

# Factors Influencing Expectations of Medical Treatment: Traditional Chinese versus Western Medicine

## Abstract

Traditional Chinese Medicine (TCM) has been an integral part of prevailing practice and belief system throughout Chinese history. While TCM is covered under the National Health Insurance, the increasing demands results in great growth of TCM clinics. There is noticeable lack of research on how consumers consider choice factors toward TCM and Western medicine hospitals/clinics. This research explored the treatment experiences and framing effects on consumers' choice values through analyses of survey data collected over the Web from 469 respondents in Taiwan. Multivariate analysis of variance (MANOVA) was used to test the relationship between experience and framing across TCM and Western medicine choice factors.

Results found consumers would rate higher importance level of choice factors toward Western medicine hospitals/clinic; however similar importance for TCM and Western medicine hospitals choice factors existed only for consumers with TCM treatment experiences. Furthermore, the TCM frame evoked less positive information resulting in consumers' lower expectations toward TCM hospitals/clinics. This research concluded framing played a more influential role than experiences. Researchers should be aware of framing effects in examining consumers' attitude and behavior intention towards medical choices.

# Factors Influencing Expectations of Medical Treatment: Traditional Chinese versus Western Medicine

Bocarino and Steiber (1982) emphasized that consumers appeared to be becoming more health-conscious and better informed during the 1980s leading to increased consideration of hospital choice factors (Lane & Lindquist, 1988). More recently, the Internet has gained a role (Pan & Chen, 2004) as consumers have become more knowledgeable of, more demanding in having a role in medical decision making (Tsai, 2001). Hospitals and clinics of Taiwan can divide into two primary types: Traditional Chinese Medicine (TCM) and Western medicine. Despite Western medicine's challenge and subsequent dominance in most health care systems, TCM has survived (Chi et al., 1996). Chang, Lin and Tsai (2004) observed TCM use has increased, becoming fashionable in Taiwan. Since 1995, when TCM was included in the national health insurance plan, TCM hospitals and clinics have grown in number (Kang, Chen, & Zhou, 1998; Lai & Li, 1992; Li, 1999). Of 594 hospitals and 18,183 clinics (excluding dental clinics), 78.5% were western medicine type, and 21.5% were Traditional Chinese Medicine (TCM) (2003), with TCM clinics had increasing 31.3% from 1994 to 2003. This growth has been supported by a growing demand on the part of consumers.

Hospital choice factors typically were based on hospital type, type of care, and hospital choice influencers (Lane & Lindquist, 1988) as well as public versus private institutions (Andaleeb, 2000; Furnham, Vincent, & Wood, 1995; Taylor & Cosenza, 1999). Yet little is known about consumers' perceived importance of TCM compared to Western medicine paradigms

Our objectives in this research were twofold. Firstly, we would explore how consumers expected

TCM and Western hospitals/clinics across hospital selection criteria. The differences of selection criteria were also examined. Secondly, we would investigate how consumers with different experiences expected TCM and Western hospitals/clinics across selection criteria as well as the difference. Identification of these hospitals/clinics selection criteria and determining the differences between hospitals/clinics types on different experiences will enable management to formulate effective marketing strategies to retain and expand hospital patient bases in the future. We began with a brief review of hospital choice on previous health care research, followed by an elaboration of the attitude and behavior intention toward TCM and Western medicine treatment. Culture influences on health behavior were also described to facilitate the understanding of expectation differences toward TCM and Western medicine hospitals/clinics. Research hypotheses were developed along with the literature view. The results of an empirical study, employing a multivariate analysis of variance (MANOVA) were then presented. The article concluded with a discussion of the management implication considered in, and arising for the analysis.

#### *Factors Related to the hospital choice*

In the early 1980s, it was recognized that patients could shop among hospitals and make comparisons (Lane & Lindquist, 1988). Boscarino and Steiber (1984) detailed the most frequently cited criteria for hospital selection (in rank order) including: (a) nearest to home / convenience, (b) doctor uses, (c) has specialist doctors, (d) has best equipment or technology, (e) quality of facility, (f) know or like hospital staff, (g) past experience with hospital staff, (h) less expensive, (i) size, and (j) religious affiliation. In similar work, Wolinsky and Kurz (1986) described four dimensions they labeled *knowledge, cost, quality, and recommendations* as playing a role in choice.

The National Research Corporation (1988) had studied hospital selection factors for the years 1984, 1985, and 1986, finding medical staff quality the most important criterion, followed by closeness to home, used hospital before, doctor recommendations, and cost of care. Table 1 represents hospital choice criteria described over previous studies arranged by Lane and Lindquist's (1988) seven categories (care, staff, physical facilities, clientele, experience, convenience, and institutional). We divided the ranking order into high, medium, and low; consequently it would facilitate the comparison with other studies relating to hospital choice factor. Moreover, *time* played a crucial role in the process of health quality assurance or quality management as well, including waiting time (Bishop, 1991b) and treatment time (Chang, 1983; Wu & Hu, 1980). For the consideration of time, the clinic opening hours was involved in emergency care consumers likewise. Therefore *time* containing waiting time, pharmacy time, clinic opening hours, and treatment time was subsume into the hospital choice criteria as the eighth category in our research.

#### *Behavioral intention toward TCM and Western medicine*

Research on illness cognition had repeatedly demonstrated that people's understanding of illness affected a wide variety of illness-related behavior, including self-diagnosis, help seeking, co-operation with treatment, and interactions with disease victims (Kang, Chen, & Chou, 1996). Patients in Taiwan generally chose their health care according to the following stages:

(1) at the early stage or in the beginning of discomfort, patients sought self-diagnosis and/or home care; (2) with moderate illness, they called on clinics or hospitals providing either western or Chinese medicine, (3) at the stage of chronic illness with overt symptoms, people sought help from modern

western medicine (Chou, 2001). Chang *et al.* (Chi et al., 1996) also found the common conditions for seeking TCM were the doctors of western medicine tell patients there was no hope of cure or patients were about to die of an illness.

Table 1 Importance of Hospital Choice Factors

	Berkowitz and Flexner (1981)	Boscarino and Steiber (1982)	NCR (1986)	Javalgi, Rao and Thomas (1991)	DGBAS (2001)
<i>Care</i>					
Overall quality	High				
Nursing			High		
Emergency			High		
Cost		Low	High	Low	
Selection/assortment			Low		Low
<i>Staff</i>					
Quality			High		Low
Skill selection assortment		High		High	High
Attitudes/courtesy	Medium		Medium	Medium	
<i>Physical facilities</i>					
Equipment/technology		Medium	Medium	Medium	Medium
Quality		Medium			
Size		Low			
Layout			Low		
Cleanliness	Medium				
Surroundings/environment			Medium		
<i>Clientele</i>					
Feelings toward hospital staff		Medium			
Desire for personal acceptance /attention					
<i>Experience</i>					
Prior use		Low	Medium		
Recommendations					
Doctors		High	Medium	Low	
Friends/relatives			Low	Low	Medium
<i>Convenience</i>					
Convenient location		High	Low	High	High
<i>Institutional</i>					
Reputation	Low			Medium	

Note. Hospital choice criteria prior 1990 were from "Hospital Choice: A summary of the key empirical and hypothetical findings of the 1980s," by P. M. Lane and J. D. Lindquist, 1988, *Journal of Health Care Marketing*, 8, p. 8.

Chou (National Department of Health, 2003) studied the factors related to the choice of clinic type between TCM and Western medicine among patients with dual treatment in Taiwan, the results revealed patients suffered from symptoms and signs such as muscle sprain, joint dislocation, muscle ache, and arthritis favored TCM. In contrast, patients with illness requiring bed rest in the past year, who experienced discomfort in this episode, or who suffered from endocrine or metabolic disease were likely to visit western medicine clinics.

According to the statistics of Department of Health in 2003, the diseases of the musculoskeletal

system and connective tissue were the most frequent category, followed by signs, symptoms and ill-defined conditions for which patients visited TCM. Three other common conditions of patients seeking TCM providers were diseases of the respiratory system, dislocation and sprain and diseases of the digestive system. These conditions were usually the types of conditions that people perceived Chinese medicine to more or equally effective as modern Western medicine (2003). The first three ranking of outpatients of Western medicine by disease were acute upper respiratory infections, bronchitis and hypertensive disease (Piron, Ching, Peng, & Ching, 2000). Compared to Chou's study in 2001, patients visiting TCM hospitals/clinics suffered similar disease or symptom.

#### *The thought and practice between TCM and Western medicine*

Compared to Western medicine, Jianping and Rose (1996) stated that TCM was possessed of a distinct and coherent methodology that was characterized by: (a) relative holism, (b) differentiation of patterns to determine treatment, (c) therapy delivered through natural substances, (d) humane relationships between doctor and patient, and (e) a comprehensive if often implicit awareness of the complex patterns that emerged from the behavior of whole human beings. Chi *et al.* (Sutton, 2003) indicated, in the study of practice of TCM in Taiwan in 1995, most practice TCM clinics were operated by one Chinese Medicine physician (CMP), who also prescribed and dispensed drugs. These CMPs tended to use unlicensed aids to assist in dispensing drugs and patient care. However, in the process of modernization, many TCM clinics and hospitals began to practice certain specialties, for instance, internal medicine, gynecology, injuries, and acupuncture. Other areas of modernization in the practice of Chinese medicine were the adoption of modern equipment, pharmaceuticals, and management systems.

From the review of the behavior intension toward TCM and Western medicine, we could recognize that consumers' understanding of illness would affect the treatment choice: TCM, Western medicine or both. Since treatment methodology between TCM and Western medicine represented highly divergent (Department of Health, 2003), we can assume previous hospital visits represent a consumer's value of TCM or Western treatment, thus this leading to the following hypotheses:

H1a: High familiarity with TCM treatment consumers will rate higher importance on choice

factors of TCM hospitals/clinics higher than those of Western hospitals/clinics.

H1b: High familiarity with Western treatment consumers will rate higher importance on choice

factors of Western hospitals/clinics than those of TCM hospitals/clinics.

While Taiwan was a modern society with an economy based on high technology, its citizens easily slip between the modern and the traditional.(1996). According to the medical statistics annual report of 2003, there were nearly 1,980 million outpatients adopted Western treatment; and 634 million of TCM outpatients. The report manifested although there were a great amount of Western medicine utilizers, TCM treatment consumers revealed an increasing tendency year by year (Kleinman, Eisenberg, Good, & Davis, 1978). In Chou's study of factors of utilization of TCM and Western medicine, approximately half of the research subjects (48.7%) received both TCM and Western medicine treatment. Shih (Chen, 1996) stated more and more Chinese patients were coming to believe that a combination of both TCM and Western medicine provides the best treatment. Therefore, they usually received Western medical treatment and took herbs, acupuncture, or acupressure. We proposed consumers with both TCM and Western treatment experiences; they would comprehend the way both remedies performed. Thus this

develops the second hypothesis:

**H2: High familiarity with dual treatment consumers will rate importance on choice factors of TCM and Western hospitals/clinics similarly to consumers familiar with TCM or Western treatment.**

In the healing process, culture shaped illness as a psychosocial experience under the influence of cultural rules which governed the perception, valuation and expression of behaviors (Pillay, 1996).

Chinese were influenced by the philosophies and religions: Confucianism, Taoism, and Buddhism. For Buddhism, when people were aware of their behavior and were morally good, they had or no guilt and were peaceful, thus promoting their health. In Taoism, Chinese elders, to care for themselves and promote health, were likely to walk and exercise out-of-doors. They believed that being with nature gave them peace of mind and that breathing deeply of fresh air promote health(1988). As Chinese involved more in the health care and disease prevention, they would keep good health condition.

Health beliefs that people had influenced how they responded when they perceived themselves as ill, how they prevented illness, maintained good health, diagnosed symptoms and treated bothersome and/ or persistent conditions. They might treat themselves or consult family or friends (2001). Gochman (2003) found that patients, after evaluating their symptoms, treat themselves, seek help from medical professionals or alternatively consult folk or traditional healers. Medical practitioners were normally the last choice. For the reason of self care and treatment, consumers would rarely visit TCM and Western medicine hospitals/clinics, thus this leads to the third hypothesis:

**H3: Low familiarity with TCM and Western treatment consumers will rate importance of choice**



factors lower than consumers familiar with TCM, Western, or dual treatment.

### *Attitudes and beliefs: Chinese versus Western medicine*

Chou (2000) found half of his subjects disagreed with (a) the diagnostic accuracy of western medicine was better than that of TCM; (b) the cost in modern medicines was often more expensive than that in TCM; (c) TCM doctors explained more detail than modern medical doctors do; (d) when talking to patients, TCM doctors were more friendly. Chan et al. (Levin, Schneider, & Gaeth, 1998) found Hong Kong Chinese who were older, not particularly well educated or wealthy female had lower confidence in Western medical physicians, while younger males (mean 26 years) with higher education had the greatest faith in Western physicians and the least belief in TCM. With perceived advantages to both TCM and Western treatments, consumers might be easily influenced in their attitude by the context or frame of the situation.

### *Framing effects*

Framing researchers has examined both the theoretical components of framing (Moxey, O'Connell, & Henry, 2003) as well as its application for health psychology (Kuhberger, 1998) and clinical psychology (Janiszewski, Silk, & Cooke, 2003). Framing effects referred to “ the finding that decision makers respond differently to different but objectively equivalent description of the same problem” (Levin et al., 1998).

Attribute-framing effects shows that consumers respond more favorably to positive attribute frames than to negative attribute frames (Janiszewski et al., 2003). Levin et al. (Taiwan Network Information

Center, 2005) reviewed 36 attribute-framing studies and found overwhelming support for the superiority of positive frames--positive attribute frames evoked favorable associations in memory and encourage the recruitment of positive information, whereas negative attribute frames evoked unfavorable associations in memory and encourage the recruitment of negative information.

In the current study, we employ attribute framing manipulation in order to separate how consumers' expectations of TCM and Western hospitals/clinics. We expect the attribute frame, TCM or Western medicine, will cause the recall the attitudes and influence cognitive responses that align with assumption of modernity that the Western import, or what was often thought globalization, was better. Thus the second hypothesis was derived:

**H4: Consumers responding to a TCM frame will rate importance of choice factors differently than consumers respond to a Western medicine frame.**

## Methodology

This experiment was designed to explore how treatment experience and attribute framing influenced the expectations of TCM and Western medicine hospitals/clinics. Expectations toward TCM and Western medicine hospitals/clinics within the sample were first established in a pretest. Differences in the importance level of hospital choice factors between treatment experience and attribute framing were then tested using a computer-assisted self-administered survey instrument.

### *Manipulation and Measurement*

The focal variables of the research, treatment experience and attribute framing, were manipulated on

a between-subject basis. Two attribute framing values, TCM and Western medicine hospitals/clinics, were manipulated to test how expectations of hospitals/clinics choice were influenced by attribute framing. Subjects were randomly assigned to the attribute framing. For example, if subjects were assigned to the attribute framing of TCM hospitals/clinics, they had to respond the expectations toward TCM hospitals/clinics when choosing a TCM hospitals/clinic.

Treatment experience was measured according to the frequency of visiting TCM and Western medicine hospitals/clinics in one month, six months and one year, respectively. Subjects who had visited TCM and Western medicine hospitals/clinics either in one month, six months or one year were classified as dual utilizers. Subjects who had visited only TCM or Western medicine hospitals/clinics in one year were classified as TCM hospitals/clinics only and Western medicine hospitals/clinics only respectively. Subjects responding no visiting TCM and Western medicine hospitals/clinics were classified as none utilizers.

From the literature review, eight dimensions (Time, Convenience, Staff, Physical facilities, Cost, Clientele, Institutional, and Care) were concerned while people choosing hospitals/clinics. The eight dimensions were employed as dependent variables in our research to test differences in the expectations between treatment experiences and attribute framing. Below each factor was several questions relating to the factor itself. For example, below the factor of Time, subjects were asked the expectations of waiting time, treatment time, hospitals/clinics hours, and time for taking medicine. Subjects indicated their expectations with each of the questions on a 7-point scale which coded such that higher numbers indicated greater expectations. To ensure the accuracy of survey, the MBA students in Taiwan assisted

with preliminary survey testing, with any unclear parts modified and retested.

### *Procedures*

A computer assisted survey instrument (CASI), deployed over the Web, asked respondents to answer questions about expectations toward TCM and Western medicine hospitals/clinics while choosing hospitals/clinics. Participants indicated how many times they visited TCM and Western medicine hospitals/clinics in one month, six months and one year. The next part of the survey asked the participants to rate how they expected TCM or Western medicine hospitals/clinics when choosing hospitals/clinics. These expectation variables derived from literature review including Waiting time, Treatment time, Clinic hours, Pharmacy waiting time, Web reserve, Reservation, Traffic/Parking, Near home, Charge, Insurance coverage, Receptionist service quality, Medical staff service quality, Doctor service quality, Medical staff specialty, Doctor specialty, Specialized department, Specialized equipment, Care patients, Respect privacy, Follow up caring, Doctor reputation, Clinic/hospital reputation, Inside servicescape, Outside servicescape, Past experience, Friend/relatives' recommendation, Doctor recommendation, and Past bad news. Participants indicated their expectations with each of the questions on a 7-point scale which coded such that higher numbers indicated greater importance. After completing the questionnaire, the participants had to respond the demographics, such as age, gender, monthly income, occupation, education background and so forth. Then the data were saved in the server and analyzed further.

## Data collection

Subjects were drawn to the research Web site through a banner located on a commercial Web portal and medical Web site in Taiwan during a two-week period. The method invited Web users to response the survey, with a free gift in return.

## Participants

Eliminating incomplete responses, corrupted data, and repeated entries resulted in 469 respondents. Mean age of respondents was 29, with 70 percent of female and 30 percent male. Because the survey type (Traditional Chinese Medicine & Western medicine) was randomly selected by the program, the amounts of effective questionnaire were 233 and 236 respectively (each was about 50 percent). Participants' mean age was 29 (SD = 7.55), with 30 percent male and 70 percent female, 62 percent single. Participants indicated they were mostly college graduates performing office-related work or currently attending college (64.8%). Table 2 presents a summary of respondent demographics.

Table 2. Demographics of participants

Characteristic	TCM		Western medicine		Total group	
	Range 18~62 $\bar{x}$ = 29.6		Range 18~60 $\bar{x}$ = 29		Range 18-62 $\bar{x}$ = 29.1	
Gender						
Male	67	(28.2)	73	(30.9)	140	(30)
Female	166	(71.2)	163	(69.1)	329	(70)
Marital status						
Single	94	(40.3)	83	(35.2)	177	(62.3)
Married	139	(59.7)	153	(64.8)	292	(37.3)
Education						
Junior high school & below	10	(4.3)	7	(3.0)	17	(3.6)
Senior high school	35	(15.0)	31	(13.1)	66	(14.1)
College	150	(64.4)	149	(63.1)	299	(63.8)
Graduate school & above	38	(16.3)	49	(20.8)	87	(18.6)
Occupation						
Student	63	(27.0)	66	(28.0)	129	(27.5)
Teacher	6	(2.6)	9	(3.8)	15	(3.2)
Official	18	(7.7)	17	(7.2)	35	(7.5)
Blue collar	9	(3.9)	9	(3.8)	18	(3.8)
White collar	60	(25.8)	75	(31.8)	135	(28.8)
Housekeeper	31	(13.3)	16	(6.8)	47	(10.0)
Free worker	16	(6.9)	14	(6.0)	30	(6.4)
Other	30	(12.9)	30	(12.8)	30	(6.4)
Monthly income (NT\$)						
No income	46	(19.7)	41	(17.4)	87	(18.6)
Below 20,000	67	(28.8)	61	(25.8)	128	(27.3)
20,001~30,000	41	(17.6)	53	(22.5)	94	(20.0)
30,000~40,000	39	(16.7)	46	(19.5)	85	(18.1)
40,001~50,000	19	(8.2)	21	(8.9)	40	(8.5)
50,001~60,000	14	(6.0)	6	(2.5)	20	(4.3)

Characteristic	TCM	Western medicine	Total group
Above 60,000	7 (3.0)	8 (3.4)	15 (3.2)

*Note.* Entries were number of respondents with percentages within characteristic in parentheses.

According to the investigation of Taiwan Network Information Center (Cooley, William, & Paul, 1971), People below 35 years old occupied 85 percent among the total internet users. The sample compared well with government statistics on internet broadband usage in Taiwan. However, the proportion of female among the participants was 70% exhibiting higher than the investigation of TWNIC (Female = 60%). The Health On the Net Foundation (1998) represented that women had steadily grown a clear majority of medical internet users. Because one of the banners was located on the medical Web site, the proportion of female was higher than male.

#### *Data Analyses*

Descriptive statistics, such as means and standard deviations, and testing for reliability were calculated on all relevant data using the SPSS-10.0 software package (SPSS Inc., 2003). With the ability to examine several dependent measures simultaneously, Multivariate analysis of variance (MANOVA) was used to assess differences in attribute framing and treatment experience across multiple merit-dependent variables. The MANOVA used the two attribute framing values and four treatment experiences resulting in a  $2 \times 4$  mixed design. A Bartlett's test of Sphericity (Janiszewski et al., 2003), indicated (Bartlett's = 6952.70,  $p < .001$ ), indicating the data was appropriate for MANOVA analysis.

### Results

In the test of reliability, the overall survey questions for Cronbach's alpha was .94, and Guttman split-half was .87. The results represented highly acceptable for the survey research. Multivariate analysis of variance (MANOVA) was employed to test differences in attribute framing and treatment experience

across multiple metric-dependent variables of expectations toward TCM and Western hospitals/clinics.

Interaction effects between attribute framing and treatment experience were also tested.

Descriptive statistics, MANOVA, and multiple-range tests results were summarized in **Error!**

**Reference source not found.** The multivariate test (Wilks' Lambda) failed to find overall significant differences due to treatment experience ( $F_{28, 469} = 1.23, p = .08, \eta^2 = .07$ ), and attribute framing ( $F_{28, 469} = 1.27, p = .16, \eta^2 = .08$ ). The univariate tests indicated significant differences at a  $p < .05$  level among treatment experience on 14 of the 28 dependent variables, including waiting time, traffic/parking, medical staff service quality, doctor service quality, medical staff specialty, doctor specialty, specialized equipment, care patients, respect privacy, doctor reputation, hospitals/clinics reputation, inside servicescape, past experience, and past bad news. In addition, the univariate results showed significant differences in attribute framing on 17 of the 28 dependent variables with greater expectation toward Western hospitals/clinics., including waiting time, treatment time, clinic hours, pharmacy waiting time, web reservation, reservation, medical staff service quality, doctor service quality, medical staff specialty, doctor specialty, specialized equipment, care patients, follow up caring, inside servicescape, past experience, doctor recommendation, and past bad news. As a result, the attribute framing had greater influence than treatment experience in the importance level of hospital choice factors toward TCM and Western hospitals/clinics.

Table 3. Means and univariate F values (sum of squares  $\chi^2$ ) For Hospital Choice Factors

	WT	TT	CH	PWT	WR	Resv	TP	NH	Chrg	IC	RSQ	MSSQ	DSQ	MSS
Experience														
Dual (233)	5.24 <sup>c+.62</sup> (.79)	5.16 (.80)	5.04 (.85)	4.81 (1.00)	4.47 (1.30)	4.91 (1.02)	5.15 (.96)	4.75 (1.07)	5.00 (.94)	5.19 (1.00)	5.03 (.90)	5.36 (.71)	5.45 <sup>d+.35</sup> (.67)	5.51 (.63)
West (190)	5.06 (.78)	5.03 (.77)	4.97 (.86)	4.66 (.99)	4.59 (1.18)	5.03 (.88)	5.03 (.92)	4.70 (1.00)	5.06 (.79)	5.27 (.81)	5.00 (.83)	5.38 (.66)	5.46 <sup>d+.36</sup> (.64)	5.53 (.63)
TCM (14)	4.64 <sup>a</sup> (1.08)	4.93 (.83)	4.86 (1.03)	4.50 (1.16)	4.50 (1.29)	4.79 (.80)	4.71 (1.44)	4.71 (1.07)	4.79 (.80)	5.29 (1.07)	4.64 (1.28)	4.93 (.92)	5.29 (.91)	5.29 (.99)
None (32)	4.87 (1.21)	4.91 (1.25)	4.75 (1.34)	4.50 (1.34)	4.31 (1.60)	4.78 (1.36)	4.75 (1.37)	4.59 (1.32)	4.91 (1.33)	5.19 (1.26)	4.78 (1.36)	5.03 (1.26)	5.09 <sup>ab</sup> (1.28)	5.19 (1.31)
Survey Type														
TCM (233)	5.03 (.90)	4.99 (.86)	4.91 (.93)	4.61 (1.07)	4.19 (1.27)	4.76 (1.03)	4.94 (1.00)	4.70 (1.05)	4.97 (.93)	5.18 (.94)	4.92 (.99)	5.24 (.80)	5.33 (.79)	5.41 (.75)
West (236)	5.21 (.77)	5.18 (.78)	5.07 (.86)	4.82 (.99)	4.82 (1.20)	5.13 (.91)	5.13 (.91)	4.74 (1.06)	5.06 (.88)	5.28 (.96)	5.06 (.84)	5.43 (.69)	5.52 (.65)	5.57 (.66)
F values														
Experience (3,461)	5.07**	2.25	1.37	1.81	1.17	1.58	3.17*	.35	.66	.34	2.06	4.70**	3.76*	3.67*
Survey Type (1,461)	10.58**	11.42**	8.30**	4.80*	22.40***	16.00***	3.65	3.70	1.21	1.86	3.73	5.11*	5.48*	8.23**
Experience × Type (3,461)	2.34	2.60	1.89	.91	2.07	3.43*	2.85*	2.58	.21	.65	3.78*	3.20*	2.09	2.56
Note: WT=Waiting Time, TT=Treatment Time, CT=Clinic Hours, PWT=Pharmacy Waiting Time, WR=Web Reservation, Resv=Reservation, TP=Traffic/Parking, NH=Near Home, Chrg=Charge, IC=Insurance Coverage, RSQ=Receptionist Service Quality, MSSQ=Medical Staff Service Quality, DSQ=Doctor Service Quality, MSS=Medical Staff Specialty, DS=Doctor Specialty,SD=Specialized Department, SE=Specialized Equipment, CP=Care of Patients, RP=Respect Privacy, FUC=Follow Up Care, DR=Doctor Reputation, CHR=Clinic/Hospital Reputation, IS=Inside Servicescape, OS=Outside Servicescape, PE=Past Experience, FRR=Friends/Relative Recommendation, DR=Doctor Recommendation, PBN=Past Bad News														
Sub Subscripts indicate significant differences, and their effect sizes (Choen's d=.2 indicates small, =.5 indicates medium, and =.8 indicates large), between groups, Tukey HSD paired comparisons, * p < .05, where a = Dual lizers, b = West only, c = TCM only, d = None utilizers. Standard deviations are in parentheses below means. Degrees of freedom are in parentheses below F tests. Sample sizes are in parentheses below experience and survey type.														
* p < .05. ** p < .001. *** p < .001														



Table 3. (continued)

	DS	SD	SE	CP	RP	FUC	DR	CHR	IS	OS	PE	FRR	DR	PBN
Experience														
Dual (233)	5.56 <sup>d+.37</sup> (.64)	4.90 (.95)	5.33 <sup>d+.35</sup> (.76)	5.47 (.66)	5.50 (.68)	5.04 (.84)	4.65 (.94)	4.15 <sup>d+.44</sup> (.76)	5.18 (.81)	3.95 (1.01)	5.27 (.70)	4.86 (.81)	4.90 (.81)	5.18 (.82)
West (190)	5.61 <sup>d+.42</sup> (.63)	4.83 (.99)	5.36 <sup>d+.39</sup> (.70)	5.56 <sup>d+.36</sup> (.60)	5.56 <sup>d+.36</sup> (.66)	5.07 (.88)	4.61 (.99)	5.13 <sup>d+.41</sup> (.78)	5.19 (.74)	3.79 (1.16)	5.26 (.74)	4.79 (.74)	4.78 (.86)	5.16 (.86)
TCM (14)	5.64 (.74)	4.79 (.89)	5.21 (.70)	5.43 (.85)	5.71 (.47)	5.21 (.70)	4.29 (1.33)	4.79 (.89)	5.29 (.83)	3.57 (1.16)	5.14 (.66)	4.57 (.85)	4.64 (1.08)	4.64 (1.15)
None (32)	5.19 <sup>a,b</sup> (1.28)	4.84 (1.19)	4.94 <sup>a,b</sup> (1.37)	5.19 <sup>b</sup> (1.33)	5.19 <sup>b</sup> (1.33)	5.00 (1.34)	4.28 (1.53)	4.62 <sup>a,b</sup> (1.52)	4.81 (1.51)	3.87 (1.45)	4.97 (1.33)	4.59 (1.32)	4.84 (1.30)	4.97 (1.33)
Survey type														
TCM (233)	5.48 (.79)	4.76 (1.02)	5.21 (.85)	5.39 (.77)	5.47 (.76)	4.94 (.93)	4.56 (1.04)	4.99 (.92)	5.04 (.91)	3.83 (1.13)	5.15 (.80)	4.82 (.83)	4.78 (.87)	5.09 (.91)
West (236)	5.64 (.61)	4.97 (.94)	5.41 (.72)	5.58 (.64)	5.55 (.71)	5.17 (.85)	4.63 (1.01)	5.20 (.77)	5.29 (.78)	3.91 (1.09)	5.33 (.73)	4.80 (.83)	4.90 (.89)	5.19 (.86)
F values														
Experience (3,461)	4.75**	.31	4.12**	3.28*	3.85*	.37	2.64*	6.45***	3.30*	1.09	2.64*	1.65	1.03	2.71*
Survey type (1,461)	6.94**	1.61	8.29**	6.11*	3.32	5.69*	2.38	2.89	7.03**	1.08	6.28*	.24	3.95*	4.64*
Experience × type (3,461)	2.50	2.02	3.29*	.87	2.97	.94	5.33**	6.24***	3.41*	.87	3.36*	.67	2.50	4.54**

Note: WT=Waiting Time, TT=Treatment Time, CT=Clinic Hours, PWT=Pharmacy Waiting Time, WR=Web Reservation, Resv=Reservation, TP=Traffic/Parking, NH=Near Home, Chrg=Charge, IC=Insurance Coverage, RSQ=Receptionist Service Quality, MSSQ=Medical Staff Service Quality, DSQ=Doctor Service Quality, MSS=Medical Staff Specialty, DS=Doctor Specialty,SD=Specialized Department, SE=Specialized Equipment, CP=Care of Patients, RP=Respect Privacy, FUC=Follow Up Care, DR=Doctor Reputation, CHR=Clinic/Hospital Reputation, IS=Inside Servicescape, OS=Outside Servicescape, PE=Past Experience, FRR=Friends/Relative Recommendation, DR=Doctor Recommendation, PBN=Past Bad News

Sub Subscripts indicate significant differences, and their effect sizes (Cohen's  $d=.2$  indicates small,  $.5$  indicates medium, and  $.8$  indicates large), between groups, Tukey HSD paired comparisons, \*  $p < .05$ , where a = Dual lizers, b = West only, c = TCM only, d = None utilizers. Standard deviations are in parentheses below means. Degrees of freedom are in parentheses below F tests. Sample sizes are in parentheses below experience and survey type.  
\*  $p < .05$ . \*\*  $p < .001$ . \*\*\*  $p < .001$

The multivariate test of significance revealed a significant interaction effect between attribute framing and treatment experience ( $F_{28, 469} = 1.28, p < .05, \eta^2 = .08$ ). The treatment experiences and framing were mutually interacted. The framing played an important role when interpreting consumers' hospital choice factors responding among different treatment experiences. The univariate tests indicated significant interaction effects for reservation, traffic/parking, receptionist service quality, medical staff service quality, specialized equipment, doctor reputation, hospitals/clinics reputation, inside servicescape, past experience, and past bad news at a  $p < .05$  level. Pairwise comparison tests were further employed to

specify the exact nature of the similarities and differences. Table 4 displayed the mean scores and

standard deviations for the dependant variables with significant interaction effects separated by framing

of TCM hospitals/clinics and Western hospitals/clinics; comparison with importance on choice factors of

TCM and Western hospitals/clinics by different each treatment experience were presented as well. It

should be noted that the relatively small number of TCM only ( $n = 7$ ), none utilizers ( $n = 13$ ) toward

TCM hospitals/clinics, and TCM only ( $n = 7$ ), none utilizers ( $n = 19$ ) toward Western hospitals/clinics. It

might affect statistical power in the analysis and this limitation should be kept in mind.

Table 4 Multiple Comparison with Framing by Treatment Experiences

	TCM hospital/clinic (233)				Western hospital/clinic (236)			
	Dual utilizers (118)	West only (95)	TCM only (7)	None utilizers (13)	Dual utilizers (115)	West only (95)	TCM only (7)	None utilizers (19)
Reservation	4.71 <sup>**w-.40</sup> (1.03)	4.95 (.89)	4.43 (.79)	4.00 <sup>**w-1.05</sup> (1.53)	5.11 (.97)	5.11 (.86)	5.14 (.69)	5.32 (.89)
Traffic/Parking	5.09 (.91)	4.88 <sup>**w-.36</sup> (.92)	4.86 (1.07)	4.08 <sup>**w-.83</sup> (1.75)	5.21 (1.00)	5.18 (.90)	4.57 (1.81)	5.21 (.79)
Receptionist service quality	4.97 (.91)	4.99 (.84)	4.71 (1.60)	4.08 <sup>**w-.87</sup> (1.80)	5.09 (.87)	5.01 (.82)	4.57 (.98)	5.26 (.65)
Medical staff service quality	5.26 <sup>**w-.27</sup> (.72)	5.33 (.66)	5.00 (1.00)	4.46 <sup>**w-.76</sup> (1.66)	5.45 (.69)	5.44 (.66)	4.86 (.90)	5.42 (.69)
Specialized equipment	5.24 (.75)	5.29 (.73)	5.14 (.69)	4.31 <sup>**w-.77</sup> (1.80)	5.42 (.77)	5.42 (.66)	5.29 (.76)	5.37 (.76)
Doctor reputation	4.59 (.91)	4.68 (1.01)	4.43 (1.13)	3.46 <sup>**w-.96</sup> (1.66)	4.70 (.97)	4.53 (.97)	4.14 (1.57)	4.84 (1.17)
Clinic/hospital reputation	5.04 <sup>**w-.29</sup> (.82)	5.06 (.80)	5.14 (.69)	3.85 <sup>**w-.90</sup> (1.72)	5.26 (.68)	5.19 (.76)	4.43 (.98)	5.16 (1.12)
Inside servicescape	5.04 <sup>**w-.36</sup> (.84)	5.15 (.71)	5.29 (.95)	4.15 <sup>**w-.79</sup> (1.91)	5.33 (.76)	5.24 (.77)	5.29 (.76)	5.26 (.99)
Past experience	5.24 (.66)	5.15 <sup>**w-.30</sup> (.74)	5.14 (.69)	4.38 <sup>**w-.74</sup> (1.66)	5.31 (.73)	5.37 (.72)	5.14 (.69)	5.37 (.90)
Past bad news	5.11 (.85)	5.22 (.77)	4.57 (.98)	4.31 <sup>**w-.83</sup> (1.75)	5.25 (.78)	5.09 (.93)	4.71 (1.38)	5.42 (.69)

*Note.* The table only exhibits dependent variables with significant interaction effects. Superscripts indicate significant differences, and their effect sizes (Cohen's  $d=.2$  indicates small,  $.5$  indicates medium, and  $.8$  indicates large), where  $w$  = Western medicine hospitals/clinics,  $* p < .05$ , Standard deviations are in parentheses below means. Sample sizes are in parentheses below treatment experience and framing.  
\*  $p < .05$ . \*\*  $p < .001$ . \*\*\*  $p < .001$

For high familiarity with TCM, consumers rated higher importance on: traffic/parking, receptionist service quality, medical staff service quality, doctor reputation among the significant interaction effect variables than choice factors of Western hospitals/clinics. However, there were nonsignificant pairwise differences for the significant interaction variables between choice factors of TCM and Western hospitals/clinics. These results failed to support hypothesis H1a that high familiarity with TCM treatment consumers would rate higher importance on choice factors of TCM hospitals/clinics higher than those of Western hospitals/clinics.

For consumers with only Western medicine experience, the mean scores for Western hospitals/clinics revealed generally higher importance on choice factors on all significant interaction variables, except past bad news. Furthermore, TCM and Western hospitals/clinics showed significant pairwise differences for traffic/parking ( $F_{1, 188} = 4.98, p < .05$ , and an effect size of .36), and past experience at ( $F_{1, 188} = 4.36, p < .05$ , and an effect size of .30). These results revealed high familiarity with Western treatment consumers would rate higher importance on Western hospitals/clinics when responding to attribute framing of Western hospitals/clinics. Thus this led to support H1b: High familiarity with Western treatment consumers would rate higher importance on choice factors of Western hospitals/clinics than those of TCM hospitals/clinics.

For the treatment experience except none utilizers, the multivariate test (Wilks' Lambda) failed to find overall significant differences due to attribute framing ( $F_{28, 437} = 1.26, ns, \eta^2 = .08$ ), treatment experience ( $F_{56, 437} = 1.16, ns, \eta^2 = .07$ ). There was no interaction effects ( $F_{28, 437} = 1.11, ns, \eta^2 = .07$ ) either. This revealed nonsignificant difference for importance on choice factors of TCM and Western

hospitals/clinics among consumer with dual treatment, TCM or Western medicine treatment, consequently hypothesis 2 was supported.

Hypothesis 3 proposed that low familiarity with TCM and Western treatment consumers would rate importance of choice factors lower than consumers familiar with TCM, Western, or dual treatment.

While multivariate tests failed to find significant difference due to treatment experience and framing as previous discussed, however significant interaction effects was found between treatment experience and

framing. **Error! Reference source not found.** displayed post hoc (Tukey HSD) test among treatment

experiences by attribute framing of TCM and Western hospitals/clinics respectively. The multiple

comparison tests also revealed significant difference among dual treatment, Western only and none

treatment. However, there was nonsignificant pairwise difference between treatment experiences on

Western hospitals/clinics choice factors, except hospital/clinic reputation. The mean scores of TCM

hospitals/clinics choice factors for none treatment consumers all exhibited lower than those of both, only

TCM and only Western medicine consumers on significant interaction effect variables. However, the

findings represented non significant pairwise differences among consumers with either dual treatment,

TCM only, or Western medicine experience under choice factors of TCM and Western medicine

hospitals/clinic. Thus hypothesis 3 was partial support responding to TCM hospitals/clinics choice

factors. As previous results indicated, the treatment experiences and framing were mutually interacted.

The treatment experience played an important role when interpreting consumers' hospital choice factors

responding to TCM and Western hospitals/clinics. Therefore hypothesis 4 was partial support under the

influence on treatment experiences.

In sum, for our samples, the univariate F-tests showed significant differences among four treatment experiences toward TCM and Western hospitals/clinics on certain variables, although multivariate tests failed to find overall significant differences for treatment experiences and framing. However, some support for the hypotheses was found in the interaction effect by treatment experiences and framing.

Table 5 summarizes the results of research hypotheses in our study.

Overall, attribute framing had somewhat different effects among treatment experiences. The importance level of choice factors among treatment experiences were varied across attribute framing. In general, the effects were more positive for West only on responding to TCM hospitals/clinics, and TCM only toward Western hospitals/clinics. Furthermore, due to the effects of attribute framing, the differences among treatment experiences toward Western hospitals/clinics declined more and even the ordinal of importance levels of choice factors.

Table 5 Summary of Results for Hospital Choice Factors

Hypothesis	Result
H1a: High familiarity with TCM treatment consumers will rate higher importance on choice factors of TCM hospitals/clinics higher than those of Western hospitals/clinics.	Not Supported
H1b: High familiarity with Western treatment consumers will rate higher importance on choice factors of Western hospitals/clinics than those of TCM hospitals/clinics.	Supported
H2: High familiarity with dual treatment consumers will rate importance on choice factors of TCM and Western hospitals/clinics similarly to consumers familiar with TCM or Western treatment.	Supported
H3: Low familiarity with TCM and Western treatment consumers will rate importance of choice factors lower than consumers familiar with TCM, Western, or dual treatment.	Partial Supported

H4: Consumers responding to a TCM frame will rate importance of choice factors differently than consumers respond to a Western medicine frame.	Partial Supported
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## Discussion

The study examines the effects of treatment experiences and framing on consumers' hospital/clinic choice values by choice factors. Surprisingly, non-significant differences are found due to treatment experience and framing; whereas the multivariate test indicates significant interaction effects between treatment experiences and framing. Levin (1997) stated attribute frames require a person to make a subjective judgment about the attribute values. Subjective judgments are typically made relative to reference values, the set of stimuli that one expects to experience based on prior exposure, cueing, or some other factor. Janiszewski (Chen & Chang, 2000) found attribute framing was sensitive to the experience that the consumer had with the frame. This is consistent with our results that treatment experiences and framing have a significant interaction effect.

In our results, there are non-significant differences between TCM and Western hospitals/clinic choice factor for consumers with TCM treatment. Huntington (Cheng, Leung, & Leung, 2003) identified three modes of response adopted by non-Western civilizations to perceived Western influences and modernization: (a) Rejectionism-rejecting all cultural changes; (b) Kemalism-replacing the traditional culture with Western culture; and (c) Reformism-reforming traditional cultures.

For the development of TCM, while allowing TCM to coexist with modern Western medicine; it is also pushed for the modernization of TCM based on the scientific paradigm. In Taiwan, the operating mode of TCM hospitals/clinics is more likely the Western hospitals/clinics. Traditionally, practitioners of TCM have to provided a comprehensive care and have not had the division of labor. According to our

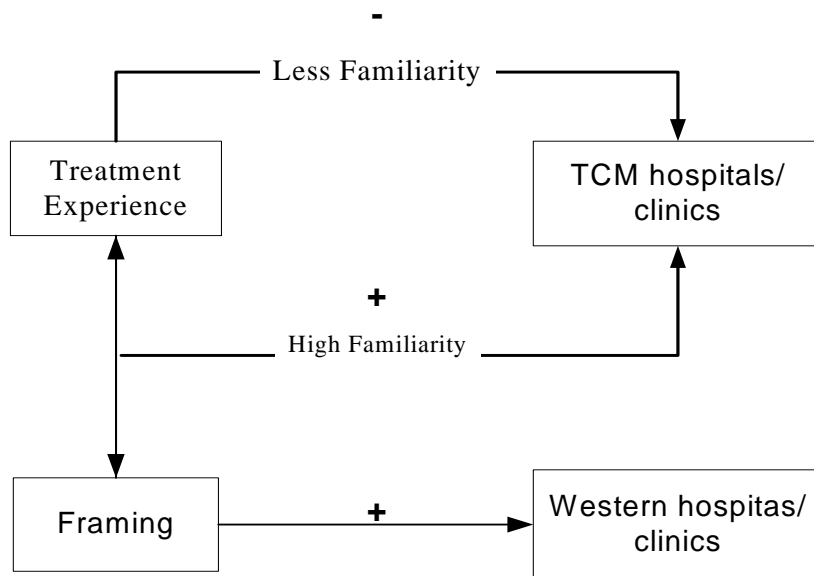
field work, nowadays TCM hospitals/clinics begin to practice certain specialties exclusively and affiliation to medical schools (see Figure 1) Furthermore, in the process of modernization, the computer system is adopted to the patients and anamnesis management. Consequently, consumers of high familiarity with TCM perceive no difference between TCM and Western hospitals/clinics.

Figure 1. The specialties of TCM clinics



For consumers of high familiarity with Western treatment, the lack of TCM experiences results in the less understanding for the revolution of modernity of TCM hospitals/clinics. They will regard TCM as more traditional, and may replace the traditional culture with Western culture as Huntington identified. Accordingly, consumers with only Western treatment will rate TCM hospitals/clinics choice factors lower than Western hospitals/clinics.

Figure 2. Results summary



Compared to mono utilizers, consumers with both TCM and Western treatment realize how these two medical systems perform, related weakness and strengths. The hospital choice values for dual treatment consumers will fall in the middle of consumers with TCM treatment and Western treatment. In our research, subjects with no TCM or Western treatment in a year are categorizing as none utilizers. Because none utilizers seldom visit a physician, we defined them as less familiarity with TCM and Western treatment consumers in hypothesis 3. Surprisingly, the importance level on choice factor for none utilizers was only lower than dual, TCM or Western treatment consumers when responding to TCM hospitals/clinics choice factors. We can conclude that consumers will rate higher importance of TCM hospitals/clinics only if they have TCM treatment experiences. Our results represent consumers' attitude and perception toward TCM and Western hospitals/clinics, summarized in Figure 2.

### *Implications*

After experiences with the National Health Insurance for many years in Taiwan, hospital/clinic services faced the market engaged in free competition. Thoroughly understanding customer awareness



and preferences would help and orient a medical care provider in adjusting its operations. The results in our research can provide three suggestions for the health care management and future health behavior studies.

First: according to the government statistics, TCM clinics manifest the highest growth among all clinics. This illustrates the increasing demand for TCM, and more consumers utilize both TCM and Western treatment. Our research finds that high familiarity with TCM and Western treatment consumers rate choice factors of TCM and Western hospitals/clinics similarly to consumers familiar with TCM or Western treatment. We suggest that hospitals set up a TCM outpatient service. While patients receive Western treatment, they can visit TCM practitioners as well. In today's competitive health care industry, the multiple choices of remedies can offer consumers one stop shopping services. Hospitals can attract more consumers and maximize the profit.

Second, adding of TCM outpatient service can ensure patients' safety of drug interaction. Based on available reports and clinical observations, some commonly used herbs and Chinese medicines have already demonstrated the need for special attention when used together with modern therapy. The possible adverse effects that may arise from drug interactions. For adding the TCM clinic, physicians can check the patients' anamnesis through computer system while giving prescriptions. This will increase the efficacy of drugs for patients, and prevent from medical dispute while patients have harmful drug interaction.

Third, in our results, treatment experiences and frame have a significant interaction effect. The importance level of choice factors among treatment experiences were varied across frames. In fact,

framing has arisen to great attention in consumers' health behavior. Consequently, while interpreting previous researches and investing consumers' health values; researchers must be aware that frame will play an influential role.

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