=***) and positive relationship with clinical services satisfaction of patients' parents at 0.352. Therefore, hypothesis 1 was supported. Furthermore, hypothesis 2 concerns with a positive relationship between clinical environment and clinical

⁵ Note: CSP1= The arrangement of the clinic is in a sequential manner with no back and forth of service procedures; CSP2= Priority in receiving medical services is always equal; CPS3= Waiting time for medical services is fast; CE1= The environment both inside and outside the clinic is clean; CE2= The clinic is spacious enough to provide services; CE3= This clinic provides waiting facilities such as drinking water, newspapers, magazines, etc.; CSS1= You are satisfied with the clinic's convenient and fast service process; CSS2= You are satisfied with the clinic environment?; CSS3= You are satisfied with the services provided by the clinic staff



services satisfaction of patients' parents. The result shows that clinical environment had a significant ($p=***$) and positive relationship with clinical services satisfaction of patients' parents at 0.543. Therefore, hypothesis 2 was supported.

Research Findings and Discussions

The research findings show that clinical services process could have a positive relationship with clinical services satisfaction of patients' parents at a significant level which supported hypothesis 1. This finding is compatible with (Osman et al., 2015; Jannah, 2003) which identified that the medical staff with good communication skills can help to satisfy customers or patients' parents. Probably, this is because good communication skills could make customers or patients' parents feel that they are important and treated well. So, they felt satisfied with the services at pediatric clinics.

Moreover, it was found that clinical environment could have a positive relationship with clinical services satisfaction of patients' parents at a significant level which supported hypothesis 2. This finding is compatible with Ulrich (1984), Ulrich et al. (2008), Becker et al. (2008), Gray et al. (2012), and Siddiqui et al. (2015) which explained that health care environments like color tones and nature are likely to be crucial to the improvement of patient satisfaction.

Recommendations

This research shows some limitations. First, the researcher explored only people in Nan province. However, the findings from this study could be applied to enhance clinical services satisfaction at pediatric clinics and other types of clinics in other provinces or regions in Thailand. Second, clinical services process in this research did not cover the detailed process of doctors' treatment. Hence, other provinces or regions in Thailand and the comparative study of various types of clinics should be included into the future research and it is advisory to explore new factors that could be negatively and positively influential to clinical services satisfaction like the doctor treatment process as one of new variables added into the model.



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