A CONFIRMATORY FACTOR ANALYSIS OF THE DECISION MAKING TO SERVICE QUALITY OF SUB-DISTRICT HEALTH PROMOTION (SDHP) HOSPITAL IN NAKHON SI THAMMARAT PROVINCE, THAILAND

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Abstract

The objectives of this research were 1) to conduct a confirmatory factor analysis of the decision making to service quality of Sub-District Health Promotion (SDHP) Hospital in Nakhon Si Thammarat Province, Thailand; 2) to validate a decision making to service quality model using empirical data. A sample size of 670 service users of SDHP was selected. The research instrument used was a questionnaire with a five-rating scale and reliability coefficient of 0.95. The model was validated using SPSS program for basic statistics and a confirmatory factor analysis was performed through LISREL program version 8.82. The major findings were as follows; (1) The decision making to service quality of SDHP consisted of five factors. The order of factor loading values was as follows, tangibility ($\gamma_1 = 0.99$, $p < .05$) had the highest value, or tangibility affected decision making to service quality of SDHP the most frequently. This was followed by reliability ($\gamma_2 = 0.90$, $p < .05$), responsiveness ($\gamma_3 = 0.83$, $p < .05$), assurance ($\gamma_4 = 0.70$, $p < .05$) and empathy ($\gamma_5 = 0.46$, $p < .05$) respectively and (2) The model of decision making to service

quality of SDHP was found to agree with empirical data. Chi-square goodness of fit test value was 279.73 with 100 degrees of freedom, GFI = .95, CFI = .96, AGFI = .93, SRMR = .05 and RMSEA = .05.

Keywords: Service quality; SDHP; decision making

Introduction

One of the crucial policies of the Thai government at a period of Aphisit Vechachiva is the improvement of the public health service system for enhanced quality and efficiency. It was carried out by developing public health centers to become a Sub-District Health Promotion (SDHP) Hospital. Its strategy has been changed from focusing on defensive nursing to emphasizing the building of healthier lifestyles through families and communities, which holds to the principle of "There is No Sale of Good Health and Good Society, To Acquire it, Co-Create it". Therefore, a SDHP Hospital is regarded as a type of essential Primary Care Unit (PCU) of the Ministry of Public Health distributed throughout all provinces in order to strengthen the health service. This is considered to help people access health service equally, thoroughly, qualitatively, and the service has to be based on compassion (Starfield et al., 2005).

The SDHP Hospitals operate as a mixed public health service. The crucial principles consist of 1) approach; this focuses on approaching people and communities for building healthier lifestyles as the main purpose, including focusing on managing the risk factors associated with health problems, 2) consistent service; this can give the patients reliability by being able to consult physicians or nurses in hospitals at any time. Moreover, it might have the potential for observing some symptoms without admission. In case of emergencies, it also has the emergency medical system available to pick patients up and provide first aid before transfer, and 3) connection and participation; connecting the health service with other areas for taking care of patients in special circumstances and engaging with people, communities, and local administrative organizations. Regarding the operational results of the SDHP Hospitals for the last 10 years, it was found that some approaches have been successful and become good models; however, some approaches are affecting the operation from reaching its goals. One such problem is the service quality of the SDHP Hospitals in terms of manpower, equipment and instrument, infrastructure, and financial situations which are not good enough and are not able to be self-reliant. Operational results which still cannot meet the goals of the SDHP affect all future generations. The Thai government has been

solving these problems and this has led to the development of the SDHP Hospitals in order to reach the criteria of quality of the Tid Dao SDHP Hospital (Ministry of Public Health, 2018). Donabedian (1980) categorizes the service quality of the hospital into 3 main components; 1) Structure; this refers to various characteristics of the physicians and hospitals such as the availability of sufficient resources, medical instruments and equipment, qualification of the physicians or health personnel, conditions of hospitals, including the management model and budget, as well as the infrastructure, etc. These are like the input factors which are required for offering a health service, 2) Process; this includes various components of the interaction between physicians or other medical personnel and the patients or customers. Those components combine the activities that occur within the group and between the group of service providers, and 3) Outcome; outcome refers to the condition of users' health after using the service, any alteration in the health conditions of the patients, including their mental state and also the society around them which might be the main factors affecting their health status, as well as the effects on the community.

Considering the factors mentioned above, it can be seen that development of the service system of the SDHP Hospitals is essential. A study of the factors related to the service quality of the SDHP Hospitals is necessary to look at how it can be developed. The metric used for measuring service quality which is accepted and used worldwide is called SERVQUAL. The SERVQUAL instrument was described by Parasuraman et al. (1988), and 5 dimensions for measuring service quality were outlined. The 5 dimensions, namely Tangibility, Reliability, Responsiveness, Assurance, and Empathy help obtain information to determine which aspect of service quality affects the service users. This useful information could then be used as a deciding factor to implement the service at the SDHP Hospitals. This assists the organization to find ways to develop the management of the SDHP Hospitals and to develop the service quality system of the SDHP Hospitals to be in line with the requirements or expectations of the service users. These changes are desirable as the SDHP is like an agent of the Ministry of Public Health and is the first point of contact of most users with the Ministry.

In conclusion, offering a health service to people in the sub-districts, villages, and communities is crucial to developing the public health service system to be qualitative and to reach the desired standards under challenging conditions of limited resources and a rapidly changing political, economic and social environment.

Research Objectives

1. To conduct a confirmatory factor analysis of the decision making to service quality of Sub-District Health Promotion (SDHP) Hospital in Nakhon Si Thammarat Province, Thailand.
2. To validate a decision making to service quality model using empirical data.

Concept and Theory

Under this concept and theory section of the research paper the core theories and models in the field of service quality consumer behavior and decision-making will be discussed and evaluated. To start with this it is necessary to define the term "service", Kotler and Keller (2012) offer the following definition; service is activities or operations for facilitation. It is an activity done as an individual or a group to respond to others' needs or other groups' needs. Service is like a kind of product consisting of a delivery side and a receiving side. However, the service is different from other products because it is (Kuester, 2012) 1) Intangible, 2) Heterogenous, it is dependent on each individual's service provider and service users' needs, 3) Inseparable, production and consumption of the service occur simultaneously, and 4) Perishable. Therefore, the assessment of the service is through the perspective of the service users, whether they are satisfied, etc. The service users can make a decision after such service has been completed, or even during the time of service where the production and consumption of the service occur simultaneously (Gronroos, 2001).

Service Quality

For the concept of service quality according to the views of Groonroos (1997); Zeithaml et al. (2003), it is said that the execution of business service happens between the service provider and service user. Furthermore, Parasuraman et al. (1985) identify service quality as being determined by the disparity in the perception and expectation of the service users. As the service is considered intangible the assessment of service quality is deemed to be more difficult than the assessment of product quality. Service quality happens during the time of delivering the service. And for the service results, the service quality from the perspective of the customer is formed when the customer compares their perception of service delivery and to their expectation. Whereas the concept of Buzzell and Gale (1987) indicates that service quality is an issue which is interesting and should be emphasized as mentioned above. Service quality is complicated depending on the perspectives of the consumers, or customers, as they are generally called. Service quality means the ability to respond to the needs of service business. Service quality is regarded as the most critical factor when it comes to becoming superior to a business rival. Offering service quality in accordance with the service users' expectation has to be done. The service users will be satisfied with what they receive if it is in line with their needs.

Thus, service quality is considered to be assessed by the service users when they compare the observed service received to that of the expected service. If the service providers can provide the service in accordance with the service users' needs or can create a service which is of a higher level than expected by the service users, it will affect such service by the service quality, and then the vice users will be thoroughly satisfied with the service (Parasuraman et al., 1988; Fitzsimmons and Fitzsimmons, 2004; Kotler and Andreasen, 1987).

Consumer Behavior

The challenge for marketers is to understand the diversity of consumer behavior and offer goods and services accordingly. The success of the firm is, to a large extent, determined by how effective it has been in

meeting diverse consumer needs by offering products and services to suit needs and creating sustainable value and relationship with the consumer. The term consumer behavior is defined as the behavior that consumers display in searching for, purchasing, using, evaluating and disposing of products and services that they expect will satisfy their needs. Consumer behavior focuses on how individuals make decisions to spend their available resources (time, money, effort) on consumption related items – including what they buy, why they buy it, when they buy it, where they buy it, how often they buy it, how often they use it, how they evaluate it after the purchase and the impact of such evaluations on future purchases, and how they dispose of it. Marketers thus need to understand the personal and group influences that affect consumer decisions and how these decisions are made, Schiffman and Kanuk (2007). The process of consumer decision making can be viewed as three different but interlocking stages: 1) Input Stage; The input stage influences the consumer's recognition of a product need and consists of two major sources of information: the company's marketing efforts (the product itself, its price, its promotion and where it is sold) and the external sociological influences on the consumer (family, friends, neighbors, other informal and non-commercial sources, social class, and cultural and subcultural memberships). 2) Process Stage; The process stage of the model focuses on how the consumer makes decisions. The psychological factors inherent in each individual (motivation, perception, learning, personality, and attitudes) affect how the external inputs from input stage influence the customer's recognition of a need, pre-purchase search for information, evaluation of alternatives and 3) Output Stage; The output stage of the consumer decision making model consists of two related post-decision activities: purchase behavior and post-purchase evaluation (Schiffman and Kanuk, 2010).

Decision-Making Model

A model for the consumer decision-making process known as the "Five-stage model of the consumer buying process" (Figure 1), involves five steps that consumers move through when buying a product or service. A

marketer has to understand these steps properly in order to; 1) move the consumer to buying the product, 2) communicate effectively with consumers and 3) close the sale.

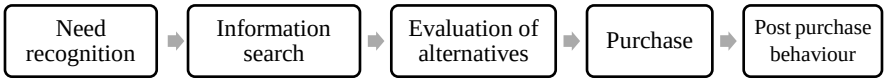

Figure 1: Five-stage Model of the Consumer Buying Process
Source: Kotler and Keller (2012)

In their book, Kotler and Keller (2012) describe this model in detail and explain an additional stage of the model – the disposal stage. The very first stage of the model is need/problem recognition when consumers realize that they need something. Interestingly, marketers want to intentionally create an imbalance between consumers' present status and their preferred status. This imbalance will create a need and make consumers detect and buy a product or service. The second stage is the so-called information search. He/she will look both internally and externally for this information to help him/her make a decision. An internal information search consists of utilizing information from memory, such as past experiences with the product/service. An external information search is asking friends and family about their experiences with acquiring a new product. They can also research public sources, such as reviews or blogs. Another external information source would be marketing-controlled sources, such as banners, television ads, brochures, etc. At the third stage of evaluating alternatives, a consumer may ask her/himself questions like: "Do I actually need the product?" Are there alternatives out there? Is the original product that bad? Usually, the consumer chooses the most important attribute based on which he/she will make a final decision or using cut-off method (e.g., price, quality, brand, etc.). There are moments that matter could be emotional connections/experiences with products or surrender to advertising/marketing campaigns. The fourth stage: purchase. Once a consumer chooses which brand to buy, he/she must still implement the decision and make the actual purchase. Also, at the beginning a consumer may make a purchase intention to buy a certain product, but not

close a deal. Additional decisions may be needed – factors that influence them are considered, such as when to buy, where to buy, and how much money to spend. Often, there is a time delay between the formation of a purchase decision and the actual purchase, particularly for complex purchases such as automobiles, personal computers, and consumer durables. On the last fifth stage-post-purchase (satisfaction or dissatisfaction), consumers evaluate and review the product. Was the product right for the consumers? Were their expectations met? If customers find that the product has matched or exceeded the promises made and their expectations, they will potentially become a brand ambassador influencing other potential customers in the second stage of their customer journey, increasing the chances of the product being purchased again.

The structure of this conceptual framework is to study the service quality of the SDHP in Nakhon Si Thammarat Province from the synthesis of the concept and theory of Parasuraman et al. (1988); Schiffman and Kanuk (2010) and Kotler and Keller (2012), as shown in Figure 2.

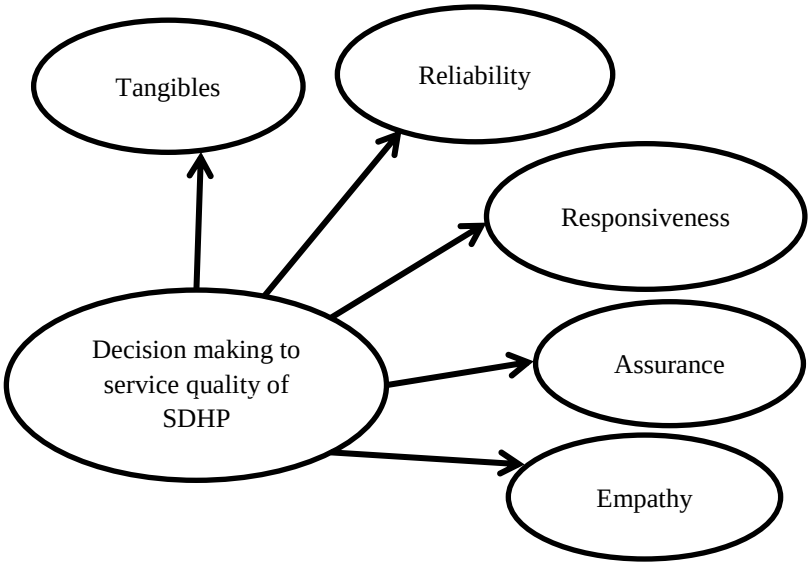

Figure 2: Research Framework

Research Methodology

A cross-sectional method was employed to collect the data in this study. The population was 67 SDHP Hospitals in Nakhon Si Thammarat Province, from 253 hospitals in 14 Districts of Nakhon Si Thammarat Province. The sample group was selected by using Multi-Stage Cluster method as follows:

Stage 1: The sample group was chosen from district areas. It was broken into two categories; the districts that had abundant SDHP Hospitals (more than 20 hospitals) and the districts that had a lower number of SDHP Hospitals (less than 10). It was found that 3 districts had more than 20 SDHP Hospitals and there were 11 districts of 70 rare SDHP Hospitals.

Stage 2: The sample was randomized according to the distribution proportion for the sample group covering every area in each district by using the Stratified Random Sampling method. The criterion used for stratification was number of hospitals in each district, 50% of all hospitals located in each district were included.

Stage 3: Simple Random Sampling of each district was employed by drawing lots in order to get the abundant SDHP Hospitals of each district. This was found that there were 67 hospitals from 35 hospitals of 3 districts and 32 rare SDHP Hospitals of 11 districts were the sample of this study.

Stage 4: The researcher employed the Purposive Sampling method to determine the sample group in the SDHP Hospitals, 10 people per each group, and obtained a total of 670 samples.

Stage 5: Accidental Sampling method was employed for the people that used the services at the SDHP Hospitals during the time of data collection. The details are shown in Table 1.

Research Results

1. Confirmatory Factor Analysis Results

Table 1: The Results of the Confirmatory Factor Analysis for the Service Decision Making Options at the Sub-District Health Promoting Hospitals, Nakhon Si Thammarat

Dimensions	Factor Loading	SE	Factor Score Coefficient	R^2
First Order Confirmatory Factor Analysis				
Tangibility				
Q1 (TAN1)	.30**	.055	.08	.97
Q2 (TAN2)	.15**	.054	.02	.98
Q3 (TAN4)	.46**	.050	.21	.79
Q4 (TAN5)	.52**	.050	.27	.73
Reliability				
Q5 (REL1)	.43**	.064	.17	.92
Q6 (REL3)	.46**	.063	.21	.80
Responsiveness				
Q7 (RES1)	.34**	.043	.13	.76
Q8 (RES2)	.56**	.042	.33	.65
Q9 (RES4)	.67**	.040	.45	.55
Q10 (RES5)	.71**	.039	.50	.49
Assurance				
Q11 (ASS1)	.37**	.042	.15	.74
Q12 (ASS2)	.54**	.042	.30	.67
Q13 (ASS3)	.57**	.042	.33	.66
Q14 (ASS4)	.70**	.038	.51	.46
Q15 (ASS5)	.43**	.046	.19	.78
Empathy				
Q16 (EMP1)	.67**	.016	.42	.63
Q17 (EMP2)	.29**	.058	.08	.92

Table 1: (Continued)

Dimensions	Factor Loading	SE	Factor Score Coefficient	R^2
Second Order Confirmatory Factor Analysis				
Decision making to use service (DEC)				
TAN	.99**	.011	.19	.98
REL	.70**	.021	.49	.69
RES	.90**	.067	.19	.81
ASS	.83**	.077	.31	.80
EMP	.46**	.035	.20	.51
(χ^2) 279.73, df = 100, p =.000, CFI = .95, SRMR = 0.05, SMSEA = 0.05				

** *p < .01*

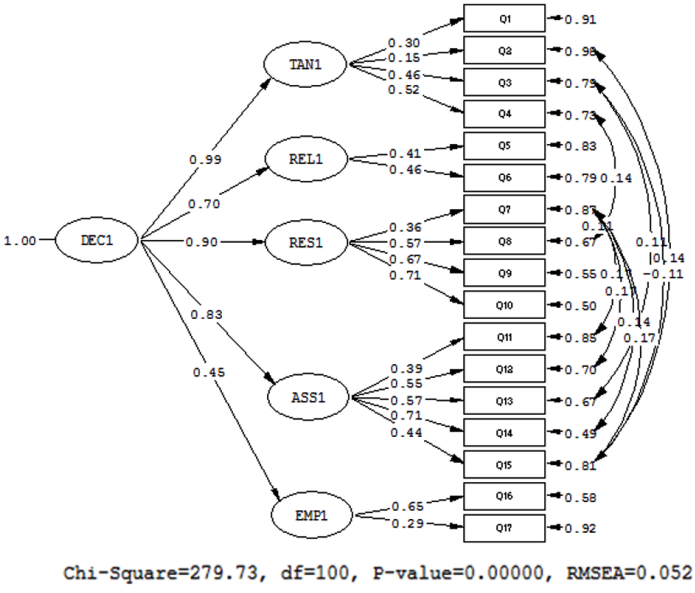

Figure 3: The Value of the 2nd Confirmatory Factor Model

Figure 3 shows the value of the 2nd confirmatory factor model for the service decision making options at the SDHP Hospital, Nakhon Si Thammarat after the model adjustment.

2. Investigation of the Concordance Model

Table 2: The Index Values from the Adjusted Model Analysis and Criteria for Consideration

Index	Criteria Used for Consideration	Statistic	Consideration Result
χ^2/df	< 3.00	279.73/100 = 2.79	Pass the criteria
GFI	> 0.90	0.95	Pass the criteria

According to Table 2, it was found that the Chi-Square (χ^2) value was 279.73, and the Degree of Freedom was equal to df = 100, the Chi-Square value (χ^2/df) was then determined to equal 2.79, which was less than the criteria, < 3.00, the consideration result was therefore considered as 'pass the criteria'. The index value for measuring the Goodness of Fit Index (GFI) was equal to 0.95 (Criteria > 0.90). The consideration result was regarded as 'pass the criteria'. The index value for measuring the Adjusted Goodness of Fit Index (AGFI) was equal to 0.93 (Criteria > 0.90). The consideration result was regarded as 'pass the criteria'. The index value for measuring the Goodness of Fit Index (CFI) was equal to 0.96 (Criteria > 0.95). The consideration result was regarded as 'pass the criteria'. The Standard Root Mean Square Residual (SRMR) was equal to 0.05 (Criteria < 0.08). The consideration result was regarded as 'pass the criteria'. The criteria of SMSEA were equal to 0.05 (Criteria < 0.06). The consideration result was regarded as 'pass the criteria', which every value was in accordance with the criteria. It indicates that the 2nd confirmatory factor model for the service decision making options at the SDHP Hospital, Nakhon Si Thammarat developed by the researcher is in accordance with the empirical data.

From Table 2 the following observations can be noted.

- The Chi-Square value was 279.73, and the Degree of Freedom was equal to df = 100, the Chi-Square value (χ^2/df) was then determined to equal 2.79, which was less than the criteria, < 3.00. The consideration result was therefore considered as 'pass the criteria'.

- The index value for measuring the Goodness of Fit Index (GFI) was equal to 0.95 (Criteria > 0.90). The consideration result was regarded as 'pass the criteria'.
- The index value for measuring the Adjusted Goodness of Fit Index (AGFI) was equal to 0.93 (Criteria > 0.90). The consideration result was regarded as 'pass the criteria'.
- The index value for measuring the Goodness of Fit Index (CFI) was equal to 0.96 (Criteria > 0.95). The consideration result was regarded as 'pass the criteria'.
- The Standard Root Mean Square Residual (SRMR) was equal to 0.05 (Criteria < 0.08). The consideration result was regarded as 'pass the criteria'.
- The criteria of SMSEA were equal to 0.05 (Criteria < 0.06). The consideration result was regarded as 'pass the criteria'.

All values are observed to meet the passing criteria. It indicates that the 2nd confirmatory factor model for the service decision making options at the Sub-District Health Promoting Hospital, Nakhon Si Thammarat developed by the researcher is in accordance with the empirical data.

Discussion

The research results revealed that the weight value from the most to the least was as follows: tangible, responsiveness, assurance, reliability and empathy. Their weight values were .99, .90, .83, .70, and .46, respectively. Each component had the variance in line with the component of service decision making options for the SDHP Hospital, Nakhon Si Thammarat as 99%, 90%, 83%, 70%, and 46%, respectively. Tangible had the most weight value with decision making options for SDHP Hospital while the empathy to the service users' component had the least weight value with the service decision making options of the SDHP Hospital. This was in accordance with the concept of Parasuraman et al. (1985) and Gronroos (2001), they explained that service quality consisted of 5 components as follows; 1) Tangible: physical aspects were really important tangible images to the service users' feelings, 2) Reliability: the reliability of various systems through the appropriate and consistent channels which could help the service be reliable,

3) Responsiveness: how quickly the required need was responded to when compared to the urgency of the service users need, 4) Assurance: the confidence of the service users toward each use of the service, and 5) Empathy: an ability to take care of and realize other service users' needs, including solving the problems.

Looking at the research results, specifically the decision making options of the SDHP Hospital, Nakhon Si Thammarat the service users emphasize the quality of the medical instruments and equipment; how modern they are, the environment within the hospital as well as the politeness and tenderness of the personnel. This is in line with the concept of Kitlertpairote (2005) which opined that tangible service was the single factor the customers or service users appreciate when compared to all other factors used to evaluate the service quality by the customers. Furthermore, the tangible service significantly affected customers' satisfaction. Isfan et al. (2012); Yousapronpaiboon and Johnson (2013); Kazemi et al. (2013); Aghamolaei et al. (2014); and Kaushal (2016) shared the same results. All mentioned above found that the Tangible aspect had the least weight value towards the perception of service quality of the service users in the hospital. The service users were not satisfied with the Tangible aspect of the hospital. According to the present research results, it was suggested that the physical impression has to make an impact. The physical image of each hospital could be improved by, for example, decorating the buildings to be more modern, providing modern medical equipment, and also by promoting good hospitality of medical personnel. Such behaviors could include offering their help, greeting and welcoming customers, giving suggestions and information and also replying to the customers' questions. All of the above suggestions could lead to the service user deciding to use the service at the SDHP Hospital. This was in line with Untachai (2013); Adebayo et al. (2014); Shafiq et al. (2017); Rehaman and Husnain (2018) who revealed that users' making the decision to use the service at the hospitals focused on the Tangible aspect. Hence, it could be said that if the SDHP Hospital, Nakhon Si Thammarat creates the physical images effectively in terms of medical instruments and equipment, the environmental images, and also promotes good hospitality of medical personnel, it will influence the customers to make a decision to use the service at the hospital.

Therefore, the personnel at the SDHP Hospital, Nakhon Si Thammarat need to realize these improvements in order to reach the targeted service users' satisfaction as the service quality does not currently meet these service targets.

The SDHP Hospital, Nakhon Si Thammarat is a medical organization under government jurisdiction. It operates a mixed public health service offering services such as health promotion, disease prevention, medical care and recuperation as well as health risk management through working with the individual, family, community and society. The focus is on approaching individuals and people in the community in order to improve patient health and manage all risk factors that lead to health problems, while providing on-going services for patient management. Patients are able to consult with the nurses and physicians in the hospitals at all times. In addition, the hospital should provide beds to observe the patients' symptoms prior to admitting them to hospital. In case of an emergency, there should be an emergency medical service system to pick up patients and give first-aid before transfer to the hospital.

It is considered crucial to have a strong cooperation among all health services for taking care of patients effectively and a strong involvement with people, communities, and local administrative organizations. It can be shown that the government should invest or allocate sufficient budget to improve and modernize the physical appearance and image of the SDHP Hospital in Nakhon Si Thammarat which will benefit both the service users and the personnel at the hospital. Furthermore, it is considered crucial to create excellent services as these interactions will form the basis for any opinions the service users have on the service and the hospital. The service users' satisfaction when they visit and use the services at the hospital should ultimately be the main focus.

Recommendation

This research revealed that making the decision to use services at the SDHP Hospital, Nakhon Si Thammarat consists of 5 components as follows; tangible, responsiveness, assurance, reliability and empathy. According to the results obtained, the hospital should prepare the preparation in medical personnel, medical support or facilitation in various areas to provide services to medical users as follow:

1) Tangible: The SDHP Hospital, Nakhon Si Thammarat needs to improve and modernize the physical appearance of the hospital and it needs to be ready for use at all times. Those facilitations are providing clean and tidy medical equipment, organizing the room layout and locations as well as the hospital buildings, and having various labels to specify the service provision for the users to understand clearly and easily.

2) Reliability: The medical personnel of the SDHP Hospital, Nakhon Si Thammarat hospital have to build a reliable service for the users in relation to medical care, hospital management and medical personnel themselves.

3) Responsiveness: The service users should receive responses from all levels at the SDHP Hospital, Nakhon Si Thammarat and at all times. The service providers should be ready and welcoming towards the users of the service and be quick to respond to requests.

4) Assurance: Medical personnel at all levels in the SDHP Hospital, Nakhon Si Thammarat have to build the users confidence in the service by being positive and understanding so that they are not worrying at any time about the service provided by the hospital.

5) Empathy: The SDHP Hospital, Nakhon Si Thammarat has to deliver service quality to users so that they have a good experience in every step of the service. The medical personnel should provide services to users as if the users are their own relatives, displaying physical and mental behaviours to allow the users to realise that they understand their needs, they do care and are concerned about their well-being.

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