國立中山大學管理學院高階經營碩士學程碩士在職專班

碩士論文

比較不同科別對民眾接受美容處置考慮因素的影響

—以雷射或脈衝光治療為例

Decision Factors in Patients Receiving Cutaneous Laser and Intense Pulsed Light Treatment for Aesthetic Purposes

研究生：宗天一 撰

指導教授：高明瑞博士 楊東震博士

中華民國 九十四 年 五 月

中文摘要

雷射及脈衝光爲最受大眾歡迎的二種美容治療。有愈來愈多醫師，不論其訓練背景爲何，相繼投入有利可圖的美容服務，實乃因爲目前對醫師從事相關業務無法可管。本研究的目的，在試圖找出不同專科的醫師在美容區塊的優劣勢。利用因素分析，我們從十九項選擇醫師時考量因素中，粹取出其中主要決定因素。再利用層級分析法，計算出各主要決定因素的相對權重，以及皮膚科、整型外科和美容科醫師在各主要決定因素的相對優劣勢。受訪者在閱讀皮膚科、整型外科醫師訓練綱要後，再次勾選上述三科的相對表現。結果顯示醫療專業性(0.3296)爲最重要的主要決定因素，緊接在後的分別是推薦聲譽性(0.2198)、醫療友善性(0.1350)、成本便利性(0.1307)、附帶性醫療服務(0.0984)及醫師個別差異性(0.0865)。其中皮膚科除了在爲整型外科強項的附帶性醫療服務外，均佔有優勢。此外研究也發現，年齡在四十歲以下、具大專學歷、每月可動用金額在貳萬臺幣以下的新病患較容易受外來訊息影響，改變其對醫師的評價。在本研究中，則傾向提高對皮膚科醫師的評價。

關鍵字: 因素分析、層級分析法、選擇醫師、雷射美容、專科醫師

ABSTRACT

Cutaneous laser and intense pulsed light treatments are two of the most popular aesthetic treatment modalities. More and more physicians regardless of their training background are providing such profitable services because there is still no regulation on the cosmetic procedures a physician can perform. The purpose of the present study was to find out the relative strength and weakness of different medical specialties in providing laser and intense pulsed light treatment. Major decision factors for physician selection were extracted from 19 physician choice criteria with factor analysis. Using analytic hierarchy process, the relative weight of these factors and that of dermatologists, plastic surgeons and aesthetic practitioners in each factor were calculated. After reading the training curricula of dermatologists and plastic surgeons, respondents were asked to rate again the 3 medical specialties. Our results indicated that medical competence (0.3296) was the most important major decision factor followed by recommendation (0.2198), friendliness (0.1350), cost (0.1307), complete service (0.0984) and physical attribute of the physician (0.0865). Compared with plastic surgeons and aesthetic practitioners, dermatologists had an advantage in all factors except complete service, which was the strength of plastic surgeons. New patients, aged under 40, with a college degree and a monthly allowance less than 20000 NTD were more likely to change their rating in favor of dermatologists after

reading the curriculum profile..

Keywords: factor analysis, analytic hierarchy process, physician selection, cosmetic laser, medical specialty

TABLE OF CONTENTS

ABSTRACT i
TABLE OF CONTENTS iv
LIST OF TABLES vi
LIST OF FIGURES ix
CHAPTER 1 INTRODUCTION
1.1 Research Background 1
1.2 Research Purposes 3
1.3 Research Process 4
CHAPTER 2 LITERATURE REVIEW
2.1 Physician Choice Criteria 7
2.2 Interdisciplinary Cooperation and Competition 9
2.3 Bounded Rationality in Health Care Decision 11
2.4 Cosmetic Laser and Intense Pulsed Light Treatment 12
CHAPTER 3 METHODOLOGY
3.1 Factor Analysis 15
3.2 Analytic Hierarchy Process 17
3.2.1 Analytic Hierarchy Process in Medical Issues 20
CHAPTER 4 RESEARCH DESIGN
4.1 Major Decision Factors in Physician Selection 21
4.2 Hierarchy Structure for Physician Selection 22
4.3 Statistic Analysis 27
CHAPTER 5 RESULTS
5.1 Exploratory Principal Factor Analysis 29
5.1.1 The Importance of Each Choice Criterion 29
5.1.2 Internal Consistency and Item Reduction 30
5.1.3 Definitions of Major Decision Factors 31
5.1.4 Summary of Factor Analysis 32
5.2 Analytic Hierarchy Process 32
5.2.1 Analysis of Relative Importance of 6 Major Decision Factors 32
5.2.2 Analysis of Medical Specialties 38
5.2.3 The Effect of Information Disclosure 48
5.2.4 Summary of Analytic Hierarchy Process 54
CHAPTER 6 DISCUSSION AND CONCLUSION
6.1 Discussion 56

6.2 Conclusion 61
6.3 Research limitations 62
6.3.1 Major Decision Factors 62
6.3.2 Individual Variation 62
6.3.3 Location Concerns 62
6.3.4 Cultural Concerns 63
6.4 Implication 63
REFERENCES 64
ACKNOWLEDGMENT 69
APPENDIX 70
Appendix 1 70
Appendix 2 72

LIST OF TABLES

Table 1 Summary of findings from the literature on most important physician selection criteria…….7
Table 2 Types of lasers according to the media and their cutaneous application…….13
Table 3 The pair-wise comparison scale……...19
Table 4 The characteristics of the respondents for factor analysis……...22
Table 5 The characteristic of respondents passing the consistency tests……..26
Table 6 Distribution of occupations in the respondents……...27
Table 7 Physician selection criteria in cosmetic treatments…….29
Table 8 Factorial coefficients of the 17 items after rotation…….30
Table 9 The relative weights of main decision factors…….33
Table 10 The relative weights of main decision factors categorized by patients' age..33
Table 11 The relative weights of main decision factors categorized by patients' gender……...34
Table 12 The relative weights of main decision factors categorized by patients' marital status…….34
Table 13 The relative weights of main decision factors categorized by patients' level of education……..35
Table 14 The relative weights of main decision factors categorized by patients' monthly allowance at disposal…….35
Table 15 The relative weights of main decision factors categorized by the frequency of patients' social activities……..36
Table 16 The relative weights of main decision factors categorized by patients' source of information……...36
Table 17 The relative weights of main decision factors categorized by the number of treatments received……...37
Table 18 The relative weights of main decision factors categorized by the expense patients spending on cutaneous cosmetic treatment…….37
Table 19 The relative weights of main decision factors categorized by the type of physician performing the latest treatment……38
Table 20 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in 6 major decision factors……..39
Table 21 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patients' age……..39
Table 22 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patient's gender…….40
Table 23 The relative strength of dermatologists, plastic surgeons and aesthetic

practitioners based on patient's marital status……..41
Table 24 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patient's level of education……...42
Table 25 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patients' monthly allowance at disposal……...43
Table 26 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on the frequency of patients' social activities……...44
Table 27 The relative strength of dermatologist, plastic surgeons and aesthetic practitioners based on patients' source of information…….45
Table 28 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on the number of treatments received……...46
Table 29 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on the expense patients spending on cutaneous cosmetic treatments……....46
Table 30 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on the type of physician performing the latest treatment……..48
Table 31 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure……..49
Table 32 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' age……...49
Table 33 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' gender…….50
Table 34 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' marital status……...50
Table 35 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' level of education……51
Table 36 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' monthly allowance at disposal……51
Table 37 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on the frequency of patients' social activities…….52
Table 38 The relative strength of dermatologists, plastic surgeons and aesthetic

practitioners in terms of medical competence before and after information disclosure based on patients' source of information……..52
Table 39 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on the number of treatments received……53
Table 40 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on the expense patients spending on cutaneous cosmetic treatment……..53
Table 41 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on the type of physician performing the latest treatment……...54
Table 42 The relative overall performance according to the type of physician performing the latest treatment…….59

LIST OF FIGURES

Figure 1 The flowchart of research process……..…….6
Figure 2 Hierarchy structure for physician selection……...……25
Figure 3 Cosmetic procedure ladder……..…..…….60

CHAPTER 1 INTRODUCTION

1.1 Research Background

The health care industry had experienced rising pressures from government, business, and patients to improve the quality of care while continuing to lower costs. At the same time, health care is becoming increasingly competitive because of an ample supply of physicians and hospitals. As a result of these pressures, health care providers have turned to the use of marketing strategies to gain a competitive edge over rivals. In addition, the overall implementation of global budgeting of the medical insurance in Taiwan since last year has further narrowed the profit margin of health care services. The continuously lowering trend of the dollar value per service point reimbursed by the medical insurance, ie, cost constraint, makes the situation even worse. Current market forces are driving the health care industry in new directions. To increase profit, health care providers, both organizations and individual practitioners, began to expand and to develop medical services not covered by the medical insurance.

Aesthetic medicine, a booming medical activity, is regarded to be a potentially profitable market for health care providers (Legrand, 2004). However, little has been done in the literature to explore the demands of aesthetic patients. Unlike medical

services covered by the medical insurance, patients seeking elective aesthetic treatments may have different concerns. For example, fees may become a more critical factor in their decision process when the procedures can not be reimbursed. Indeed, decision factors in selecting cosmetic surgeons for cosmetic and medical procedures vary. Board certification is the most influential factor for cosmetic patients while recommendation by physician the most influential one for medical patients (Nowak and Washburn, 1998).

Cutaneous laser and intense pulsed light treatments are two of the most popular aesthetic treatment modalities in Taiwan. More and more physicians, either dermatologists or plastic surgeons, provide such services. However, like in the United States, physicians in Taiwan have essentially no limitation on the procedures they can perform. In other words, doctors regardless of their training background are welcome to enter the market, and the competition therefore becomes more intense. In the UK, the Cosmetic Surgery Interspecialty Committee was formed in 2002 in response to a widely shared concern within government, the Medical Royal Colleges, patient liason groups and private health care establishments that a large amount of cosmetic surgery was being performed by practitioners with little formal training (Markey, 2004). At present, cosmetic treatments are mainly performed by dermatologists, plastic surgeons, and in the United States by otolaryngologists as well. Unlike dermatologists and

plastic surgeons, doctors of other medical specialties usually do not emphasize on their training background and are more likely to claim themselves as aesthetic practitioners. However, a small number of dermatologists and plastic surgeons focusing mainly on cosmetic surgery also regard and market themselves as aesthetic practitioners.

Previous studies on aesthetic medicine focused mainly on patients' intention (Wu, 2001; Tsai, 2004). The present situation of medical specialties in the cosmetic market has never been surveyed. However, Krieger (2002) commented that plastic surgeons were at a disadvantage to dermatologists and otolaryngologists because plastic surgeons did not have the type of primary care patients who created a powerful gatekeeper role. In addition, plastic surgeons, even if they are primarily cosmetic, mostly focus on the big surgical cases such as face lift. The smaller procedures, such as laser hair removal, various wrinkle-reversing injections, chemical peels, etc. do not typically compose a significant portion of the surgeon's practice by choice. When the plastic surgeon does do these procedures, they are often delegated to a physician's assistant or nurse, completely wasting the opportunity to educate these patients.

1.2 Research Purposes

The aim of this study was to explore the competitiveness of different medical

specialties, particularly dermatologists and plastic surgeons, in cutaneous laser and intense pulsed light treatment from patients' points of view. We would like to know the current market situation and then to explain why some patients sought dermatologists but some sought plastic surgeons for the above-mentioned treatments. In addition, some patients received their treatment from a gynecologist or an orthopedic surgeon. What drove them to make such a decision? Could patients' preference for a medical specialty be changed after some information was provided? If yes, what were the characteristics of these patients? To sum up, the purposes of this research were:

1) the present situation of dermatologists, plastic surgeons and aesthetic practitioners in cutaneous cosmetic laser and cosmetic pulsed light treatment and their relative strength.

2) identification of the characteristics of patients who were more likely to be influenced by information manipulation.

1.3 Research Process

To answer the raised questions, an indirect approach by means of questionnaires was taken. First of all, we had to know how patients made their decision when seeking cutaneous cosmetic treatment. The decision factors in physician selection were

reviewed. After factor analysis, the major decision factors for cutaneous cosmetic treatment were extracted. Then their relative weights in patients receiving cutaneous laser and intense pulsed light treatment for aesthetic purposes were calculated with the help of analytic hierarchy process. In addition, in order to evaluate the relative strength of cosmetic doctors of different specialty background, the relative performance of dermatologists, plastic surgeons and aesthetic practitioners in each extracted major decision factor was assessed again using the analytic hierarchy process. By adding the weighted relative performance of each medical specialty in all decision factors, one could have the relative weight of the overall performance of dermatologists, plastic surgeons, and aesthetic practitioners. It was assumed that a rational patient would choose his doctor based on the result of calculation. Besides, we would like to know how patients changed their rating of medical specialty after some information was provided. The flowchart of our research process is presented as Figure 1.

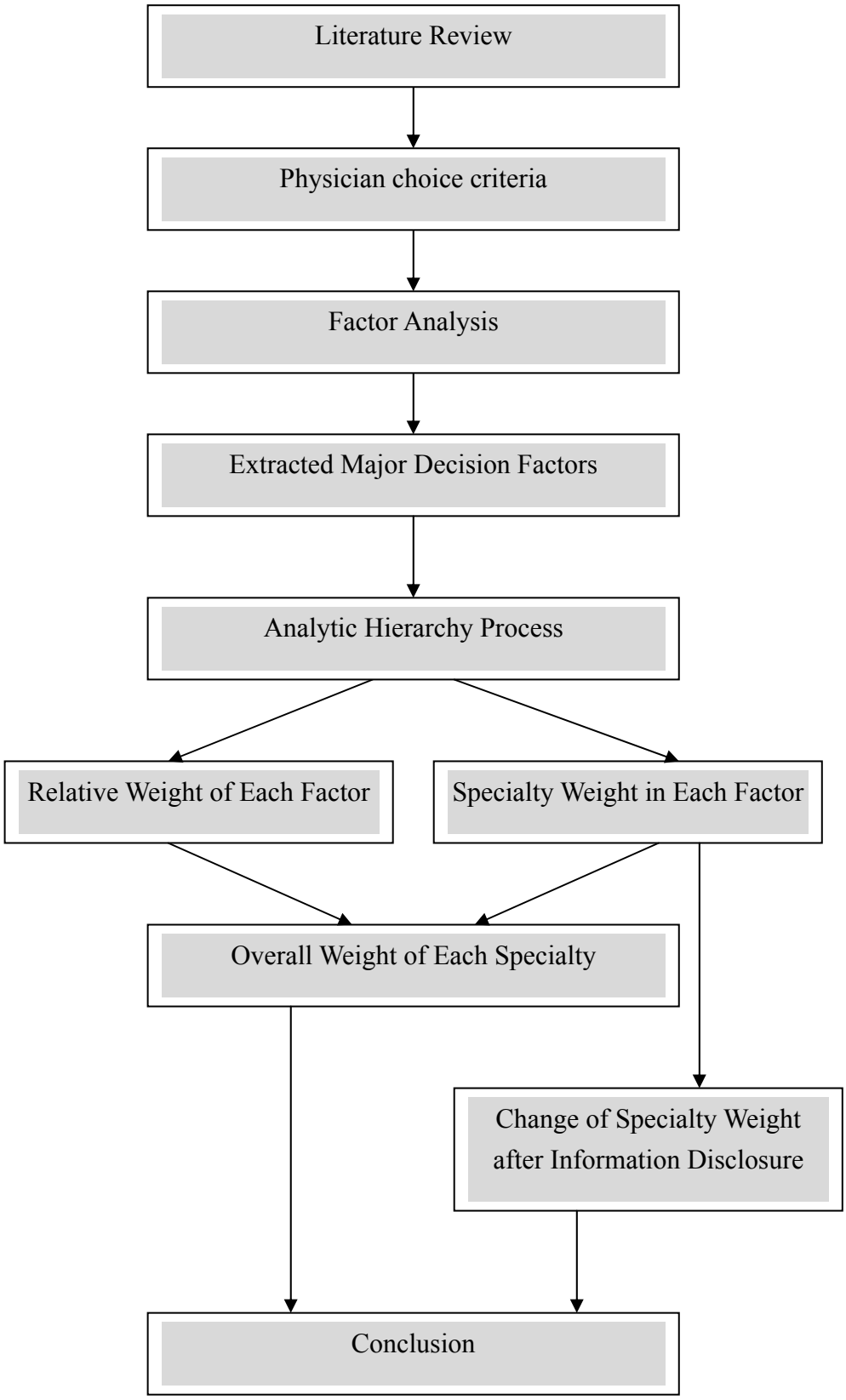

Figure 1 The flowchart of research process

CHAPTER 2 LITERATURE REVIEW

2.1 Physician Choice Criteria

The opportunity to select one's personal physician has positive influence on patients' overall satisfaction, even in a setting of limited physician choice (Schmittdiel, et al, 1997). However, physician choice criteria cited in the literature rarely are directly comparable because of different terminology. In addition, the purpose and the methodology of each study may be different. Nevertheless, some general comparisons can be made. In general, courtesy, competence, reputation, and interpersonal skills are known as the primary factors. Table 1 presents a general summary of the criteria found to be most important in the selection of a doctor.

Table 1 Summary of findings from the literature on most important physician selection criteria

Hill (1991)	Seems interested in my problem
	Explains what they are doing and why
	Offers practical solution
	Seems knowledgeable
	Asks me appropriate questions
	Spends enough time with me
	Treats me in a personal manner
Stewart et al (1989)	Good listener
	Willing to discuss treatment alternatives
	Tries to avoid hospitalization
	Formal qualifications
	Not in a hurry

Crane and Lynch (1988)	Courtesy
	Competence
	Reputation
	Interpersonal skill
	Access/availability
Lamb, Hoverstad, and Lancaster (1988)	Willing to talk about illness
	Recommended by others
	Access to preferred hospital
	Good personality
MacStravic (1987)	Caring
	Competent
	Trustworthy
	Informative
	Available
Schleff and Schaffer (1987)	Time/explanation given
	Can get appointment easily
	Courtesy of personnel
	Keeps appointment
Gochman, Studenborg, and Feler (1985)	Communicative
	Caring
	Takes time
	Competent
	Listens
	Friendly
	Thorough
	Interested
Glassman and Glassman (1981)	Kind and nice
	"Good" doctor
	Answers questions
	Patient
Kasteler et al (1976)	Cost and convenience
	Time spending talking
	Confidence in competence

In addition, the factors patients consider when choosing a physician vary according to the type of physician they choose. When seeking a generalist or family

doctor, patients are more concerned with the fees charged by the physician, the physician's willingness to explain things and the length of the office waiting time (Hanna, et al, 1994). However, when seeking a specialist, the physician's specialty is the very key selection factor. All other factors are secondary. As for obstetricians, recommendation by a friend or relative is the most important decision factor (Glassman and Glassman, 1981). In addition, when selecting a plastic surgeon, the decision factors of cosmetic and medical patients vary significantly (Nowak and Washburn, 1998). In contrast to medical purposes, the most influential factors in deciding which plastic surgeon's service to use for cosmetic procedures are "board certification" and "education and experience".

To some extent, selecting a physician is related to hospital selection. Modern facility has always been one of the choice criteria when patients choose a hospital (Boscarino and Steiber, 1982; Kurz and Wolinsky, 1985; Javalgi et al, 1991; Taylor and Capella, 1996). Because we focus on laser and intense pulsed light, modern facility becomes one of the important considerations when choosing a physician.

2.2 Interdisciplinary Cooperation and Competition

Because medical specialties are arbitrarily divided, overlapping scopes of interests are not seldom found among different medical specialties. For example, traditionally

patients with venereal diseases are treated by dermatologists. However, urologists and gynecologists also treat male and female patients with venereal diseases respectively. In addition, due to the infectious nature of venereal diseases, infection specialists sometimes also take care of patients with venereal diseases. To provide better health care for patients, interdisciplinary cooperation is advocated by medical specialties. For example, a study showed that more than half of the dermatologists and even higher percentage of gynecologists and general practitioners agreed the necessity of an interdisciplinary vulval clinic (Bauer, et al, 1999). However, little had been mentioned in the literature about interdisciplinary competition. One of the reasons why interdisciplinary competition is rarely discussed in the literature is that such a discussion will inevitably denigrate one of the medical specialties. General surgeons with more access to patients needing vascular surgeries would definitely deprive residents of vascular surgery of training opportunities (Cronenwett, 2004). In a mail survey on academic plastic surgery, more than 85 percent of the respondents reported that their institution had individuals in other disciplines competing with them for income and patients. Individuals with skills in other medical disciplines might be viewed by the hierarchy of the teaching hospital as adequate substitutes for plastic surgeons (Miller, 1998).

2.3 Bounded Rationality in Health Care Decision

The rational decision-making model, also referring to as an optimizing model of decision-making, is based on 3 assumptions.

1) People are always fully informed about both their options and all the potential consequences of these options.

2) Sensitive to every distinction among options, no matter how subtle or insignificant.

3) Completely rational.

However, Herbert Simon claimed that people are reasonably, but not totally rational, namely, rational within limits. This so-called bounded rationality model suggests that people reduce problems and decisions to a level at which they can be understood. The decision-maker is assumed to choose a solution that is not quite the ultimately perfect choice or is assumed to choose the first solution that is 'good enough' based on his limited capacity to handle complexity, ambiguity and information. As for physician selection, Glassman and Glassman (1981) claimed that a rational patient would try to choose the best physician, or otherwise it would be psychologically unacceptable for the patient with positive self-esteem to engage in a behavior that was physically, socially or psychologically harmful. However, what the best meant varied among the patients.

The demand for health care is one of the best examples of bounded rationality.

In almost no other aspect of life is one able to find such an enormous amount of examples of the divergence between the predictions made by the rational choice model used by economists and real behavior: cognitive limitations in perception and processing of probabilities, and influence of emotions on treatment decisions to name but a few. Sometimes individuals completely dispel their body signals that tell them something is seriously wrong. The lack of self-control and inability to keep to their desired goal as planned cause many people extreme unhappiness. Therefore, theories of the effect of emotion as well as theories of self-control in conjunction with time-inconsistent preferences should be incorporated into models of the demand of health.

2.4 Cosmetic Laser and Intense Pulsed Light Treatments

The term laser is an acronym for light amplification by the stimulated emission of radiation. The therapeutic action of laser energy is based on the unique properties of laser light itself and complex laser-tissue interaction. Monochromaticity, namely single wavelength, is the first property of laser light. The second property, coherence, refers to laser light traveling in phase with respect to both time and space. Lastly, collimation of laser light indicates emission of a narrow, intense beam of light in parallel fashion to achieve its propagation across long distances without light

divergence. In contrast to laser, intense pulsed light source emits non-coherent light within the 500- to 1200-nm portion of the electromagnetic spectrum. In addition to laser and intense pulsed light, non-ablative radiofrequency has been introduced to the market recently to improve skin laxity (Kushikata, et al, 2005).

Cutaneous laser surgery was revolutionized in the1980s with the introduction of selective photothermolysis. Specific destruction of the target chromophore, either melanin or oxyhemoglobin, makes minimal unwanted thermal injury in the surrounding skin possible. On the other hand, intense pulsed light is increasingly used for the treatment of photo-damaged skin (Bjerring et al, 2004). The types of laser and their application are summarized in Table 2.

Table 2 Types of lasers according to the media and their cutaneous application

Laser type	Wavelength(nm)	Cutaneous application
Argon (CW)	418/514	Vascular lesions
Argon-pumped tunable dye (quasi-CW)	577/585	Vascular lesions
Copper vapor/bromide (quasi-CW)	510/578	Pigmented lesions, vascular lesions
Potassium-titanyl-phosphate	532	Pigmented lesions, vascular lesions
Nd:YAG, frequency-doubled	532	Pigmented lesions, red/orange/yellow tattoos
Pulsed dye	510 585-595	Pigmented lesions Vascular lesions, hypertrophic/keloid scars, striae, verrucae, nonablative dermal remodeling

Ruby	694	
Quality-switched		Pigmented lesions, blue/black/green tattoos
Normal mode		Hair removal
Alexandrite	755	
Quality-switched		Pigmented lesions, blue/black/green tattoos
Normal mode		Hair removal, leg veins
Diode	800-810	Hair removal, leg veins
Nd:YAG	1064	
Quality-switched		Pigmented lesions, blue/black tattoos
Normal mode		Hair removal, leg veins, nonablative dermal remodeling
Nd-YAG, long-pulsed	1320	Nonablative dermal remodeling
Diode, long pulsed	1450	Nonablative dermal remodeling
Erbium:glass	1540	Nonablative dermal remodeling
Erbium:YAG (pulsed)	2490	Ablative skin resurfacing, epidermal lesions
Carbon dioxide (CW)	10600	Actinic cheilitis, verrucae, rhinophyma
Carbon dioxide (pulsed)	10600	Ablative skin resurfacing, epidermal/dermal lesions
Intense pulsed light source	515-1200	Superficial pigmented lesions, vascular lesions, hair removal, nonablative dermal remodeling

Adapted from Tanzi et al, 2003.

CHAPTER 3 METHODOLOGY

3.1 Factor Analysis

Factor analysis was first introduced by Dr. Thurstone (1947) and is applied as a data reduction or structure detection method. It can be classified as exploratory or confirmatory on the basis of the researcher's objective (Conway and Huffcutt, 2003; Pohlmann, 2004). Exploratory factor analysis is used to gain insight into the structure or underlying processes that explain a collection of variables. The term structure describes the relationships between latent variables and measured variables. Confirmatory factor analysis is used when a researcher has a number of well-articulated theories about the latent structure of a set of measure variables and wishes to test how well those models fit the data.

Precise rules for the number of factors replace ad hoc decisions about the number of factors (dimensionality) and transformations of the factors are then introduced to enhance interpretability. For example, the Kaiser-Guttman rule, which states that a researcher should attempt to interpret the number of factors that have eigenvalues greater than 1, becomes a standard. An eigenvalue measures the amount of variance in the variables explained by a factor. Besides the Kaiser-Guttman rule, scree test, a visual plot of eigenvalues, is another popular method of determining the

dimensionality of a set of variables, that is, the number of factors that can be derived from the set.

The most common interpretability transformation of factor structure is Kaiser's varimax criterion. It simplifies the factor interpretation by rotating the principal-axis solution into uncorrelated factors with maximum variation in the factor-variable correlations. The varimax criterion simplifies the interpretation of a factor by causing a separation in the variable-factor correlations.

Factor analysis is a very complex yet flexible statistical tool. Two users can fashion analyses of the same data in very different ways. It is therefore imperative that the users document the analysis in sufficient detail so that the readers can replicate the results. In addition, sample composition and size are critical to a factor analysis report. Factor structures will be more stable if they are based on large samples. Concerning the sample size, Ford et al (1986) found out that 70% of studies had a sample-to-variable ratio grater than 5:1, and 27% had a ratio less than 5:1. MacCullum et al (1999) later concluded that adequate sample size was a relatively complex issue not well addressed by general rules about sample-to-variable ratios. Fabrigar et al (1999) reported that 43.1% of studies had sample sizes exceeding 400. In addition, the stability of factor results depends on the sampling distribution of the correlation coefficient because a factor analysis is performed on a correlation matrix.

Researchers should consider within-sample replication to gauge factor stability. The internal consistency reliability of the questionnaire is estimated using Cronbach alpha coefficient. A minimum correlation of 0.70 is necessary to claim that the instrument and its subscales scores are internally consistent.

3.2 Analytic Hierarchy Process

The analytic hierarchy process (AHP) is a methodology for the resolution of choice problems in a multicriteria environment. It was developed by Saaty (1980) in the early 1970s in response to the scarce resources allocation and planning needs for the military. It has ever since been applied to a wide range of problem situations: selecting among competing alternatives in a multi-objective environment, the allocation of scarce resources, and forecasting. The AHP includes comparisons of objectives and alternatives in a natural, pair-wise manner. It converts individual preferences into ratio-scale weights for the associated alternatives. The resultant weights are used to rank the alternatives and thus assist the decision maker in making a choice or forecasting the outcome.

The AHP is claimed to have several benefits. First, it helps to decompose an unstructured problem into rational decision hierarchy. Second, it can elicit more information from the experts or decision-makers by employing the pair-wise

comparison of individual groups of elements. Third, it sets the computations to assign weights to the elements. Fourth, it uses the consistency measure to validate the consistency of the rating from the experts and decision-makers. It is, therefore, argued to be composed of both qualitative and quantitative substances. In the computation of the weights, the numerical scale is applied directly as a ratio of importance. Another advantage of AHP is that the calculated weights can later be synthesized. Complex decisions or forecasts or resource allocations often involve too many elements for humans to synthesize intuitively.

Experience has confirmed that a scale of 9 units (Table3) is reasonable and reflects the degree to which humans can quantify relationships among elements (Saaty, 1980; Harker and Varga, 1987). Furthermore, the number of elements to be compared is preferably limited to 7 to avoid mental confusion. In addition, for academic researches, a large sample size is desirable in order to be able to generalize the results to the target population.

Evaluators may make inconsistent judgments when making pair-wise comparisons. Perfect consistency is typically not achieved because human beings are often biased and inconsistent when making subjective judgments. Consistency measure is used to screen out the inconsistency of responses. If the consistency ratio exceeds 0.1, then the pair-wise judgments may be revised before the weights are

Table 3 The pair-wise comparison scale

Intensity of importance	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective
3	Weak importance of one over another	Experience and judgment slightly favor one activity over another
5	Essential or strong importance	Experience and judgment strongly favor one activity over another
7	Demonstrated importance	An activity is strongly favored and its dominance is demonstrated in practice
9	Absolute importance	The evidence favoring one activity over another is of the highest possible order of affirmation
2,4,6,8	Intermediate values between the two adjacent judgments	When compromise is needed
Reciprocals above zero	If activity *i* has one of the above nonzero numbers assigned to it when compared with activity *j*, then *j* has the reciprocal value when compared with *i*	

computed. Although many recently published papers still followed the old threshold values (Saaty, 1980), Saaty (1994) has set the new acceptable consistency ratio (CR) values for different matrixes' sizes. The new threshold CR value is 0.05 for a 3X3 matrix, 0.08 for a 4X4 matrix and 0.1 for larger matrices. Available commercial software packages such as Expert Choice can compute the consistency ratio.

However, AHP was not an impeccable tool. Even if a matrix passes a consistency test successfully, it can be contradictory (Kwiesielewicz and van Uden, 2004). In addition, because of the limitation of number of alternatives, the result of

AHP can be imcomplete.

3.2.1 AHP Applications in Medical Issues

In health care, AHP had been adopted to explain why a high rate (85%) of endoscopy performed at a hospital in spite of the fact that 75-80% of upper gastrointestinal bleeding stopped without needing a diagnostic upper gastrointestinal endoscopy (Dolan et al, 1993). APH can also reduce the differences between the practice guidelines and clinical practice (Forman and Gass, 2001). In addition, AHP can be used to make a quick decision of the type of medical personnel to activate and dispatch in case of disaster. Javalgi et al (1991) and Wang (1999a; 1999b) used AHP to determine the relative importance of various service attributes for patients when they chose a hospital. In Javalgi's study, 9 factors instead of 7 were compared, and the authors did not mention if the consistency ratio of each questionnaire had been determined and was within the acceptance range. On the other hand, Wang claimed that setting the threshold consistency ratio value at 0.55 with a mean consistency ratio around 0.19 in his study was acceptable.

CHAPTER 4 RESEARCH DESIGN

4.1 Major Decision Factors in Physician Selection

A total of 220 adults in Kaohsiung area who had ever received or were willing to receive cutaneous laser or intense pulsed light treatment for aesthetic purposes were asked to rank the importance of 19 items on a (Likert) scale of 1 (completely irrelevant) to 5 (very important) when a cosmetic treatment was considered (Appendix 1). The items included were based on the results of past studies. The majority of the respondents belonged to one of the following groups: beauticians, sales representatives, government employees, paramedical staff and patients receiving cosmetic surgery.

To reduce the number of factors, an exploratory factor analysis was performed with varimax rotation. Only factors with an eigenvalue equal to or greater than 1 were extracted. The aim of factor analysis was to reduce the number of factors to less than 7 in total to facilitate the implementation of analytic hierarchy process.

Of 220 respondents, 207 answering all the questions were eligible for factor analysis. Table 4 showed the characteristics of the respondents. About one third of the respondents had ever received cosmetic laser or intense pulsed light treatment.

Table 4 The characteristics of the respondents for factor analysis.

Characteristic	No of respondents (%)
Age	
21-30	105 (51.7)
31-40	71 (34.3)
41-50	21 (10.1)
51-60	8 (3.9)
Over 60	2 (1.0)
Past experience on cosmetic laser treatment	
Yes	66 (31.9)

4.2 Hierarchy Structure for Physician Selection

After factor analysis, 20 interviewers, mostly sales representatives of cosmoceutical products, were trained to conduct a face-to-face interview with those who had ever received cutaneous laser and intense pulse light treatment for aesthetic purposes and to assist the respondents filling a questionnaire (Appendix 2). Because the demographics of the population with past experience of cosmetic laser surgery were not well characterized, a systematic randomized sampling approach was therefore not possible. In addition, because the purpose of the present study was to compare the performance of physicians of different medical training background, sampling based on clinics or physicians might not be appropriate. Such an approach would result in comparison among only a limited number of doctors rather than medical specialties. Instead, patients were randomly selected by the interviewers either in the streets, at a

hospital or in the working environment. To ensure the diversity of patients, each interviewer contributed less than 20 copies of the questionnaire.

The questionnaire consisted 4 parts and was designed according to the hierarchy structure of physician selection as shown in Figure 2. In the first part, the past experience of the respondent including the purposes, frequency of treatments, and the medical specialty of the physician providing the latest treatment was obtained. It was our assumption that the physician performing the latest treatment was the best or at least a good choice for the respondent. In the second part, the respondent was asked to compare the relative importance of the major decision factors extracted from the first survey in a pair-wise manner. A 9-point scale was used for factor comparison as mentioned in 3.2. In the third part, the respondent rated the relative performance of dermatologists, plastic surgeons and aesthetic practitioners in each major decision factor. Although the respondent might not have personal encounter with the physician of each medical specialty, it was assumed that the respondent was knowledgeable enough to assess the performance of each medical specialty. Our assumption was based on the fact that at least half of the patients had ever made comparison between doctors (Cheng and Song, 2004). Additionally, the respondent was asked to rate the relative strength of the above-mentioned medical specialties in “medical competence” after reading the training curricula for dermatologists and plastic surgeons. Unlike in

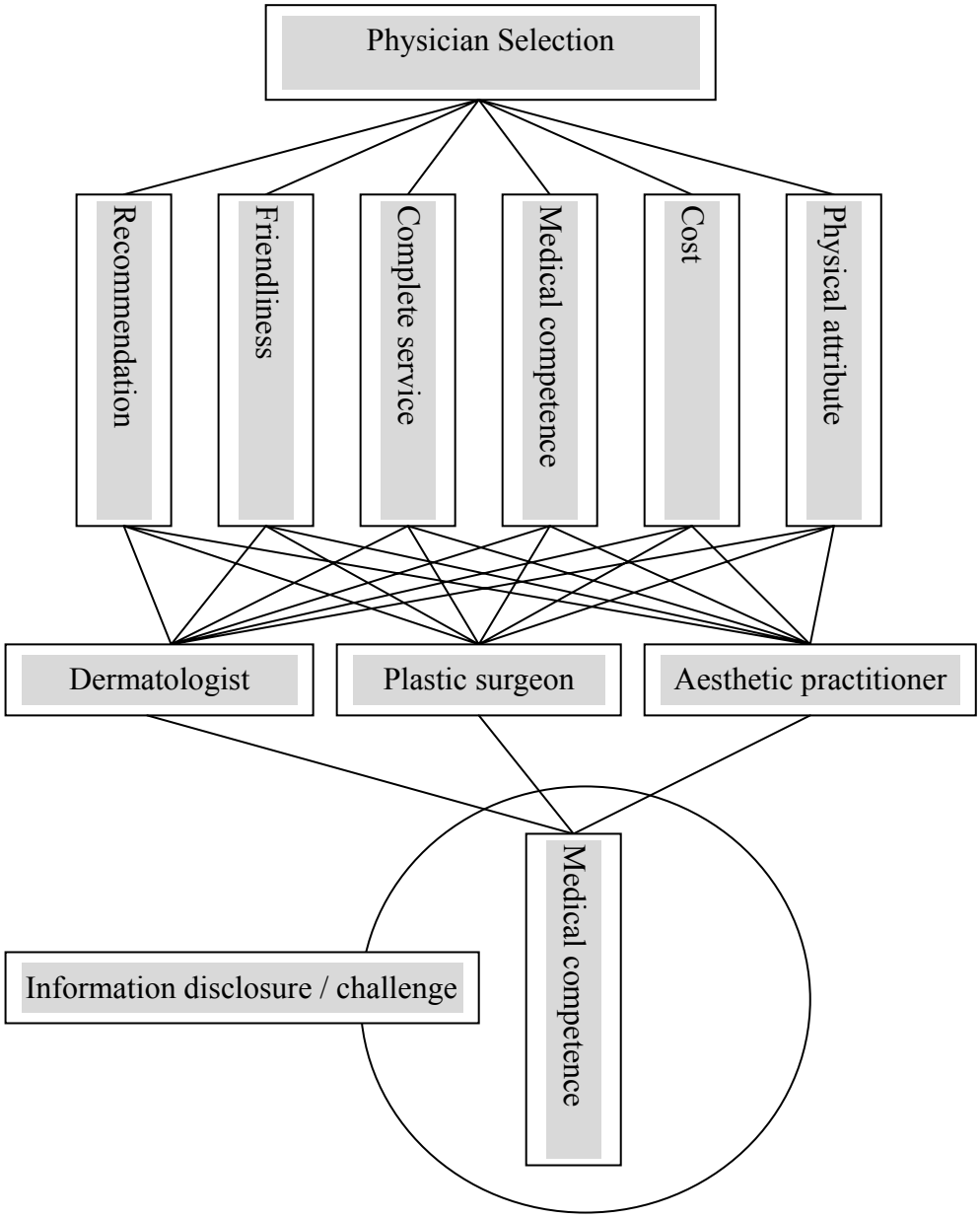

Figure 2 Hierarchy structure for physician selection

countries like France, aesthetic medicine is still not recognized by the health authority in Taiwan as a medical specialty. In the last part, the demographic characteristics of the respondent were documented.

A typical interview session lasted 30 min. A total of 331 residents of Kaohsiung

completed the questionnaire. Each questionnaire was considered acceptable, only when all the calculated consistency ratios derived from pair-wise comparisons in part 2 and part 3 of the questionnaire were no more than 0.1. Those who failed in the consistency test were asked to repeat the second and third part of the questionnaire once again if they could be identified and agreed to do so. A total of 270 copies of the questionnaire were eligible for the analytic hierarchy process.

The demographic characteristics of our results were consistent with those of a previous survey in terms of patient's age, gender and the types of treatment (Tsai, 2004). The mean age of patients receiving laser and intense pulsed light treatment was of around 35 with a strong female predominance (90%). Pigment eradication was the most common type of cosmetic treatment patients received, followed by ablative laser resurfacing and nevus removal.

Except for age ($p=0.002$), there was no statistically significant difference in other parameters of patients' characteristics between those who passed the consistency test and those who failed. Older patients might encounter more difficulty in filling out such a complicated questionnaire, which contained 36 pair-wise comparisons. The respondents' characteristics were summarized in Table 5.

Table 5 The characteristics of respondents passing the consistency tests

Demographic characteristics (%)			
Level of education	No (%)	Type of treatment	No (%)
Junior high school	9 (3.4)*	Pigmented lesions	125 (46.1)**
Senior high school	61 (23.2)	Ablative dermal resurfacing	91 (33.6)
Undergraduate	179 (68.1)	Nonablative dermal modeling	50 (18.5)
Graduate	14 (5.3)	Scars/vascular lesions	30 (11.1)
Monthly allowance at disposal*		Hair removal	20 (7.0)
Less than 10000 NTD	68 (26.4)*	Tattoo removal	11 (4.1)
10000~20000 NTD	55 (21.4)	Number of treatments	
20000~30000 NTD	65 (25.3)	1	122 (45.2)
30000~40000 NTD	35 (13.6)	2~5	115 (42.6)
At least 40000 NTD	34 (13.2)	6~10	28 (10.4)
Frequency of social activities		More than 10	5 (1.9)
Usually	146 (55.1) *	Expense spent	
Occasionally	60 (22.6)	Less than 3000 NTD	87 (34.0)*
Seldom	33 (12.5)	3000~10000 NTD	95 (37.1)
Rarely	26 (9.8)	10000~30000 NTD	47 (18.4)
Source of information		At least 30000 NTD	27(10.5)
Recommendation by a friend or relative	108 (40.1)*	Latest treatment performed by	
Media	39 (14.5)	Dermatologist	181 (67.0)
Referral by a physician	67 (24.9)	Plastic surgeon	54 (20.0)
Referral by a beautician	12 (4.5)	Aesthetic practitioner	17 (6.3)
Others	43 (16.0)	Other	18 (6.7)
Past visits (consultation before making a treatment decision)			
Dermatologist	174 (64.2)**		
Plastic surgeon	49 (18.1)		
Aesthetic practitioner	32 (11.8)		
Never	61 (22.5)		

*Some data were missing.

** The total percentage exceeded 100%.

Most of the respondents worked in the service sector. The occupations of the 270 respondents were shown in Table 6. In addition, 195 out of 270 respondents had

at least one friend or relative who had ever received cutaneous laser and intense pulsed light treatment with an average of 3.6 persons.

Table 6 Distribution of occupations in the respondents

Occupation	No of respondents (%)
Professional	32 (11.6)
Government employee	28 (10.4)
Service industry	117 (43.3)
Hi-tech	3 (1.1)
Manufacturing	14 (5.2)
House keeping	27 (10.0)
Student	21 (7.8)
Others	28 (10.4)

The relative weights of each respondent concerning major decision factors and the performance of medical specialties were documented. The calculated geometric mean of each pair-wise comparison for each set of respondents was used in the analysis. To assess the change of the relative strength of different specialties before and after information disclosure, we used the rank order instead of the calculated weights.

4.3 Statistic Analysis

Either a Student t-test or a Chi-square test was used to test the difference of the characteristics of the respondent between questionnaires passing the consistency test

and those not. The impact of each parameter of the respondents on the relative weights of decision factors was tested using one-way ANOVA. If a significant difference was found, then post-hoc comparison was performed. The interaction of parameters was tested by two-way ANONA. Wilcoxon signed rank test was adopted to test the difference before and after the disclosure of the concise training curricula for dermatologists and plastic surgeons. Analytic hierarchy process was performed using a commercial software package, Expert Choice. All other analyses mentioned above were carried out with the statistical software package SPSS for windows v.10. A p-value less than 0.05 was considered statistically significant.

CHAPTER 5 RESULTS

5.1 Exploratory Principal Factor Analysis

5.1.1 The Importance of Each Choice Criterion

Table 7 showed the mean score of each physician choice item, with "competence of the physician" rated as the most important. The least important item was "gender of the physician". Unlike other items, "flexible appointment" had a rather large standard deviation.

Table 7 Physician selection criteria in cosmetic treatments

Items	Mean (SD)
1 competence of the physician	4.88 (0.41)
2 newest generation of equipments	4.64 (0.60)
3 diversity of equipments	4.63 (0.55)
4 courtesy of the physician	4.62 (0.50)
5 privacy ensured	4.56 (0.70)
6 reputation of the physician	4.48 (0.58)
7 fee charged	4.47 (0.65)
8 décor and cleanliness of the office	4.39 (0.56)
9 courtesy of paramedical staff	4.31 (0.65)
10 flexible (off-work) appointment	4.18 (3.93)
11 interpersonal skills of the physician	3.93 (0.82)
12 recommendation by a physician	3.93 (0.70)
13 convenient location	3.80 (0.84)
14 recommendation by paramedical staff	3.80 (0.70)
15 recommendation by a friend or relative	3.78 (0.78)
16 other non-invasive treatment	3.70 (0.82)
17 other invasive surgical treatment	3.49 (0.90)
18 age of the physician	3.17 (0.85)
19 gender of the physician	2.74 (0.73)

5.1.2 Internal Consistency and Item Reduction

After deleting the item "flexible appointment", the reliability coefficient increased from 0.5430 to 0.7456. Based on Kaiser criterion (eigenvalue greater than 1) and the spree plot, 5 factors were extracted and accounted for 60.32% of the total variance. Because of interpretability, the item "privacy ensured" was deleted. The reliability

Table 8 Factorial coefficients of the 17 items after rotation

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
1 recommendation by paramedical staff	**0.799**	-0.005	-0.003	0.074	0.192	0.135
2 recommendation by a physician	**0.772**	0.032	-0.001	0.227	0.088	0.117
3 recommendation by a friend or relative	**0.513**	0.033	0.405	-0.256	0.125	-0.079
4 reputation of the physician	**0.492**	0.270	0.129	0.067	-0.021	-0.022
5 interpersonal skills of the physician	0.048	**0.697**	-0.034	0.258	0.072	-0.265
6 décor and cleanliness of the office	0.003	**0.693**	0.206	0.078	0.078	0.250
7 courtesy of paramedical staff	0.335	**0.509**	-0.030	-0.157	-0.229	0.429
8 courtesy of the physician	0.326	**0.423**	-0.082	0.135	-0.137	0.168
9 other non-invasive treatment	0.061	0.094	**0.889**	0.076	-0.016	0.077
10 other invasive surgical treatment	0.062	0.002	**0.863**	0.095	0.141	0.130
11 newest generation of equipments	0.041	0.250	0.101	**0.801**	0.093	0.202
12 competence of the physician	0.211	-0.096	-0.001	**0.696**	-0.326	-0.120

13 diversity of equipments	0.095	0.441	0.104	**0.652**	0.136	0.167
14 age of the physician	0.159	-0.120	0.002	0.016	**0.805**	0.060
15 gender of the physician	0.078	0.137	0.138	-0.056	**0.804**	0.032
16 fee charged	-0.008	-0.088	0.203	0.119	0.057	**0.718**
17 convenient location	0.155	0.232	-0.009	0.062	0.078	**0.640**
Eigenvalues before rotation	3.578	1.962	1.552	1.281	1.231	1.026

coefficient remained stationary (0.7394). Six factors were extracted from the remaining 17 items and accounted for 62.53% of the total variance as shown in Table 8. We named factor1 to factor 6 as “recommendation”, “friendliness”, “complete service”, “medical competence”, “physical attribute” and “cost” respectively.

5.1.3 Definitions of Major Decision Factors

"Recommendation" referred to reputation of the physician and how well the physician was recommended by other physicians, paramedical staff and by friends or relatives. In addition to courtesy of the physician and paramedical staff, "friendliness" also referred to décor and cleanliness of the office, and interpersonal skills of the physician, the non-medical component of medical care. "Complete service" indicated that other non-invasive and invasive cosmetic procedures were also provided besides laser and intense pulsed light. "Medical competence" implied not only the competence of the physician, but also the possession of modern and diverse equipments. "Physical

attribute" dealt with the physical characteristics of a physician such as age and gender. "Cost" meant the actually paid medical fee and the traveling cost, including traveling time.

5.1.4 Summary of Factor Analysis

After excluding “flexible appointment” and “privacy ensure”, 6 factors were extracted from the remaining 17 items, which accounted for 62.53% of the total variance. These factors were named as “recommendation”, “friendliness”, “complete service”, “medical competence”, “physical attribute”, and “cost”.

5.2 Analytic Hierarchy Process

5.2.1 Analysis of Relative Importance of 6 Major Decision Factors

Using the analysis of AHP, "medical competence" was found to be the most influential decision factor with a weight score of 0.3296, followed by "reputation" and "friendliness" (Table 9). The “physical attribute” of physician was the least important factor with a weight of 0.0865. The result was further analyzed with one-way ANOVA to identify demographic parameters of the respondents that might influence the rank order of the 6 major decision factors. Using two-way ANOVA, we failed to find a significant interaction of parameters ($p<0.05$)

Table 9 The relative weights of main decision factors

Factor	Relative weight
Medical competence	0.3296
Recommendation	0.2198
Friendliness	0.1350
Cost	0.1307
Complete service	0.0984
Physical attribute	0.0865

5.2.1.1 Age

Patients aged between 31 and 40 seemed to be more dependent on recommendation than patient under 30 years old.

Table 10 The relative weights of main decision factors categorized by patients' age

Factor	Relative weight		
	Under 30	31~40	Over 40
Medical competence	0.3491	0.3204	0.3141
Recommendation*§	0.1815	0.2595	0.2329
Cost	0.1407	0.1128	0.1388
Friendliness	0.1333	0.1394	0.1253
Complete service	0.1072	0.0935	0.0871
Physical attribute	0.0882	0.0744	0.1018

*p=0.001,§p<0.05 (Levene's test)

5.2.1.2 Gender

Patients of both sexes tended to have a different preference in terms of choosing a physician for cutaneous cosmetic treatment. Unlike female patients, male patients relied more on recommendation and cared less on complete service and physical characteristics of the physician.

Table 11 The relative weights of main decision factors categorized by patients' gender

Factor	Relative weight	
	Female	Male
Medical competence	0.3315	0.2937
Recommendation**	0.2114	0.3162
Friendliness	0.1364	0.1297
Cost	0.1288	0.1378
Complete service**	0.1023	0.0676
Physical attribute**	0.0897	0.0550

**p<0.01

5.2.1.3 Marital status

Single patients seemed to be more concerned about the treatment cost, although the difference was not statistically significant.

Table 12 The relative weights of main decision factors categorized by patients' marital status

Factor	Relative weight	
	Married	Single
Medical competence	0.3436	0.3287
Recommendation	0.2316	0.2037
Friendliness	0.1297	0.1390
Cost	0.1145	0.1435
Complete service	0.0949	0.0990
Physical attribute	0.0859	0.0860

5.2.1.4 Level of education

Patients with a graduate degree seemed to be more concerned about the cost, although no statistically significant difference was obtained.

Table 13 The relative weights of main decision factors categorized by patients' level of education

Factor	Relative weight		
	High school	Undergraduate	Graduate school
Medical competence	0.3347	0.3295	0.2770
Recommendation	0.2311	0.2152	0.2385
Friendliness	0.1380	0.1351	0.1269
Cost	0.1330	0.1266	0.1653
Complete service	0.0872	0.1034	0.1015
Physical attribute	0.0752	0.0903	0.0908

5.2.1.5 Monthly allowance at disposal

Significant difference of the relative importance of the factor "friendliness" was noted among patients based on the available monthly allowance at disposal.

Table 14 The relative weights of main decision factors categorized by patients' monthly allowance at disposal

Factor	Relative weight		
	Up to 20000	20000~40000	More than 40000
Medical competence	0.3514	0.2981	0.3317
Recommendation	0.1997	0.2463	0.2404
Cost	0.1379	0.1173	0.1365
Friendliness*	0.1258	0.1546	0.1170
Complete service	0.1009	0.0981	0.0907
Physical attribute	0.0844	0.0878	0.0838

**p<0.01

5.2.1.6 Frequency of social activities

Friendliness was rated differently among the 4 groups based on the frequency of patients' social activities. However, the relative ranking of friendliness remained in the

3rd or 4th place.

Table 15 The relative weights of main decision factors categorized by the frequency of patients' social activities

Factor	Relative weight			
	Usually	Occasionally	Seldom	Rarely
Medical competence	0.3372	0.3327	0.2977	0.3359
Recommendation	0.2184	0.1816	0.1945	0.2259
Friendliness*	0.1342	0.1225	0.1767	0.1152
Cost	0.1277	0.1313	0.1345	0.1363
Complete service	0.0978	0.0905	0.1109	0.0969
Physical attribute	0.0848	0.1414	0.0849	0.0899

*p=0.009

5.2.1.7 Source of information

The source of information had no impact on the relative weight of major decision factors.

Table 16 The relative weights of main decision factors categorized by patients' source of information

Factor	Relative weight			
	Recommendation by a friend or relative	Media	Referral by a physician	Referral by a beautician
Medical competence§	0.3454	0.3077	0.3332	0.3630
Recommendation	0.2301	0.2249	0.2196	0.2278
Cost	0.1259	0.1363	0.1419	0.1201
Friendliness	0.1244	0.1242	0.1315	0.1212
Complete service	0.0930	0.1162	0.0914	0.0762
Physical attribute	0.0812	0.0906	0.0803	0.0917

§$p<0.05$ (Levene's test)

5.2.1.8 Number of treatments

The weight of friendliness differed between patients receiving at least 6 treatments and patients receiving less than 6 treatments. However, the difference was not large.

Table 17 The relative weights of main decision factors categorized by the number of treatments received

Factor	Relative weight	
	Less than 6	At least 6
Medical competence	0.3432	0.3460
Recommendation	0.2158	0.2284
Friendliness*	0.1332	0.1314
Cost	0.1292	0.1335
Complete service	0.0970	0.0930
Physical attribute	0.0816	0.0807

*p=0.009

5.2.1.9 Expense spent

The relative ranking of 6 major decision factors did not change according to the amount of money spent on cutaneous cosmetic treatment.

Table 18 The relative weights of main decision factors categorized by the expense patients spending on cutaneous cosmetic treatment

Factor	Relative weight			
	Up to 3000	3000~10000	10000~30000	More than 30000
Medical competence§	0.3369	0.3230	0.3145	0.3352
Recommendation	0.2032	0.2273	0.2248	0.2505
Cost	0.1403	0.1210	0.1536	0.1143
Friendliness	0.1309	0.1402	0.1244	0.1376
Complete service	0.0958	0.0986	0.1037	0.0904
Physical attribute	0.0929	0.0898	0.0791	0.0720

§$p<0.05$ (Levene's test)

5.2.1.10 Type of physician performing the latest treatment

Regardless of the specialty of the physician who performed the latest treatment, there was no statistically significant difference in the relative weight of all 6 major decision factors.

Table 19 The relative weights of main decision factors categorized by the type of physician performing the latest treatment

Factor	Relative weight		
	Dermatologist	Plastic surgeon	Aesthetic practitioner
Medical competence	0.3292	0.3345	0.3133
Recommendation	0.2322	0.2038	0.1801
Cost	0.1335	0.1327	0.1137
Friendliness	0.1314	0.1326	0.1350
Complete service	0.0930	0.1059	0.1326
Physical attribute*§	0.0807	0.0905	0.1213

*$p<0.05$,§$p<0.05$ (Levene's test)

5.2.2 Analysis of Medical Specialties

Dermatologists had advantages against plastic surgeons and aesthetic practitioners in 5 major decision factors except "complete service" (Table 20). "Complete service" was known to be the strength of plastic surgeons. Aesthetic practitioners had the lowest score in 5 major decision factors except "cost". "Cost" was the weakness of plastic surgeons.

Table 20 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in 6 major decision factors

Specialty	Relative weight		
	Medical competence	Recommendation	Friendliness
Dermatologist	0.4889	0.5109	0.4070
Plastic surgeon	0.3674	0.3281	0.3302
Aesthetic practitioner	0.1437	0.1610	0.2628

Specialty	Relative weight		
	Cost	Complete service	Physical attribute
Dermatologist	0.4708	0.3733	0.4270
Plastic surgeon	0.2584	0.4061	0.3519
Aesthetic practitioner	0.2708	0.2206	0.221

5.2.2.1 Age

With an increasing age, patients preferred dermatologists to plastic surgeons and aesthetic practitioners in terms of "recommendation" and "physical attribute". At the same time, aesthetic practitioners showed decreased preference in physical attributes with an increase of patients' age.

Table 21 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patients' age

Specialty	Relative weight								
	Medical competence			Recommendation			Friendliness		
	Under 30	31~40	Over 40	Under 30	31~40	Over 40	Under 30	31~40	Over 40
Dermatologist	0.4576	0.4648	0.5704**	0.4914	0.4822	0.5874**	0.3575	0.4028	0.5088***
Plastic surgeon	0.4020	0.3851	0.2976*	0.3468	0.3606	0.2567§	0.3483	0.3324	0.2926
Aesthetic practitioner	0.1404	0.1501	0.1319	0.1618	0.1571	0.1559	0.2942	0.2648	0.1985**§

Specialty	Relative weight								
	Cost			Complete service			Physical attribute		
	Under 30	31~40	Over 40	Under 30	31~40	Over 40	Under 30	31~40	Over 40
Dermatologist	0.4352	0.4853	0.5185	0.3500	0.3646	0.4246	0.3792	0.4399	0.5259***
Plastic surgeon	0.2566	0.2572	0.2610	0.4190	0.4251	0.3684	0.3626	0.3559	0.3063
Aesthetic practitioner	0.3082	0.2575	0.2205	0.2310	0.2103	0.2070	0.2582	0.2043	0.1677**

*p<0.05,**p<0.01, ***p<0.001, §p<0.05(Levene's test)

5.2.2.2 Gender

Compared with female patients, dermatologists were less favored by male patients in terms of treatment cost and physical attributes of the physician.

Table 22 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patient's gender

Specialty	Relative weight					
	Medical competence		Recommendation		Friendliness	
	female	male	female	male	female	male
Dermatologist	0.4913	0.4414	0.5174	0.4274	0.4140	0.3546
Plastic surgeon	0.3673	0.3921	0.3291	0.3290	0.3293	0.3535
Aesthetic practitioner	0.1415	0.1665§	0.1535	0.2436*§	0.2568	0.2919

Specialty	Relative weight					
	Cost		Complete service		Physical attribute	
	female	male	female	male	female	male
Dermatologist	0.4840	0.3740*	0.3737	0.3519	0.4357	0.3350*
Plastic surgeon	0.2531	0.2816	0.4070	0.4207	0.3483	0.3951
Aesthetic practitioner	0.2609	0.3444	0.2193	0.2274	0.2160	0.2699

*p<0.05, §p<0.05(Levene's test)

5.2.2.3 Marital status

Compared with single patients, dermatologists were better rated by married patients in terms of friendliness.

Table 23 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patient's marital status

Specialty	Relative weight					
	Medical competence		Recommendation		Friendliness	
	single	married	single	married	single	married
Dermatologist	0.4845	04964	0.5045	0.5251	0.3763	0.4410*
Plastic surgeon	0.3772	03556	0.3309	0.3119§	0.3476	0.3091
Aesthetic practitioner	0.1384	0.1480	0.1555	0.1630	0.2761	0.2499§

Specialty	Relative weight					
	Cost		Complete service		Physical attribute	
	single	married	single	married	single	married
Dermatologist	0.4820	0.4710	0.3713	0.3821	0.4072	0.4553
Plastic surgeon	0.2525	0.2669	0.4075	0.3967	0.3533	0.3512
Aesthetic practitioner	0.2655	0.2621	0.2212	0.2212§	0.2394	0.1934*§

*$p<0.05$, §$p<0.05$(Levene's test)

5.2.2.4 Level of education

Level of education did not have an impact on the relative weights of dermatologist , plastic surgeons and aesthetic practitioners in all 6 major decision factors.

Table 24 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patient's level of education

Specialty	Relative weight								
	Medical competence			Recommendation			Friendliness		
	high school	under-graduate	graduate school	high school	under-graduate	graduate school	high school	under-graduate	graduate school
Dermatologist	0.5269	0.4795	0.4438	0.5158	0.5094	0.4578	0.3871	0.4180	0.3562
Plastic surgeon	0.3468	0.3727	0.3736§	0.3414	0.3276	0.3536***§	0.3312	0.3248	0.3895
Aesthetic practitioner	0.1263	0.1478	0.1826	0.1429	0.1630	0.1887§	0.2817	0.2573	0.2544

Specialty	Relative weight								
	Cost			Complete service			Physical attribute		
	high school	under-graduate	graduate school	high school	under-graduate	graduate school	high school	under-graduate	graduate school
Dermatologist	0.4130	0.4927	0.4794	0.3129	0.3956	0.3567	0.4217	0.4283	0.4403
Plastic surgeon	0.2973	0.2429	0.2678	0.4593	0.3832	0.4522	0.3543	0.3522	0.3496
Aesthetic practitioner	0.2896	0.2644	0.2529	0.2277	0.2213	0.1911	0.2240	0.2196	0.2100

***p<0.001, §p<0.05(Levene's test)

5.2.2.5 Monthly allowance at disposal

With an increasing amount of money available, patients tended to rate dermatologists better in terms of medical competence and friendliness. On the contrary, plastic surgeons were less preferred. The higher patients' monthly allowance was, the better they rated dermatologists against plastic surgeons and aesthetic practitioners.

Table 25 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on patients' monthly allowance at disposal

Specialty	Relative weight								
	Medical competence			Recommendation			Friendliness		
	Under 20000	20000~ 40000	Over 40000	Under 20000	20000~ 40000	Over 40000	Under 20000	20000~ 400000	Over 40000
Dermatologist	0.4425	0.5232	0.5700**	0.5043	0.5100	0.5373	0.3827	0.4198	0.4700*
Plastic surgeon	0.4108	0.3427	0.2837**	0.3370	0.3329	0.2815*§	0.3316	0.3399	0.3020
Aesthetic practitioner	0.1467	0.1341	0.1463	0.1588	0.1571	0.1812	0.2857	0.2403	0.2280

Specialty	Relative weight								
	Cost			Complete service			Physical attribute		
	Under 20000	20000~ 40000	Over 40000	Under 20000	20000~ 40000	Over 40000	Under 20000	20000~ 40000	Over 40000
Dermatologist	0.4591	0.4959	0.4873	0.3572	0.3886	0.3936	0.4172	0.4247	0.4869
Plastic surgeon	0.2639	0.2403	0.2596	0.4263	0.3933	0.3723	0.3523	0.3663	0.3024
Aesthetic practitioner	0.2769	0.2638	0.2530	0.2165	0.2181	0.2314	0.2305	0.2090	0.2107

*p<0.05, **p<0.01, §p<0.05(Levene's test)

5.2.2.6 Frequency of social activities

With increased frequency of social activities, the relative strength of dermatologists in medical competence decreased.

Table 26 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on the frequency of patients' social activities

Specialty	Relative weight							
	Medical competence				Recommendation			
	usually	occasionally	seldom	rarely	usually	occasionally	seldom	rarely
Dermatologist	0.4825	0.4445	0.5250	0.5886*	0.5100	0.4717	0.5319	0.5861
Plastic surgeon	0.3746	0.4038	0.3300	0.2945	0.3395	0.3533	0.2883	0.2538
Aesthetic practitioner	0.1428	0.1517	0.1449	0.1169	0.1505	0.1750	0.1798	0.1601§

Specialty	Relative weight							
	Friendliness				Cost			
	usually	occasionally	seldom	rarely	usually	occasionally	seldom	rarely
Dermatologist	0.4008	0.3704	0.4358	0.5021	0.4715	0.4395	0.4817	0.4983
Plastic surgeon	0.3219	0.3490	0.3419	0.3091	0.2502	0.2908	0.2546	0.2300
Aesthetic practitioner	0.2773	0.2806	0.2223	0.1889*§	0.2783	0.2697	0.2637	0.2717

Specialty	Relative weight							
	Complete service				Physical attribute			
	usually	occasionally	seldom	rarely	usually	occasionally	seldom	rarely
Dermatologist	0.3646	0.3875	0.3739	0.3734	0.4110	0.4236	0.4570	0.4750
Plastic surgeon	0.4240	0.3840	0.3870	0.4061	0.3605	0.3497	0.3500	0.3171
Aesthetic practitioner	0.2115	0.2285	0.2391	0.2205	0.2285	0.2267	0.1930	0.2079

*p<0.05, §p<0.05 (Levene's test)

5.2.2.7 Source of information

The sources of information had an impact on the relative strength of plastic surgeons in the factor of cost.

Table 27 The relative strength of dermatologist, plastic surgeons and aesthetic

practitioners based on patients' source of information

Specialty	Relative weight							
	Medical competence				Recommendation			
	R	M	P	B	R	M	P	B
Dermatologist	0.4906	0.5027	0.5115	0.4628	0.5371	0.5051	0.5471	0.4348
Plastic surgeon	0.3761	0.3434	0.3558	0.3882	0.3112	0.3285	0.3083	0.3670§
Aesthetic practitioner	0.1334	0.1539	0.1327	0.1490§	0.1517	0.1664	0.1473	0.1981

Specialty	Relative weight							
	Friendliness				Cost			
	R	M	P	B	R	M	P	B
Dermatologist	0.4057	0.4023	0.4681	0.3313	0.5127	0.4179	0.4674	0.4115
Plastic surgeon	0.3395	0.3409	0.3050	0.2938	0.2264	0.2510	0.3110	0.3112**
Aesthetic practitioner	0.2548	0.2568	0.2269	0.3749	0.2609	0.3311	0.2216	0.2773

Specialty	Relative weight							
	Complete service				Physical attribute			
	R	M	P	B	R	M	P	B
Dermatologist	0.3654	0.4371	0.4216	0.3765*	0.4524	0.3813	0.4580	0.4006
Plastic surgeon	0.4256	0.3610	0.3789	0.3568	0.3343	0.4109	0.3406	0.3530§
Aesthetic practitioner	0.2090	0.2019	0.1994	0.2668	0.2133	0.2078	0.2015	0.2464

R: recommendation by a friend or relative, M: media, P: physician referral, B: beautician referral

**p<0.01, §p<0.05 (Levene's test)

5.2.2.8 Number of treatments

Compared with patients receiving less than 6 treatments, patients receiving at least 6 treatments rated dermatologists lower in "medical competence", but rated aesthetic practitioners higher in "friendliness".

Table 28 The relative strength of dermatologists, plastic surgeons and aesthetic

practitioners based on the number of treatments received

Specialty	Relative weight					
	Medical competence		Recommendation		Friendliness	
	less than 6	at least 6	less than 6	at least 6	less than 6	At least 6
Dermatologist	0.4913	0.4414*	0.5174	0.4274	0.4140	0.3546
Plastic surgeon	0.3673	0.3921	0.3291	0.3290	0.3293	0.3535
Aesthetic practitioner	0.1415	0.1665	0.1535	0.2436§	0.2568	0.2919*

Specialty	Relative weight					
	Cost		Complete service		Physical attribute	
	less than 6	at least 6	less than 6	at least 6	less than 6	At least 6
Dermatologist	0.4913	0.4414	0.5174	0.4274	0.4140	0.3546
Plastic surgeon	0.3673	0.3921	0.3291	0.3290	0.3293	0.3535
Aesthetic practitioner	0.1415	0.1665	0.1535	0.2436	0.2568	0.2919*

*p<0.05, §p<0.05 (Levene's test)

5.2.2.9 Expense spent

Compared with patient spending less than 3000 NTD, patients spending 10000 to 30000 NTD on cutaneous cosmetic treatment found plastic surgeons better in terms of recommendation.

Table 29 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on the expense patients spending on cutaneous cosmetic treatment

Specialty	Relative weight							
	Medical competence				Recommendation			
	3000↓	3000~ 10000	10000~ 30000	30000↑	3000↓	3000~ 10000	10000~ 30000	30000↑
Dermatologist	0.4190	0.4683	0.4861	0.4530	0.5568	0.5102	0.4875	0.4630
Plastic surgeon	0.3483	0.3899	0.3533	0.3640	0.2956	0.3462	0.3046	0.3519§
Aesthetic practitioner	0.2326	0.1418	0.1606	0.1830§	0.1475	0.1436	0.2079	0.1852

Specialty	Relative weight							
	Friendliness				Cost			
	3000↓	3000~ 10000	10000~ 30000	30000↑	3000↓	3000~ 10000	10000~ 30000	30000↑
Dermatologist	0.4051	0.4204	0.3935	0.4045	0.4778	0.4814	0.4420	0.4624
Plastic surgeon	0.2937	0.3500	0.3217	0.3775	0.2379	0.2691	0.2568	0.2931*
Aesthetic practitioner	0.3012	0.2296	0.2848	0.2180	0.2843	0.2495	0.3012	0.2445

Specialty	Relative weight							
	Complete service				Physical attribute			
	3000↓	3000~ 10000	10000~ 30000	30000↑	3000↓	3000~ 10000	10000~ 30000	30000↑
Dermatologist	0.3894	0.3679	0.4003	0.3159***§	0.4190	0.4151	0.4476	0.4530§
Plastic surgeon	0.3868	0.4167	0.3753	0.4792	0.3483	0.3739	0.2913	0.3640
Aesthetic practitioner	0.2237	0.2154	0.2244	0.2050	0.2326	0.2110	0.2612	0.1830

*p<0.05, ***p,0.001, §p<0.05 (Levene's test)

5.2.2.10 Type of physician performing the latest treatment

Patients treated by dermatologist gave the highest score to dermatologists in all major decision factors. Likewise, patients treated by aesthetic practitioners gave the highest score to aesthetic practitioners in 5 aspects except medical competence. Nevertheless, patients treated by plastic surgeons gave the highest score to plastic surgeons in 4 aspects except medical competence and cost. In other words, patients thought they were treated by good doctors, if not the best.

Table 30 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners based on the type of physician performing the latest treatment

Specialty	Relative weight								
	Medical competence			Recommendation			Friendliness		
	D	P	A	D	P	A	D	P	A
Dermatologist	0.5236	0.4687	0.3946***	0.5412	0.3635	0.4252**	0.4259	0.4244	0.3858
Plastic surgeon	0.3515	0.2553	0.3779	0.3149	0.4142	0.2651	0.3234	0.3492	0.2207
Aesthetic practitioner	0.1249	0.2760	0.2275***	0.1439	0.2222	0.3098**§	0.2507	0.2264	0.3935*

Specialty	Relative weight								
	Cost			Complete service			Physical attribute		
	D	P	A	D	P	A	D	P	A
Dermatologist	0.4765	0.4687	0.4003	0.3887	0.3635	0.3502	0.4542	0.4244	0.3690*
Plastic surgeon	0.2594	0.2553	0.2610	0.4054	0.4142	0.2869	0.3371	0.3492	0.3122*§
Aesthetic practitioner	0.2641	0.2760	0.3387	0.2069	0.2222	0.3629	0.2087	0.2264	0.3188*

D:dermatologist, P:plastic surgeon, A: aesthetic practitioner
*p<0.05, **p<0.01, ***p<0.001, §p<0.05 (Levene's test)

5.2.3 The Effect of Information Disclosure

After reading the provided information, the relative ranking among different medical specialties in terms of medical competence did not change. However, dermatologists were scored even higher in terms of medical competence.

Table 31 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure

Specialty	Relative weight	
	Before disclosure	After disclosure
Dermatologist	0.4889	0.5269*
Plastic surgeon	0.3674	0.3510***
Aesthetic practitioner	0.1437	0.1221*

*p<0.05, ***p<0.001

The results were further analyzed according to each parameter as shown below.

5.2.3.1 Age

Compared with patients under 40, patients over 40 years old were not influenced by the provided information.

Table 32 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' age

Specialty	Relative weight					
	Under 30		31~40		Over 40	
	before	after	before	after	before	after
Dermatologist	0.4756	0.4870	0.4648	0.5483*	0.5704	0.5630
Plastic surgeon	0.4020	0.3990**	0.3851	0.3287*	0.2976	0.3059
Aesthetic practitioner	0.1404	0.1140*	0.1501	0.1231	0.1319	0.1311

*p<0.05, **p<0.01

5.2.3.2 Gender

Male patients seemed to be more easily influenced by provided information, although there was no statistical proof.

Table 33 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' gender

Specialty	Relative weight			
	Female		Male	
	before	after	before	after
Dermatologist	0.4913	0.5266	0.4414	0.5344
Plastic surgeon	0.3673	0.3505*	0.3921	0.3505
Aesthetic practitioner	0.1415	0.1229	0.1665	0.1151

*p<0.05

5.2.3.3 Marital status

Compared with married patients, single patients were more likely to be influenced by the provided information.

Table 34 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' marital status

Specialty	Relative weight			
	Married		Single	
	before	after	before	after
Dermatologist	0.4964	0.5187	0.4845	0.5371*
Plastic surgeon	0.3556	0.3454	0.3772	0.3544***
Aesthetic practitioner	0.1480	0.1359	0.1384	0.1085**

*p<0.05, **p<0.01, ***p<0.001

5.2.3.4 Level of education

Patients with a college degree were more likely to be influenced by the provided information.

Table 35 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' level of education

Specialty	Relative weight					
	High school		Undergraduate		Graduate school	
	before	after	before	after	before	after
Dermatologist	0.5269	0.5490	0.4795	0.5292*	0.4438	0.4141
Plastic surgeon	0.3468	0.3460	0.3727	0.3465***	0.3736	0.4132
Aesthetic practitioner	0.1263	0.1049	0.1478	0.1243*	0.1826	0.1727

*p<0.05, ***p<0.001

5.2.3.5 Monthly allowance at disposal

Patients with a lower monthly allowance (less than 20000 NTD) were more sensitive to the provided information, making change in the relative ranking of medical specialties.

Table 36 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' monthly allowance at disposal

Specialty	Relative weight					
	Under 20000		20000~40000		More than 40000	
	before	after	before	after	before	after
Dermatologist	0.4425	0.5172**	0.5232	0.5267	0.5700	0.5782
Plastic surgeon	0.4108	0.3668***	0.3427	0.3545	0.2837	0.2703
Aesthetic practitioner	0.1467	0.1160*	0.1341	0.1188	0.1463	0.1515

*p<0.05, **p<0.01, ***p<0.001

5.2.3.6 Frequency of social activities

Patients with more social activities were more likely to be influenced by provided information.

Table 37 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on the frequency of patients' social activities

Specialty	Relative weight							
	Usually		Occasionally		Seldom		Rarely	
	before	After	before	after	before	after	before	after
Dermatologist	0.4825	0.5154	0.4445	0.5390*	0.5250	0.5135	0.5886	0.5957
Plastic surgeon	0.3747	0.3599**	0.4038	0.3479**	0.3300	0.3737	0.2945	0.2753
Aesthetic practitioner	0.1428	0.1247	0.1517	0.1132	0.1449	0.1128	0.1169	0.1290

*p<0.05, **p<0.01

5.2.3.7 Source of information

Patients receiving cutaneous cosmetic treatment via physician referral were more likely to be influenced by provided information.

Table 38 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on patients' source of information

Specialty	Relative weight							
	Recommendation by a friend or relative		Media		Physician referral		Beautician referral	
	before	After	before	after	before	after	before	after
Dermatologist	0.4906	0.5303	0.5027	0.5529	0.5115	0.5655*	0.4628	0.5163
Plastic surgeon	0.3761	0.3523	0.3434	0.3242	0.3558	0.3144	0.3882	0.3428
Aesthetic practitioner	0.1334	0.1174	0.1539	0.1229	0.1327	0.1201	0.1490	0.1409

*p<0.05

5.2.3.8 Number of treatments

Patients receiving less than 6 treatments were more likely to be influenced by the provided information

Table 39 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on the number of treatments received

Specialty	Relative weight			
	Less than 6		At least 6	
	before	after	before	after
Dermatologist	0.4816	0.5206	0.5349	0.5845
Plastic surgeon	0.3740	0.3555***	0.3216	0.3069
Aesthetic practitioner	0.1444	0.1239	0.1435	0.1104

***p<0.001

5.2.3.9 Expense spent

Patients spending less money so far on cosmetic treatment were more likely to be influenced by provided information.

Table 40 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on the expense patients spending on cutaneous cosmetic treatment

Specialty	Relative weight							
	Up to 3000		3000~10000		10000~30000		More than 30000	
	before	after	before	after	before	after	before	after
Dermatologist	0.4190	0.5377	0.4683	0.5152	0.4861	0.5313	0.4530	0.5866
Plastic surgeon	0.3483	0.3509*	0.3899	0.3686**	0.3533	0.3203	0.3640	0.2999
Aesthetic practitioner	0.2326	0.1114	0.1418	0.1162	0.1606	0.1485	0.1830	0.1135

*p<0.05, **p<0.01

5.2.3.10 Type of physician performing the latest treatment

After information disclosure, patients treated by dermatologists and plastic surgeons did change their rating on 3 medical specialties. Patients treated by aesthetic

practitioners were insensitive to provided information.

Table 41 The relative strength of dermatologists, plastic surgeons and aesthetic practitioners in terms of medical competence before and after information disclosure based on the type of physician performing the latest treatment

Specialty	Relative weight					
	by dermatologist		by plastic surgeon		by aesthetic practitioner	
	before	after	before	after	before	after
Dermatologist	0.5269	0.5449	0.4343	0.5190*	0.3946	0.4567
Plastic surgeon	0.3510	0.3479*	0.4043	0.3505**	0.3779	0.3518
Aesthetic practitioner	0.1221	0.1084**	0.1614	0.1304	0.2275	0.1915

*p<0.05, **p<0.01

5.2.4 Summary of Analytic Hierarchy Process

Based on the results in 270 respondents, medical competence (0.3296) was the most important major decision factor followed by recommendation (0.2198), friendliness (0.1350), cost (0.1307), complete service (0.0984) and physical attribute of the physician (0.0865). However, unlike female patients, male patients relied more on recommendation and cared less on complete service and physical characteristics of the physician. Except for gender, all other characteristics of patients did not have a large impact on the rank of major decision factors although the rating of “friendliness” might fluctuate between the third and fourth place among a certain subpopulations.

Dermatologists had advantages against plastic surgeons and aesthetic practitioners in all major decision factors except “complete service”, which was the

strength of plastic surgeons. Patients who were older in age, female, had a high monthly allowance and less treatment experience tended to rate dermatologists better. In addition, patients tended to give a higher rating to the medical specialty they doctors belonged to. After reading the provided information, the relative ranking of medical specialties in terms of medical competence did not change. However, new patients, aged under 40, with a college degree and a monthly allowance less than 20000 NTD were more likely to change their rating in favor of dermatologists.

CHAPTER 6 DISCUSSION AND CONCLUSION

6.1 Discussion

Using AHP, we found that "medical competence" was the most important major decision factor followed by "recommendation", "friendliness", "cost", "complete service" and "physical attribute" when patients sought cutaneous cosmetic treatment. Compared with the results using the Likert scale, only the order of “recommendation” and “friendliness” was switched when either the mean score or the higher (or highest) rank of component items of each factor was used. In general, results of the Likert-scale approach and the AHP approach were similar, especially when the fact that the 2 approaches were conducted in 2 different groups of people was considered. However, compared with that using the Likert scale, the difference between each major decision factor was magnified by using AHP. With the Likert-scale, the mean score of "medical competence" (4.72) was only 1.6 folds of the mean score of "physical attribute" (2.96). With AHP, the weight of "medical competence" (0.3296) was 3.8 folds of the weight of "physical attribute" (0.0865). These findings were consistent with those of Javalgi (1991) and Wang (1999a and 1999b).

Physician’s competence is the most important concern when patients seek cutaneous cosmetic treatment. However, competence itself is an abstract concept.

Because of specialization in the medical fields and obvious information asymmetry between patients and physicians, it is rather difficult for patients to evaluate the professionalism of their doctors. What makes the situation more complicated is that the endpoint of observation for physicians and for patients may not be the same. Physicians may claim a treatment is effective after reviewing the percentage of improvement patients have. However, the same degree of improvement may be regarded by patients as unsuccessful or unsatisfactory. As for cosmetic surgery, the endpoint of patients and physicians tend to be similar, if not the same. Generally speaking, the endpoint is more patient-oriented, depending on patient's satisfaction, and patients, therefore, have a clearer idea what they are supposed to get after the cosmetic procedure. Nevertheless, it is still not easy for patients to perceive the professionalism directly. As a result, patients are apt to rely on surrogate measures. Having the newest model of laser equipment or a diverse choice of laser equipments may be used by patients as a cue to competence (Crane and Lynch, 1988). It may explain why after factor analysis, the item "competence of the physician" was bundled with "newest generation of equipments" and "diversity of equipments".

The AHP is used to assist in making a complicated decision. Such a decision making process is assumed to be rational. However, patients may or may not be rational when choosing a physician or a hospital. Wang (1999b) demonstrated that

when patients chose a hospital, their decision might not be based on the calculated overall preference. More than half of the patients chose a hospital against the result of AHP. In our study, all patients considered "medical competence" was the most important decision factor when choosing a physician. In reality, somehow not all patients made a decision based on "medical competence". For example, those who received cutaneous cosmetic treatment by plastic surgeons rated dermatologists the best in terms of medical competence. One might argue that plastic surgeons outperformed dermatologists in other decision factors. This was true for the factor of complete service. Nevertheless, dermatologists had the highest overall score. Such a discrepancy could be explained by deliberaiton cost. For a boundedly rational individual, heuristics often provide an adequate solution cheaply whereas more elaborate approaches would be unduly expensive (Conlisk, 1996). With deliberation cost in mind, patients are looking for a doctor who is good enough to meet their needs but not necessarily the best doctor. In fact, patients receiving their latest treatment by physicians of a particular medical specialty tended to give the highest overall score to that specialty. Based on our results, to be considered by patients for cosmetic treatments, a physician must achieve at least about 80% of the leading score (Table 42). In other words, a physician is not necessary to be the best in order to be chosen by patients but he(she) must be at least 80% as good as the best doctor. For patients

receiving cutaneous cosmetic treatment performed by plastic surgeons, plastic surgeons might not be the best choice but should be good or competent enough when

Table 42 The relative overall performance according to the type of physician performing the latest treatment

Specialty	Relative weight		
	Latest treatment performed by		
	dermatologist	plastic surgeon	aesthetic practitioner
Dermatologist	0.4904	0.4210	0.3890
Plastic surgeon	0.3309(67%)*	0.3876(90%)	0.3015(78%)
Aesthetic practitioner	0.1788(36%)	0.2004(48%)	0.3055(79%)

*relative fraction to dermatologist in percentage

cosmetic laser and intense pulsed light treatment was considered. As a matter of fact, cutaneous cosmetic laser and intense pulsed light treatments were not the major services a plastic surgeon provided (Greer, 2001). Patients might receive such a treatment after they got breast augmentation or had blepharoplasty. Greer (2001) proposed a cosmetic procedure ladder (Fig 3) and suggested that the plastic surgeon only interested in large surgical cases should still embrace the smaller procedures that were welcomed by the dermatologist and facial plastic surgeon and then strengthen the gatekeeper role of the plastic surgeon. In our study, 67% of the respondents received their latest treatment from dermatologists, followed by 20% from plastic surgeons. It confirmed the gatekeeper role of dermatolgists in cutaneous cosmetic treatment. On the other hand, the relative high weight of plastic surgeons in "complete

service" (0.4061) illustrated the strength of plastic surgeons in providing whole-body cosmetic and reconstructive procedures that could not be performed by other medical specialties. However, complete service was the second least important major decision factor with a weight of 0.0984. With the advance of technology, more non-invasive procedures are expected to be launched to the market. According to a distribution survey of cosmetic procedures performed by members of American Society of Aesthetic Plastic Surgeons, the most common top 5 procedures are botulinum toxin, microdermabrasion, fillers, laser hair removal and chemical peel (Markey, 2004). The

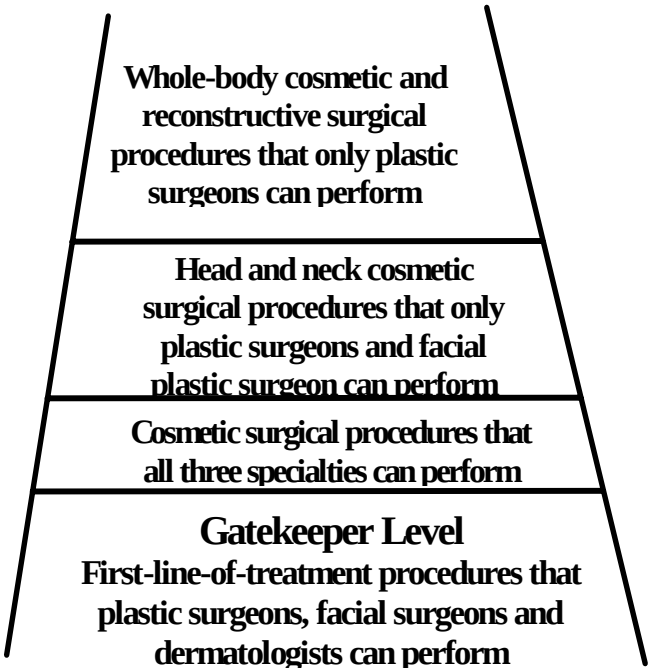

Figure 3 Cosmetic procedure ladder

nature of all these procedures is of minimal invasion. In other words, minimal or non-invasive procedures of the gatekeeper level prevail eventually (Legrand, 2004).

Such a trend will definitely have an impact on the “complete service” advantage of plastic surgeons

6.2 Conclusion

Our survey confirmed the observation made by Krieger (2002). Dermatologists are capable of providing the first-line cosmetic treatments for patients and have well-recognized reputation on what they do. Except "complete service", dermatologists have an advantage against other medical specialties in "medical competence", "recommendation", "friendliness", "cost", and "physical attribute" when cutaneous laser and intense pulsed light treatments are concerned. The findings from this exploratory study have important ramifications for all doctors providing cosmetic surgery in terms of marketing their services to patients. For one thing, patients should be well informed of the facilities, because facilities are a cue to medical competence, the most important decision factor when patients seek cutaneous cosmetic treatment. In addition, compared with female patients, male patients tended to depend more on recommendation. It is advisable to target educational programs and advertisement on patients with following characteristics: single, under 40 years old, with a college degree, with a monthly allowance under 20000 NTD, spending less 10000 NTD in cosmetic treatments, and receiving less than 6 treatments. These groups of patients are

more vulnerable to provided information. New and not yet loyal patients are more likely to be influenced by information. Once they had more treatments and spent more money on cosmetic procedures, they become more loyal and are more likely to be indifferent to provided information.

6.3 Research Limitations

6.3.1 Major Decision Factors

The 6 major factors extracted from factor analysis accounted for only 62 percent of total variance. Deleted items like privacy ensured and flexible appointment and items not included in this survey might also be an important decision factor when we took into consideration that privacy was scored the fifth among 19 items in our study.

6.3.2 Individual Variation

In the present study, individual variation is not our main consideration. The strength of a particular medical specialty may not be applied to each individual of that medical specialty.

6.3.3 Location Concerns

Because sampling was restricted to Kaohsiung, the findings might not be applied to

other areas. A study done in Utah indicated that more surgery was done in urban hospitals than in rural hospitals (Kane et al, 1978). However, according to our still not published data collected in Taipei, the priority ranking of the 6 major decision factors was basically the same.

6.3.4 Cultural Concerns

Asian cultures place great importance on physical beauty, many believe that prospects for personal success in life are related to one's physical traits. In general, most Asian patients have great respect for authority, which may limit communication because the patient may assume that the physician will understand what the patient desires (Jackson, 2003). Because of cultural difference, our findings may not be applied in western countries.

6.4 Implication

The AHP in association with factor analysis can be successfully used to analyze the competitiveness among different medical specialties.

REFERENCES

Bauer, A., Greif, C., Vollandt, R., Merker, A., and Elsner, P. 1999. Vulval diseases needed an interdisciplinary approach. Clinical and Laboratory Investigations, 199:223-226.

Bjerring, P., Christiansen, K., Troilius, A., and Dierickx, C. 2004. Facial photo rejuvenation using two different intense pulsed light (IPL) wavelength bands. Lasers in Surgery and Medicine, 34:120-126.

Boscarino, J., and Steiber, S.R. 1982. Hospital shopping and consumer choice. Journal of Health Care Marketing, 2:15-23.

Cheng, S.H., and Song, H.Y. 2004. Physician performance information and consumer choice: a survey of subjects with the freedom to choose between doctors. Quality & Safety in Health Care, 13:98-101.

Conlisk, J. 1996. Why bounded rationality? Journal of Economic Literature, 34:669-700.

Conway, J.M., and Huffcutt, A.I. 2003. A review and evaluation of exploratory factor analysis practices in organizational research. Organizational Research Methods, 6:147-168.

Crane, F.G., and Lynch, J.E. 1988. Consumer selection of physicians and dentists: an examination of choice criteria and cue usage. Journal of Health Care Marketing, 8:16-19.

Cronenwett, J.L. 2004. Vascular surgery training in the United States, 1994 to 2003. Journal of Vascular Surgery, 40:660-669.

Dolan, J.G., Bordley, D.R., Miller, H. 1993. Diagnostic strategies in the management of acute upper gastrointestinal bleeding: Patient and physician preferences, Journal of General Internal Medicine, 8:525-529.

Fabrigar, L.R., Wegener, D.T., MacCullum, R.C., and Strahan, E.J. 1999. Evaluating the use of exploratory factor analysis in psychological research. Psychological Methods, 4:272-299.

Ford, J.K., MacCullum, R.C., and Tait, M. 1986. The application of exploratory factor analysis in applied psychology: A critical review and analysis. Personnel Psychology, 39:291-314.

Forman, E.H., and Gass, S.I. 2001. The analytic hierarchy process – an exposition. Operations Research, 49:469-486.

Glassman, M. and Glassman, N. 1981. A marketing analysis of physician selection and patient satisfaction. Journal of Health Care Marketing, 1:25-31.

Gochman, D.S., Studenborg, G.J., and Feler, A. 1985. The ideal physician: Implications for contemporary hospital marketing. Journal of Health Care Marketing, 6:17-25.

Greer, S.E. 2001. A lesson from the high-tech economic boom: Use the competitive advantage of plastic surgery. Plastic and Reconstructive Surgery. 107:598-601.

Hanna, N., Schoenbachler, D.D., and Gordon, G.L. 1994. Physician choice criteria: Factors influencing patient selection of generalists versus specialists. Health Marketing Quarterly, 12:29-42.

Harker, P.T., and Varga, L.G. 1987. The theory of ratio scale estimation: Saaty's analytic hierarchy process. Management Science, 33:1383-1403.

Hill, C.J. 1991. Factors influencing physician choice. Hospital and Health Services Administration, 36:491-503.

Jackson, B.A. 2003. Laser in ethnic skin: a review. Journal of the American Academy of Dermatology, 48:S134-138.

Javalgi, R.G., Rao, S.R., and Thomas, E.G. 1991. Choosing a hospital: analysis of consumer tradeoffs. Journal of Health Care Marketing, 11:12-22.

Kane, R.L., Olsen, D.M., Newman, J., and Manson, J. 1978. Giving and getting surgery in Utah: an urban-rural comparison. Surgery, 83:375-381.

Kasteler, J., Kane, R.L., Olson, D.M., and Thetford, C. 1976. Issues underlying prevalence of ‘doctor-shopping’ behavior. Journal of Health Behavior, 17:328-339.

Krieger, L.M. 2002. Discount cosmetic surgery: Industry trends and strategies for success. Plastic and Reconstructive Surgery, 110:614-619.

Kurz, R.S., and Wolinsky, F.D. 1985. Who picks the hospital: Practitioner or patient? Hospital and Health Services Administration, 30:95-106.

Kushikata. N., Negishi, K., Tezuka, Y., Takeuchi, K., and Wakamatsu, S. 2005. Non-ablative skin tightening with radiofrequency in Asian skin. Lasers in Surgery and Medicine, 36:92-97.

Kwiesielewicz, M., and van Uden, E. 2004. Inconsistent and contradictory judgements in pairwise comparison methods in the AHP. Computers & Operations Research 31:713-719.

Lamb, C.W., Hoverstad, R., and Lancaster, W. 1988. Consumer perceptions about doctors of osteopathy and medical doctors. Journal of Health Care Marketing, 8:53-57.

Legrand, J.J. 2004. Aesthetic medicine: a booming medical activity. Journal of Cosmetic Dermatology, 2:1.

MacCullum, R.C., Widaman, K.F., Zhang, S., and Hong, S. 1999. Sample size in factor analysis. Psychological Methods, 4:84-99.

MacStravic, R.C. 1987. Manageable evidence in medical care marketing. Journal of Health Care Marketing, 7:5-59.

Markey, A.C. 2004. Dermatologists and cosmetic surgery − a personal view of regulation and training issues. Clinical and Experimental Dermatology, 29:690-692.

Miller, S. 1998. Competitive forces and academic plastic surgery. Plastic and Reconstructive Surgery, 101:1389-1399.

Nowak, L.I., and Washburn, J.H. 1998. Patient sources of information and decision factors in selecting cosmetic surgeons. Health Marketing Quarterly, 15:45-54.

Pohlmann, J.T. 2004. Use and interpretation of factor analysis in the journal of educational research: 1992-2002. Journal of Educational Research, 98:14-22.

Saaty, T.L. 1980. The analytic hierarchy process. New York: McGraw-Hill Book

Company.

Saaty, T.L. 1990. How to make a decision: the analytic hierarchy process. European Journal of Operational Research, 48:9-26.

Satty, T.L. 1994. How to make a decision: the analytic hierarchy process. Interfaces, 24:19-43.

Schleff, T., and Schaffer, M. 1987. How do consumers select physicians? Medical Group Management, May-June:32-36.

Schmittdiel, J., Selby, J.V., Grumbach, K., and Quesenberry, C.P. 1997. Choice of a personal physician and patient satisfaction in a health maintenance organization. Journal of the American Medical Association, 278:1596-1599.

Stewart, D.W., Hickson, G.B., Pechmann, C., Roslow, S., and Altemeier, W.A. 1989. Information search and decision making in the selection of family health care. Journal of Health Care Marketing, 9:29-39.

Tanzi, E.L., Lupton, J.R., and Alster, T.S. 2003. Lasers in dermatology: Four decades of progress. Journal of the American Academy of Dermatology, 49:1-31.

Taylor, S.L., and Capella, L.M. 1996. Hospital outshopping: determinant attributes and hospital choice. Health Care Management Review, 21:33-44.

Thurstone, L.L. 1947. Multiple factor analysis: a development and expansion of the vectors of mind. Chicago: University of Chicago Press.

Tsai, C.T. 2004. Consumers' behavioral intention on cosmetic laser surgery − Application of structure equation model. Matser's thesis, College of Management, National Chung-Cheng Univeristy, Chiayi, Taiwan. (in Chinese)

Wang, N.P. 1999a. The application of analytic hierarchy process in the selection of hospital. Chinese Journal of Public Health, 18:138-151. (in Chinese)

Wang, N.P. 1999b. The study of consumers' preference for hospitals − Application of AHP. Journal of Management, 16:661-681. (in Chinese)

Wu, T.C. 2001. Consumer behavior of skin laser therapy − a case study on surgical

patients of a community hospital in Taichung. Master's thesis, Institute of Hospital and Health Care Administration, National Yang-Ming University, Taipei, Taiwan. (in Chinese)

ACKNOWLEDGMENT

Without the help of lots of friends, this study could not have been finished. On this occasion, I would like to express my appreciation to them, especially to Dr Chia-Yi Yang for collecting the questionnaires in Taipei, Dr Pi-Er Hsieh for organizing the original data, and Dr Cheng-Nan Hou for examining the consistency of the content in each questionnaire. I also would like to thank Ms Peggy Liu for printing and stapling all of the questionnaires. In addition, I owe my gratitude to my teammates at school. Without them, I can hardly survive and complete the graduate program.

Time flies, and the spring is coming. ***Prosit!***

APPENDIX 1

親愛的小姐先生，您好：

這是一份有關雷射或脈衝光美容處置的學術性問卷，希望透過問卷瞭解，當您在想要接受雷射或脈衝光美容處置時(不管您是否曾接受過相關處置)，***哪些是您重要的考慮因素***。本問卷結果僅供學術研究用，請您安心作答。謝謝您的合作。

國立中山大學企業管理研究所
指導教授 高明瑞、楊東震博士
研究生 宗天一

1.在您選擇在何處進行接受***雷射或脈衝光美容***處置時，下列考慮因素***您的重視程度***為何？

	非常不重要	不重要	沒意見	重要	非常重要
醫師的專業能力	□	□	□	□	□
醫師的服務態度	□	□	□	□	□
醫師外觀給人的整體感受	□	□	□	□	□
醫師的性別	□	□	□	□	□
醫師的年齡	□	□	□	□	□
醫師的聲譽	□	□	□	□	□
其他醫師的推薦	□	□	□	□	□
其他醫護人員(不含醫師)的推薦	□	□	□	□	□
親友的推薦	□	□	□	□	□
其他醫護人員(不含醫師)的服務態度	□	□	□	□	□
醫療院所擁有最新一代的設備	□	□	□	□	□
醫療院所設備種類完善	□	□	□	□	□
醫療院所的裝潢擺設、環境整潔	□	□	□	□	□
醫療院所所在處交通便利	□	□	□	□	□
醫療院所彈性營業時間，如提供週末、夜間診療	□	□	□	□	□
能確保就診者的隱私	□	□	□	□	□
能同時提供其他非手術性美容處置，如注射玻尿酸	□	□	□	□	□
能同時提供其他手術性美容處置，如抽脂、拉皮	□	□	□	□	□
收費高低	□	□	□	□	□

2.您是否接受過雷射或脈衝光美容處置

□是　　□否

3.您的年齡：　□20 歲以下　□21-30 歲　□31-40 歲　□41-50 歲
□51-60 歲　□60 歲以上

APPENDIX 2

親愛的女士先生，您好：

這是一份有關雷射或脈衝光美容處置的學術性問卷，希望透過問卷瞭解***醫師醫療專業背景***，對您決定接受雷射或脈衝光美容處置時的影響。

問卷中的題項請依照您個人感受與了解填答即可，答案無所謂「對」、「錯」。若您在填答問卷時有不明白之處，訪員會樂於協助您填答。您的意見對我們非常重要，問卷內容完全做為學術研究之用，個人資料對外絕對保密不會公開，您可以放心填答。謝謝您的協助！

同時為了表答對您撥空填完問卷的謝意，您若願意於問卷基本資料欄留下姓名與聯絡電話，我們將隨機抽出二位得主，各可獲得價值壹萬元的全臉脈衝光處置一次。*時間地點事後另行約定。*

國立中山大學企業管理研究所
指導教授 高明瑞博士、楊東震博士
研究生 宗天一

第一部份　雷射或脈衝光美容處置的經驗

一、您曾接受過下列何種雷射或脈衝光美容處置？〔可複選〕

□1. 雷射或脈衝光除斑　□2. 雷射或脈衝光除血管病灶或疤痕
□3. 雷射或脈衝光除毛　□4. 雷射磨皮或除痣　□5. 雷射除刺青洗紋眉
□6. 雷射或脈衝光抗老除皺　□7. 其他，請說明_____

二、到目前為止，您總共接受過多少次雷射或脈衝光美容處置？〔單選〕

□1. 一次　□2. 二至五次　□3. 六至十次　□4. 十一次至十五次
□5. 十六次以上

三、您最近一次接受處置時，是由何種科別的醫師所執行？〔單選〕

□1. 皮膚科醫師　□2. 整型外科醫師　□3. 美容科醫師
□4. 其他科醫師，請說明_____
□5. 非醫師本人執行　□6. 不知道

四、您之前是否曾經為了**非**雷射或脈衝光美容治療的目的，至下列科別就診?(可複選)

□1. 皮膚科　□2. 整型外科　□3. 美容科　□4. 未曾至前述科別就診過

第二部份　接受雷射或脈衝光美容處置，主要考量因素之相對重要性

根據我們先前所做的問卷，一般人在接受雷射或脈衝光美容處置前，有下列六個重要考量因素，分別是：

1. ***推薦聲譽性***：來自是醫師本身所建立的聲望或他人的推薦。例如其他醫護人員(不含醫師)的推薦、其他醫師的推薦、親友的推薦、醫師的聲譽等。

2. ***醫療友善性***：指的是醫師外觀給人的整體感受、醫療院所的裝潢擺設、環境整潔、其他醫護人員(不含醫師)的服務態度、醫師的服務態度。

3. ***附帶性醫療服務***：指的是能滿足顧客多元需求，例如能同時提供其他非手術性美容處置，例如注射玻尿酸；或手術性美容處置，例如抽脂、拉皮等。

4. ***專業性***：與醫療院所及醫師相關的因素。例如醫療院所擁有最新一代的硬體設備、醫師的專業能力、醫療院所設備種類完善等。

5. ***醫師個別差異性***：指的是醫師的年齡、性別等個人的外在差異。

6. ***成本便利性***：指的是收費高低、醫療院所位於交通便利之處等，構成顧客就醫成本的因素。

< 填寫範例 >

評比相對重要程度劃記表如下：

	絕強	極強	強	稍強	等強	稍弱	弱	極弱	絕弱	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
推薦聲譽性			∨							醫療友善性
推薦聲譽性						∨				附帶性醫療服務

< 填寫說明 >

如果您認為上表左邊「推薦聲譽性」較右邊「醫療友善性」在考量接受雷射或脈衝光美容處置時，相對重要程度為強(5:1)，請您如上表所示，在該欄位打勾∨。

如果您認為上表左邊「推薦聲譽性」較右邊「附帶性醫療服務」在考量接受雷射或脈衝光美容處置時，相對重要程度為稍弱(1:3)，請您如上表所示，在該欄位打勾∨。以下請您就接受雷射或脈衝光美容處置前，六個主要考量因素的相對重要程度，進行勾選。

	絕強	極強	強	稍強	等強	稍弱	弱	極弱	絕弱	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
推薦聲譽性	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	醫療友善性
推薦聲譽性										附帶性醫療服務
推薦聲譽性	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	專業性
推薦聲譽性										醫師個別差異性
推薦聲譽性	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	成本便利性
醫療友善性										附帶性醫療服務
醫療友善性	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	專業性
醫療友善性										醫師個別差異性
醫療友善性	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	成本便利性
附帶性醫療服務										專業性
附帶性醫療服務	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	醫師個別差異性
附帶性醫療服務										成本便利性
專業性	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	醫師個別差異性
專業性										成本便利性
醫師個別差異性	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	成本便利性

第三部份　執行雷射或脈衝光美容處置時，不同科別醫師相對優劣性

就您個人的經驗或理解，評比皮膚科醫師、整型外科醫師及美容科醫師，在上述六個主要考量因素的相對優劣程度。填寫方式同上題。

就*推薦聲譽性*一項而言，請您評比不同科別醫師的相對優劣性

	絕優	極優	優	稍優	等優	稍劣	劣	極劣	絕劣	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
皮膚科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	整型外科醫師
皮膚科醫師										美容科醫師
整型外科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	美容科醫師

就*醫療友善性*一項而言，請您評比不同科別醫師的相對優劣性

	絕優	極優	優	稍優	等優	稍劣	劣	極劣	絕劣	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
皮膚科醫師										整型外科醫師
皮膚科醫師										美容科醫師
整型外科醫師										美容科醫師

就*附帶性醫療服務*一項而言，請您評比不同科別醫師的相對優劣性

	絕優	極優	優	稍優	等優	稍劣	劣	極劣	絕劣	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
皮膚科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	整型外科醫師
皮膚科醫師										美容科醫師
整型外科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	美容科醫師

就*專業性*一項而言，請您評比不同科別醫師的相對優劣性

	絕優	極優	優	稍優	等優	稍劣	劣	極劣	絕劣	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
皮膚科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	整型外科醫師
皮膚科醫師										美容科醫師
整型外科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	美容科醫師

就*醫師其他特徵*一項而言，請您評比不同科別醫師的相對優劣性

	絕優	極優	優	稍優	等優	稍劣	劣	極劣	絕劣	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
皮膚科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	整型外科醫師
皮膚科醫師										美容科醫師
整型外科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	美容科醫師

就*成本便利性*一項而言，請您評比不同科別醫師的相對優劣性

	絕優	極優	優	稍優	等優	稍劣	劣	極劣	絕劣	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
皮膚科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	整型外科醫師
皮膚科醫師										美容科醫師
整型外科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	美容科醫師

臺灣地區，醫師養成過程為醫學院畢業後，考試取得醫師執照，再接受三至六年專門訓練，取得專科、次專科醫師資格。其中有關美容的相關訓練整理如下表：

	訓練時間	**訓練內容**
皮膚科	三年半	住院病人診療訓練、門診病人診療訓練、**皮膚診斷學**、皮膚病理學、皮膚免疫學、皮膚腫瘤學、**皮膚治療學**、**皮膚生理學**、皮膚微生物學、**皮膚外科學**、性傳染病學、**皮膚美容外科**、 **皮膚保健暨美容**。
整型重建外科	三年一般外科，三年整型重建外科	一般外科原則、整形外科原則、先天畸形、頭頸部外科（尤其癌症手術）、手外科、燒傷、外傷、**美容外科**、顯微外科。

目前為止，衛生署並無核定所謂的美容專科。

在您看過相關專科的訓練綱要後，**請您再次評比皮膚科醫師、整型外科醫師及美容科醫師在專業性上的相對優劣程度。**

	絕優	極優	優	稍優	等優	稍劣	劣	極劣	絕劣	
	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	
皮膚科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	整型外科醫師
皮膚科醫師										美容科醫師
整型外科醫師	9:1	7:1	5:1	3:1	1:1	1:3	1:5	1:7	1:9	美容科醫師

第四部份　您的個人基本資料

1.姓名 _____（自由填寫） 聯絡電話 _____(自由填寫)

2.出生年： 民國 _____年

3.性別：　□1.男　□2.女

4.教育程度：□1.國中肄業　□2.國中畢　□3.高中(職)畢　□4.專科畢
□5.大學畢　□6.研究所以上

5.婚姻狀況：□1.已婚　□2.未婚　□3.分居　□4.離婚　□5.喪偶
□6.其他_____

6.目前從事的行業：□1.專業人士 □2.軍公教　□3.服務業　□4.高科技業
□5.製造業　□6.家管　□7.農魚牧　□8.學生
□9.其他_____

7.您需要經常面對人群及會〔接〕見來賓：□1.經常 □2.普通 □3.偶爾
□4.不需要

8.您目前每月可讓您個人自由支配的金錢約:□1.一萬元以下　□2.一萬元以上~二萬元　□3.二萬元以上~三萬元　□ 4.三萬元以上~四萬元
□5.四萬元以上

9.您第一次接受皮膚雷射或脈衝光美容的動機是:□1.親友推薦　□2.傳播媒介的報導　□3.醫療人員的建議　□4.美容護膚中心的介紹　□5.其他，請說明_____

10.您做過皮膚雷射或脈衝光美容大概花多少費用?　□1.三千元以下
□2.三千~一萬元　□3.一萬元以上~二萬元　□4.二萬元以上~三萬元
□5.三萬元以上~四萬元　□6.四萬元以上

11. 您的親戚朋友是否接受過雷射或脈衝光美容處置？□是，大約_____人
□否

謝謝您的填答！再次提醒您填寫問卷若能有效分析，您將有機會抽中價值壹萬元的全臉脈衝光免費處置一次。