Article

Key Success Factors for Medical Service Quality of Early Treatment and Rehabilitation for Children in Taiwan

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Abstract: Early treatment and rehabilitation medical service is one of the important items in rehabilitation medicine. The service quality is critical for developing organizational sustainability. Therefore, the key success factors for the quality of such services are worthy of study. The main focus of this study is to explore the key success factors of the quality of early treatment and rehabilitation medical service in Taiwan. This study adopted an expert questionnaire for professional therapists related to rehabilitation care in Taiwan, and developed a total of 5 evaluation dimensions and 17 key success factors according to the concept of SERVQUAL. The analytic hierarchy process (AHP) method was used to analyze the expert questionnaires. The research results show that reliability is the most important dimension to construct quality early treatment and rehabilitation medical services. The seven key success factors affecting the quality of early treatment and rehabilitation medical services are in the order of “Professional treatment meets the needs of the case”, “Therapists have professional knowledge and skills”, “Professionalism gives parents and the case confidence”, “Professional advice can be understood by parents”, “The treatment equipment is consistent with the treatment provided by the therapists”, “Provide professional treatment in a timely and appropriate manner”, and “Therapists are enthusiastic and professional in handling case problems”. The practical implications of the research findings are also discussed in the study.

Keywords: early treatment and rehabilitation; service quality; key success factors

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1. Introduction

The national health insurance system was established in Taiwan on 1 March 1995, with the main purpose of effectively using medical resources and improving people's health. However, due to the increased medical needs of the people, the continuous expansion of the medical system, the establishment of many large hospitals with the gradual advancement of technology, and the addition of new medical equipment, there is an imbalance between the government's health insurance revenues and expenditures. Since the introduction of the total medical budget system in 2002, health insurance expenditures have been fully controlled, which in turn affects the operating costs and revenues of medical institutions. In order to make hospitals sustainable, medical institutions take improving the quality of medical services as their goal to increase the loyalty of patients to them. The service quality is critical for developing organizational sustainability [1]. To compete for a share of the huge medical market, medical institutions are forced to pay more and more attention to marketing and introduce new management thinking [2]. Some studies pointed out that the higher the socioeconomic status, as well as the higher the cognition and expectation of parents, the lower the satisfaction with the quality of service [3]. Thus, how to improve the quality of medical service has become the biggest issue for hospital managers.

Early treatment refers to the provision of rehabilitation treatment, parental education advice, special education training, welfare service and consultation, family psychological and emotional support, and other services by relevant professionals to preschool children with developmental disorder-related diseases. Social support also provides an important source of opportunities for children to learn to adapt to the environment and to learn from differences in their experiences [4]. Early treatment and medical services of good quality can reduce the long-term negative impact and burden on individuals, families, and society [5]. The family-centered treatment methods provide the best health and development of mentally handicapped children [6]. The abovementioned professional integrated services can solve the problems of children with developmental delays or developmental disabilities through various extensions of medical, educational, psychological, family, and social programs. Strengthening the training of children's development can develop their potential and alleviate developmental delay problems and complications, which can help them live a normal life similar to other children of the same age [7]. Therefore, early detection, early diagnosis, and early intervention to reduce their special developmental disorders can reduce the costs of national social welfare [8]. At different stages of development in children with developmental delays, the integration of rehabilitation and related resources is very important for the children and their families [9]. The quality of medical rehabilitation treatment service is a big issue for hospital operations [10,11].

The purpose of this study is to explore the key success factors for the quality of early treatment and rehabilitation medical services for children in Taiwan. The analytic hierarchy process (AHP) and an expert questionnaire survey were adopted in the study. This study attempts to provide hospital managers with practical improvements and suggestions regarding the quality of early treatment and rehabilitation medical services, in order to increase the satisfaction of patients and parents with the quality of rehabilitation medical services.

2. Main Concepts

Quality is defined as the sum of service characteristics and features. It is found that the most important factors that affect patients' choice of medical services are the staff's attitudes, clinical environment, and other factors [12]. By measuring the effectiveness of the service quality, and evaluating its potential usefulness in the medical environment, hospital management departments can actively apply a service quality evaluation to medical-related issues [13]. In the field of multi-service marketing organizations, the evaluation of service quality and customer satisfaction is more complex than the singular evaluation of service quality and is the most discussed topic in service quality marketing, thus, they have developed into the two core research topics of hospital service quality [14]. SERVQUAL, which is a service quality method to measure customer satisfaction prediction indicators, uses expectations/perceptions (gap in service quality) as a persistent perception to predict customer satisfaction with service quality [15]. The definition of patient satisfaction is a conscious assessment or judgment of the overall quality of medical services received [16]. At present, few studies regarding the satisfaction with medical service quality evaluated satisfaction according to different dimensions [17].

Patient satisfaction provides a unique opportunity for patients to provide medical institution professionals with valuable opinions on specific areas [18], which can be used to investigate areas with defects or deficiencies in the quality of medical services [19]. Patients' perceptions of their medical experience have gained considerable attention in the quality of modern medical services. These subjective evaluations are regarded as valuable health results [20] and provide important information to the managers of medical institutions. With the increase in the level of competition and the emphasis on consumerism, patient satisfaction has become an important indicator for monitoring the quality of medical services [21]. Medical institution managers should also strengthen institutional safety measures, establish a patient-centered culture, and take patient safety as the highest priority, which is also a way to increase the number of institutional patients or patient

satisfaction [22]. Today, patients see themselves as buyers of medical services. Once this concept is accepted, it is necessary to realize that every patient has certain rights to request the provision of quality medical services [23].

Parasuraman, Zeithaml, and Berry [24] developed the conceptual model of service quality (PZB) and based on the conceptual model of service quality proposed in 1985, carried out service quality research in 1988, which sampled and re-summarized the dimensions of service quality, and then, integrated the original 10 dimensions into 5 dimensions called the SERVQUAL scale. The five dimensions of PZB service quality are: (1) tangibles: physical equipment, facilities, and personnel; (2) reliability: being able to definitely and accurately perform the services promised to customers; (3) responsiveness: the willingness to help customers and provide timely and appropriate service; (4) assurance: the professional knowledge and courtesy of employees and the ability to gain customers' trust and confidence; (5) empathy: the personalized care to give customers individualized care [25].

3. Research Methods

3.1. Participants and Data Collection

Data was collected through a questionnaire survey on experts with rich experiences in early treatment and rehabilitation medical service for children in Taiwan. Because of the difficulty in obtaining a list of all early treatment and rehabilitation professionals in Taiwan, we requested the aid of some experienced professionals. The sampled professionals were invited to participate based on their experiences of early treatment and rehabilitation medical service for children. Care was taken to ensure that the individuals had rich medical service experiences. Because the AHP method was used in the study, it does not need a large number of experts in the opinion collection process [26,27], thus, twenty professionals were invited to participate in the expert questionnaire survey. These professionals were selected because of their rich experiences in early treatment and rehabilitation medical service for children, and they were contacted by researchers via e-mail and telephone to solicit their cooperation. A packet containing a cover letter with the promise of protecting the confidentiality of responses, a questionnaire, and a pre-addressed return envelope were mailed to each of the sampled professionals. After the questionnaires are delivered, a follow-up to the samples was conducted by e-mail and telephone to remind them of the importance of their responses and thank them for their assistance. A confidential statement was declared in the questionnaire to assure participants' responses would not be individually recognized. Those who participated in the study were also told that there are no right or wrong answers to each question and their responses are confidential.

The consistency test was used to validate the questionnaire [28]. If the returned questionnaire did not meet the consistency ratio value equal to or less than 0.1, or the respondents failed to complete the questionnaire, the questionnaires were considered invalid. Among all the 20 returned questionnaires, 17 valid questionnaires which met the consistency test were analyzed in the study. The valid questionnaires were all answered by professionals in the field of early treatment and rehabilitation medical service for children.

The 17 valid expert questionnaires were answered by 11 males (64.7%) and 6 females (35.3%), 10 in public sectors (58.8%) and 7 in private sectors (41.2%), including 6 occupational therapists (35.3%), 5 speech therapists (29.4%), and 6 physiotherapists (35.3%). In terms of seniority, 3 therapists (17.6%) had work experience of 6–10 years, 4 (23.5%) had 11 to 15 years, 6 (35.3%) had 16 to 20 years, and 4 (23.5%) had over 21 years. As these 17 respondents all are professional experts with rich experiences in early treatment and rehabilitation medical service for children and passed the consistency test, their responses are suitable for the AHP analysis.

3.2. Questionnaire Design

Referring to the service quality measurement scale [25] and the related literature [8,14,24,29–32], this study summarized five dimensions of the key success factors for the quality of rehabilitation medical services as tangibles, reliability, responsiveness,

assurance, and empathy, and developed 17 key success factors for the rehabilitation medical service quality. The description of each dimension and the quality of rehabilitation medical services are shown in Table 1. The early treatment and rehabilitation expert questionnaire was designed based on the hierarchical structure of the key success factors in Table 1.

Table 1. Key Success Factors for the Quality of Early Treatment and Rehabilitation Medical Services.

Dimension	Dimension Explanation and Description	Factor	Factor Explanation and Description
Tangibles	Treatment room equipment, environment, convenient transportation, and nice appearance	The treatment room is fully equipped	This refers to the treatment room being equipped with the following equipment: vestibular suspension, multi-functional slope, vestibular balance stimulation board, trampoline, hollow roller, etc. to provide high-quality treatment.
		The treatment room environment is clean and comfortable	This refers to the treatment room environment being cleaned and disinfected regularly, including treatment room equipment and commonly used treatment teaching materials.
		Convenient transportation and parking	This means that the early treatment and rehabilitation center has a convenient, comfortable, safe, and highly accessible transportation system and an external system, so that the case can easily reach the early treatment and rehabilitation center for treatment.
		Neat and comfortable treatment room	This refers to the early treatment and rehabilitation center having an appearance that attracts children's attention, such as children's cartoon architectural features or decorations. The appearance also affects the case and the family's feelings and perceptions of the early treatment and rehabilitation center.
Reliability	Therapists' ability to effectively provide correct professional treatment, advice, and treatment items	The treatment equipment is consistent with the treatment provided by the therapists	This means that the treatment equipment and staff of the early treatment and rehabilitation center meet the standards set by the competent authority.
		Professional advice can be understood by parents	The parents of the case can understand and cooperate with the case's professional treatment evaluation and suggestions provided by the therapists.
		Rehabilitation treatment can be completed within time	The treatment items offered by the therapists according to the doctor's prescription can be completed within the specified time.
		Professional treatment meets the needs of the case	The diagnoses and treatment prescription issued by the doctor and the professional treatment items performed for the child's rehabilitation by the therapists can meet the needs of the child.
Assurance	Therapists can provide appropriate professional treatment to the case or family members	Provide professional treatment in a timely and appropriate manner	The treatment items performed by doctors and therapists can be appropriately changed according to the progress of the case at any time.
		Able to respond to parents' questions appropriately	Doctors and therapists can respond appropriately to professional treatment questions raised by parents at any time.
		Therapists have professional knowledge and skills	Therapists have obtained certificates through national examinations, and continue to complete continuing education and training, in order that they have the highest quality professional treatment knowledge and skills.

Table 1. Cont.

Dimension	Dimension Explanation and Description	Factor	Factor Explanation and Description
Responsiveness	The professionalism and treatment of the therapists can make the case or family members have trust and confidence	Professionalism gives parents and the case confidence	Therapists provide professional treatment knowledge and proficient rehabilitation techniques that can be trusted by parents and cases.
		They will not delay the need for treatment due to busyness	The professional treatment of the case by the therapists will not be delayed due to other matters.
		Therapists are enthusiastic and professional in handling case problems	Therapists are very enthusiastic and professional in dealing with cases and professional treatment items.
Empathy	Therapists can provide individual care and empathy treatment	Give priority to the maximum treatment benefit of the case	Therapists can make the case progress in the shortest time according to their professional treatment knowledge and skills, without delay due to other matters.
		Be able to pay attention to individual treatment privacy	Therapists will not disclose the case of treatment during the treatment of the case.
		Be able to provide individualized treatment items	Therapists can give professional treatment and advice that best suits the condition of the case according to their professional treatment knowledge and continuation.

The content of the research questionnaire is divided into four parts. Part 1 is the basic data of the respondents, including the respondent's gender, age, position in the rehabilitation field, work experience in the field, and related profession. Part 2 is the questionnaire description, including the definition of each dimension and the meaning of the key success factors of each dimension, as illustrated in Table 1. Part 3 provides an example and explanation regarding answering the questionnaire. Part 4 is to check the relative importance of the dimension and each of the key success factors for constructing the quality of early treatment and rehabilitation medical services. The respondents of this questionnaire in this study were the professional therapists in the field of rehabilitation medicine, including physical, functional, and speech therapists. The questionnaires were distributed to selected professional therapists who are experts in the field of early treatment and rehabilitation medicine in Taiwan. To make sure that the respondents are familiar with the operations of early treatment and rehabilitation medical services for children, the study used the convenience sampling method to select suitable sample experts to answer the questionnaires.

3.3. Data Analysis

In order to understand the key success factors for constructing the quality of early treatment and rehabilitation medical services, the rehabilitation medical expert questionnaires collected in this study were analyzed using the analytic hierarchy process (AHP) to obtain the weights of the 5 evaluation dimensions and 17 key success factors, and rank them, respectively. The *Expert Choice* AHP Software was used in the study to calculate the weight values.

The AHP, which is a general evaluation theory, pays special attention to the consistency, evaluation criteria, and independence of each element in a structure, was developed by Professor Tomas L. Saaty of the University of Pittsburgh in 1971 [28]. The AHP has been widely used in multi-criteria decision making and planning as well as resource allocation and has been used by many researchers to determine the key success factors in many fields [26,27]. The AHP is a non-linear framework that simultaneously performs deductive and inductive thinking models, while incorporating many factors into the reference without the use of syllogism. The evaluation scale of the AHP is used to compare paired factors at each level and is basically divided into nine scales of equal importance: moderate

importance, strong importance, very strong importance, and extreme importance, which are assigned with the nominal scale evaluation values of 1, 3, 5, 7, and 9, respectively, while the other four evaluation values between these five evaluation values are assigned the values of 2, 4, 6, and 8 [28], as shown in Table 2. As a result, the AHP was performed in the study on the relative weights of the 5 dimensions and 17 key success factors.

Table 2. AHP Evaluation Scale and Description.

Evaluation Scale	1	3	5	7	9	2, 4, 6, 8
Definition	Equal importance	Moderate importance	Strong importance	Very strong importance	Extreme importance	Between the scales
Description	The two key success factors are equally important.	Experience and professionalism are slightly inclined to one key success factor.	Experience and professionalism are strongly inclined to one key success factor.	Experience and professionalism are very strongly inclined to one key success factor.	Experience and professionalism are absolutely strongly inclined to one key success factor.	When a compromise value is needed.

Step 1: Building a paired comparison matrix

According to Table 2, the comparison matrix of the relative importance of the scales between the evaluation factors is established, and the matrix type is, as follows:

$$a = \begin{bmatrix} 1 & a_{12} & \dots & a_{1n} \\ \frac{1}{a_{12}} & 1 & \dots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ \frac{1}{a_{1n}} & \frac{1}{a_{2n}} & \dots & 1 \end{bmatrix} \quad (1)$$

where $a_{ji} = \frac{1}{a_{ij}}$, $a_{ij} > 0$, $ij, i, j = 1, 2, \dots, n$, n represents the importance of element i to element j .

This paired comparison matrix A can be called a positive reciprocal matrix. In the case where all the comparison measures conform to the recurrence law, then i, j , and k are all valid, and A is the consistency matrix, and if the matrix A is obviously represented as $a_{ij} = w_i/w_j, i = 1, 2, \dots, n; j = 1, 2, \dots, n$, then, in the formula, $w_1, w_2, \dots, w_n$ represents level i as the weight of n evaluation elements under a certain element at level $i - 1$.

Step 2: Calculation of eigenvalues and eigenvectors

Multiply the matrix A by the weight vector of each element $w = (w_1, w_2, \dots, w_n)^T$, and the following is obtained:

$$Aw = \begin{bmatrix} 1 & w_1/w_2 & \dots & w_1/w_n \\ w_2/w_1 & 1 & \dots & w_2/w_n \\ \vdots & \vdots & \ddots & \vdots \\ w_n/w_1 & w_n/w_2 & \dots & 1 \end{bmatrix} \begin{bmatrix} w_1 \\ w_2 \\ \vdots \\ w_n \end{bmatrix} = nw \quad (2)$$

Because a_{ij} is the evaluation given during the pairwise comparison of the importance of the evaluation elements, there will be a certain degree of difference between it and the value of w_i/w_j ; when the value of w_i/w_j is confirmed to be different, then $Aw = nw$ is not established. If n is replaced by the largest eigenvalue λ_{max} of the relative matrix A , then it can reduce the occurrence of errors when $Aw = \lambda_{max}w$.

Step 3: Consistency test

There are two levels for the consistency test. One is to check whether the decision maker (or subject) answered the paired comparison matrix in a consistent manner during the evaluation process, and the other is to check whether the entire hierarchical structure is

consistent. The characterization quantity for evaluating consistency is called the consistency ratio (CR), and the consistency ratio is the consistency index (CI) to the random index (RI), that is, $CR = \frac{C.I.}{R.I.}$, where $C.I. = \frac{\lambda_{max} - n}{n - 1}$, and RI can be obtained from Table 3.

Table 3. Random Index.

Scale	1	2	3	4	5	6	7	8	9	10
R.I value	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49

Therefore, when judging or measuring the entire hierarchical structure, Saaty [27] recommended that the consistency ratio value should be less than or equal to 0.1, in order to guarantee consistency. In this study, each level of the questionnaire achieved the consistency index and the consistency ratio. The calculation method is to obtain its value by arithmetic average to obtain the verified data. According to the above calculation result, the consistency index is 0.0213, which is less than 0.1, and the consistency ratio is 0.0275, which is less than 0.1.

4. Results and Discussion

4.1. Research Results

The analysis results of each weight value are shown in Table 4. In terms of the evaluation dimensions, Reliability (0.3282) was considered the most important dimension by rehabilitation medical professional therapists; the second was Responsiveness (0.2311); Assurance (0.2154) and Empathy (0.1217) ranked the third and fourth; the last was Tangibles (0.1035), which was considered to be the least influential dimension of the five dimensions.

Table 4. Weight Values of Key Success Factors.

Dimension	Weight (Rank)	Key Success Factors	Weight (Rank)	Integrated Weight (Rank)
Tangibles	0.1035 (5)	The treatment room is fully equipped	0.3626 (1)	0.0375 (13)
		The treatment room environment is clean and comfortable	0.2915 (2)	0.0302 (14)
		Convenient transportation and parking	0.2187 (3)	0.0226 (16)
		Neat and comfortable treatment room	0.1272 (4)	0.0132 (17)
Reliability	0.3282 (1)	The treatment equipment is consistent with the treatment provided by the therapists	0.2426 (3)	0.0796 (05)
		Professional advice can be understood by parents	0.2467 (2)	0.0810 (04)
		Rehabilitation treatment can be completed within time	0.1235 (4)	0.0405 (11)
		Professional treatment meets the needs of the case	0.3872 (1)	0.1271 (01)
Responsiveness	0.2311 (2)	Provide professional treatment in a timely and appropriate manner	0.3152 (2)	0.0729 (06)
		Able to respond to parents' questions appropriately	0.2229 (3)	0.0515 (09)
		Therapists have professional knowledge and skills	0.4618 (1)	0.1067 (02)
Assurance	0.2154 (3)	Professionalism gives parents and the case confidence	0.4465 (1)	0.0962 (03)
		They will not delay the need for treatment due to busyness	0.2200 (3)	0.0474 (10)
		Therapists are enthusiastic and professional in handling case problems	0.3335 (2)	0.0718 (07)
Empathy	0.1217 (4)	Give priority to the maximum treatment benefit of the case	0.4680 (1)	0.0570 (08)
		Be able to pay attention to individual treatment privacy	0.2037 (3)	0.0248 (15)
		Be able to provide individualized treatment items	0.3283 (2)	0.0400 (12)

Regarding the most key success factors in each dimension:

- (1) In the Tangibles dimension, complete therapist equipment is the most important key success factor.

- (2) In the Reliability dimension, professional treatment meets the needs of the case is the most important key success factor.
- (3) In the Responsiveness dimension, therapists have professional knowledge and skills is the most important key success factor.
- (4) In the Assurance dimension, professionalism gives parents and the case confidence is the most important key success factor.
- (5) In the Empathy dimension, the most important key success factor is giving priority to the maximum treatment benefit of the individual case.

4.2. Discussions

This study referred to the number of key success factors put forward by several researchers [33], who suggested that each industry has two to six factors that determine whether it can be successful, and these factors must be maximized if a company or industry wants to succeed. According to the results of this study, as shown in Table 4, the difference between the sixth (0.0729) and the seventh (0.0718) values of the integrated weight ranking is very small, and there is a large gap between the seventh (0.0718) and the eighth (0.0570) values. Thus, this study used the first seven key success factors in the order of: professional treatment meets the needs of the case, therapists have professional knowledge and skills, professionalism gives parents and the case confidence, professional advice can be understood by parents, the treatment equipment is consistent with the treatment provided by the therapists, provide professional treatment in a timely and appropriate manner, and therapists are enthusiastic and professional in handling case problems. The study focuses on these seven key success factors.

4.2.1. Professional Treatment Meets the Needs of the Case

Regarding the satisfaction dimension measuring the satisfaction of children with early treatment and rehabilitation treatment, parents generally positively affirmed their “satisfaction with hospital rehabilitation treatment equipment, environment, professional competence, and overall service” [8]. Regarding the professional field of early treatment and rehabilitation, after rehabilitation physicians issue their rehabilitation treatment prescription, as based on their professional diagnosis according to the child’s developmental delay, the required rehabilitation physicians, and physical, functional, and speech therapists execute the treatment for the professional rehabilitation of children [6,34]. During treatment, the therapist of the relevant profession must design a rehabilitation treatment course in line with the child’s case, as prescribed by the physicians, and the child can learn from these rehabilitation treatment courses to reduce or slow the degree of developmental delay. The managers of early treatment rehabilitation centers should pay attention to the professional quality of their rehabilitation medical services, which will help improve the patient’s overall satisfaction with the service [8]. In addition, they should design the most suitable rehabilitation treatment courses for children, in order for the children to be able to quickly learn skills development and slow their developmental delay, which would ease the burden on parents, and the future economic cost to society can be reduced.

4.2.2. Therapists Have Professional Knowledge and Skills

Parents have higher expectations for the two items therapists have sufficient professional knowledge and therapists have sufficient experience in rehabilitation treatment, which show that parents attach great importance to whether the therapist has sufficient professional knowledge, experience, and skills [31,35]. Tsai and co-workers [30] also found that medical staff that can provide technically proficient professional services have the highest importance weight in their study. Their results are the same as the results of this study. After obtaining a professional certificate, medical staff (physicians and therapists) must continue to receive continuing education in the following courses: professional courses, professional quality, professional ethics, and professional-related regulations to ensure that professionals can continue to receive the latest medical professional knowledge and skills in

terms of expertise and technology [21]. Managers of early treatment rehabilitation centers should pay attention to strengthening the professional continuing education and training of therapists [32], including professional courses, quality, ethics, and regulations, which helps to improve the professional knowledge and skills of rehabilitation professionals and ensures that they can provide the most professional rehabilitation medical treatment courses for mentally handicapped children.

4.2.3. Professionalism Gives Parents and the Case Confidence

The quality of professional medical services has a direct effect on patient satisfaction [36,37]. The satisfaction of the parents of children with developmental delays with medical care can reflect the quality of the care services provided by medical care providers [38]. After rehabilitation physicians inform the parents of the child's current condition and treatment methods in detail, therapists can design and provide professional treatment courses and fully communicate the planned rehabilitation measures to the parents [19], thus, the parents can fully understand the degree of developmental delay in the case, cooperate with the implementation of the relevant treatment course, and follow the recommendations given by the rehabilitation physicians and therapists, in order for the case to receive the most appropriate rehabilitation treatment course. Managers of early treatment and rehabilitation centers should understand that the quality of professional medical services has a direct impact on patients' and parents' satisfaction with the treatment. Moreover, it reflects the quality of the treatment provided by the rehabilitation medical treatment providers. If parents and patients can fully cooperate with the treatment courses and suggestions provided by the physicians and therapists, the degree of developmental delay of the case can be slowed [21].

4.2.4. Professional Advice Can Be Understood by Parents

The most effective way to improve the satisfaction of cases with medical services is for rehabilitation professionals to increase the discussions of the condition with the case family [39], as repeated information exchange about a treatment course and treatment suggestions with the parents can bring high effectiveness to early treatment and rehabilitation [34]. The fact that the professional advice provided by therapists can be understood by parents is relatively important to meet the expectations of therapists' service quality [32,40]. Regarding the quality of early treatment and rehabilitation medical services, it is difficult to meet the rehabilitation-related needs of cases with developmental delays with only a single rehabilitation medical profession; therefore, different rehabilitation and medical professional teams need to provide an integrated approach for cases with developmental delays and their families through various cooperation modes between the professions. Inter-professional cooperation models are often used in current practices for early treatment and rehabilitation medical treatment in Taiwan, in order to implement the assessment of child development plans and their family needs and provide early treatment, rehabilitation medical treatment, and consultation advice [8,16]. Then, various professional rehabilitation therapists can formulate and implement the planned rehabilitation measures, as based on the doctors' diagnosis and prescribed treatment. Early treatment and rehabilitation center managers should pay attention to cross-team rehabilitation professional treatment to improve the quality of rehabilitation medical services [9]. At present, it is difficult for a rehabilitation treatment to meet the needs of cases with developmental delay and their families with a single rehabilitation medical profession, thus, it is necessary to establish a cross-team cooperative treatment model for rehabilitation medical services.

4.2.5. The Treatment Equipment Is Consistent with the Treatment Provided by the Therapists

Institutional environmental factors are the most important obstacle to empirical treatment. Therapists with more than 5 years of work experience believe that institutions lack the appropriate equipment to implement new treatment models [41]. Various factors, such as the comfort of the treatment environment, treatment effects, and treatment expertise

and competence, will all affect patients' medical care behaviors [42]. As the established standards of medical institutions in Taiwan [43], the following are stipulated: (1) those with physical therapy facilities should have exercise treatment rooms and related facilities with a space of at least 60 m²; (2) those with functional treatment facilities should have functional training rooms and related facilities with a space of at least 30 m²; (3) those with speech therapy facilities should have more than 20 m² of space, and those with hearing treatments should have a space of at least 30 m². Providing early treatment and rehabilitation center managers with important research information directly affects the patient's satisfaction with treatment service quality and medical behavior factors, including institutional environment, treatment equipment, treatment effects, and treatment expertise and ability [34].

4.2.6. Provide Professional Treatment in a Timely and Appropriate Manner

Outpatient rehabilitation medical services and patients' satisfaction with rehabilitation treatment can be improved through professional treatment quality management methods [44]. The conditions of cases with developmental delays will change with age [38], thus, the rehabilitation treatments of physicians and professional rehabilitation therapists must change with the changes in the case in order to better meet the treatment needs of the case over time and slow the developmental delay of the case. Early treatment and rehabilitation center managers should address the changes in the conditions of mentally handicapped children, and the doctors and therapists must change their treatment prescriptions over time to facilitate the treatment progress of the cases [8].

4.2.7. Therapists Are Enthusiastic and Professional in Handling Case Problems

Case satisfaction is most relevant to the therapist's high-quality interaction with the case, such as the willingness to spend more time fully explaining and guiding the case's condition [40], but has no strong correlation with the location of the medical institution or parking space. If an institution places emphasis on cost reduction, treating a larger number of cases may jeopardize case satisfaction [45]. In a study of medical service quality in Taiwan [30], medical staff can deal with patients' problems promptly and quickly has been found to be the most important item in the responsiveness dimension, which took patients as the subjects. The managers of early treatment and rehabilitation centers should focus on the treatment of mentally handicapped children through various treatment courses to better deal with their diseases with the most professional rehabilitation treatment [7].

In summary, Reliability and Responsiveness had the highest weights for the quality of rehabilitation services. The two key success factors of professional treatment meet the needs of the case and therapists have professional knowledge and skills were the two most important success factors. Obviously, hospital therapists' emphasis on the quality and professionalism of their rehabilitation medical services provide relatively important management factors and operational indices for rehabilitation medical institutions.

The quality of rehabilitation medical services indeed has an impact on patients' satisfaction with treatment; thus, it is necessary to improve the quality of rehabilitation medical-related professional services for medical rehabilitation institutions to achieve the goal of high patient satisfaction with service quality. The patient behavior intention of willingness to recommend is mainly affected by satisfaction, thus, the impact of the quality of rehabilitation treatment on willingness to recommend also needs to be promoted through patient satisfaction. Therefore, if rehabilitation medical institutions want to increase the income and profit of their rehabilitation treatments through patient recommendations, the key is still to improve the professional knowledge and skills of the therapists to achieve the highest service quality and patient satisfaction by meeting the needs of the case.

Based on the above suggestions and the relevant results of this study, the following suggestions for the management direction of rehabilitation medical institutions are proposed for their reference. In order to improve the progress of early treatment cases, increase parents' satisfaction with rehabilitation treatment services, and establish a differentiated

business model for early treatment and rehabilitation institutions, efforts must be made towards improving the professional quality of the therapists. This means to strengthen professional quality, as well as the abilities of the communication, resilience, and rehabilitation team cooperation of the existing equipment scale; strengthen the exploration of the needs of the case, and increase parental rehabilitation involvement and health education consultations; provide staff with continuing professional training to strengthen their professional rehabilitation evaluation abilities case by case, and increase health education consultations, treatment activity courses, and other professional rehabilitation items; and track the progress of patients and give parents or patients appropriate professional treatment recommendations. Such measures will help rehabilitation medical care centers to achieve the best quality of rehabilitation medical services and maximize the satisfaction of customers.

5. Conclusions

This study took early treatment and rehabilitation centers in Taiwan as examples to explore the key success factors regarding the quality of rehabilitation medical services in early treatment and rehabilitation centers for children, which will be an important reference to improve the quality of early treatment and rehabilitation medical services. The AHP method was used to explore the key success factors of the quality of early treatment and rehabilitation medical services. First, this study initially summarized 5 measurement dimensions, and their 17 key success factors, and released expert questionnaires to the rehabilitation medical professional therapists. Then, the relative weights of each measurement dimension, as well as their key success factors, were calculated by the AHP, and the results show that, in terms of evaluation dimensions, Reliability was considered by professional therapists in rehabilitation medicine to be the most important dimension, followed by Responsiveness. The first seven key success factors for constructing the quality of early treatment and rehabilitation medical services for children are, respectively, professional treatment meets the needs of the case, therapists have professional knowledge and skills, professionalism gives parents and the case confidence, professional advice can be understood by parents, therapeutic equipment is consistent with the treatment provided by the therapists, provide professional treatment in a timely and appropriate manner, and therapists are enthusiastic and professional in handling case problems.

The present study only considers the professional opinions of 17 experts familiar with the operations of early treatment and rehabilitation medical services for children. Future studies may consider the opinions of more experienced professionals with different disciplines, such as occupational therapists, physiotherapists, and speech therapists, to conclude a more thorough evaluation of the key factors for medical service quality. In addition, the opinions of the patients as well as their parents can also be taken into consideration in the future studies because they participate in the rehabilitation process and may provide other views on the evaluation of the key factors for medical service quality. Furthermore, because this paper focuses on the early treatment and rehabilitation medical services in Taiwan and examines Taiwanese experts' opinions on the key success factors for constructing the medical service quality, the research findings may be limited in their generalizability. Different countries may lead to conclusions different from the present study. Future studies can use the proposed model for other countries.

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