CHAPTER 1 : INTRODUCTION

1.1 Background of the Study

Cupping therapy (or *bekam*) is described as a therapeutic treatment using evacuated cups being placed to intact or scarified skin in order to withdraw blood and interstitial fluid filled with causative pathological substances (Tradisional, 2013). Causative pathological substances contain disease-causing and disease-related substances that happened during pathogenesis. Literature suggested that cupping therapy was able to restore physiological homeostasis by eliminating them (Sayed et al., 2014).

The cups are made of glass, plastic or bamboo, suctioned on skin to remove toxin and stagnation (Jadhav, 2018). The advantages of cupping therapy are undeniable bounty and exuberance. According to Mahmoud et al. (2013), wet cupping is an artificial surgical excretory procedure that clears the blood and interstitial fluid from causative pathological substances. When puncturing in wet cupping, it opens skin barrier, increase natural excretory functions of the skin, enhances immunity, and increase filtration at both capillary ends to clear blood from causative pathological substances to restore physiology and homeostasis. Due to this benefits, cupping therapy was known to have potential to treat or lessen the symptoms of lower back pain (Hanan & Eman, 2013), cellulitis (Mehta & Dhapte, 2015), bronchial asthma (Al-Jawad & Saeed, 2011), quality of life (Bilal et al., 2015), hypertension (Refaat, El-Shemi, & Ebid, 2014), thalassemia (Sayed et al., 2014) and many more.

Cupping therapy has been widely utilized by the world population for decades. The Chinese traditional medicine practitioners had practiced cupping therapy from 1000 BC and among the Muslims; it has been regarded as one of the healing method and preservation of health practiced by the prophet (Peace be Upon Him) and his companions (El-shanshory et al., 2018). Prophetic medicine is defined as medical practice acquired from teachings, advices and deeds of prophet Muhammad, usually narrated in hadeeth (Sayed et al., 2014).

Influential historical persons advocating cupping as one of the treatment modalities includes Avicenna (or also known as Ibn Sinna, preferred wet cupping), Matre de Monderville (surgeon to King Philippe of France who wrote a textbook on surgery, including a long section on cupping, detailing the points in cupping), and Prophet Muhammad (Peace be Upon Him), who said, "Healing is in three things: A gulp of honey, cupping, and branding with fire (cauterizing). But I forbid my followers to use branding with fire." (Shibab Al-Badry Yasin, 2005). Imam Ahmad recorded in his Musnad that Prophet Muhammad (Peace be Upon Him) said, "Verily, cupping is among your best remedies". (Shibab Al-Badry Yasin, 2005). During Prophet Muhammad's (Peace be Upon Him) time, cupping is a common practice.

Cupping has made a significant contribution to the health care of the Malaysian public. It continues to be patronized by Malaysian population in their bid to seek treatment for disease and in maintaining health (Institute for Public Health, 2015). Enhancing the professionalism of practitioners is a major objective of most health care professions today. Educating cupping practitioners about professionalism can be done through expanding practitioners' knowledge, appreciation of diverse health care benefits and medical practices and increasing sense of competence and job satisfaction.

Realizing this, the Ministry of Health took a positive and proactive approach in nurturing the practitioners by developing a cupping practice guideline to ensure the quality and safety of cupping practices. To measure the adherence of cupping practitioners to practice guideline, first they need to register themselves with the ministry and obtain a practice certificate. However, a concern was arisen when only 13000 of T&CM practitioners including cupping having registered so far, with the official figures on the exact number of T&CM practitioners in Malaysia was not available ("Registration of TCM practitioners mandatory by year-end," 2016). It is believed that non-registered practitioners could be substantial with many of them not having proper qualifications. Hence, it is imperative to determine level of adherence to cupping practice guideline among Malay cupping practitioners, identify level of knowledge on cupping, determine their attitude towards practice guideline, establish factors associated with adherence and to explore barriers to guideline use. The overall findings derived from this study suggests a new dimension in understanding the depth of cupping practice in accordance with the guideline and provide recommendations relevance to it.

1.2 Problem Statement

1.2.1 General Problem Statement

Cupping therapy has been widely practiced especially in Middle Eastern countries, China, Europe, and Malaysia. This shows that cupping could be a global burden if the practice is not properly conducted according to scientific practice guideline. As cupping practitioners have flourished over the years, their government

have started to regulate this treatment modalities to control for the safety and sustain its efficacy.

In Saudi Arabia, the term ‘Islamic’ or ‘Prophetic Medicine’ are commonly used to refer to the healing practices that were included in the traditions and sayings of the Prophet Muhammad with regards to treatment, sickness, nutrition, and hygiene. At present, the term ‘Traditional Arabic and Islamic Medicine’ is used to all practices in Arab region indicating medicinal herbs, dietary practices, mind body therapy, spiritual healing and applied therapy which include cupping therapy (Abdelmoneim Hussein et al., 2019). In order to regulate cupping practice, the National Center for Complementary and Alternative Medicine (NCCAM) under Ministry of Health (MOH) has been established which cater for the regulations including guidelines and licensing of T&CM practices (Khalil et al., 2018). Cupping therapy has been first licensed in 2015, where supervision on the guideline use has been enforced along the way. All practitioners need to attend cupping official course by MOH and pass an examination approved by NCCAM before being registered and licensed. There are 68 licensed cupping clinics amid Saudi Arabia and the number is expanding, with 160 licensed healthcare professionals who practice cupping, with the T&CM usage among Saudi population at 75% (Aboushanab et al., 2019).

In China on the other hand, cupping therapy has been practiced since the ancient time before centuries, the heritage from several thousand years. Huangfu Mi during Western Jin time (265-316) has started the concepts of internal organs and meridians allowing the theory of acupuncture, moxibustion and cupping (China, 2016). China has taken the initiatives to develop, support and formalize the Traditional Chinese Medicine (TCM), started in 1978; followed by implementing TCM and cultivating TCM

practitioners in 1986; set up independent administration of TCM under central government in 2003 and 2009; issued regulations on TCM to complete the policy system related to TCM and is still developing their TCM system and policy till today (China, 2016). There number of TCM hospitals expanded from 294 in 2004 to 1560 in 2016, showing increasing demand from the population in China (Shi et al., 2020). In the same study also showed TCM physicians accounted for 45.1% of all physicians and the proportion was increased by 0.28% from the same years. In another report, recently there were 7582 registered traditional Chinese medicine practitioners who are still active in Hong Kong (Thomala, 2020).

Moving on to European countries, such as in United Kingdom, the revival of cupping therapy has been observed in 19th centuries based on the development of certified cupping training programme, the establishment of cupping therapy clinical waste disposable services, inclusion of insurance coverage and the involvement of medical professionals in General Regulatory Council for Complimentary Therapies (Sajid, 2016). However, there is no cupping guideline or regulation available from the government, Royal College of Surgeons of England (RCS), Health and Care Professions Council (HPC), General Medical Council (GMC) or the National Institute for Health and Care Excellence (NICE) (Sajid, 2016).

As in Malaysia, the utilization of traditional and complementary medicine especially cupping therapy has increased in popularity for the past decades. National Health & Morbidity Survey 2015 estimated 29% of Malaysian's adults had ever used T&CM modalities meanwhile 21% used TCM within the last 12 months with consultation (Institute for Public Health, 2015). From the same survey, cupping therapy has been included as the top five preferred practices, reported at 6.5%. The usage of

cupping therapy and other T&CM modalities in Malaysia is expected to rise as the global shift occurs in the focus of preventive medicine and individual control over healthcare choices. The increasing number of populations wanting and visiting T&CM driven the government to establish a Traditional and Complementary Medicine Division within Ministry of Health to supervise the safety and health of users. In 2016, the MOH enacted the Traditional and Complementary Medicine Act to regulate all TCM practices. Additionally, a 10-year blueprint (2018-2027) has been drawn to aid the development of all TCM in Malaysia (Division, 2017). As in 2015, there were 13,846 of local T&CM practitioners voluntarily registered under ePengamal system by MOH, with 2,401 (17%) of them were from Traditional Malay Medicine which incorporate cupping practice ((T&CMD), 2015). The number of cupping practitioners who did not register with MOH is believed to be high, nevertheless, practitioners registering to ePengamal system are projected to rise in the following years, as mentioned by T&CMD ((T&CMD), 2015). A total of eight practitioner bodies are responsible to facilitate self-regulation of practitioners based on each practice area.

By looking at those countries, the resemblance is the number of cupping practitioners is escalating, and the government has consistently worked on regulating cupping practice through the development of policies, acts, and practice guidelines to safeguard its safety and efficiency. Nevertheless, less data has been published to support the adherence to practice guideline. This is in coherent with previous study conducted to measure clinical practice guideline in China stated no systematic data have been published on adherence (Chen, 2018). In another study conducted in China exposed adherence of practitioners to traditional Chinese medicine was 50% (Liu et al., 2017). Additionally, in previous study conducted among general practitioners in Netherlands

also mentioned that adherence to practice guidelines among general practitioners was not optimal even though promotion has been established (Lugtenberg et al., 2011). At this point, limited systematic data have been published on the implementation of and adherence to cupping practice guidelines in Malaysia, leading to the execution of this study.

1.2.2 Specific Problem Statement

The presence of clinical practice guidelines for the management of medical-related conditions such as in T&CM and cupping are important as we are moving forward towards evidence-based medicine. The guideline is prepared based on the evidence gained from literature which then be translated into care to reduce practice variation and improve health outcomes. The reasons why adherence to practice guideline has been brought into light is because literatures have shown that the uptake of practice guideline is inconsistent and there is concern that guidelines have not delivered the predicted improvements in clinical care (Jin et al., 2019). A prior systematic review of studies determining overall guideline use was evaluated revealed that adoption and adherence were low even when awareness and agreement with guidelines among practitioners were high (Mickan, Burls, & Glasziou, 2011). Currently, there are abundance of institutions, non-governmental organizations (NGOs) and individuals who conduct trainings and offer cupping therapy in Malaysia (Rashid, 2017). However, the methods of practice are differed and not standardized. The sterility techniques used for cupping equipment are questionable and there is a risk of blood borne diseases transmission. Mechanism of diseases manifestation and various cupping

benefits claims are not well understood by the practitioners in general (El-Olemy et al., 2017).

When talking about knowledge related cupping, some cupping practitioners have different levels of understanding, including to have controversial belief and conception. As supported by previous study conducted among cupping professional in Kingdom of Saudi Arabia, among the commonest controversial concepts was cupping is effective in the treatment of all diseases at 31.5% (El-Olemy et al., 2017). Also, from the same study, 27% of respondents mentioned it is unnecessary to disinfect the cups before cupping and 16% stated that handwashing is not the crucial concept of infection control. Nevertheless, there is insufficient available literatures on cupping knowledge among cupping practitioners in Malaysia. Hence, this study is the key solution.

Adherence to practice guideline is challenged by many issues. A diversity of contextual factors at the individual, institutional and system level often coexist and pose additional challenges and barriers to guideline use (Jin et al., 2019). Among the most cited barriers among Chinese medical practitioners were lack of access to practice guideline, less convenient and lack of applicability. Researcher from Iran identified barriers to full adherence to practice guidelines were work pressure, lack of facilities, lack of motivational environment, and no applicability of guidelines (Valiee & Salehnejad, 2020). Even among general practitioners, a previous systematic review conducted revealed that the most perceived barriers were related to external factors, followed by lack of applicability of the guideline in every practice. However, no scientific literatures were available related to cupping practitioners in Malaysia to support the evidence.

1.2.3 Gap of Knowledge

A knowledge gap refers to the missing pieces in literature search, where the area is not yet being explored. As in this research, there is identified gap in relation to cupping practice, where there is inadequate available literature on adherence to cupping practice guideline among cupping practitioners in Malaysia. With the booming number of T&CM treatments as a complement of the mainstream medicine practiced in Malaysia, T&CM Division, Ministry of Health has created and published practice guideline and Good Practice Guidelines in each T&CM modalities, specifically in cupping to promote a proper and safety use of T&CM. Malaysian government also has move forward to put Traditional and Complimentary Medicine Act 2016 (Act 775) on gazette in 2016 (Kim, 2017a) (Division, 2017). Nevertheless, there is no evaluation done on the adherence to practice guideline in Malaysia. This is imperative to have a baseline data on how far cupping practitioners are aware on the guideline existence and the practice of it. This is because, through the application of knowledge-to-action framework, it is essential to bridge the care gap among cupping practitioners in Malaysia with the aim to standardize care treatment without prejudicing the patient's life. The separation between recommended and given care by practitioners is called as care gap. Once practice guideline has been delivered, the adherence or use of guideline should be monitored to understand how the guideline has impacted the outcomes (Field et al., 2014). This can be achieved by observation or active measurement such as suing questionnaire, which will be focused on this study. Once the baseline on adherence has been achieved, identifying problems that needs attention can easily be carried out for future improvement. Also, adherence to recommended care in practice guidelines is

crucial in a way to put this prophetic medicine as one of the most recommended therapy in traditional and complimentary medicine, incorporating modern medicines.

1.3 Research Questions

1.3.1 Research Question 1

What is the level of adherence to cupping practice guideline among cupping practitioners in Malaysia?

1.3.2 Research Question 2

What is the level of knowledge on cupping among cupping practitioners in Malaysia?

1.3.3 Research Question 3

What is the attitude towards cupping practice guideline among cupping practitioners in Malaysia?

1.3.4 Research Question 4

What are the factors associated with adherence to cupping practice guideline?

1.3.5 Research Question 5

How do barriers to guideline use help to explain level of adherence to practice guideline

1.4 Objectives of the Study

1.4.1 General objective

To determine the level of adherence, level of knowledge and attitude towards cupping practice guideline, associated factors, and to understand the barriers of guideline use among Malay cupping practitioners.

1.4.2 Specific objective

1. To determine the level of knowledge, attitude, and level of adherence to cupping practice guidelines among cupping practitioners in Malaysia.
2. To determine the factors associated with adherence to cupping practice guideline.
3. To explore the barriers that hinder cupping practitioners from adhering to practice guideline.

1.5 Hypothesis

1.5.1 Hypothesis 1

There is an association between sociodemographic and working characteristics with level of adherence to cupping practice guideline.

1.5.2 Hypothesis 2

There is an association between knowledge and adherence to cupping practice guideline.

1.5.3 Hypothesis 3

There is an association between attitude and adherence to cupping practice guideline.

1.6 The Significance of the Study

Clinical practice guideline is crucial in medical and health sciences to assist in decision making process during patient care. It can influence the care given by the practitioners and the outcome of patients, thus making adherence to guideline practice is important variable to study. When compared to modern medicine, T&CM practices including cupping therapy tend to have inconsistent treatments and managements, as well as in poorer standards (Lu et al., 2012). There is a wide variation and differentiation on the practice and components related to cupping such as indications, contraindications, and side effects. Poor adherence to practice guideline may lead to patient harm and increase morbidity through unstandardized practice as cupping therapy involves invasive technique and standard precautions (Barth et al., 2016). In general, standardized care through guideline implementation helps to increase quality, decrease variation, improve appropriateness of practice, establish cost effectiveness and eventually better patient outcome. Healthcare providers in China who practiced Chinese medicine regarded adherence to guideline to be safe (92%), economic (84%), and effective (76%) (Liu et al., 2017).

Even though guideline is crucial to be adhered, the practice of good adherence is still not fully covered. According to prior national study conducted among traditional Chinese medicine practitioners in China, 85.56% of them were familiar with practice

guideline, however only 50.39% claimed to be following some components of the practice guideline (Liu et al., 2017). The overall adherence rate was lower than the familiarity of the guideline. In another study conducted to evaluate the implementation of TCM clinical practice guidelines in tertiary hospitals which practiced TCM in China showed that 65% of practitioners did not comply with acupuncture treatment protocol guideline and 40% failed to adhere to the massage guideline recommended points and manipulation (Zhou et al., 2014). Some practitioners preferred their own practice based on their experience. Nevertheless, no literatures were found to explain adherence to cupping practice guideline in Malaysia, triggering this study to be conducted.

In general, to improve the implementation of the guidelines, practitioners need to understand and acknowledge the guidelines before using it in clinical practice. Each step in this process may affect the implementation of the results. Thus, apart from identifying adherence towards cupping practice guideline, the researcher would also determine knowledge level related to cupping, attitude towards practice guideline, and barriers that hinder guideline use. Likewise, adherence to practice guideline is crucial to prevent the occurrence of any blood-borne infections such as HIV, hepatitis B and hepatitis C, or any other adverse events, which eventually may increase morbidity and mortality.

1.7 Scope of the Study

The scope of this mixed method study comprised of two phases namely 1) quantitative study and 2) qualitative study. In the quantitative study, it started with questionnaire development and validation of measurement tools, followed by the

determination of adherence to practice guideline, knowledge on cupping, attitude towards cupping practice guideline and identifying factors associated with adherence to practice guideline. Meanwhile in qualitative study, in depth interview method is applied to explore barriers impeding practitioners from adhering to the guideline.

1.8 Theoretical Framework

Human behavior is one of the components that constitute the adherence to practice guideline. Appropriately, this study adopted Social Cognitive Theory model mooted by Albert Bandura, also known as the father of cognitive theory in 1989 (Bandura, 1998). This theory highlights that individual behavior is determined by the interaction of personal and environmental factors. Personal experiences of each individual incorporate cognitive expectations that constitute values and beliefs that, based on the reality and experiences lived by an individual, will become meaningful and able to predict future outcomes. Therefore, behavior is reliant on individual choices and environment in which individual live.

This theory delivers a framework for understanding and changing human behavior. Regarding to behavior, Bandura has provided assumptions of social cognitive learning theory, where he pointed that (1) behavior is focused on particular goals, (2) behavior ultimately becomes self-regulated, and (3) cognition and understanding play roles in learning (Bandura, 1998).

As the theoretical basis of cognitive theory is learning, hence it posits that human behavior is learned. Behavior is the outcome of cognitive processes which

developed through the acquisition of knowledge. Before an individual performs any task, the person needs to know what to do and how to do it.

People are only partial products of their environments. By selecting good environment, able to influence what people become. Behavior is portrayed as being shaped and regulated by environmental influences or internal temperaments. In this theory, behavior, personal factors, and environmental factors operate as interacting determinants that influence each other (Bandura, 1989).

People's interaction with the environment and personal factors including own cognition play a role as principal factors in influencing the development of personality of an individual. People are more likely to follow the behaviors modeled by someone who they familiar with. The more perceived commonalities between the observer and the model, the more likely the observer will learn from the model. That is why TCMD Ministry of Health Malaysia needs to always provide role model from cupping practitioners themselves so that the behavior of adhering to practice guideline is easily embedded and practiced.

Self-efficacy is introduced in social cognitive learning theory because it became the explanatory model of human behavior, where self-efficacy influences the expected outcomes of behavior. It explains about the belief on the capacity to execute behavior effectively. If a person believes that he or she can learn new behaviors, that will make the person much more successful in doing so. Also, people tend to engage in behavior based on their competence or previous success. Consequently, people with high efficacy tend to view difficult tasks as challenges to master instead of avoiding it. Social cognitive theory is rooted in an agentic perspective. To be an agent is to influence one's own events that affect one's life. In this view people are contributors to their life

circumstances, and it has become the mechanism of self-development, adaptation, and change. The use of Bandura theory provided insight into the research conceptual framework.

1.8.1 Behavior

Behavioral factors are facilitated through self-efficacy and self-regulation. (Oussedik et al., 2017). Self-regulation alongside self-observation are core values in the Social Cognitive Theory. The first step of self-observation is when people observe the behavior and use self-regulation to control the response to the behavior. Meanwhile in self-efficacy, it is where people believe about their personal ability to execute a desired behavior in a specific circumstance to produce an outcome. Self-efficacy can be enhanced by direct experience or mastery experiences, vicarious experience, verbal or social persuasion, and interpretation of physiological states. Furthermore, the other factors such as social norms, social interactions, and social support are all critical in helping the individual to engage in a behavior. What people think, believe, and feel affects their behavior.

1.8.2 Environment

In Bandura's Social Cognitive Theory, environmental factors incorporate (1) social such as family and friends, and (2) physical factors such as room, temperature, and so forth. Others included are social norms, social interactions, and social support (Oussedik et al., 2017)

These factors constantly influence each other and hence provide models for behavior (Nabavi, 2012). It represents the two-way influence between behavior and the environment. In everyday life, behavior modifies environmental conditions and in turn, altered by the condition it creates. Because of the bidirectionality of influence between behavior and environmental situations, people are the products and producers of their environment. They affect the nature of their experienced environment through selection and creation of situations.

1.8.3 Cognitive/ Personal

In personal factors including cognitive, refers to the interaction between thought and action. Personal factors account for cognitive abilities such as knowledge, expertise, cupping training, work experience, others included are beliefs, and attitudes (Oussedik et al., 2017). Expectations, beliefs, self-perceptions, goals, and intentions give shape and direction to behavior. What people think, believe, and feel, affects how they behave. The personal factor featuring the biological characteristics such as age, gender, physical structure, sensory and neural systems also affect behavior and impose constraints on capabilities. Sensory systems and brain structures are adaptable to behavioral experiences. The diagram of Albert's Bandura Theory is shown in Figure 1.1.

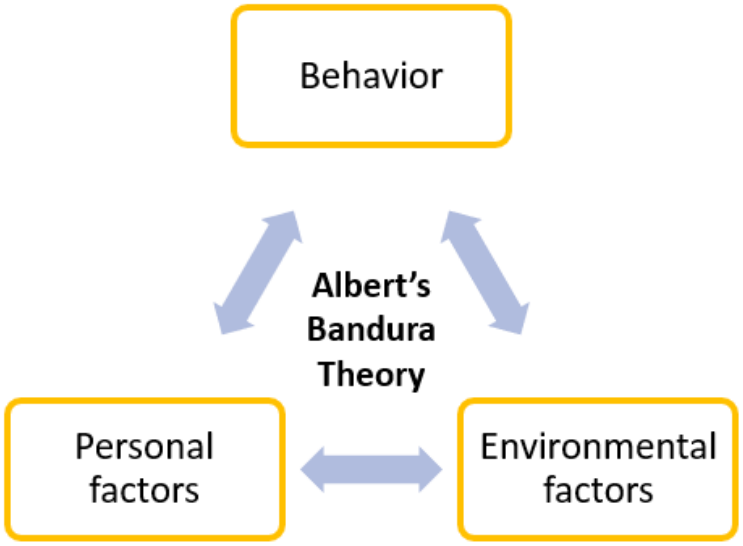

Figure 1.1 Social Cognitive Theory (Bandura, 1989)

1.9 Application of Theoretical Framework in Current Study

Though clinical practice guidelines provide reliable and efficient application of evidence in treating patients, a knowledge translation gap still exists (Gaddis et al., 2007). Knowledge translation is defined as putting the knowledge to action. This is also called as bridging the gap between what people know and the action they did, which is referring to guideline adherence. Once, it has been mentioned that 20-30% of patients received care that is not medically required, which bring the gap issues of patient safety to be highlighted (Schuster et al., 1998). To have an efficient knowledge translation, the social, cognitive, and motivational factors need to be determined (Gaddis et al., 2007). Individual professional decisions are crucial to the execution of clinical practice guidelines. It is important to observe responses or adherence to practice guidelines in real practice to understanding the human mechanisms necessary to improve behavior change strategies (Godin et al., 2008).

According to social cognitive theory, people regulate their own motivation through an interacting influence of personal, environmental, and human behavior factors. This theory emphasizes on the interaction between three factors, which are the person (cognition, emotion, biology), behavior, and the environment in determining causation. The reciprocality characteristic of this interaction shows that each factor in the interaction might influence the others and all factors are important to understand behavior. By knowing the influence of these factors is critical for the planning of behavior change interventions as intervention-based problems is the most effective ones.

Personal beliefs and attitudes can regulate whether an individual portrays a potential social interaction such as being pleasant and the agreement to practice guideline, or vice versa. According to Bandura, the theory suggests that while knowledge of health risks and benefits from proper practice of cupping therapy following to practice guideline is a prerequisite to change, additional self-influences are necessary for change to occur. Beliefs regarding to personal efficacy, in addition to sufficient and satisfactory environment play a central role in change. The details are shown in Figure 1.2.

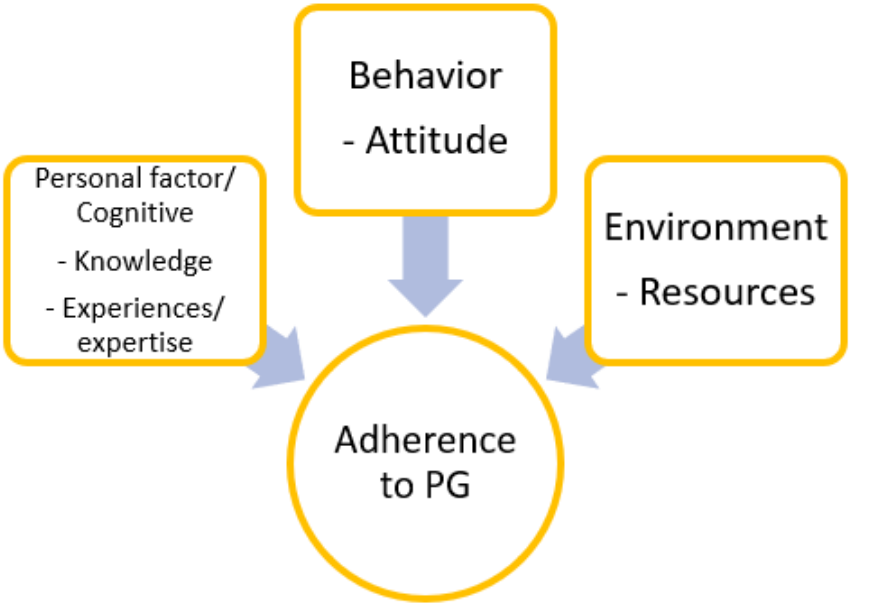

Figure 1.2 Social Cognitive Theory explains the interaction between cognitive factors, environmental factors and behaviors in relation to adherence to practice guideline (Bandura, 1989)

1.10 Conceptual Framework

As shown in Figure 1.3, adherence to cupping practice guideline is influenced by several factors such as practitioner's related factors, organizational and resources related factors, and guideline related factors (Mazrou, 2013). Under practitioners' related factors, knowledge and attitude were found to be associated with practitioner's adherence to practice guideline (Aarons, 2004; Mazrou, 2013). Furthermore, sociodemographic factors such as age, gender, race, and education level, proved to show the association towards adherence to practice guideline (Fantini et al., 2012; Saillour-Glenisson & Michel, 2003). There are another two factors that were related to adherence to practice guideline, namely organizational related factors and guideline related factors (Gurses et al., 2010; Mazrou, 2013), however these were not being studied in this

research. With regards to the barriers of guideline use explored, factors are divided into three main areas namely knowledge-related, attitude-related and external barriers (Cabana et al., 1999). The researcher is able to identify environmental factors as suggested in Social Cognitive Theory through this external barrier.

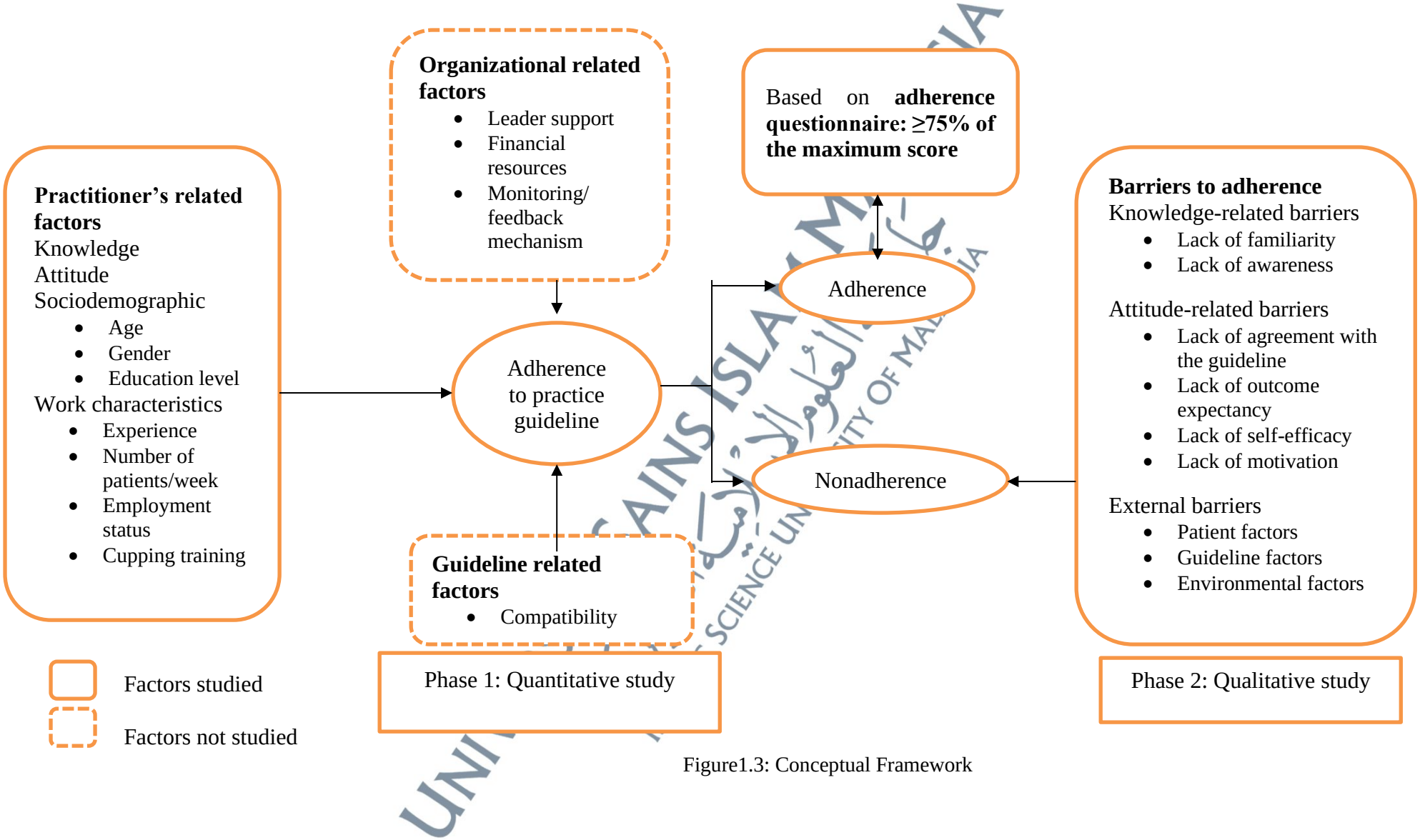

Figure1.3: Conceptual Framework

1.11 Operational Definitions

Dependent variable:

i. Adherence to cupping guideline - Adherence to cupping practice guideline is defined as cupping practitioner who scores ≥75% of the maximum score for adherence questions (Amanya & Nyeko, 2020; Haridi et al., 2016). Adherence questionnaire comprised of 18 items to measure cupping procedure, hand hygiene, standard precaution, documentation, and sterilization measures and scored as follows: "never=1", "rarely=2", "sometimes=3", "frequent=4" and "very often=5", giving a total score of 90 points. Adherence is defined as practitioners with ≥75% of the maximum score. Nonadherence is defined as practitioners with <75% of the maximum score.

Independent variables:

i. Knowledge on cupping - Adequate knowledge on cupping is defined as cupping practitioner who scores ≥75% of the maximum score for knowledge questions (Amanya & Nyeko, 2020; Haridi et al., 2016). The questions measuring understanding of cupping practitioners regarding to precautionary measures, side effects, and contraindications. The maximum knowledge score is 65 and the minimum is 13. Adequate knowledge - ≥75% of the maximum score. Inadequate knowledge - <75% of the maximum score.

ii. Attitude towards practice guideline - Good attitude towards cupping practice guideline is defined as cupping practitioner who scores ≥20 for attitude questions (answer agree or strongly disagree for all questions). The questions measuring agreement on the importance of cupping practice guideline among

cupping practitioners. The maximum score is 25 and the minimum is 5 (Lugtenberg et al., 2011).

iii. Age - A birth date of a person as stated on the Malaysian Identification Card. The year identified is subtracted from the present year.

iv. Gender – Male or female as stated in the Malaysian Identification Card.

v. Race - The ethnicity of a person either Malay, Chinese, Indian, others

vi. Education level - The highest grade completed within the most advanced level attended in the educational system of Malaysia. It consists of PhD, Master, Degree, Diploma, Certificate (eg:vocational), secondary, and primary level of education.

vii. Marital status - A person's situation either single, married, widowed, or divorcee.

viii. Cupping training - Basic cupping training course covering theory and hands on practical cupping training (Kim, 2017).

ix. Employment status - Cupping practitioner working as full time or part time. A full-time employee works eight hours in one day or 40 hours in one week. Part-time employee works in between 30% to 70% of that a fulltime employee with that same employer (*Employment (Part-Time Employees) Regulations 2010*, 2010).

x. Cupping services - Provide cupping services at practitioner's premise or user's house (Institute for Public Health, 2015).

xi. Working experience as cupping practitioners - Total years of working as cupping practitioners.

xii. Number of patients treated in a week - Total number of patients coming for treatment in one week

1.12 Outline of the Thesis

In conclusion, this explanatory sequential mixed method research consists of two phases of quantitative and qualitative study. It is aimed to determine level of adherence, level of knowledge, and attitude towards cupping practice guideline, to identify factors associated with adherence, and to explore barriers of guideline use. The following chapters outlined in this thesis are literature review, methodology, research findings, and ultimately the discussion, recommendation, and conclusion.