

PHR5252 INQUIRY PROJECT REPORT

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Title: Perception of Acupuncture among Young Adults in Malaysia and Singapore: A systematic review

Introduction

Malaysia is a multiracial society with pluralistic medical options. Despite the fact that Western medicine is the most widely used, various Traditional and Complementary Medicines (T&CM) exist. Acupuncture is one of the most common treatments offered by Traditional Chinese Medicine (TCM), which is one of the most common forms of complementary and alternative medicine in Malaysia. Acupuncture involves the insertion of fine filiform needles into acupoints to relieve pain or for therapeutic purposes associated with or without moxibustion. In Singapore a cross-sectional survey revealed 84% chronic pain patients used some form of Complementary and Alternative Medicine (CAM) with the subset acupuncture being utilized most frequently in about 48% patients with chronic pain (Win, Tan and Khan, 2013).

Not only in Malaysia and Singapore, but also in other Asian communities such as in Taiwan in the year of 2002, study showed that 23% of the general public had used acupuncture within the past 7 years (Chen, Kung, Chen, & Hwang, 2006). Various studies have been conducted worldwide that assess the perception and understanding of healthcare students regarding the general term CAM (Wilkinson & Simpson, 2001). Most of these studies are conducted on healthcare professionals or medical students. A few studies conducted are regarding the healthcare professionals' and medical students' knowledge and attitude toward acupuncture. According to one of studies conducted among the medical students at the Chinese University of Hong Kong by Hon et al. (2005), 41% of them held a positive attitude toward acupuncture, only 6% of them

held a negative attitude toward acupuncture and the rest (52%) were neutral toward acupuncture. Most of the patients choose acupuncture as a treatment for their musculoskeletal and neurological disorders. Acupuncture is also effective in treating both allergy rhinitis and chronic low back pain (Brinkhaus, Witt, Jena, Liecker, Wegscheider & Willich, 2008; Brinkhaus et al., 2006).

First introduced in 2007, as of 2020 there are a total of 15 MOH hospitals in Malaysia providing T&CM (traditional and complementary medicine) services (Official Portal TCM Division MOH Malaysia, 2022). The various TCM modalities used by the Malaysian community are subgrouped and categorized into four main categories according to the National Center for Complementary and Alternative Medicine (NCCAM) classification. This includes Mind-body medicine, Mind-body medicine, Manipulative and body based practices and Whole medical systems. Whole medical systems include acupuncture, Ayurveda, homeopathy and traditional Chinese medicine. Biological-based therapies (88.9%) were the main resource for medical conditions while whole medical systems were the least used (1.9%) (Siti et al., 2009). Under the category of whole medical systems, acupuncture (10%) was commonly used for medical conditions such as chemotherapy-induced and postoperative nausea and vomiting, dental pain, fibromyalgia, tennis elbow and etc (MayoClinic, 2022).

In both Malaysia and Singapore, there is limited knowledge of how young adults perceive acupuncture and what underlying factors influence their decision to use acupuncture. This study is important for the healthcare setting to develop marketing strategies or awareness campaigns to educate the public on the knowledge about acupuncture including their effectiveness and safety concerns. Although acupuncture has been proven an effective treatment for selective health conditions, it would not bring benefits to anyone if it is not a preferred treatment.

To date, no systematic review has explored the perception of acupuncture among the young adults in Malaysia and Singapore via a qualitative synthesis of the available evidence. To address this issue, we conducted a systematic review to synthesize existing qualitative evidence regarding how young adults in Malaysia and Singapore perceived acupuncture and the factors affecting their choice of acupuncturists.

Therefore, the purpose of this research is to find an answer for the following research question: “How do young adults in Malaysia and Singapore perceive acupuncture?”. By conducting this research, the perception of acupuncture among young adults can be identified. Participants’ perception of advantages and disadvantages of adopting acupuncture, and their criteria in selecting acupuncturists, will be collected. Understanding the perception and health beliefs of young adults is crucial to understand the willingness, preparedness, considerations and potential fear of young adults prior to acupuncture treatment. This can further improve the quality and safety of a medical treatment that can be offered to the public. This study hypothesized that young adults in Malaysia and Singapore would choose acupuncture as their alternative treatment due to lack of knowledge about acupuncture and its effectiveness.

Literature Review

According to the National Center for Complementary and Integrative Health (NCCIH), acupuncture has been shown to be effective against neck pain, osteoarthritis, headache and low back pain (Jishun & Mittelman, 2014). Studies done at National Institute of Health (NIH) revealed acupunctures’ effectiveness both as monotherapy and in conjunction with conventional therapies in relieving complex conditions like cancer chemotherapy, surgical anesthesia induced nausea, tennis elbow, addiction, asthma and many more (Lao et al., 2016).

There is a range of both negative and positive responses to acupuncture. Acupuncture can act as ‘magic for some and torture for others’ (Devitt, 2018). A questionnaire based survey was conducted on patients’ outcomes from Beating Back Pain Service (BBPS) which primarily involved acupuncture and self-care (Cheshire et al., 2013). The survey revealed a highly significant patient satisfaction with BBPS (Cheshire et al., 2013). An experimental trial conducted in Bronx, New York revealed that acupuncture treatment caused 30% or more improvement or reduction in chronic pain caused by neck or back pain and arthritis in nearly one-third of the participants (McKee et al., 2013).

Despite the massive popularity of acupuncture, it is not part of the conventional recommendations by healthcare professionals. So even though results from several studies suggest that acupuncture could help alleviate chronic pain such as low-back pain, neck pain and osteoarthritis pain, the reality remains about the inconsistency of clinical practice guidelines regarding acupuncture recommendation (Garcia-Escamilla, 2016).

Unlike western conventional medicine, there can be many barriers that restrain the healthcare professionals and the patients in deciding to use acupuncture. Some research has been found that explored the potential hurdles that both healthcare professionals and patients face that does not allow them to go for acupuncture to treat health conditions. One such study was done on breast cancer survivors relating to their perceived barriers in acupuncture use (Bao et al., 2018). The results showed some of the most commonly perceived barriers to be lack of knowledge of acupuncture(41.6%), no insurance (25%), extra cost (22.3%) and inability to find qualified acupuncturists (18.6%) (Bao et al., 2018). A preliminary study was also done of primary care physicians to find out what factors interfered with their CAM usage in general (Sugito & Son, 2019). Some of the notable factors include lack of sufficient knowledge and understanding about CAM, bias towards the western

conventional medicines, evidence of effectiveness is insufficient and lastly because profitability is lower than Western medicine (Sugito & Son, 2019). No such studies were found to be conducted in Malaysia or Singapore. The popularity of acupuncture in these countries yet lack of acupuncture being the primary recommendation can help assume that these limitations also exist to some extent there.

More of the studies conducted include the one in 2015, a cross-sectional study was conducted regarding the knowledge and attitude towards TCM among adults in Malaysia (Kumar et al., 2015). This study hypothesized that the difference in perception of people about acupuncture depended on various factors such as TCM users vs non-TCM users, gender, ethnicity, education level and monthly income. The significant difference was observed only in education level category where people with higher level of education (Undergrad and postgrad) had a lower positive attitude mean score about TCM like acupuncture compared to those who only received primary education. Another study was done to investigate the knowledge, perceptions, and attitudes of the Malaysian Public University students about CAM (Jamshed et al., 2016). This study concluded that there was a lack of sufficient knowledge among Pharmacy students regarding CAM use in Malaysia however most of the participants had optimistic perception and attitudes towards incorporating traditional Chinese methods for health and well-being of patients. A third study in Malaysia tested the perception of pharmacy students on the broad concept of CAM and prevalence of use among them (Hasan, Yong, Babar et al., 2011). This study determined that there was a high prevalence of CAM use among the participants of 77.8% having used at least one form of CAM and they all agreed about benefits of conventional medicine from ideas and methods of CAM.

Previous research has provided some insight into the factors that influence people's attitudes toward acupuncture and use of acupuncture. There are various reasons that can limit the use of acupuncture as a treatment. The most common concern of acupuncture was a fear of needles

(Highfield, 2008; Mano & Davies, 2009). As mentioned earlier, acupuncture involves insertion of needles into acupoints on the skin. Another common concern is acupuncture ineffectiveness (Mano & Davies, 2009). There is limited evidence to prove the efficacy of acupuncture and therefore young adults prefer to Western medicines with sufficient proof of effectiveness. There are few patients who choose acupuncture as the alternative choice of therapy when their illness was not completely treated by the Western medicines (Hon et al., 2005). Study by Hon et al. (2005) also showed that there are few patients claiming that they experienced less side effects from acupuncture than Western medicines.

There was a lack of similar studies conducted that focus on Acupuncture without putting it in the broad category of CAM or TCM. Therefore, this research aims to determine the perception of Malaysian and Singaporean young adults about acupuncture, by gathering and systematically reviewing related studies that exist in literature. This will allow us to understand Malaysian and Singaporeans' attitudes toward acupuncture and the factors influencing the attitudes towards acupuncture and the use of acupuncture. By doing this, the relevant departments can develop better marketing strategies or organize awareness campaigns to educate the public on the knowledge about acupuncture including their effectiveness and safety concerns.

Methods section

Various methods have been employed to assess the perception of acupuncture among the communities, which include online surveys, interviews, etc. This study employs a systematic review methodology in order to gain insights into the perception of acupuncture among the young adults. A systematic review approach was adopted to gain a detailed understanding on the research question of this study “How do young adults in Malaysia and Singapore perceive acupuncture?” systematic reviews provide a complete summary of the current literature related to the

research topic by identifying, synthesizing and assessing all the available evidence, quantitative and qualitative, in order to produce a robust and empirically derived answer to the focused research question. Another reason for using a systematic review methodology is that it presents an unbiased and balanced summary of findings. Furthermore, there are many published studies assessing the perception of acupuncture, thus this research technique would provide a great overview on this topic.

A clear, logical and well-defined research question was formulated using the PICO (Population, Intervention, Comparison, Outcome) tool: How do young adults in Malaysia and Singapore perceive acupuncture? (P: young adults in Malaysia and Singapore, I: had used acupuncture, C: had never used acupuncture, O: perception).

A preliminary search was done after that to identify the relevant articles, ensure the validity of the proposed idea, and to assure that sufficient articles for conducting this systematic review. Gaining basic concepts with a deep understanding of the study field through the relevant articles is essential for studies selection and data extraction. A simple search was done in PubMed or Scholar using the search terms acupuncture AND perceptions. Several qualitative studies of perception of acupuncture among users and nonusers were identified in this step. The study focused on the participants' perception of advantages and disadvantages of using acupuncture, and their criteria in selecting acupuncturists, which is a relevant paper to read to achieve a deeper insight and to identify gaps for better formulation of this study. A systematic review can be conducted as this study focuses on different populations (young adults in Malaysia and Singapore).

Inclusion criteria for this study include (1) any qualitative study regarding the perception of acupuncture (2) population in Malaysia and Singapore aged 18 - 35 years old and (3) no restriction regarding gender, race, publication language and date. Exclusion criteria are as follows: (1) studies without full text available and (2) studies with data not reliably extracted.

A search strategy of using "MeSH terms" was adopted in this study to retrieve sufficient eligible studies. A final search term for PubMed was formulated after several rounds of trials and refinement of the search term: (acupuncture) AND (perceptions OR knowledge OR understanding). Databases used in this study include PubMed, Google Scholar, Scopus, Embase and Ovid MEDLINE and Cochrane.

Finally, all records were collected into an Endnote library to delete the repeating articles and were exported into an excel sheet. All references with the same title and authors and publication date and journal will be deleted. Title and abstract screening were done to remove duplicated articles manually. Data extraction was done using a simple data extraction form to organize the information extracted from each reviewed study (e.g. authors, publication year, study design, outcomes).

Data analysis

For articles included in the systematic review, data was extracted manually into a summary table for qualitative analysis. Participants' perceptions or views on acupuncture and study design used will be reported. The corresponding author and year for each publication will also be provided in the table.

Quality appraisal assessment

The quality of all 5 studies included in this systematic review, was examined independently by both researchers by completing the Critical Appraisal Skills Programme (CASP) checklist for qualitative research (Critical Appraisal Skills Programme, 2018). (Appendix A)

By using the MeSH terms we generated a total of 1152 results from PubMed and 13070 results from Google Scholars. Only 1 duplicate was identified and excluded. Next various filters from the advanced search option were added to make the search result more specific and relevant. Restricting the publication year from 2000-2022 we were left with 826 results. Then choosing only articles that we had accessed to the abstract and full text totalled our results to 710. 228 articles were screened and 5 studies were included (Figure 1. PRISMA flow chart).

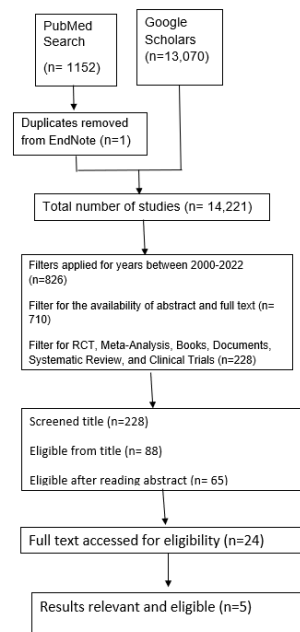


Figure 1. PRISMA flow chart illustrating the search strategy used to identify studies.

Quality appraisal assessments were conducted for five studies and the quality assessment results for each study is provided in table 1.

Out of the 5 appraised research papers all of them were cross-sectional study design with data collection through questionnaire/survey or interview participants.

Outcome

The outcome of this literature review from assessment of various studies, have shown that the majority of people in Malaysia and Singapore, have either a positive attitude or are neutral about their perception of acupuncture. Some common perceptions towards acupuncture include people considering it safer than conventional methods, thought to be safer and more natural than western medicine and were considered less expensive, more accessible and efficacious compared to modern medicine. Moreover, even most of the non-TCM users showed enthusiasm to test it out. The studies conducted on medical professionals and healthcare students also demonstrated a positive outlook towards acupuncture and were open-minded and supportive of combining traditional Chinese methods alongside modern medicine. They believed these traditional methods had concepts and ideas that could benefit patients complementary to the conventional western therapy.

The few people who had a negative or disapproving attitude towards acupuncture was mainly due to the lack of understanding and knowledge about acupuncture. There were many myths associated with acupuncture, especially perceiving it as painful among people with needle phobia. Others were reluctant to incorporate acupuncture in their treatment, perceiving it as ineffective, lacking scientific evidence and considering it an additional cost to their treatment expense. For some it was inaccessible due to lack of qualified acupuncturists nearby.

Project Title	Perception of Acupuncture among Young Adults in Malaysia and Singapore: A systematic review
PICO terms (if applicable)	P: Young adults in Malaysia and Singapore I: Use of acupuncture C: None O: Perception
Research aim(s)	This research aims to determine the perception of Malaysian and Singaporean young adults about acupuncture, to understand their attitudes toward acupuncture and the factors influencing the attitudes towards acupuncture and the use of acupuncture.
Research Question and/or testable hypothesis	Research Question: How do young adults in Malaysia and Singapore perceived acupuncture? Hypothesis: Young adults in Malaysia and Singapore rarely choose acupuncture as their first option of treatment due to lack of knowledge about acupuncture and its effectiveness.

Methods section with a data analysis plan (approx. 500-800 words)	
Changes to original research plan (if applicable)	The original methodology to be used in this research was an interview-based survey. However, the methodology was switched to a systematic review due to time constraint and ethical application for survey.
Results Section	

Discussion	
References	<p>Bao, Ting & Li, Qing & DeRito, Janice & Seluzicki, Christina & Im, Eun-Ok & Mao, Jun. (2018). Barriers to Acupuncture Use Among Breast Cancer Survivors: A Cross-Sectional Analysis. <i>Integrative Cancer Therapies</i>. 17. 153473541875430. 10.1177/1534735418754309.</p> <p>Brinkhaus B., Witt C.M., Jena S., et al. (2006). Acupuncture in Patients With Chronic Low Back Pain: A Randomized Controlled Trial. <i>Arch Intern Med</i>, 166(4):450–457. doi:10.1001/archinte.166.4.450</p> <p>Brinkhaus B., Witt C.M., Jena S., Liecker B., Wegscheider K., Willich S.N. (2008). Acupuncture in patients with allergic rhinitis: a pragmatic randomized trial. <i>Ann Allergy Asthma Immunol</i>, 101(5):535–43. doi:10.1016/S1081-1206(10)60294-3</p> <p>Chan, K., Siu, J. Y., & Fung, T.K. F. (2016). Perception of acupuncture among users and nonusers: A qualitative study. <i>Health Marketing Quarterly</i>, 33(1), 78–93. https://doi.org/10.1080/07359683.2016.113205</p>

- Chen, F. P., Kung, Y. Y., Chen, T. J., & Hwang, S. J. (2006). Demographics and patterns of acupuncture use in the Chinese population: The Taiwan experience. *The Journal of Alternative and Complementary Medicine*, 12(4), 379–387. doi:10.1089/acm.2006.12.379
- Cheshire, A., Polley, M., Peters, D., & Ridge, D. (2013). Patient outcomes and experiences of an acupuncture and self-care service for persistent low back pain in the NHS: a mixed methods approach. *BMC complementary and alternative medicine*, 13, 300. <https://doi.org/10.1186/1472-6882-13-300>
- Critical Appraisal Programme. (2018). CASP Checklist: 10 questions to help you make sense of a Qualitative research. Retrieved from <https://casp-uk.b-cdn.net/wp-content/uploads/2018/01/CASP-Qualitative-Checklist-2018.pdf>
- Devitt, M. (2018). Research Finds Acupuncture Effective for Chronic Pain. *AAFP*. <https://www.aafp.org/news/health-of-the-public/20180521acupuncture.html>
- García-Escamilla, E., Rodríguez-Martín, B., & Martínez-Vizcaíno, V. (2016).

Integration of acupuncture into conventional medicine from health professionals' perspective: A thematic synthesis of qualitative studies. *Health*, 20(2), 176–200. <https://www.jstor.org/stable/26652342>

Hasan, S.S., Yong, C.S., Babar, M.G. et al. (2011). Understanding, perceptions and self-use of complementary and alternative medicine (CAM) among Malaysian pharmacy students. *BMC Complement Altern Med* 11(95). <https://doi.org/10.1186/1472-6882-11-95>

Highfield, E. S., Barnes, L., Spellman, L., & Saper, R. R. (2008). If you build it, will they come? A free-care acupuncture clinic for minority adolescents in an urban hospital. *The Journal of Alternative and Complementary Medicine*, 14(6), 629–636. doi:10.1089/acm.2008.0021

Hon K.L., Leung T.F., Tse H.M., Lam L.N., Tam K.C., Chu K.M., et al (2005). A survey of attitudes to traditional Chinese medicine among Chinese medical student. *The American Journal of Chinese Medicine*, 33(2), 269-279.

Jamshed, S. Q., Khan, M. U., Ahmad, A., & Elkalmi, R. M. (2016). Knowledge,

- perceptions, and attitudes toward complementary and alternative medicines among pharmacy students of a Malaysian Public University. *Journal of pharmacy & bioallied sciences*, 8(1), 34–38. <https://doi.org/10.4103/0975-7406.171686>
- Jishun, J., & Mittelman, M. (2014). Acupuncture: Past, Present, and Future. *Global Advances in Health and Medicine*, 6–8. <https://doi.org/10.7453/gahmj.2014.042>
- Kim M., Han H.R., Kim K.B., Duong D.N. (2002). The use of traditional and Western medicine among Korean American elderly. *J Community Health* 27: 109–120.
- Kim Y. J. (2017). The Current Studies of Education for a Traditional and Complementary Medicine in Malaysia. *Journal of evidence-based complementary & alternative medicine*, 22(4), 531–537. <https://doi.org/10.1177/2156587217726882>
- Kumar, S., Rajiah, K., Veettil, S. & Wei, N. (2015). A cross-sectional study on knowledge and attitude toward Traditional Chinese Medicine (TCM) among adults in selected regions of Malaysia. *Journal of Complementary and Integrative Medicine*, 12(4), 317-323. <https://doi.org/10.1515/jcim-2013-0068>
- Lao L., Sherman K., Suarez-Almazor M. E., & Huntley K., Killen J. J. (2016).

- Shih C.C., Liao C.C., Su Y.C., Tsai C.C., Lin J.G. (2012). Gender Differences in Traditional Chinese Medicine Use among Adults in Taiwan. *PLOS ONE* 7(4): e32540. <https://doi.org/10.1371/journal.pone.0032540>
- Siti, Z. M., Tahir, A., Farah, A. I., Fazlin, S. M., Sondi, S., Azman, A. H., Maimunah, A. H., Haniza, M. A., Siti Haslinda, M. D., Zulkarnain, A. K., Zakiah, I., & Zaleha, W. C. (2009). Use of traditional and complementary medicine in Malaysia: a baseline study. *Complementary therapies in medicine*, 17(5-6), 292–299. <https://doi.org/10.1016/j.ctim.2009.04.002>
- Sugito, R. and Son, D. (2019), Obstacles to the use of complementary and alternative medicine by primary care physicians: Preliminary study. *Traditional & Kampo Medicine*, 6: 173-177. <https://doi.org/10.1002/tkm2.1225>
- Tan, M. G., Win, M. T., Khan, S. A. (2013). The use of complementary and alternative medicine in chronic pain patients in Singapore: A single-centre study. *Annals of the Academy of Medicine, Singapore*, 42(3), 133-7.
- Wilkinson JM, Simpson MD. Complementary therapy use by nursing, pharmacy and biomedical science students. *Nurs Health Sci*. 2001;3:19–27

	<p>Zhang, X.R. (2000). Integration of traditional and complementary medicine into national health care systems. <i>Journal of Manipulative and Physiological Therapeutics</i>, 23(2), 139-140.</p>
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Appendix A

Section A: Are the results valid?				
	Yes	No	Can't tell	Comments
Was there a clear statement of the aims of the research?				
Is a qualitative methodology appropriate?				
Is it worth continuing?				
Was the research design appropriate to address the aims of the research?				
Was the recruitment strategy appropriate to the aims of the research?				
Was the data collected in a way that addressed the research issue?				
Has the relationship between researcher and participants been adequately considered?				
Section B: What are the results?				
Have ethical issues been taken into consideration?				
Was the data analysis sufficiently rigorous?				
Is there a clear statement of findings?				
Section C: Will the results help locally?				

How valuable is the research?		
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Appendix B
RESPONSE TO SUPERVISOR COMMENTS FROM MIDPOINT REPORT

	Supervisor comments	Response
Introduction	No hypothesis is stated.	A hypothesis is made and written at the last paragraph of the introduction part.
	Need to be more elaborate in describing the need for this study.	The introduction part has added more elaboration on the need for this study.
	Most of the sentences do not lead to statement and justifying the importance of the research questions, neither does it place them into the context of the broader field of interest.	The importance of the research has been clearly justified.
Literature review	Literature review lacks comprehensiveness.	Few new paragraphs focusing on Malaysia and Singapore has been added
	A focus is needed in order to build a case. We cannot make a good case without knowing to focus at. In this case, why must we study the perception of young adult	The potential significance of this study has been added in.

	towards acupuncture?	
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Appendix C

Table 1: Characteristics of included studies

Author	Publication Year	Country	Study Design	Study size	Reference
Suresh Kumar, Kingston Rajiah, Sajesh Kalkandi Veettil and Ng Sze Wei	2013	Malaysia	Cross-sectional	400 adult Malaysians aged 18 years and above	Kumar, S., Rajiah, K., Veettil, S. & Wei, N. (2015). A cross-sectional study on knowledge and attitude toward Traditional Chinese Medicine (TCM) among adults in selected regions of Malaysia. <i>Journal of Complementary and Integrative Medicine</i> , 12(4), 317-323. https://doi.org/10.1515/jcim-2013-0068
Yu Heng Kwan, Sarah Chooi, Sungwon Yoon, Xiang Ling An, Jie Kie	2020	Singapore	Qualitative Interviews	27 TCM practitioners	Kwan, Y. H., Chooi, S., Yoon, S., Ang, X. L., Phang, J. K., Koh, H. L., Thumboo, J., Ng, S. C., & Fong, W. (2020).

Phang, Hwee Ling Koh, Julian Thumboo, Swee Cheng Ng, Warren Fong					Professionalism in traditional Chinese medicine (TCM) practitioners: a qualitative study. <i>BMC complementary medicine and therapies</i> , 20(1), 335. https://doi.org/10.1186/s12906-020-03127-8
Z.M. Siti, A. Tahir, A. Ida Farah, S.M. Ami Fazlin, S. SONDI, A.H. Azman, A.H. Maimunah, M.A. Haniza, M.D. Siti Haslinda, I. Zakiah, W.C.Wan Zaleha.	2009	Malaysia	Interviewer-administered questionnaire survey Cross-sectional	6947 respondents randomised sampling representative of the Malaysian population covered all states of Malaysia	Siti, Z. M., Tahir, A., Farah, A. I., Fazlin, S. M., Sondi, S., Azman, A. H., Maimunah, A. H., Haniza, M. A., Siti Haslinda, M. D., Zulkarnain, A. K., Zakiah, I., & Zaleha, W. C. (2009). Use of traditional and complementary medicine in Malaysia: a baseline study. <i>Complementary therapies in medicine</i> , 17(5-6), 292–299. https://doi.org/10.1016/j.ctim.2009.04.002
Michelle G. E. Tan, Ma Thin Win, Shariq Ali Khan.	2013	Singapore	Cross-sectional survey	210 existing chronic pain patients at the Pain Management Centre in	Tan, M. G., Win, M. T., Khan, S. A. (2013). The use of complementary and

				Singapore	alternative medicine in chronic pain patients in Singapore: A single-centre study. <i>Annals of the Academy of Medicine, Singapore</i> , 42(3), 133-7.
Maihebuteti Abuduli, Zaleha Md Isa, Hasan HusayinEker and Syed Mohamed Aljunid ⁵	2016	Malaysia	Interviews	10 health professionals	Abuduli M., Isa Z.M., Eker H.H. & Aljunid S.M. (2016). A Qualitative Study about View of Traditional and Complementary Medicine among Health Professionals in Malaysia. <i>SM J Community Med</i> , 2(2), 1020.
Angela SH Yeo, Jonathan CH Yeo, Colin Yeo, Chau Hung Lee, Lan Fern Lim, Tat Leang Lee	2005	Singapore	Questionnaire	555 medical students	Yeo, A. S., Yeo, J. C., Yeo, C., Lee, C. H., Lim, L. F., & Lee, T. L. (2005). Perceptions of complementary and alternative medicine amongst medical students in Singapore--a survey. <i>Acupuncture in medicine : journal of the British Medical Acupuncture Society</i> , 23(1), 19–26. https://doi.org/10.1136/aim.23.1.19
Yu Heng Kwan, Warren	2021	Singapore	Interviews	12 participants	Kwan, Y. H., Fong, W., Ang, X. L., Chew,

<p>Fong, Xiang Ling Ang, Xiu Yan Chew, Sungwon Yoon, Chuen Seng Tan, Bee Choo Tai, Youyi Huang, Marcel Bilger, Jie Kie Phang, Hui Chin Tan, Su-An Quek, Sing Yee Clara Eng, Choy Tip Tan, Bao Qiang Dong, Hwee Ling Koh, Ying Ying Leung, Swee Cheng Ng, Kok Yong Fong, Julian Thumboo, Truls Østbye</p>					<p>X. Y., Yoon, S., Tan, C. S., Tai, B. C., Huang, Y., Bilger, M., Phang, J. K., Tan, H. C., Quek, S. A., Eng, S., Tan, C. T., Dong, B. Q., Koh, H. L., Leung, Y. Y., Ng, S. C., Fong, K. Y., Thumboo, J., ... Østbye, T. (2021). Facilitators of and barriers to implementing a traditional Chinese medicine collaborative model of care for axial spondyloarthritis: a qualitative study. <i>Acupuncture in medicine : journal of the British Medical Acupuncture Society</i>, 39(6), 629–636. https://doi.org/10.1177/09645284211009543</p>
<p>Syed S Hasa,, Chew S Yong, Muneer G Babar, Cho M Naing, Abdul Hameed, Mirza R Baig, Shahid M Iqbal, Therese Kairuz</p>	<p>2011</p>	<p>Malaysia</p>	<p>Questionnaire</p>	<p>500 pharmacy students</p>	<p>Hasan, S. S., Yong, C. S., Babar, M. G., Naing, C. M., Hameed, A., Baig, M. R., Iqbal, S. M., & Kairuz, T. (2011). Understanding, perceptions and self-use of complementary and alternative medicine (CAM) among Malaysian pharmacy students. <i>BMC complementary</i></p>

					<i>and alternative medicine</i> , 11, 95. https://doi.org/10.1186/1472-6882-11-95
Shazia Qasim Jamshed, Muhammad Umair Khan, Akram Ahmad, and Ramadan M. Elkalmi	2016	Malaysia	Cross-sectional questionnaire	440 students of B.Pharm in MPU	Jamshed, S. Q., Khan, M. U., Ahmad, A., & Elkalmi, R. M. (2016). Knowledge, perceptions, and attitudes toward complementary and alternative medicines among pharmacy students of a Malaysian Public University. <i>Journal of pharmacy & bioallied sciences</i> , 8(1), 34–38. https://doi.org/10.4103/0975-7406.171686

Appendix D
AUTHORSHIP STATEMENT

Research Process	Contributors	
	Ang Jing Xian	Nur Samira Aziz Maisha
Drafting the introduction	★	★
Editing and finalising the introduction	★	★
Drafting research aim and research question	★	★
Reviewing and editing research aim and research question	★	★
Drafting methods section	★	★
Reviewing and editing methods section	★	★
Drafting preliminary results section	★	★
Reviewing and editing preliminary results section	★	★
Drafting of appendixes	★	★
Final editorial check	★	★
Format references	★	★
Final formatting	★	★