



# Perspectives On Universal Health Insurance And Coverage Of Traditional Medicine: The Case Of Taiwan

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## Abstract

Inclusion of traditional medical therapies is one consideration in determining the range of services to be covered under universal health insurance. Having introduced a single-payer universal health insurance system in the 1990s that covers specified traditional therapies, Taiwan represents a distinctive setting in which to learn about the experiences with traditional therapies. This paper examines the perceptions of health care professionals and insured individuals in Taiwan about their satisfaction with the Taiwanese national health insurance (NHI) system in regards to the coverage of traditional Chinese medicine (TCM). In-person interviews were conducted with healthcare professionals and a survey was administered to insured individuals to understand the perceived satisfaction with TCM coverage by the NHI system. Results show that perceived satisfaction with TCM is high in the NHI system in Taiwan, which is consistent with previous research. Perceived belief in TCM is seen as being related to perceived satisfaction with NHI. Satisfaction with TCM reimbursement and choice of TCM treatments are associated with overall satisfaction with NHI. The results, combined with previous literature, suggest that the universal health system designed with consent of the populace in mind may lead to better satisfaction with the health system post-development. Practical suggestions based on the experiences in Taiwan could be useful to stakeholders in other countries and economies that are considering the integration of traditional medicines into their universal health insurance system.

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# **PERSPECTIVES ON UNIVERSAL HEALTH INSURANCE AND COVERAGE OF TRADITIONAL MEDICINE: THE CASE OF TAIWAN**

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## **ABSTRACT**

*Inclusion of traditional medical therapies is one consideration in determining the range of services to be covered under universal health insurance. Having introduced a single-payer universal health insurance system in the 1990s that covers specified traditional therapies, Taiwan represents a distinctive setting in which to learn about the experiences with traditional therapies. This paper examines the perceptions of health care professionals and insured individuals in Taiwan about their satisfaction with the Taiwanese national health insurance (NHI) system in regards to the coverage of traditional Chinese medicine (TCM). In-person interviews were conducted with healthcare professionals and a survey was administered to insured individuals to understand the perceived satisfaction with TCM coverage by the NHI system. Results show that perceived satisfaction with TCM is high in the NHI system in Taiwan, which is consistent with previous research. Perceived belief in TCM is seen as being related to perceived satisfaction with NHI. Satisfaction with TCM reimbursement and choice of TCM treatments are associated with overall satisfaction with NHI. The results, combined with previous literature, suggest that the universal health system designed with consent of the populace in mind may lead to better satisfaction with the health system post-development. Practical suggestions based on the experiences in Taiwan could be useful to stakeholders in other countries and economies that are considering the integration of traditional medicines into their universal health insurance system.*

## **INTRODUCTION**

The World Health Organization (2010) has drawn attention to the goal of universal health coverage to ensure that individuals have access to health services regardless of financial abilities to pay for care. The question about inclusion of coverage for traditional and alternative medical therapies is one consideration when planning and evaluating the range of services to be covered by the universal health insurance system. The purpose of this paper is to examine the Taiwanese national health insurance system in regards to perceptions about its coverage of traditional Chinese medicine therapies. Through interviews with healthcare professionals and surveys of covered individuals, the results of the study provide insight for health care managers, policymakers, providers and insurers who may be considering the inclusion of traditional medicine or complementary and alternative medicines into their universal health insurance system. The topic is relevant and timely for healthcare today because the utilization of traditional medicine as well as complementary and alternative medicines is prevalent in many

regions of the world (e.g., Bishop, Yardley & Lewith, 2007; Peltzer, 2009) and interest in alternative therapies is growing among individuals in many western countries (e.g., Chen, et al., 2007; Ni, Simile & Hardy 2002; Nahin, Barnes, Stussman & Bloom, 2009).

The path to the establishment of universal health coverage commonly involves a process driven by social forces calling for general access to health care and growth in health spending (Savedoff, de Ferranti, Smith & Fan, 2013). Taiwan's implementation of universal health insurance is illustrative of the process. Taiwan, an island located in eastern Asia off the southeastern coast of China, has experienced rapid economic growth and development over the past sixty years. By the beginning of the 21<sup>st</sup> century Taiwan had established a free enterprise economy and ranks thirteenth among the most competitive advanced economies in the world (Schwab, 2012). Economic prosperity has led to Taiwan's transformation of social and health programs, including significant reform of the health care insurance system. Taiwan's population is estimated at more than twenty-three million with the life expectancy at birth averaging 78.48 years (The World Factbook, 2012). Approximately 99 percent of Taiwanese citizens are enrolled in the National Health Insurance (henceforth, NHI) system (Bureau of National Health Insurance, 2012).

Taiwan introduced and implemented the NHI system in 1995 in order to provide comprehensive health coverage for Taiwanese citizens. At that time the NHI system was designed to consolidate separate insurance arrangements that covered only a percentage of the total population with the goal to provide health care coverage for all citizens and improve efficiency of overall health care delivery (Wu, Majeed & Kuo, 2010). In instituting the universal insurance system the Taiwanese government studied the health systems of other advanced countries and designed a single-payer system in which individuals maintain free choice of providers and hospitals (Cheng, 2003). The NHI system provides compulsory comprehensive benefit coverage including preventative and medical services, inpatient and outpatient services, prescription drugs, dental services and traditional medicine therapies. The NHI has allocated resources and expenditures to cover specified traditional Chinese medicine (henceforth, TCM) treatments as a category of medical services under the universal health system (Shih, Lew-Ting, Chang & Kuo, 2008).

Having accumulated almost two decades of experiences with the universal healthcare system, Taiwan represents a distinctive setting and reference point to better understand TCM in the context of the universal healthcare system. The primary focus of this paper is to learn more about the perceived satisfaction with the coverage of TCM as a component of the NHI system in Taiwan. We report on some of the perceived benefits, challenges and lessons for incorporating TCM coverage within the universal healthcare system. With the main focus of our paper on perceptions of TCM coverage in the healthcare system in Taiwan, we first provide a brief review of Taiwan's NHI system followed by discussion of the general characteristics of TCM covered by the NHI system. We then present the research questions for the study, methodology and results. We conclude with discussion of results, limitations and implications for future research.

Our study extends past research on understanding TCM within the Taiwanese healthcare system. We examine the perceptions of satisfaction with TCM in the healthcare system by using a combination of qualitative and quantitative data. Lessons about the perceptions of Taiwan's implementation of TCM coverage in its national health system have implications for the Taiwanese national health system and other universal delivery systems that may be considering coverage of traditional or alternative treatments. For example, the interest in TCM, as well as other complementary and alternative medicines, is growing in many western countries (e.g.,

Chen, et al., 2007). Ni, Simile and Hardy (2002) reported an estimated 28.9 percent of adults in the United States used at least one alternative treatment in the year of their study. Nahin, Barnes, Stussman and Bloom (2009) reported on statistics from the 2007 National Health Interview Survey (NHIS) showing approximately 38 percent of adults in the United States were using complementary and alternative medicine (CAM). In addition, adults in the United States spent \$33.9 billion out-of-pocket on visits to complementary and alternative medicine (CAM) practitioners and purchases of CAM products, classes, and materials. The NHIS reported approximately 354 million visits to CAM practitioners in the 2007 survey. Elsewhere the World Health Organization (WHO) has long promoted the integration of traditional and alternative medicines with western medicine therapies into overall health delivery systems (Cheung, 2011; Chi, 1994). According to Cheung (2011), 60 to 75 percent of the populations of Taiwan, Japan, South Korea and Singapore have been reported to use traditional medicine at least once a year. Thus, as countries and economies contemplate alternative coverage options for their medical delivery systems, Taiwan's experiences with incorporating TCM into the national healthcare system may provide useful lessons for universal insurance systems as well as private-pay insurance arrangements that are considering coverage of some traditional Chinese therapies.

## **LITERATURE REVIEW**

### **Overview of the Taiwanese Health Insurance System**

The Taiwanese government adopted the universal NHI system in March 1995. Before NHI was implemented approximately 57 percent of the population was covered through various public insurance schemes such as labor insurance, government employee insurance, farmers insurance and low-income household insurance (Cheng, 2003; Lu & Chiang, 2011; Lu & Hsiao, 2003). The NHI was established to consolidate insurance programs into a single system, increase the breadth of coverage to ensure that individuals receive adequate care and provide efficiency in expenditures (Wu et al., 2010). The Taiwanese NHI system has been developed with a number of key features. The NHI is administered by the Taiwanese government through the Department of Health. The universal coverage rate is about 99 percent of the population (Bureau of National Health Insurance, 2012) and is compulsory for citizens and residents. The single payer system is administered by the government and providers contract with NHI for reimbursement of services that are provided. There is a premium and co-payment for the coverage, adjusted with need-based subsidies. Lu and Hsiao (2003) have reported on several benefits of the NHI system and found that the single-payer system provides ease of access. It has allowed Taiwan to manage health care expenditures and cover the previously uninsured. In addition, the NHI system enables equal access to healthcare services and provides financial risk protection for covered individuals.

In another overview of the NHI system Wu, Majeed, and Kuo (2010) characterized the national health care system as providing good accessibility for citizens, comprehensive population coverage and low costs resulting from the single insurer system. The program provides compulsory comprehensive benefit coverage including preventative and medical services, inpatient and outpatient services, prescription drugs, dental services and TCM therapies. Public satisfaction ratings have shown a high level of satisfaction with 80.4 percent of the population overall satisfied with NHI in 2011 (Bureau of National Health Insurance, 2012).

The Taiwanese single-payer insurance framework integrates the relationships among the insurer, provider and insured. The NHI system is financed through contributions from employers and employees (insured) that may vary for different income groups and occupations. Every Taiwanese citizen with official residency and all foreign nationals living in Taiwan with an Alien Resident Certificate (ARC) are required to enroll in the NHI program. NHI provides lifetime coverage, except for persons who lose insurance eligibility such as persons who give up Taiwan citizenship, move abroad or allow the ARC to expire. Covered individuals have an NHI issued IC card (integrated circuit or smart card) that is presented to providers for medical services. Each IC card provides electronic medical information about the individual's identity, medical history and health records. Whenever the insured patient sees a provider for medical services, the provider accesses medical information stored on the card for current details about the patient's medications and treatments. The provider uses the electronic system to bill the NHI (insurer) for claims related to the services provided and reimbursement is sent electronically to the providers from the NHI (Bureau of National Health Insurance, 2012).

Chen and Cheng (2010) recognized the importance of considering patient perceptions in evaluating the single-payer system in Taiwan. The NHI system does not have a referral mechanism or gatekeeper procedure; thus patients can pursue inpatient or outpatient care based on their individual preferences. In another study Cheng, Yang and Chiang (2003) examined patient satisfaction with hospital services in Taiwan demonstrating that interpersonal skills are influential on patient satisfaction and are more influential than clinical competence in some disease categories. Additionally, personal characteristics such as age, gender, education and family recommendations have been examined for association with patient satisfaction in the NHI system (e.g., Cheng, 2003; Young, Meterko & Desai, 2000).

### **Characteristics of Traditional Chinese Medicine**

TCM has been regarded as an important therapeutic system for centuries in East Asia and mainland China (Jingfeng, 1988). It is common in Chinese populations throughout the East Asia region that TCM is practiced alongside western medicine (Chi, Lee, Lai, Chen, Chang, & Chen, 1996). The World Health Organization (WHO) has promoted the integration of traditional medicine with western medicine into an overall delivery system (Cheung, 2011; Chi, 1994). One's health in TCM is considered as harmony between the forces of yin and yang with regard to the body and its environment, while illness is considered an imbalance of the two forces. Qi is the source of life being defined as the circulation of energy in the body. TCM practitioners focus on the interruption of qi as the basis for diagnosis, treatment and prevention of illnesses (Chen, 2001) and use a system of holistic interpretation to evaluate the patient's condition. TCM practitioners examine the condition of the patient's skin, complexion and tongue, listen to the voice and breathing, question the patient and check the patient's wrist pulse as part of the health assessment of the body's equilibrium. As explained by Cheung (2011: S82), "the ultimate goal of treatment is to restore the qi (energy) and yin-yang (balance) of this complex system."

TCM has been considered a vital component of the Taiwanese national health system from the inception of the universal health care system. For example, Chi (1994) described a national study in Taiwan that was conducted at the time the universal health care system was being formulated. The study showed that 86 percent of respondents supported the coverage of TCM in the new NHI system that was to be implemented in 1995. Several researchers (e.g., Chi, 1994; Lu & Chiang, 2011; Wu et al., 2010) have studied the evolution of TCM in Taiwan's



health care delivery from the historical perspective. In one overview of the health care system, Lu and Chiang (2011) noted that before the 20<sup>th</sup> century TCM was common in health care delivery, although there were no formal education and licensure. Chi (1994) described that before western influence in the 1860s that TCM was dominant in Taiwan. Lu and Chiang (2011) explained the diminishing role of traditional medicines during the first half of the 20<sup>th</sup> century as the acceptance and training of western medicine spread. By the early 1950s the TCM practices were modernized as part of the medical education system and licensure was reinstated.

Based on the medical traditions and values in Taiwan, the NHI system was designed to cover both TCM and western medicine (Shih et al., 2008). As the government formulated health care policies in the modern era, TCM has been a component of health care that is covered under the national health care system. From the delivery perspective, the patient is free to choose the TCM provider and licensed TCM providers qualify for reimbursement by NHI based on the provider's participation in the NHI system (Shih, Lin, Liao, & Su, 2009).

Attitudes about TCM utilization in Taiwan have been shown to be influenced by cultural values (Chen, 2001). Using national representative samples (e.g., Shih et al., 2008) researchers have studied the determinants and frequency of use of non-covered and covered complementary and alternative medicines and found that there is a demand for non-covered therapies beyond those covered by national insurance. Given the purpose of our current study to look at TCM in the NHI system, we focus on the TCM therapies and TCM providers that are part of the coverage by the NHI system. TCM represents a relatively small percentage of overall expenditures and resources allocated in the NHI system. TCM outpatient visits per covered person averaged about 1.63 visits per year across the period 2007-2011 (Bureau of National Health Insurance, 2012).

In general the NHI coverage includes TCM treatments that are derived from traditional medicinal herbs, acupuncture, moxibustion and traumatology manipulative therapies (Shih et al., 2008). The NHI has described the diagnostic classification of patients seen by Chinese medicine practitioners. Some common health conditions for which patients see Chinese medicine providers include diseases of the respiratory system, diseases of the musculoskeletal system and connective tissue, injuries and poisoning and diseases of the digestive system.

In a study of outpatient reimbursement claims researchers (Chen et al., 2007) examined the utilization of TCM therapies and found that TCM was utilized by more than 60 percent of the subjects during a six-year interval to treat diseases and problems of major human organ systems. The most common diseases that were treated with TCM included problems and diseases of human organ systems recognized by western medicine including TCM visits for the respiratory system, musculoskeletal system, digestive, genitourinary system and symptoms for ill-defined conditions (Chen et al., 2007). The most common treatment modalities were the use of Chinese herbal remedies, acupuncture and traumatology manipulative therapies. In the same study the researchers found that most TCM treatments were completed in private TCM outpatient clinics.

Other recent studies of the NHI system have examined the utilization of TCM for treatment of specific diagnoses. Liao, Lin, Li and Lin (2012) examined the use of TCM treatments among patients with liver cancer a leading cause of deaths in Taiwan. In another study (Chang, Huang, Chou, Lee, Kao & Huang, 2008) using data from the NHI claims records, it was shown that herbal medications are the major component of TCM for more than two-thirds of ambulatory visits. According to a study conducted by Shih, Lin, Liao and Su (2009), children with higher socioeconomic status utilized TCM more often compared to children from low socioeconomic families. Other researchers (Chen et al., 2007) have shown that as many as 60 percent of beneficiaries covered by the NHI system had used TCM at least once in a given year.

Others (Shih et al., 2009) noted that educational level was a determinant of TCM utilization with people having thirteen or more years of education being more likely to visit TCM practitioners. As other large scale studies are conducted utilizing data and medical records from the NHI system, information continues to be gained about the prevalence of TCM utilization among the population for specific disease categories.

Recognizing that interest in alternative and complementary medicines is growing among patients in other countries and economies (Winnick, 2007) other researchers (e.g., Chung, Hillier, Lau, Wong, Yeoh & Griffiths, 2011) have examined the attitudes and behavior of western medicine practitioners towards TCM. The World Health Organization has underscored the importance of attention to involving western practitioners in understanding TCM and other alternative medicines. One report (World Health Organization, 2008) suggested that the communication between TCM providers and western providers should be improved and training should be developed to understand the relationship between western medicine and traditional medicine practitioners.

## **Research Questions**

The primary focus of this paper is to learn more about the perceived satisfaction with the coverage of TCM as a component of the NHI system in Taiwan. Building on prior research about the Taiwanese universal health system and the coverage of TCM, we are interested in understanding the relationship between TCM and the perceived satisfaction with the NHI system from the point of view of healthcare professionals and insured individuals. Healthcare professionals are interviewed and insured individuals are surveyed about their experiences and perceived satisfaction with TCM in the context of coverage by the Taiwan's NHI system. We inquire about the quality, access and cost of TCM as related to satisfaction with the NHI system to learn about the perceived benefits, challenges and lessons for incorporating TCM coverage within the universal healthcare system.

## **METHODS**

### **Sample and Data Sources**

Given the nature of our research questions, we utilized both quantitative and qualitative approaches (e.g., deMarrais & Lapan, 2004; Neuman, 2011). Our first objective was to conduct in-depth conversations with experienced healthcare professionals in Taiwan to understand their perspectives on TCM in the NHI system and to learn their suggestions for other health systems that may be considering the incorporation of TCM coverage in a universal health system. Our second objective was to survey respondents in Taiwan who had experience in utilizing TCM that was covered through the national healthcare system in order to provide insight into the perceived satisfaction with TCM as covered by the NHI system.

Participants for the interviews were healthcare professionals having knowledge and experiences with TCM and the NHI system. The participants were identified via purposive sampling in the metropolitan area of Taipei, Taiwan. Through an initial contact, participation was sought from other healthcare professionals known to have considerable experiences with TCM in the NHI system. In this respect, the participants in the interviews are similar; otherwise they differ considerably in terms of their background and experiences. Individuals were introduced to our study by e-mail correspondence followed by in-person contact in Taiwan.

Utilizing personal interviews our objective was to have in-depth discussions on the topic of TCM in the NHI system with these professionals who were knowledgeable about the subject. In addition, a detailed questionnaire was developed to survey insured individuals who are covered by NHI to collect quantifiable data about their perceptions of and satisfaction with TCM coverage in the NHI system. The survey sample was identified from covered individuals located in the metropolitan area of Taipei, Taiwan.

## **Data Collection and Procedures**

The interviews were semi-structured with predetermined questions and supplemented with open-ended questions asked as the need arose during the interview. According to qualitative researchers (e.g., deMarrais & Lapan, 2004) it is appropriate to maintain this flexibility in order to explore the insight provided in each individual interview. Consistent with procedures followed by other researchers (e.g., Brislin, 1970; Yang, Chen, Choi, Zou, 2000) the survey questionnaires, interview questions and consent forms were translated from English to Mandarin and back-translated into English by one researcher who is fluent in English and Mandarin and checked for equivalent meaning by two other individuals who are bilingual in English and Mandarin.

Nine semi-structured interviews were conducted in Taipei, Taiwan during the period December 27, 2012 through January 7, 2013. Practical restrictions on sample size are commonly associated with interviewing; however the use of more than one interview is important for validity (Lee, 1999; Neuman, 2011). Intentionally healthcare professional with different backgrounds are represented in the study. Several precautions were implemented in the data collection consistent with qualitative research approaches (Miles, Huberman & Saldana, 2014). Preliminary to each interview the interviewer conveyed the purpose of the research, described the use of the data and addressed confidentiality. The researcher kept detailed field notes during the interview and targeted a one-day turnaround to summarize the field notes from the interviews. Comments were noted in detail by the researcher during and immediately after each interview. Each interviewee was identified by a pseudonym which corresponds to the coded identification in field notes of the researchers. When reporting results from the interviews the names of the participants are not disclosed.

Interviews averaged approximately 60 minutes and were conducted in Mandarin by the researcher who is fluent in English and Mandarin. The researcher was accompanied for each interview by another bilingual speaker. Approximately one week prior to the interview, each interviewee was given a copy of the interview questionnaire with general questions in Mandarin. Several interviewees wrote notes and general responses on the questionnaire prior to the interview. These notes on the questionnaire were collected at the end of the interview and referenced by the researchers for completeness and accuracy. During the personal interviews participants were asked to respond to questions and elaborate further if applicable. Answering the open-ended questions (e.g., Neuman, 2011) the participants responded in their own words as the discussion proceeded. Follow-up contacts were made as needed with respondents by e-mail or phone to ensure the completeness of the data or clarify responses.

Data from the interviews were content analyzed in accordance with qualitative research procedure using an iterative process (e.g., Strauss & Corbin, 1998) and coded by categorizing interview data into common themes (Lee, 1999). Researchers read the responses to identify themes and patterns and independently cross-analyzed the content of responses. Researchers



worked together to summarize the findings as well as compare and contrast. Differences were few and the process continued to address conceptual discrepancies to increase interrater reliability (Lee, 1999) as recommended for analysis of qualitative data (Miles, et al., 2014).

In addition to the interviews we developed and administered a survey to insured individuals. The questions were derived from the literature review and background research in order to understand the perceptions about and satisfaction with TCM in the NHI system. The survey instrument was translated from English to Mandarin by the researcher who is bilingual in English and Mandarin and checked for accuracy by two bilingual speakers. The survey was administered in Mandarin and responses were back-translated to English by the researcher and checked for accuracy by two bilingual speakers. A total of 45 surveys were collected, and the survey averaged approximately fifteen minutes for each respondent to complete.

## RESULTS

### Interview Results

Participants in the interviews included three private health insurance professionals, three western medicine practitioners with professional experience including practice within a western hospital, two traditional Chinese medicine practitioners and one professional with a pharmacy background. Of the nine healthcare professionals interviewed six were male and three were female. Three respondents were 26-45 years of age, two were 46-55 years of age, three were 66 years of age or older and one respondent did not provide an age. In terms of experience one respondent reported less than five years of healthcare experience, two reported six to ten years of experience, one reported eleven to fifteen years of experience, one had between sixteen and twenty years of experience, and four had twenty-one or more years of experience with TCM in the NHI system. With regard to highest level of education obtained two reported some college, four reported the bachelors education, one had earned a master's degree, and two had earned the doctorate. Four reported having some health-related professional experiences abroad.

For reporting results from the interviews our findings are presented in seven common themes in the words of the respondents including: primary reasons for TCM coverage in the NHI system; positive factors that facilitated TCM utilization; problems to consider in TCM coverage through universal insurance; improvements to better integrate TCM; acknowledgement of health benefits of TCM treatments; possibility of TCM coverage in the United States; and freedom for accessibility to licensed TCM practitioners.

**Primary reasons for TCM coverage in the NHI system** Most respondents identified tradition as the primary reason for TCM coverage. As one respondent stated, "The fact that TCM has survived this long and still exists is reason in itself that it should be in the universal health system." Several respondents suggested TCM as an alternative source of care helped in the facilitation of overall care and well-being. They reasoned that issues in western medicine, such as the often perceived lack of effectiveness in some medications, likely prompted the demand for TCM and its continued use. Additionally, the belief in TCM has a significant influence in its being covered and implemented in the NHI process. Notwithstanding the safety or efficacy standards many respondents expressed that the history of TCM and its endurance through the centuries give credence to the healing potential. One respondent stated, "It has a thousand years of trial and error." Another responded, "The Taiwanese people believe in its healing effects and have been using it for a very long time." While western medicine remains

the primary modality for immediate treatment, TCM is utilized for chronic illnesses where a patient may perceive the benefits of TCM to improve ability in daily life to manage the illness.

**Positive factors that facilitated TCM utilization** Respondents were asked to identify and describe the positive factors that have facilitated the utilization of TCM within the universal health system. Most respondents indicated that incorporation of TCM in the NHI system can lower the payment burden of the public thereby serving those who may otherwise not afford treatments. In one instance a respondent gave a detailed explanation of the benefits of TCM medicine to show specific benefits of TCM compared to western medicine and to enhance the treatments provided by western medicine. Another respondent referred to the downsides of western methods that utilize prescription medications, suggesting that TCM, being made from natural herbs, would be less likely to harm the body. However, respondents cautioned that TCM and western medicine should only be used if one has health issues because, as one respondent stated, “Too much of anything could become a poison.” Most respondents strongly advocated the safety and effectiveness of TCM as a factor in utilization. One respondent mentioned the importance of considering the environmental costs associated with medicines and stated, “If western medicine is thrown away and not used, it is important to consider the environmental problems that must be taken into account when disposing of unused medications, compared to TCM where the herbs are natural, so less concern when disposing of unused medicines.”

**Problems to consider in TCM coverage through universal insurance** Asked about identifying and describing problems associated with TCM coverage in universal insurance, the majority of respondents mentioned the fundamental differences between TCM and western medicine. As one respondent summarized, “While TCM focuses on the yin-yang theories and the flow of qi the western medicine operates scientifically.” Many described that from a western perspective, there is often a tendency to want to evaluate TCM with a set of specified western standards that are not necessarily applicable to TCM. As another explained, “When a TCM practitioner joins the health insurance system it may not provide appropriate compensation for the level and time of the treatments.” Two scenarios were highlighted by another respondent where TCM practitioners could be influenced by reimbursement in the time they devote to an assessment. To maximize patient volume for reimbursement of treatments, the practitioner could invest less time with an individual patient for a specified treatment.

Several respondents mentioned the need to carefully evaluate the credentials and experiences of TCM practitioners and recognized efficacy as a priority. In particular the consideration for appropriate licensure and training were identified by all respondents as an important consideration. For the NHI system to cover TCM treatments there is a need to ensure that practitioners have appropriate experience and background to practice in Taiwan. Efficacy was a prioritized concern among respondents. As one respondent described, “One of the primary problems is the complexity of herbal remedies.” Different TCM practitioners offer different remedies and because of the complexity of the treatments, it becomes very difficult to measure the benefits and the results. The majority of TCM treatments and processes are derived from historical records and guidelines. As one respondent said, “Without proper scientific research, the two approaches, western medicine and TCM, just do not see eye to eye.” As another stated, “It is important and necessary to evaluate the quality of TCM practitioners to ensure that the quality of care is improved and not diminished.”

**Improvements to better integrate TCM** Respondents identified several issues and acknowledged the need to identify and prioritize the issues that need to be attended. Most respondents suggested the need for attention to real integration of TCM and western

practitioners. Others described that western medicine and TCM are not fully integrated despite being covered in the NHI system. In the words of one respondent “the two modalities must work together instead of just coexisting.” Other respondents suggested the need for attention to monitoring and/or reducing overutilization and eliminating wastefulness of resources. For instance, the importance of ongoing efficacy studies was mentioned by most respondents as a topic that requires immediate attention if TCM is to garner broader acceptance in the western medical community. Such importance was highlighted by a respondent who described “the future of healthcare is in preventative medicine...and opportunities exist in the collaborations between TCM and western medicine.” The responses provided some indication that TCM, while it has been utilized for centuries, has not matured as compared to western medicine.

**Acknowledgement of health benefits of TCM treatments** Several of the respondents explained that it is necessary for western practitioners to recognize the health benefits of TCM treatments in order for longer term integration of the two modalities. One respondent expressed that it is not necessary for the acknowledgement in order for the two modalities to co-exist independently. The proponents of better integration between western medicine and TCM emphasized that mutual understanding would promote synergy. As one respondent elaborated, “The integration validates and accurately determines the diagnosis.” All respondents expressed the ongoing difficulties of integration given the fundamental differences between the two treatment modalities. One respondent who did not think western acknowledgement is necessary for the two approaches to co-exist explained, “Western treatments and TCM treatments are completely different disciplines and are completely different ways of addressing a problem.” One respondent commented, “The two disciplines speak in completely different languages” and clarified that the methods and explanations behind TCM and western medicine are so different that each cannot understand the other’s fundamental theories behind treatment processes. Some training and integration across the western and TCM practitioners could begin to address the acceptance and understanding. Though TCM is rooted in tradition and concurrent use with western modalities in Taiwan is common, the responses from the interviews suggest there are still obstacles for mutual collaboration and real integration.

**Possibility of TCM coverage in the United States** Regarding TCM treatments in western countries, the respondents were asked to provide suggestions or identify issues that would be important to address if the United States or other economies were to consider the inclusion of TCM treatments into a national healthcare system. Several respondents expressed unawareness of the growing popularity of alternative medicine in western countries. As to the ability to integrate TCM into other universal healthcare systems, several expressed the lack of understanding of TCM as a barrier. One respondent answered, “It will be very difficult. There is not a long history of understanding and teaching TCM. They need to know about it and teach it. It is not as common as it is here.” Majority of respondents commented on the necessity of providing education and training in order to expose western medical practitioners to the benefits of TCM and to be sure that TCM practitioners are trained appropriately if they are to practice in the country. Most respondents commented that coverage of TCM by insurance would be very difficult given the predominance and acceptance of western medicine. Another concern expressed was “the need to be aware of the credentialing and verifying the training of TCM practitioners purporting to be knowledgeable of TCM” and “the need to be very careful not to get tricked.” “There needs to be proper credential checks and experiences must be documented,” advised another respondent.

A number of respondents stated the importance to understand the views of the pharmaceutical industry on TCM and other alternative medicines. Most respondents decidedly answered that TCM coverage in their universal health system was positively viewed by the pharmaceutical industry. Several respondents commented on the increase in profitability for pharmaceutical outlets due to the insurance coverage. As one respondent explained, “The powder TCM treatments help pharmaceuticals. TCM treatments are made available in pill form which increases the filling of prescriptions.” Another respondent described that “unlike western medications where research and development as well as strict government regulations restrict the profitability, production of TCM is based on preexisting formulations.” One respondent explained that standardization of TCM and acceptance in the pharmaceutical industry “prevents misuse of medicine and makes it less expensive. TCM practitioners could prescribe wrong drugs or just prescribe anything in order to get reimbursed, so it is very important to have some oversight.” Because of the ambiguity of the TCM diagnostic process, it is highly sensitive to possible corruption. While the coverage of TCM in the health insurance system has lowered the cost of TCM treatments for patients, there are “many practitioners that opted out of reimbursement, allowing them to charge premiums for their services” without concern for the customary reimbursement specified by the NHI system. Several respondents mentioned that there is stratification of price between types of medicine; some TCM treatments are extremely expensive. Other medicines made from exotic ingredients are not covered under the health insurance system. The oversight and standardization of TCM treatments could be a concern for realizing widespread utilization in western countries.

**Freedom for accessibility to licensed TCM practitioners** Respondents were asked for thoughts on any changes that the universal health insurance system should consider in the freedom for accessibility to licensed TCM practitioners. Respondents report being satisfied with the freedom for accessibility. The current system allows patients to visit any TCM clinic without going through a gatekeeper. The majority of respondents supported the level of freedom in accessibility. The respondents explained that “the purpose of the universal health insurance system was to provide equal opportunity and access to healthcare for all.” As another respondent stated, “Limitations should not impede that process.” In the words of another respondent, “TCM practitioners are everywhere and people are everywhere. Transportation is fast and readily accessible; this is the way that it should be with freedom of choice for healthcare services.” One respondent noted that “there is access to western medicine practitioners, and there should be no restrictions on access to TCM practitioners covered in the NHI system.”

## Survey Results

Of the 45 surveys that were returned, 44 had usable results. Twenty seven (or 61.4 percent) reported being male and 12 (or 27.3 percent) female, with the remainder of respondents not reporting gender. Four of the 44 respondents were 18-25 years old (or 9.1 percent), five were 26-35 years old (or 11.4 percent), nine were 36-45 years old (or 20.5 percent), nine were 46-55 years old (or 20.5 percent), nine were 56-65 years old (or 20.5 percent) and six were 66 years old or older (or 13.6 percent). Two respondents did not report their age. With respect to highest level of education that was reported, seven respondents reported high school (or 15.9 percent), seven reported some college (or 15.9 percent), twelve reported a bachelor’s degree (or 27.3 percent), six reported a master’s degree (or 13.6 percent), and nine reported a doctorate (or 20.5 percent) with three not reporting.

Table 1 shows the descriptive statistics and correlations related to our initial question of satisfaction with Taiwanese NHI. A 5-point Likert scale was used with (1) representing strongly disagree to (5) representing strongly agree. As shown in Table 1, there is great perceived satisfaction with the NHI. Also, three of the four variables have correlations with this perceived satisfaction in the NHI system. The only variable that is statistically non-significant is perceived satisfaction with the quality of TCM treatments covered by NHI.

Variable	Mean	S.D.	NHI	Reimburse	Choice	Quality	Culture
NHI	4.068	.974	-				
Reimburse	3.773	.912	.385**	-			
Choice	3.932	.625	.313*	.013	-		
Quality	3.523	1.023	.220	.455**	.166	-	
Culture	4.273	.973	.348*	.098	.108	.087	-
n=44; *significant at .05 level; **significant at .01 level							

Table 2 shows results for the linear regression analysis. Again, three of the four variables are statistically significant. The model explains 32.2 percent of the perceived satisfaction with the NHI ( $p=.004$ ). The results indicate that the perceived appropriateness of reimbursement of TCM and choice in the selection of TCM treatments affect the level of satisfaction with the NHI, as does the perceived effect of culture. This means that the level of satisfaction with TCM reimbursement and choice of TCM treatments are associated with overall satisfaction with the NHI. Also, there is a relationship between individuals who think that culture plays a role in utilizing TCM and satisfaction with NHI. The perceived satisfaction with the quality of TCM treatments covered by the NHI is not only statistically non-significant, but the direction of the relationship is negative. To test for multicollinearity we ran a variance inflation factor (VIF) analysis and determined no issues with multicollinearity ( $VIF < 1.4$ ).

Variable	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
Reimbursement	.385	.159	.360	2.419	.020
Choice	.437	.210	.281	2.083	.044
Quality	-.014	.143	-.015	-.099	.922
Culture	.284	.133	.284	2.129	.040
R <sup>2</sup> =.322					

We analyzed data related to the demographics of the survey respondents. Analyses showed that there were no statistical relationships among the respondents' age, gender, or educational level related to satisfaction with the NHI (results not shown). We also had an interest in knowing about the survey respondents' perception of the health benefits of TCM. We asked them to respond from (1) strongly disagree to (5) strongly agree to the statement: "I believe in the health benefits of TCM." The average respondents' reply was 3.8 on this 5 point scale. We performed a linear regression analysis testing the relationship that exists among a belief in the health benefits of TCM and our previous independent variables. Table 3 shows



these results. The model explains 27.4 percent of the perceived belief in the benefits of TCM ( $p=.012$ ). This analysis provided similar non-significant VIF results. Culture is not related to belief in health benefits of TCM. Our results indicate that only respondents' belief in TCM being appropriately reimbursed has significant statistical relationship with belief in the health benefits of TCM.

**Table 3**  
**REGRESSION RESULTS FOR BELIEF IN THE HEALTH BENEFITS OF TRADITIONAL CHINESE MEDICINE**

Variable	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
Reimbursement	.515	.195	.407	2.646	.012
Choice	.073	.163	.275	1.994	.053
Quality	.017	.176	.015	.097	.923
Culture	.326	.257	.040	.284	.778
R <sup>2</sup> =.274					

When we performed a linear regression to see if age, gender or educational level of the respondents related to the belief in health benefits of TCM, we found non-significant findings (results not shown). This may relate to our finding on belief in the health benefits of TCM. When we examine the correlations between satisfaction with NHI and belief in the benefits of TCM we see a relationship .303 ( $p=.046$ ).

### DISCUSSION AND CONCLUSIONS

This study examined the practice of TCM in Taiwan as related to the NHI system. We interviewed Taiwanese healthcare professionals about their general perceptions of TCM that is covered by the NHI system and supplemented the analysis with a survey about the perceptions of TCM and NHI. Results of our study are used to offer several observations and recommendations about TCM and patient satisfaction with reimbursement by the NHI system. We found that the perceived satisfaction with TCM reimbursement and choice is positively related to the satisfaction with Taiwan's national healthcare system. The study may provide relevant information for others contemplating the integration of TCM into their health care system.

Our study has implications for theory and practice. The perceived satisfaction with TCM is found to be high which is consistent with previous research. Perceived belief in TCM also is seen as being related to perceived satisfaction with NHI. Our qualitative and quantitative results, combined with the literature, suggest that a health system designed with the desires and consent of the populace in mind may lead to better satisfaction with the health system post-development. This may be inherent in the reimbursement level and access or choice variables. Our results related to quality may represent the fact that individuals are not assigned providers, but rather choose themselves; thus the non-significant findings. Another practical importance of the study is that it provides insights from professionals known to have experience with the NHI system in Taiwan and TCM.

The results of our study are limited in several ways and should be interpreted with caution. Inherent in our study is the concern about generalizability to other settings. Taiwan is unique in its social, historical, cultural and political context in developing universal healthcare. The lessons from this study may not be generalizable or transferrable to other health care

systems; however, the results do provide practices that may have implications for other universal health care systems considering the coverage and reimbursement of TCM. Our study is limited by the sample choice in that we interviewed professionals in Taipei with knowledge of TCM and the NHI. Our interviews intentionally identified known experts. Also, the survey response rate is modest and surveys were administered in Taipei, so generalization to non-respondents and the general population may not be possible. Our study reports on perceptions of satisfaction, thus more information is needed in future research on efficacy of TCM.

Studies involving language translation are relatively uncommon and involve challenges for researchers. Future studies should increase the sample size to provide a more complete view. To provide causal inferences among the variables, longitudinal research would be beneficial. Nevertheless, for practical benefits, studying and understanding the experiences of existing healthcare delivery systems are useful for designing, developing and implementing future health practices in other settings. The interviews with experienced healthcare professionals provide important reflections on their experiences. Future research should address the limitations and more research is needed to learn about TCM's role as complementary or integrated with western medicine. We anticipate additional research on the topic in the future.

The universal health insurance system in Taiwan is well-established yet continues to evolve as stakeholders examine the financial condition, political environment and interests of the public and providers (Wang, 2012). With regard to some recent reforms of the NHI, the changes in the NHI payment system and delivery could modify the allocation of resources among healthcare providers and patients. The perceptions from experienced healthcare professionals should be taken into consideration as well as the perceptions of patients and providers in these decisions. We sought new insight into the relationship between TCM and the NHI by adding to the existing literature on perceived satisfaction. Our research has added to the knowledge of TCM and its coverage by the NHI system through interviews and surveys conducted in Taiwan with health care professionals. Given that interest in TCM and other alternative medicines is present in many developing economies and growing in many western countries (e.g., Ni et al., 2002), the results may have implications for other economies and countries considering changes in health care delivery systems, modifying reimbursements for alternative medicines or exploring coverage of TCM as a component of universal health care coverage.

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