

**BELIEFS AND ATTITUDES ON THE USAGE OF
TRADITIONAL CHINESE MEDICINE (TCM)**

Abstract

We present a mixed method study that models the beliefs and attitudes of people who use Traditional Chinese Medicine (TCM). A quantitative study of 234 Chinese participants as well as a qualitative study of 20 Chinese participant was used to test the relationship between the use of TCM and our independent variables. These independent variables include negative experience in western medicine, cultural influences, anti-science sentiments, belief in the supernatural, belief in natural methods and belief in a holistic lifestyle has an effect on the use of TCM. The results show that belief in natural methods (Pearson's Correlation of 0.332***), which we operationalize as the preference for natural products and treatment, and the belief in the supernatural (Pearson's Correlation of 0.292***), which we operationalize as force beyond scientific understanding, to be of strong influence on people taking TCM. Our study also found that TCM was perceived to be highly natural and in effect, safer.

1. Introduction

TCM is one of the oldest forms of complementary alternative medicine which boasts a long history (Loh, 2009; Cheung, 2011). TCM covers a wide range of medicinal practice and treatment modalities from Chinese herbal medicine to acupuncture (Loh, 2009). Our study aims to uncover the reason for the extensive use of TCM despite the limited research on its clinical effectiveness.

With an ageing population in Singapore, there has been an increasing focus on TCM by the Singapore government in setting targeted governmental policies such as the Traditional Chinese Medicine Clinical Research Grant (Ministry of Health, Singapore, 2016) to understand more about TCM. Therefore, with our study, we can analyse what are the attitudes and beliefs held by Singaporeans regarding TCM to better facilitate the policy planning for the government.

Based on our literature review, we have identified and developed six hypotheses with regards to the individual's use of TCM:

1. Dissatisfaction with outcomes of conventional medical treatment methods or encounters – interaction between the patient and elements of the medical system will influence the individual to use TCM (Lim, Sadarangani, Chan, & Heng, 2005).
2. Belief in the efficacy of natural methods as superior to that of conventional medical treatment methods will influence the individual to use TCM (Siahpush, 1999).
3. Anti-Science sentiments will influence the individual to use TCM (Siahpush, 1999).

4. Belief in the necessity and importance of having a holistic lifestyle as beneficial to one's health will influence the individual to use TCM (Siahpush, 1999).
5. Belief in the supernatural – revolving around concepts such as karma and retribution, will influence to use TCM (Fan, Chan, Chan, & Koh, 2013).
6. Cultural influences will influence the individual to use TCM (Fan, Chan, Chan, & Koh, 2013).

1.1 Literature Review

Within the existing literature, various aspects have been proposed to account and explain for behaviour in which people seek out CAM (Lim et al., 2005).

One of the hypothesised factors is that of negative experiences with western medicine that lead users to seek alternative forms of treatment (Lim, et al., 2005). TCM, as well as other forms of CAM, is also commonly seen to be natural and therefore safer, with less side effects (Siahpush, 1999). Anti-scientific beliefs were also proposed to contribute towards the usage of folk remedies, in influencing a rejection of western treatment methods (Bakx, 1991). Rochelle & Yim (2014) have also reported on the positive impact of cultural and Confucian values on the usage of TCM. Finally, a belief in a holistic lifestyle is also seen to contribute to the usage of TCM (Siahpush, 1999; Shi & Zhang, 2012). These variables identified serve as the framework for our research into the usage of TCM in Singapore.

It is also noted that in the global context, CAM is highly diverse and contextual, with variance within the international usage of TCM itself (Chung et al., 2014). Thus, we narrowed our focus towards academic literature on Singapore or similar countries. While there is research highlighting the possible factors that drive the patronage of TCM in Singapore, these studies are not representative as they did not compare the results with non-TCM users, and have a small sample size. (Fan et al., 2013; Lim et al., 2005; Loh, 2005).

2. Method

We present the results of two studies. **Study 1** is a quantitative survey which uses a fixed response survey to assess the usage of TCM. Non-users of TCM was used as a control group for comparison. In this study, we test for the correlation between the dependent variable and the hypothesized independent variables. The statistical analysis was done with regression analysis.

Study 2 is a qualitative study involving interviews with broad open-ended questions, where all interviewees were TCM users. In this study, we investigate the causal factors of individual TCM usage through questions

that seek to establish a narrative regarding their experiences with TCM. The analysis was done in the form of coding so as to identify the common themes within the narratives of these individuals.

2.1 Variables

2.1.1 Dependent Variable(s)

The dependent variable is the usage of TCM.

2.1.2 Independent Variable(s)

Based on our literature review, we identified 6 variables for the extensive usage of TCM

1. Negative Experiences with Western Medicine

Individuals could be unsatisfied with the medical outcomes of conventional medical treatment methods or with the medical encounters – interaction between patient and the medical system. Respondents were given a set of questions to test their experiences with western medicine.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Western Medicine often has side effects	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Western Medicine is not effective in treating illnesses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My experience in clinics and hospitals have been unsatisfactory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Western medical doctors are ineffective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My experience in western medical treatment has been unpleasant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The quality of service I obtained from western medical treatment is bad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Western medicine and treatment is more expensive than TCM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig 1: Questions on Negative Experiences with Western Medicine

2. Belief in Natural Methods

Individuals have greater confidence in the treatment methods perceived to be “natural”. Some might see natural remedies as a more effective method to treat illnesses as opposed to drugs (chemical substances) from conventional medical treatments. There are also perceptions on the safety of chemical drugs prescribed in conventional medical treatment methods.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Natural food is safer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Organic food is healthier for you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Artificial flavourings and preservatives are bad for you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GM (Genetically Modified) food is bad for you	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Natural treatment methods have less side effects than chemical methods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig 2: Belief in Natural methods

3. Anti-Science Sentiments

The rejection of science and the scientific method, which extends to include the rejection of conventional medical treatment methods.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Vaccinations are ineffective	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vaccinations can cause autism	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Anti-biotics do not work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Western Medicine cannot be used concurrently with TCM	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advancement in western medical technology has not improved the lives of people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig 3: Anti-science sentiments

4. Belief in a Holistic Lifestyle

The belief that one should adopt a holistic approach to maintain the individual's health. This can include adopting both conventional and alternative medicinal practices. This concept revolves around the perception that health is an integration between the mind, body, and spirit.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is important to balance the Qi in one's body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to balance Yin and Yang energy in one's body	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to maintain hot and cold energy in the body by eating 'heaty' and 'cooling' food.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attaining good health requires you to harmonize the mind, body, and spirit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your body has the natural ability to recover from illnesses if there is a balance in your life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig 4: Belief in Holistic Lifestyle

5. Belief in the Supernatural

The belief in superstition. Indicators of this variable include whether individuals who use TCM also believe in unproven assumptions.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Supernatural forces can affect an individual's health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Some people fall sick because of retribution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to burn offerings for my ancestors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Good deeds and good karma can lead to better health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig 5: Belief in the Supernatural

6. Belief in Cultural practices and Tradition

Pre-existing or current traditional or cultural practices may drive the individual to use TCM.

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
It is important to uphold tradition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethnicity is an important part of my identity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important for Chinese people to celebrate Chinese New Year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important for us to keep to traditional practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important to me to maintain Chinese culture in Singapore	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fig 6: Belief in Cultural practices and Tradition

2.2 Study 1

Method

Study 1 was conducted in October 2016 via Qualtrics, an online platform. Snowball sampling was used to distribute the survey amongst other students, friends and family. In addition, physical surveys were conducted at Singapore Chung Hwa Medical Institution – the largest TCM organisation in Singapore, to supplement the sample. Data collection spanned over two weeks.

The survey conducted online was distributed to Chinese participants above the age of 18 who are both users and non-users of TCM. Given that each ethnic group has their own respective form of traditional medicine, we limited the scope of our sample to only Chinese participants to ensure that racial effects on the study are minimized. Since the identified age of maturity is 18 years old in Singapore, results will only be considered if the declared age of the participants is 18 years old and above. The survey was also distributed

to both users and non-users of TCM to eliminate statistical fallacy of biased sampling and to create a controlled group for comparison.

The survey was a fixed response survey and was 42 questions long. The survey was translated into Mandarin Chinese and checked by blind back translation (Appendix 1). The survey was conducted by the 4 authors. Informed consent was obtained from all participants included in the study (Appendix 2).

Instruments

The instrument, used to measure the independent variables, is the Likert scale – a scale to measure people's beliefs and attitudes towards a particular topic.

Respondents answer 7 items rated on a 5-point scale, ranging from “strongly disagree” (value = 1) to “strongly agree” (value = 5) (Appendix 1).

Statistics

After data collection and entry was completed, 67 respondents (from an initial pool of 301) were removed because they identified themselves as non-Chinese. The final data pool of 234 respondents was modelled with Pearson's correlation and linear regression. A stepwise multiple regression was conducted to find the best model of the multiple variables. A path diagram was then constructed from the data collected.

Results

Table 1 contains the correlation matrix of both the dependent and independent variables measured. The table measures the interaction between the variables with the correlation coefficients. All variables except for gender have significant correlation with the other variables identified.

	TCM	NAT	WEST	ANTI	HOL	SUP	CUL	AGE	GEN
TCM	--	0.332***	0.222***	0.282	0.455***	0.292***	0.230***	0.353***	0.0171
NAT		--	0.327***	0.438***	0.613***	0.341***	0.486***	0.284***	0.103
WEST			--	0.545***	0.291***	0.254***	0.260***	0.127 ⁺	0.0141
ANTI				--	0.342***	0.399***	0.222**	0.332***	0.159*
HOL					--	0.433***	0.510***	0.370***	0.112 ⁺
SUP						--	0.435***	0.153	0.122 ⁺
CUL							--	0.0796	0.137 ⁺
AGE								--	-0.0411
GEN									--
⁺ p<0.1 * p<0.05 ** p<0.01 *** p<0.001					Legend: TCM: Usage of Traditional Medicine NAT: Belief in Natural Methods WEST: Negative Western Medicinal Experience ANTE: Anti-Science Sentiments HOL: Importance of leading a Holistic Lifestyle SUP: Superstition / Belief in the Supernatural CUL: Cultural Attachment AGE: Age GEN: Gender				

Table 1: Correlation Matrix of Independent and Dependent Variables

Table 2 displays the stepwise multiple regression model with age and gender as a constant in the model. As seen in Model 6, the importance of holistic lifestyle trumps every other variable we have measured and significantly increased the R-squared value once it is included in the analysis; from 0.198 in model 5 to 0.240 in model 6. Similar to the results from the bivariate linear regression model as shown in Table 1, there is insufficient evidence to support that gender has an effect on the use of TCM.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Adjusted R-Squared	0.147	0.169	0.172	0.187	0.198	0.240
p-Values						
Importance of a Holistic Lifestyle	-	-	-	-	-	0.000299***
Belief in Natural Methods	-	-	-	-	0.0448*	0.655
Superstition / Belief in the Supernatural	-	-	-	0.0223*	0.0256*	0.134
Anti-Science Sentiments	-	-	0.187	0.522	0.874	0.679
Cultural Attachment	-	0.00769**	0.00973**	0.12	0.521	0.788
Negative Western Medicinal Experience	0.0351**	0.0280*	0.232	0.215	0.261	0.396
Age	7.16e-06***	2.18e-07***	6.28e-06***	6.67e-06***	3.89e-05***	0.00257**
Gender	0.64	0.928	0.865	0.817	0.794	0.638

- p<0.1 | * p<0.05 | ** p<0.01 | *** p<0.001

Table 2: Stepwise Multiple Regression Models

2.3 Study 2

Method

A qualitative study was conducted in October 2016, involving interviews with TCM users. For the study, interviews with broad open-ended questions were carried out with 20 TCM users.

The sampling strategy adopted was purposive and snowball sampling, where we used existing networks to understand the community, which uses TCM. This includes interviewing friends, relatives and their referrals who use TCM frequently, and going to Chinese Medicine Halls to interview its attendees.

The majority of the interviews were conducted in English, with the exception of 5 interviews being conducted in Mandarin Chinese (Appendix 4). The interview transcripts and field notes were analysed in the qualitative analysis software, Dedoose. The first phase of analysis included the identification of common themes from the individual narratives of the TCM users, through the discussion of the authors. The second phase of analysis saw the individual narratives of the TCM users being coded accordingly to the common themes identified in the first phase of analysis, with new and relevant themes, such as the concurrent usage of TCM and western medicine, being added to the pool of themes simultaneously. All of

the individual narratives of the TCM users were coded by 2 separate authors so as ensure inter-coder reliability, improving the accuracy of the study.

The identities of the participants in the study are kept private and confidential. Informed consent was obtained from all participants in the study (Appendix 5).

Results

We present the major findings we found from our interviews and field notes. A number of themes validated the results of the quantitative survey. Other emergent themes brought new perspectives into the study.

Living a Holistic Lifestyle

Respondents who used TCM have also consistently identified with the values of holism. It is believed that the more emphasis the individual place on holistic living, the more likely it is for them to explore a diverse array of techniques and methods to enhance their health. Many have also expounded on the importance of maintaining the holistic approach to health. As TCM was said to be more preventative in nature, and strengthened one's body, it served to address an aspect of the holistic philosophy. One of the respondents shared that “if you can harmonize the mind, body and spirit then you will have vitality in your body and you will also be healthier.” (Interview 07). In addition, many also acknowledge the concepts of Yin and Yang, as well as ‘heaty’ and ‘cooling’ energies that affect the body.

“If there is disorder in your life, it will definitely affect your life. If you can adapt to this disorder, then it might be better. Ultimately, it is very important to have balance in life and to have order.”
(Interview 07)

“(We) need to have a positive mind, body need to keep active and eat well. Soul and spirit, you need to have a strong believe in something, a philosophy of life. Don’t need a religion, you just need a strong believe.” (Interview 10)

Natural Treatment Methods

Respondents also reported a strong relationship in the belief in natural methods and the use of TCM. Many preferred natural methods over chemical or processed methods, citing less side effects and harm to the body. TCM in general is perceived as being more natural than western medicine. This sentiment emerged even when respondents were unclear in explaining their beliefs (Interview 05). Overall, we observed a consistency between the use of TCM and the trust placed in the efficacy of natural treatment methods.

“That it won’t cause too much harm to your body; Western medicine – like you read all the articles and stuff; one wrong dosage or whatever can have severe impact, whereas TCM is more natural – won’t go all that wrong; even if wrong prescription or like you don’t take the medicine at the right time, it won’t really alter your body that much inside; so I guess you feel safer taking it.” (Interview 03)

Negative Experience from Western Medicine

Although negative experiences were inconsistent throughout our entire sample, we found that this was an identifiable cause for a number of our interviewees. Some reported turning to TCM due to a lack of viable or effective treatment for a particular ailment. One interviewee mentioned that they:

“had a cough for 6 months and conventional medicine did not help. Thus, I started to try alternatives and found Chinese Medicine.” (Interview 10)

However, others report that they continued to use western medicine for treatment of regular illnesses, such as cough and flu, as well as regular health check-ups. This inconsistent finding demonstrated the heterogeneity of reasons that influenced TCM users.

Different Applications of TCM and Western Medicine

As most respondents reported that they continued to seek consultation from western doctors, they explained that both TCM and western medicine had their merits and excelled in different situations. TCM was said to be slower, and more preventative in nature, compared to western medicine which provided fast, short term relief. Usage of either treatment depended on the severity and type of ailment involved. Western medicine was favoured for common illnesses such as the cold, flus and headaches, as well as urgent life threatening conditions such as surgery. In contrast, TCM was favoured for issues such as pain management and musculoskeletal injuries, as well as conditions that western medicine failed to treat.

“Some type of illness is more suitable for TCM so I would use that instead. However, I still use western medicine for conventional diseases such as cough and fever.” (Interview 06)

“Western more for general illnesses – like flu and all. And TCM only for physical injuries – but not like flu – yeah I don’t visit the TCM for that.” (Interview 04)

Concurrent Usage of TCM and Western Medicine

Respondents acknowledged that both western medicine and TCM could be used together, although they had to take the dosages some time apart. Some substantiated this claim by saying they heard this from TCM practitioners themselves. TCM is therefore seen to be not simply dichotomous in relation to western medicine, but rather a complementary alternative.

3. Discussion

In the most significant regression model, belief in a holistic lifestyle was found to be the only significant variable with a high correlation (0.455***). Although this was consistent with our qualitative findings, the insignificance of all other variables was highly inconsistent with the simple linear regression in Study 1. This discrepancy is possibly due to the concepts of holism being too closely interlinked with the practice of TCM itself. We therefore concluded that holism was too similar to our dependent variable and we omitted model 6 from our multiple regression analysis.

Through our path analysis of quantitative surveys of both users and non-users of TCM, Study 1 showed that the primary factors contributing to the use of TCM were the beliefs in natural methods and the supernatural. Among our hypotheses, these two beliefs were the most significant in increasing the likelihood of the usage of TCM. This is supported by Study 2, which indicated that positive beliefs in natural substances were prevalent amongst users of TCM (0.332***), and that TCM itself was perceived to be highly natural. Study 2 is therefore consistent with the results of study 1 and supports the conclusion that hypothesis 2 is valid.

Our path analysis also revealed the interaction between the variables themselves. Negative experiences with western medicine were correlated with anti-science sentiments. Subsequently, anti-science sentiments were found to have a moderate effect on the beliefs in natural methods and the supernatural. Likewise, strong cultural beliefs were found to be consistent with the beliefs in natural methods, the supernatural and a holistic lifestyle.

Study 2 substantiated our findings from Study 1 and supported the path analysis diagram in various ways. The qualitative interviews revealed the nuanced relationship between the two schools of treatment and the possibility of concurrent usage and different applications of both TCM and western medicine. This supported the weak correlation (0.222***) of negative experiences with western medicine amongst all variables. Furthermore, both TCM and western medicine were seen as complementary rather than

dichotomous, and patients could seek treatment from both platforms at the same time. Some respondents also indicated turning to TCM due to a lack within western medical treatment for particular types of ailments. Thus, although statistically insignificant within our model, study 2 provides insight into the areas of distinction that are made in the decision making process for TCM users. This was found to be consistent with prior studies on TCM usage (Huang et al. 2014).

One of the findings that emerged spontaneously in our analysis was the correlation between age and other variables such as the belief in natural methods and anti-science sentiments. This highlighted an assumption that was made in the design of the study, that users of TCM formed a homogenous population. This correlation suggests a different perspective outlook of the target population of TCM users, that older people in Singapore are more inclined to a different set of beliefs. (Rochelle & Yim, 2014).

Expanding on this, although cultural beliefs were found to be insignificant in our model of multiple regression, it was also highly correlated with all other variables. This suggested an interaction between cultural tradition and the other beliefs, with culture functioning as an antecedent variable in the causal chain. Moreover, because the study was framed in the Singapore context, questions on supernatural beliefs were limited to those of Chinese superstition. Therefore, the extent to which such beliefs are separated from the social networks and level of cultural influence is yet to be determined (Rochelle & Marks, 2011; Rochelle & Yim, 2014).

4. Limitations

There were several limitations in process of this study. The first was that of limited resources for sampling, in that snowball sampling was used and supplemented with small-scale purposive sampling. The variety of responses received in this small study suggests that the usage of TCM consists of a diverse array of factors and influences. For further studies, more data must be collected to gain deeper insight into the diversity of this population.

Secondly, although we hypothesized that stronger supernatural beliefs influenced individuals to use TCM, this did not emerge during our qualitative interviews. When questions pertaining to supernatural beliefs were included in a pilot study, interviewees were reported to be upset by the suggestion. Subsequently for the main study, questions were primarily asked in relation to the context of medical treatment and TCM.

Finally, this study focused on testing a multitude of factors in the usage of TCM. Due to limited resources for sampling, the design of the methodology afforded breadth over depth, in testing the variables involved. Through the course of the study, it emerged that many variables were interconnected and could potentially influence one another. As such, more research has to be conducted to investigate the interaction amongst the various factors and further elaborate on their relationship in the causal chain.

5. Conclusion

This study sought to understand the factors that caused people to turn towards TCM. We tested 6 variables to investigate their influences on the usage of TCM. These variables were dissatisfaction with western medicine, a belief in naturalism, anti-science beliefs, the belief in holism, supernatural beliefs and tradition and cultural practice. While much of the existing literature focused solely on existing users of TCM, this study included non-users as a control to test for variance in factors.

This study found that negative experiences with western medicine were not a significant factor for many users, who report to use both TCM and western medicine concurrently. Both TCM and western medicine are seen to have their own merits and have different applications in treating illnesses. However, this was a salient factor in some cases, where there was a perceived lack in western medical treatment.

The results of the study suggest that naturalism and supernatural beliefs are the most salient factors in influencing the use of TCM. Our study also found that TCM was perceived to be highly natural and in effect, safer for patients. The concepts of holism were also highly consistent amongst respondents, but this could be due to the inherent nature of holism within TCM practice, as well as the cultural assimilation of such information.

In conclusion, an emergent finding was a possible interaction effect amongst the variables. In future research, more in-depth data has to be collected in order to understand the deeper causal mechanisms that drive the preference and usage of TCM.

References

1. Bakx, K. (1991). The "Eclipse" of Folk Medicine in Western Society. *Sociology of Health and Illness*, 13(1), 20-38.
2. Cheung, F. (2011). TCM: Made in China. *Nature*, 480(7378), S82–S83.
<https://doi.org/10.1038/480S82a>
3. Chung, V., Ma, P., Lau, C., Wong, S., Yeoh, E., & Griffiths, S. (2014). Views on traditional Chinese medicine amongst Chinese population: A systematic review of qualitative and quantitative studies. *Health Expectations*, 17(5), 622-636.
4. Ernst E. Prevalence of use of complementary/alternative medicine: a systemic review. *Bull World Health Org* 2000;78(2). Cited in Loh, C.H. (2009). Use of traditional Chinese medicine in Singapore children: perceptions of parents and pediatricians.
5. Fan, Peijin Esther Monica, Chan, Moon Fai, Chan, Yoke Ling, & Koh, Siew Lin Serena. (2013). Patterns of complementary and alternative medicine use among a group of patients with type 2 diabetes receiving outpatient care in Singapore. *International Journal of Nursing Practice*, 19, 44-55.
6. Lim, Sadarangani, Chan, & Heng. (2005). Complementary and alternative medicine use in multiracial Singapore. *Complementary Therapies in Medicine*, 13(1), 16-24.
7. Loh, C.H. (2009). Use of traditional Chinese medicine in Singapore children: perceptions of parents and pediatricians.
8. Huang, Liu, Lien, Yang, Chang, & Yen. (2014). A nationwide population-based study of traditional Chinese medicine usage in children in Taiwan. *Complementary Therapies in Medicine*, 22(3), 500-510.
9. Shi, L., & Zhang, C. (2012). Spirituality in Traditional Chinese Medicine. *Pastoral Psychology*, 61(5), 959-974.
10. Siahpush, M. (1999). Why do people favour alternative medicine? *Australian and New Zealand Journal of Public Health*, 23(3), 266-271.
11. Rochelle, T. L., & Marks, D. F. (2011). Health behaviors and use of traditional Chinese medicine among the British Chinese. *Journal of Cross-Cultural Psychology*, 42(3), 390-405.
12. Rochelle, T., & Yim, K. (2014). Factors associated with utilisation of traditional Chinese medicine among Hong Kong Chinese. *Psychology, Health & Medicine*, 19(4), 453-462.
13. Tang, J., Hackshaw, A., Lao, L., Liu, B., & Chung, V. (2014). Improving Research on the Efficacy, Effectiveness, and Harms of Traditional Chinese Medicine. *Evidence-Based Complementary and Alternative Medicine*, 2014, 2.

Appendix

Appendix 1

How old are you? 请问你的年龄?				
What is your gender? 请问你的性别?	Male 男		Female 女	
What is your race? 请问你的种族?	Chinese 华人	Malay 马来	Indian 印度	Others 其他

How often do you use TCM? 你多长时间吃一次中药?	Never 从不	Sometimes 很少	Half the time 有时	Most of the time 经常	All the time 一直
How often do your family members use TCM to treat illnesses? 你的家人经常用中医来治疗疾病吗?	Never 从不	Sometimes 很少	Half the time 有时	Most of the time 经常	All the time 一直
How often do you consume supplements on a regular basis? (eg. Vitamin C, Calcium pills, Fish Oil) 你多长时间定期吃一次补品?	Never 从不	Sometimes 很少	Half the time 有时	Most of the time 经常	All the time 一直
How often do you use TCM for herbal treatment? 你会经常吃中药吗?	Never 从不	Sometimes 很少	Half the time 有时	Most of the time 经常	All the time 一直

How often do you use TCM for acupuncture? 你会经常用中医的针灸吗？	Never 从不	Sometimes 很少	Half the time 有时	Most of the time 经常	All the time 一直
How often do you use TCM for massage? 你会经常用中医的按摩吗？	Never 从不	Sometimes 很少	Half the time 有时	Most of the time 经常	All the time 一直
How often do you use TCM for cupping? 你会经常用中医的拔罐吗？	Never 从不	Sometimes 很少	Half the time 有时	Most of the time 经常	All the time 一直
Are there any other types of TCM you use? If yes, please specify what type, and how often. 你有用过其他类型的中药来治疗吗？如果有，请你写下这些类型 并 说明你使用的频率。					
<p align="center">What do you use TCM for? (Please tick where applicable)</p> <p align="center">你会为了什么经常吃中药？(请在适当的选项打勾)</p>					
Supplements and General Well-being 补充能量和身体健康					
Common Illness (Flu, Stomach Pain, Digestion Problems) and Pain Management (Headaches, Injuries) 普通疾病治疗（流感，胃痛，消化问题）和 疼痛治疗（头痛，损伤）					
Chronic Illness and Conditions (e.g. Diabetes, Hypertension, Heart Conditions, Cancer) 治疗慢性疾病（糖尿病、高血压、心脏病、癌症）					
Chronic Pain / Aches (Muscle aches, Spinal / Back Pain) 慢性疼痛/疼痛(肌肉疼痛,脊椎/背部疼痛)					

Others:

其他 (请你写下):

Please indicate how far you would agree with each of the statements below.

请表明你对以下问题的同意的程度

TCM is an effective way to treat illnesses. 用中医治疗疾病是一种有效的方法?	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Professional foot massages can heal underlying illnesses. 专业的脚底按摩可以治疗潜在疾病	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
I would recommend TCM to my friends. 我会把中药推荐给我的朋友	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Western Medicine often has side effects 西药经常会有副作用	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Western Medicine is not effective in treating illnesses 西药不是一个有效的治病的方法	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意

My experience in clinics and hospitals have been unsatisfactory 我在诊所和医院的经历不是很令人满意	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Western medical doctors are ineffective 西医没有什么效果	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
My experience in western medical treatment has been unpleasant 我西医治疗的经历不是很好	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
The quality of service I obtained from western medical treatment is bad 我从西医治疗得到的服务不是很好	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Natural food is safer. 自然的食品比较安全	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Organic food is healthier for you. 有机食品比较健康	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Artificial flavourings and preservatives are bad for you. 人工调味料和防腐剂对身体不好	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意

GM (Genetically Modified) food is bad for you. 转基因食品对身体不好	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Natural treatment methods have less side effects as compared to chemical methods. 相比较化学方法，自然疗法有较少的副作用	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Vaccinations are ineffective 疫苗接种没有效	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Vaccinations can cause autism 疫苗接种会导致自闭症	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Anti-biotics do not work 抗生素没有用	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Western Medicine cannot be used concurrently with TCM 西药不可以和中药一起用	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Advancement in western medical technology has not improved the lives of people	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意

<p>西医治疗技术的进步没有普遍改善人们的生活</p>					
<p>It is important to balance the Qi in one's body 保持我们身体里的‘气’很重要</p>	<p>Strongly Disagree 非常的不同意</p>	<p>Disagree 不同意</p>	<p>Neutral 没意见</p>	<p>Agree 同意</p>	<p>Strongly Agree 非常的同意</p>
<p>It is important to balance Yin and Yang energy in one's body 保持身体里的阴阳气很重要</p>	<p>Strongly Disagree 非常的不同意</p>	<p>Disagree 不同意</p>	<p>Neutral 没意见</p>	<p>Agree 同意</p>	<p>Strongly Agree 非常的同意</p>
<p>It is important to maintain hot and cold energy in the body by eating 'heaty' and 'cooling' food. 吃正确的食物来保持身体内的热和寒能量的平衡是很重要的。</p>	<p>Strongly Disagree 非常的不同意</p>	<p>Disagree 不同意</p>	<p>Neutral 没意见</p>	<p>Agree 同意</p>	<p>Strongly Agree 非常的同意</p>
<p>Attaining good health requires you to harmonize the mind, body, and spirit. 你需要协调你的头脑，身体和精神来获得良好的健康</p>	<p>Strongly Disagree 非常的不同意</p>	<p>Disagree 不同意</p>	<p>Neutral 没意见</p>	<p>Agree 同意</p>	<p>Strongly Agree 非常的同意</p>
<p>Your body has the natural ability to recover from illnesses if there is a balance in your life. 如果你的生活规律平衡，你的身体可以从疾病中自己痊愈</p>	<p>Strongly Disagree 非常的不同意</p>	<p>Disagree 不同意</p>	<p>Neutral 没意见</p>	<p>Agree 同意</p>	<p>Strongly Agree 非常的同意</p>
<p>Supernatural forces can affect an individual's health 超自然力量会影响一个人的健康</p>	<p>Strongly Disagree 非常的不同意</p>	<p>Disagree 不同意</p>	<p>Neutral 没意见</p>	<p>Agree 同意</p>	<p>Strongly Agree 非常的同意</p>

Some people fall sick because of retribution 有些人会生病是因为报应	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
It is important to burn offerings for my ancestors 烧香给我的祖先很重要	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Good deeds and good karma can lead to better health 做善事和善因缘会让一个人更健康	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
It is important to uphold tradition 秉承传统很重要	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
Ethnicity is an important part of my identity 种族是我身份的一个重要组成部分	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
It is important for Chinese people to celebrate Chinese New Year 华人庆祝春节很重要	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
It is important for us to keep to traditional practice 对我们来说，保持传统做法很重要	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意

It is important to me to maintain Chinese culture in Singapore 在新加坡保护中华文化很重要	Strongly Disagree 非常的不同意	Disagree 不同意	Neutral 没意见	Agree 同意	Strongly Agree 非常的同意
---------------------------------------------------------------------------------	-----------------------------	-----------------	----------------	-------------	-------------------------

Appendix 2

Profile

Age: _____

Sex: M / F

Interview Questions

1. When did you first start using TCM?

Goal: Determine the chronological starting point, if family or traditional influence was a factor

Follow up: Who introduced you to it?

2. Was there any reason you decided to try TCM?

Goal: Find out individual push factors for turning to TCM (Or why they continue to use)

3. What do you think are the benefits of TCM?

Goal: Find out perceptions of TCM.

Follow up: How effective do you find TCM?

4. What do you use TCM to treat?

Goal: Identifying subcategories of TCM practice for differentiation.

5. Have you visited the “Western” doctors for your illnesses?

Goal: To understand if TCM was the first option for treatment

- Follow Up:

If “Yes”: Why didn’t you continue visiting them?

Goal: To understand of the “Holism” Effect or “Dissatisfied Outcomes” Effect is stronger

- If “No”: Why not?

Goal: To understand the reasons for favouring TCM as compared to conventional medicine

6. Do you think TCM can or should be used concurrently with Western medicine?

7. Do you use supplements like vitamins, fish oil, etc. ?

- Follow Up: Why do you use Supplements? | Is TCM natural? | What are the benefits of natural treatment methods?

8. Do you believe that attaining health is a matter of harmonizing different aspects of life?

- Follow Up: Do you believe in the Hot & Cold energy in the body? | Have you heard about effects of harmonizing the mind, body and spirit?

Appendix 4

总则

年龄：

性别：男 / 女

问题

1 你几时开始用中药？

1. 目的：看是否是家庭或传统的影响

2. 跟进：谁介绍你的？

2 有没有什么原因导致你尝试中药？

1. 目的：看个人的目的（或为何个人会继续）用中药

3 你认为中药有什么好处？

1. 目的：个人对中药的看法

2. 跟进：你认为中药有多么的有效？

4 你用什么中药来治病？

1. 目的：找出不同的中药类别来分配

5 你有没有看过西医来治病？

1. 目的：看中药是否是个人的第一选择

2. 跟进：

1. 说是的话：了解为何个人没有继续的看西医

1. 目的：理解到底“神”话或“对西医的不满”比较有强力

2. 说不了的话：为何呢？

1. 目的：理解个人对中药的偏心

3. 中药可不可以和西医同时的用呢？

4. 你有没有用补充品呢？

1. 跟进：为何用补充品呢？ / 中药自然吗？ / 自然医疗有什么好处？

5. 你相信得到健康和你生活有没有平衡有关吗？

1. 跟进：你相信你身体有热和冷气吗？ / 你认不认为要得到健康的身体是需要你的身体协和你的脑，身与净胜

