THE HONG KONG
POLYTECHNIC UNIVERSITY
香港理工大學
SCHOOL OF NURSING
護理學院

# SELF-ACUPRESSURE FOR CANCER-RELATED SYMPTOM CLUSTER OF INSOMNIA, DEPRESSION, AND ANXIETY IN CANCER PATIENTS: A FEASIBILITY RANDOMIZED CONTROLLED TRIAL

**PhD Student: HOANG Thi Xuan Huong (16901761r)**

**Chef supervisor: Prof. MOLASSIOTIS Alex**

**Co-Supervisor: Dr. CHAN Choi Wan**

The Hong Kong Polytechnic University

November 2018

**Contents**

**List of tables**



**List of figures**

## 1. Background

Cancer is the term of more than 200 different diseases caused by an uncontrolled division of abnormal cells in a part of the body and spread to other organs and it is a leading cause of death worldwide, with approximately nearly one in six deaths being due to cancer globally (World Health Organization, 2017). Cancer is rapidly becoming a global pandemic and it is estimated that by 2030 there will be 21.7 million cases and 13 million deaths worldwide (American Cancer Society, 2017).

According to World Health Organization, the main purpose of cancer treatment is to cure or prolong the patient's life as well as ensure the best possible quality of life for cancer survivors. Major treatments for cancer include surgery, radiotherapy, and chemotherapy improve patient's survival but also can exert a significant psychosocial and physical impact on patients by producing a variety of unpleasant symptoms. Among different kind of cancer treatments, chemotherapy is considered partially to cause insomnia (Dahiya, Ahluwalia, & Walia, 2013). As a result, insomnia is a common symptom among patient undergoing chemotherapy treatment. However, insomnia often goes unrecognized and receives litter attention compared to other symptoms (e.g., pain, fatigue, depression) by clinicians and researchers (Dahiya et al., 2013; J Savard & Morin, 2001). Literature suggests that insomnia reduce patient's quality of life significantly (Clevenger et al., 2013; Davidson et al., 2002; Romito et al., 2014; Vargas et al., 2010). Nevertheless, recent studies also indicated insomnia co-occurs with others symptoms to form a sleep-related symptom cluster. A symptom cluster has been firstly defined as three or more symptoms occurring together, related to each other and may not have the same etiology (Dodd, Miaskowski, & Paul, 2001). Recently, other research has expanded the concept of symptom clusters and defined it as "two or more symptoms that are clinically meaningful together, related to each other at a given time and share a significant variance in their cluster" (Molassiotis, Wengström, & Kearney, 2010). Applying the concept of identification symptom cluster by the correlation between symptom, different sleep-related symptom clusters among cancer patient have been identified across studies such as: fatigue, depression and insomnia (Ho, Rohan, Parent,

Tager, & McKinley, 2015; Roscoe et al., 2007); pain, fatigue and insomnia (Chen & Tseng, 2006; Cleeland et al., 2000; Ivanova et al., 2005; Romito et al., 2014) or pain, depression, and insomnia (J. Savard et al., 2005). However, due to the limitation of previous studies, the correlation between insomnia and other symptoms was not fully explored. Therefore, to identify current evidence of sleep-related symptom cluster, we have conducted a cross-sectional survey among 213 cancer patients undergoing chemotherapy in Vietnam. The results indicated that among participants, a symptom cluster of insomnia, depression, and anxiety was evident.

The result of our survey indicates the needs to develop an intervention aimed at managing sleep-related symptom cluster. However, interventions to manage sleep-related symptom cluster are still infancy in the literature. To date, only eight studies have tested an intervention designed to manage a sleep-related symptom cluster. In those randomized control trials, non-pharmacological treatments (psycho-education, cognitive behavioral strategies, and acupressure) were used to managing the pain, fatigue and sleep disturbance symptom cluster with some initial evidence of success (Kwekkeboom, 2016). Therefore, further development of sleep-related symptom cluster intervention is needed. Nevertheless, while most current treatment not only required the physical presence of healthcare provider to deliver and manage but also consume more time, money and effort for patient to administer, there is sufficient evidence to support the development of a self-management intervention that can potentially improve insomnia.

Based on the literature review, acupressure can potentially reduce insomnia as well as other symptoms in cancer patients. This is a safe and non-invasive treatment with minimal unpleasant for patients. However, the use of acupressure in specific self-acupressure in managing symptom cluster of insomnia, depression, and anxiety is unknown but worthy for further research. Therefore, there is a need for conducting an intervention study to evaluate the effectiveness of using self-acupressure to manage this cluster in cancer patients.

## 2. Aim

To assess the acceptability and make estimations about the effectiveness of the intervention using self-acupressure to manage the symptom cluster of insomnia, depression, and anxiety in cancer patients undergoing chemotherapy.

## 3. Objective of the study

- To evaluate recruitment capability.
- To evaluate the acceptability of the intervention and study procedures.
- To identify potential adverse events associated with self-acupressure.
- To preliminary evaluate the effects of self-acupressure on the severity of insomnia, depression, anxiety, and severity of the symptom cluster of these symptoms.
- To preliminary evaluate the effects of self-acupressure on participants' sleep parameter (Total Sleep time (minute), total time in bed (minute), the number of night awaken after sleep onset and sleep efficiency)
- To preliminary evaluate the effects of self-acupressure on participants' quality of life.
- To determine the sample size for the future full-scaled randomized controlled trial.
- To refine the study protocol for a future full-scaled randomized controlled trial.

## 4. Methodologies of the study

### 4.1. The theoretical framework of the intervention

In this study, the Theory of Unpleasant Symptoms (TOUS) developed by Lenz et al. (1997) is used to explain how acupressure can help in reducing the severity of symptom cluster and model the outcome of the trial. There are three components in the TOUS which are: experienced symptoms, influencing factors, and performance. The model

proposed that symptoms can occur alone or in association with others. Every symptoms four dimensions: timing (frequency, duration, and pattern of symptom's occurrence) distress (degree the symptoms bother) intensity (severity of the symptoms) and quality (nature of the symptoms). Influencing factors are determinants of symptoms. They are classified as: Psychology, physiologic and situational variables and they relate to each other and influence symptoms. The third component of TOUS is Performance. Performance is the results of the symptoms experience which includes functional and cognitive activities. The model assumes that more numerous or more severe symptom, the worse the performances manifested. These components of the model interact with each other. Influencing factors determine symptoms, symptoms influence patient's performance and the performance can also conversely impact on symptoms and the influencing factors. The figure below depicts the TOUS

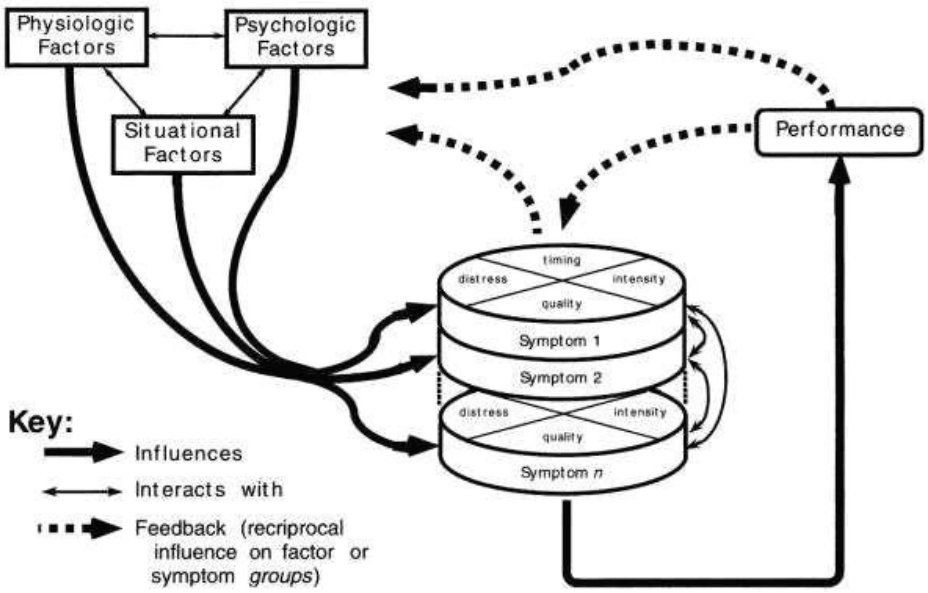



*Figure 1. The Theory of Unpleasant Symptoms (Lenz & Pugh, 2003, p. 170)*

According to the Traditional Chinese Medicine theory, the symptoms (insomnia, depression, and anxiety) are caused by pathogenic changes in *Qi*, the imbalance of *Yin* and *Yang* (Liu, 1998) and the insufficiency of blood circulation to the organs (Li, 2007, p. 1023). As such, in this study, the "pathogenic changes in *Qi,"* "the imbalance of *Yin* and *Yang*," and "the insufficient of blood circulation" are categorized as "influence factors" in the model. This trial tackles the "influence factors" by using acupressure.

Stimulating acupoints improves the symptom cluster by incresing the blood circulation resulting in enhancing Qi and balancing the *Yin* and *Yang* (Li, 2007, p. 1023). Improving this symptom cluster will cause the effect on patient's "performance". Therefore, the primary outcomes of the intervention are the "symptoms" the secondary outcome is "performance" According to the TOUS, symptoms are measured in four dimensions. However, founders of the model suggested measuring one, two, or three dimensions of symptoms is "valid and informative for assessing the effectiveness of an intervention" (Lenz & Pugh, 2003, p. 174). Therefore, in this study, we measure the intensity which refers to the severity of the symptoms. Several specific and standardized measurements will measure the severity of individual symptoms in the cluster. Since the symptoms in the cluster co-occurred together and correlated to each other, the symptoms severity at a cluster level will also be measured. The "performance" in the TOUS model is defined as patient's quality of life in this study. The theoretical framework of the trial is depicted in figure 3.

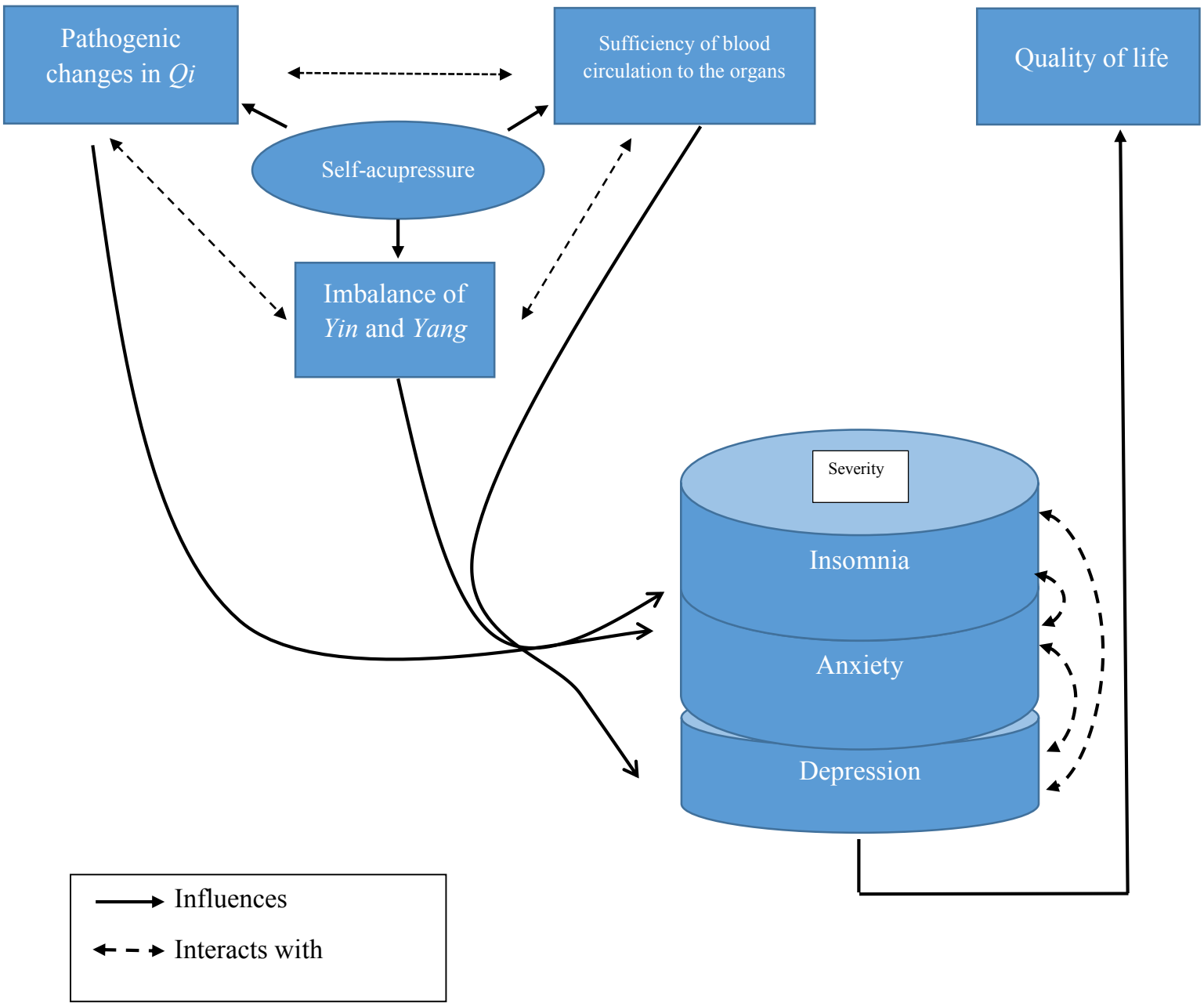



*Figure 2. Theoretical framework of the intervention (Adapted from TOUS)*

### 4.2. Aim and objectives of the study:

#### 4.2.1. Aim of the study

To assess the acceptability and make estimations about the effectiveness of the intervention using self-acupressure to manage the symptom cluster of insomnia, depression, and anxiety in cancer patients undergoing chemotherapy.

#### 4.2.2. Objectives of the study

- To evaluate recruitment capability.
- To evaluate the acceptability of the intervention and study procedures.
- To identify potential adverse events associated with self-acupressure.
- To preliminary evaluate the effects of self-acupressure on the severity of insomnia, depression, anxiety, and severity of the symptom cluster of these symptoms.
- To preliminary evaluate the effects of self-acupressure on participants' sleep parameter (Total Sleep time (minute), total time in bed (minute), the number of night awaken after sleep onset and sleep efficiency)
- To preliminary evaluate the effects of self-acupressure on participants' quality of life.
- To determine the sample size for the future full-scaled randomized controlled trial.
- To refine the study protocol for a future full-scaled randomized controlled trial.

### 4.3. The application of the MRC framework for the development of the intervention.

A complex intervention has been defined as an intervention which contains several interacting components, and this kind of intervention has been used widely in healthcare research (Craig et al., 2008). The framework provides researcher an appropriate framework for developing and evaluating an intervention. The key elements of the

development and evaluation process include development phase, feasibility, and piloting phase, evaluation phase, and implementation phase. Figure 3 depicts the components of MRC framework.

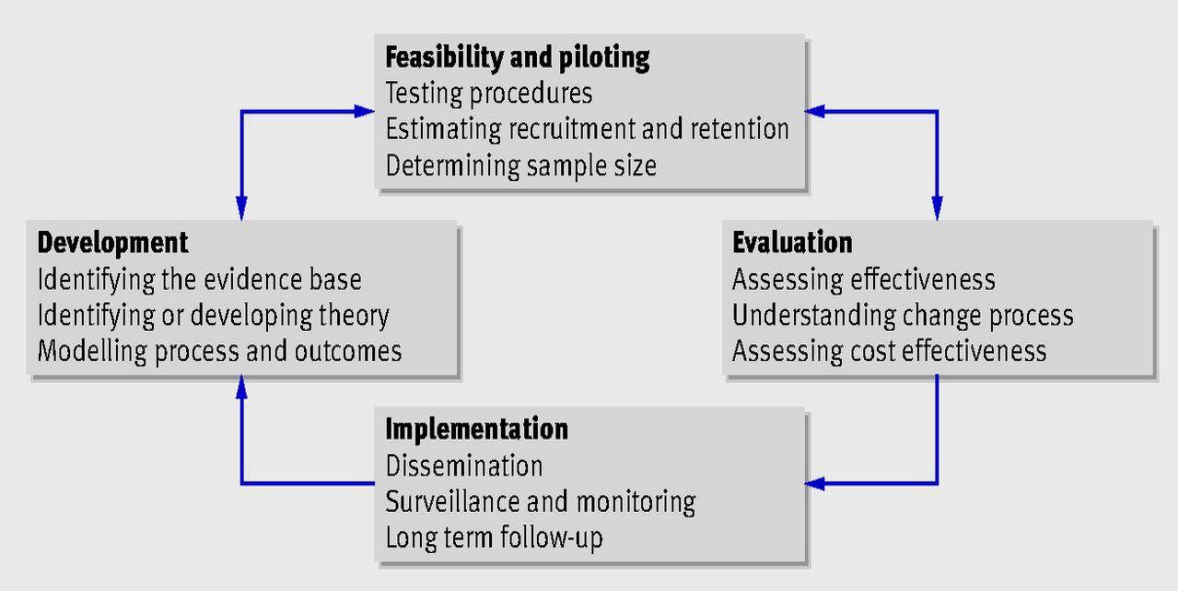



***Figure 3. The MRC's framework for Developing and Evaluating Complex Intervention***

In the first phase of the MRC framework is the development of the intervention. In this phase evident and the related theory of the intervention must be identified, and the process and outcomes should also be modeled. The second phase is the feasibility and piloting phase, the procedures of the intervention are tested to make an important estimation of the future full-scale randomized control trial (e.g., recruitment rate, sample size). In the third phase - evaluation phase, the effectiveness of the intervention is assessed by conducting a full-scale randomized control trial. In the implementation phase, the intervention is disseminated and also the long-term follow up, surveillance and monitoring of its effectiveness should be conducted. The four phases are in a cycle in which study can move backward and forward between the phases. If a problem is identified that make the study impossible to move to next stage, the study must be revised and can move back to the previous phase.

In this doctoral research study, three research works are conducted to study the effects of self-acupressure in managing the cluster of insomnia, depression, and anxiety among cancer patients undergoing chemotherapy. The three research works are the cross-

sectional survey, literatural reviews, and the feasibility study. This study will cover the first two phases in the MRC framework.

In the first phase of MRC framework, the cross-sectional survey was conducted to ascertain the magnitude of insomnia among Vietnamese cancer patients. Nevertheless, it also hepls to determine factors that influence the result of the intervention that need to be controlled (e.g. patient's characteristics, treatment-related factors), to determine the correlation between insomnia and other symptoms, and to make the decision on choosing the outcome measurement for the future intervention study.

In the second phase of the MRC framework, a feasibility study with three groups intervention will be implemented to assess the acceptability of the intervention and make estimations about the effectiveness of using self-administered acupressure for managing cancer-related symptom cluster of insomnia, depression, and anxiety. Before testing the intervention protocol, evidence-based acupressure treatment protocol and sham acupressure protocol were being developed based on available systematic reviews, TCM theories, and TCM textbook, and were evaluated by a group of TCM experts for the appropriateness of the protocol for use in cancer patients. Afterward, a feasibility study designed as a randomized placebo-control trial study was designed to evaluate the feasibility and acceptability of the intervention and study's procedures. The process of current study design following the *MRC framework for Developing and Evaluating Complex Interventions* is presented in Figure 4. The development of evidence-based acupressure treatment protocol and sham acupressure protocol is detailed in the next sections.

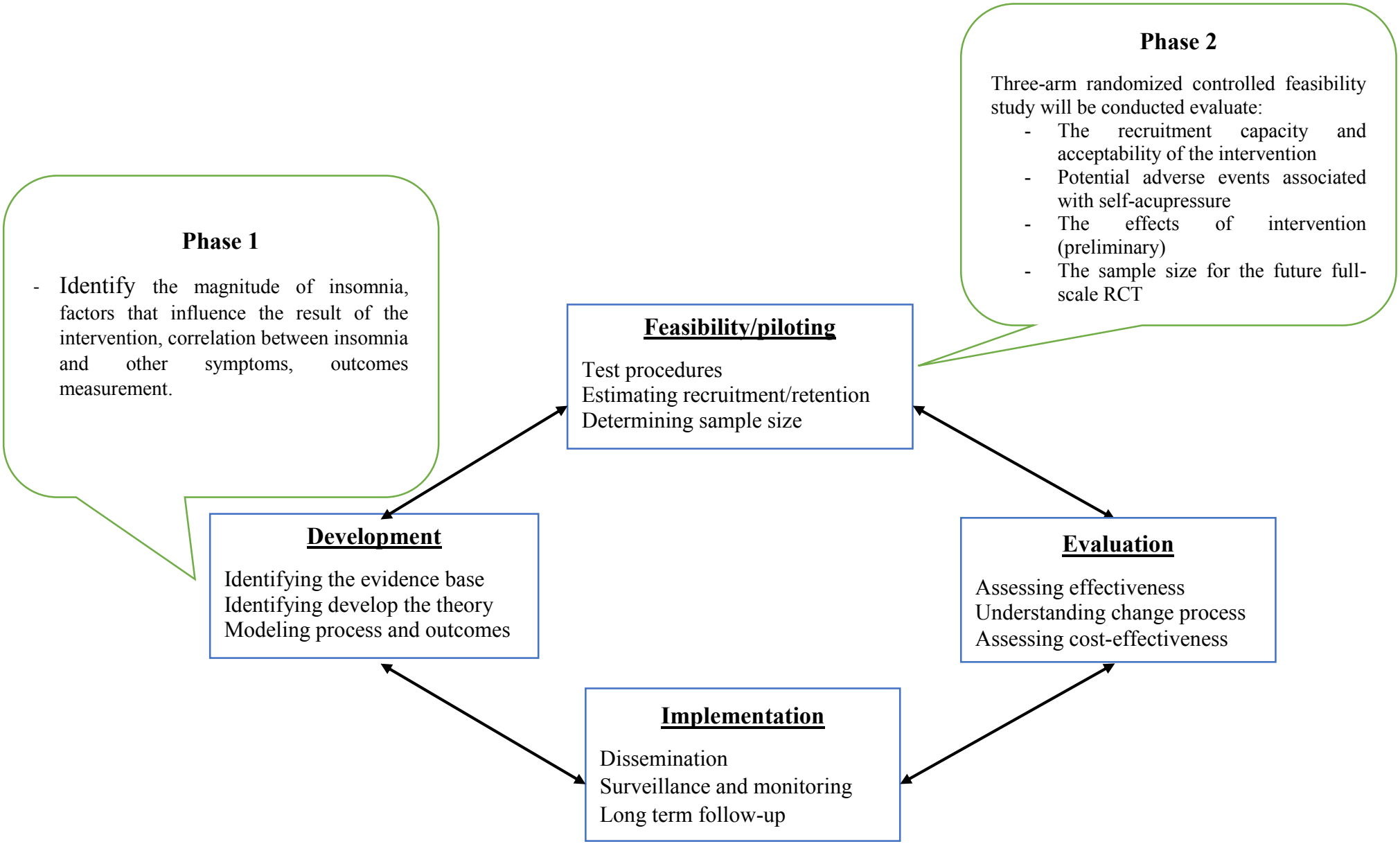



*Figure 4. Process of study design following the MRC framework for Developing and Evaluating Complex Interventions*

## 4.4. The development of the self-acupressure protocols for managing insomnia, depression, and anxiety

Self-acupressure treatment protocol for managing the symptom cluster of insomnia, depression, and anxiety in cancer patients was developed. To distinguish the specific treatment (true) effects of acupressure treatment from the nonspecific treatment (placebo) effects, a true self-acupressure protocol and a sham self-acupressure protocol were being developed accordingly. The true acupressure protocol was developed based on the theory of Traditional Chinese Medicine (TCM) (Li, 2007; Young, 2001), available systematic reviews are used for selecting acupoints and choosing treatment dose (Pilkington, 2010; Tan, Suen, Wang, & Molassiotis, 2015; Waits, Tang, Cheng, Tai, & Chien, 2016; Yang et al., 2013; Yeung et al., 2012b), and WHO standard acupuncture point location guidelines were used to locate the acupoint and technique for self-acupressure (World Health Organization, 2009). Meanwhile, the sham acupressure was developed based on available systematic review and recommendation from TCM experts. This section describes the development of self-acupressure protocols based on systematic reviews and the validation of the acupressure protocols.

### 4.4.1. The development of the true self-acupressure protocol.

#### 4.4.1.1. Justification of the selected acupoints

From Traditional Chinese Medicine (TCM) theory, the frequently involved organs causing insomnia, depression, and anxiety are heart, liver, stomach, and spleen (Young, 2001). Based on this point, Acupoints are selected based on their effect on the organs and their effect on the symptoms from the literature reviews.

In a systematic review from 43 studies on the efficacy of acupressure for insomnia, Yeung et al. (2012a) indicated the commonly used acupoints were: Baihui (GV20), Shenmen (HT7), Taiyang (EX-HN5), Fengchi (GB20), Yintang (EX-HN3) and Sanyinnjiao (SP6). Regarding depression and anxiety, Baihui (GV20), Yintang (EX-HN3). Taichong (LR3), Hegu (LI4) and Shenmen (HT7) were listed as commonly used acupoints from a review of 13 studies (Pilkington, 2010). From this evidence, ***Baihui***

***(GV20), Yintang (EX-HN3), Shenmen (HT7), Fengchi (GB20) and Hegu (LI4), Taichong (LR3)*** are included in the acupressure protocol for this study.

***Baihui (GV20)*** linked with all *Yang* channels, this acupoints response for sufficiency of blood circulation in the Heart and Spleen resulting in enhancing the "the source of generation and transformation of Qi and Blood" to improve insomnia, depression, and anxiety. The combination of GV20 and HT7 supplies and boosts the Heart and Spleen (Li, 2007).

***Shenmen (HT7)*** has been demonstrated to be effective in improving sleep across studies in both cancer and non-cancer population (Cerrone et al., 2008; Sok, Erlen, & Kim, 2003; Sun, Sung, Huang, Cheng, & Lin, 2010; Yeung et al., 2012a). Also, HT 7 proved to stimulate the release of Melatonin from the pineal gland (Spence et al., 2004). HT 7 is selected to supplement, clear and settle the Heart also calm the Spirit to treat insomnia, depression, and anxiety by "depletion of Blood in the Heart and Spleen, Qi deficiency of the heart and Gall-bladder, effulgent Yin deficiency fire and disharmony of the stomach (Li, 2007).

***Fengchi (GB20)*** has been demonstrated to be effective to clear the Brain and calm the sleep. It was commonly used to treat insomnia due to depletion of blood in the Heart and Spleen or lack of interaction between the Heart and the Kidneys or Qi deficiency in the body. This acupoint is related to depression and anxiety (Li, 2007).

***Yintang (EX-HN3)*** has been demonstrated to treat insomnia, depression, and anxiety by calming the mind (Marley, 2010).

***Hegu (LI4):*** is effective in treating disorders of the spirit and mind and commonly uses in the treatment of disease pattern due to *Qi* deficiency (Li, 2007).

***Taichong (LR3):*** has demonstrated to treat the symptoms related to activities of *Liver Qi* such as depression, anger by enhancing and regulates the functions of the liver and eliminates pathological symptoms and sign caused by dysfunction of the liver (Li, 2007)

#### 4.4.1.2. Justification for the dose of the self-acupressure treatment

The dose of the treatment refers to the combination of frequency and duration of each treatment section and duration of the treatment period. This section will report the justification for choosing the duration of the treatment, the frequency, and duration of each treatment section.

***Duration of the whole treatment and frequency of each treatment section***

An optimal acupressure treatment dose is a gap in the literature since a wide range of duration treatment was reported, and the guidelines for such dose of each symptom or disease have not been established (Deng et al., 2015). Therefore, we reviewed previous systematic reviews to find an optimal acupressure treatment duration and frequency of insomnia, depression, and anxiety.

In the systematic review on managing cancer-related insomnia, Choi, Kim, Lim, and Lee (2016) reported the duration of treatment was one week to ten weeks with the frequency was once a day. Among six studies included in this review, the duration of four or five weeks resulted in a significant improvement of sleep (Bokmand & Flyger, 2013; Williams, Kay, Rowe, & McCrae, 2013) while the shorter duration (one week) and longer duration (ten weeks) did not (Mao et al., 2015; Song, Zhao, Peng, & Hu, 2015). In general population, a systematic review of 32 RCTs indicated most treatment protocols involved a duration of three to four weeks with the frequency was once a day (Waits et al., 2016). Yeung et al. (2012a) reviewed 40 RCTs and indicated the effects of acupressure on improving insomnia were observed after four weeks of treatment. Therefore, an acupressure treatment duration of four weeks with the frequency of once a day seems to be optimal for improving insomnia (equal to 28 sections).

For the duration of clinical anxiety, a review from twelve studies conducted by Pilkington, Kirkwood, Rampes, Cummings, and Richardson (2007) reported that treatment duration was six days to six weeks with the frequency was once a day. The finding of this review indicated the treatment group showed a significant improvement than the control with six days to ten days treatment duration (equal to six to ten treatment sections) but not with longer duration (six weeks, 30 treatment sections).

Regarding the duration of depression, a various duration of treatment from two weeks to sixteen weeks with the frequency ranged from once a week to twice a week (total sessions ranged from ten to 30) was reported in systematic reviews (Pilkington, 2010; Wang et al., 2008). The result from this two reviews indicated the duration of six to eight weeks with a frequency of once to twice a week (equal to six to 16 treatment sections) brought significant improvement in the intervention group compared with control groups.

To summarize, evident from available systematic reviews suggests that a frequency of once a day in four weeks (equal to 28 treatment sections) is optimal for improving insomnia, once a day in six to ten days (equal to six to ten treatment sections) and once to twice a week in six to eight weeks (equal to six to 16 treatment sections) are the appropriated duration treatment for anxiety and depression respectively. Based on the findings a duration of four weeks with a frequency of once a day which equal to 28 treatment sections is applied to the acupressure protocol of this study since such dose of treatment covers the optimal doses for insomnia, depression, and anxiety.

***Duration of each treatment section***

The duration of each treatment section is calculated on the number of acupoints and the stimulation time for each acupoint. Systematic reviews indicated the time to stimulate a acupoint rank from one to three minute which made the length of each treatment section ranged from 15 to 45 minutes (Choi et al., 2016; Pilkington, 2010; Pilkington et al., 2007; Waits et al., 2016; Wang et al., 2008; Yeung et al., 2012a). Others recent studies also showed that practicing acupressure three minutes per acupoint significantly reduced the burden of the symptoms (Abedian, Eskandari, Abdi, & Ebrahimzadeh, 2015; Lu, Lin, Chen, Tsang, & Su, 2013; Tsay & Chen, 2003; Zheng, Chen, Chen, Zhang, & Wu, 2014). Based on these finding, participants will perform self-acupressure with three-minute stimulation per acupoint. There are six acupoints with four of the acupoint located on both sides of the body giving a total of ten acupoints to stimulate. Among these acupoints that located on both sides of the body, *Fengchi* and *Taichong* can be pressed bilaterally at a time. Therefore, the duration of treatment time is 24 minutes.

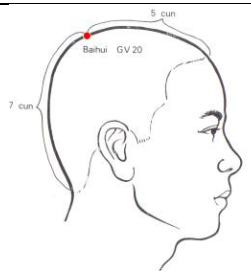
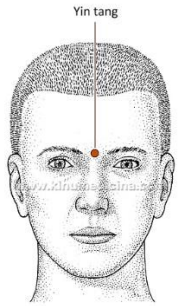
***Intensity and technique for self-acupressure***

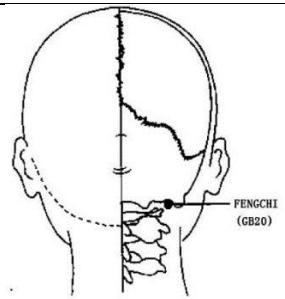
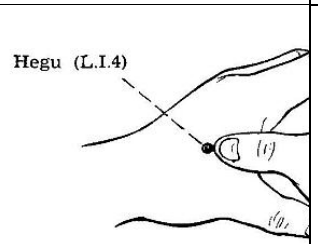
According to the TCM theory, acupressure only shows its effects on symptoms when patients experience *deqi* sensation (Yang et al., 2013). The *deqi* sensation is described as the feeling of sore, numb, heavy, distended and warm at the acupoints and is felt by patients (Tsay & Chen, 2003; Yeung et al., 2017). Therefore, the technique for acupressure using in this study will be using the thumb pad to massage the surrounding area of the specific acupoint firmly and the participant must feel the *deqi* sensation during performing self-acupressure. However, the pressure techniques for Baihua and Fengchi are different from other acupoints due to their specific locations (on the scalp). For *Baihua*, participants use four finger pads to tap gently the area of this acupoint on the scalp. For *Fengchi*, participants using two thumbs, press in the acupoint bilaterally while the other four fingers should hold the back of the head naturally. The self-acupressure protocol is depicted in Table 1.

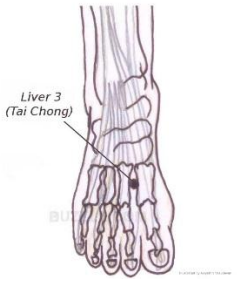
***Time for practicing acupressure***

Participants will perform self-acupressure one hour before going to bed since stimulation of *Shenmen* has been proved to release Melatonin (Spence et al., 2004).

**Table 1. Standard protocol for self-acupressure for insomnia, depression, and anxiety**

| Sequence/acupoint | Location (*) | | Pressing technique | Frequency, duration |
|---|---|---|---|---|
| 1. Baihui (GV20) | On the head, 5 B-cun superior to the anterior hairline on the anterior median line (5 B-cun is equal to the distance from the center of the umbilicus to the superior border of the pubic symphysis) |  | using four finger pads, gently tap the area of this acupoint on the scalp | 3 minutes<br><br>Once a day for four weeks |
| 2. Yintang (EN-HN3) | The midpoint between the eyebrows |  | using thumb pad, firmly massage the surrounding area of this acupoint | *3 minutes*<br><br>Once a day for four weeks |

| | | | | |
|---|---|---|---|---|
| 3. Fengchi (GB20) | In the anterior region of the neck, inferior to the occipital bone, in the depression between the origins of sternocleidomastoid and the trapezius muscle |  | using two thumbs, press in the acupoint bilaterally while the other four fingers should hold the back of the head naturally | *3 minutes for each side (total 3 minutes, both side at the same time)*<br>Once a day for four weeks |
| **Sequence/acupoint** | **Location (*)** | | **Pressing technique** | **Frequency, duration** |
| 4. Hegu (LI 4) | On the dorsum of the hand, radial to the midpoint of the second metacarpal bone. |  | Using thumb pad, firmly massage the surrounding area of this acupoints and press on the acupoints with rotation movements | *3 minutes for each side (total 6 minutes)*<br>Once a day for four weeks |

| | | | | |
|---|---|---|---|---|
| 5. Shenmen (HT7) | On the anteromedial aspect of the wrist, radial to the flexor carpi ulnaris tendon, on the palmar wrist crease. |  | Using thumb pad, firmly massage the surrounding area of this acupoint on the ulnar side of the wrist with rotation movements. | *3 minutes for each side (total 6 minutes)*<br>Once a day for four weeks |
| 6. Taichong (LR3) | On the dorsum of the foot in the depression distal to the junction of the first and second metatarsal bones. |  | Using thumb pad, firmly massage the surrounding area of this acupoints and press on the acupoints with rotation movements | *3 minutes for each side (total 3 minutes, both side at the same time)*<br>Once a day for four weeks |

* directly quote from World Health Organization (2009)

### 4.4.2. Development of Protocol for the sham self-acupressure

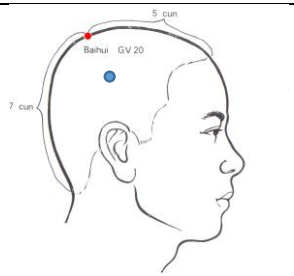
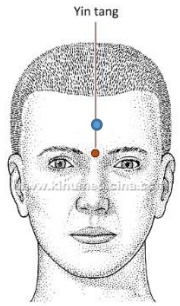
#### 4.4.2.1. Justification for choosing sham acupressure approach

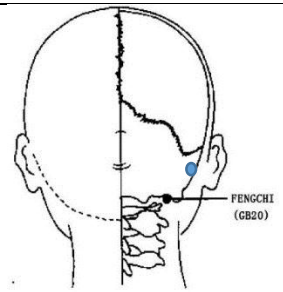
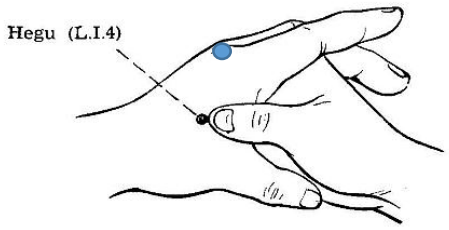
In a recent systematic review on the application of sham acupressure in 66 randomized controlled trials, Tan et al. (2015) listed out two approaches of using sham acupressure: using irrelevant acupoints/non-acupoints and using the same acupoints as true treatment with light touching. The approach of using the same acupoints as true treatment with light touching/no stimulation is believed not to create any therapeutic effect (Tan et al., 2015), however, Vietnamese people are familiar with acupressure technique so the light stimulation may not be adequate to maintain blinding participants. Using irrelevant acupoints refers to the use of acupoints to relief different symptom (Zhang, Bian, & Lin, 2010). This approach is also not appropriated as the "holism concept" of acupuncture theory indicated that every stimulation on any acupoints could create responses of the body and generate specific or non-specific effects (as cited in Tan et al., 2015). As such, it should not be included in the research design to investigate the specific effect of acupressure. Therefore, we decide to choose the using of non-acupoints approach for the protocol of sham-acupressure since pressing non-acupoints cannot produce any therapeutic effects and maintain blinding participants.

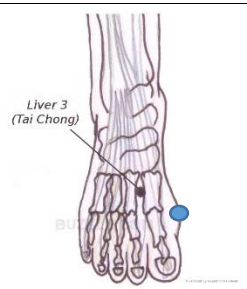
#### 4.4.2.2. Sham self-acupressure protocol

Non-acupoints are located 2 to 5 cm away from the true acupoints. Location of sham acupoints and technique of sham acupressure are described in table 2. The treatment dose in the sham acupressure protocol will be the same as in the true acupressure protocol.

*Table 2. Sham acupressure protocol*

| Sequence/acupoint | Location | | Pressing technique | Frequency, duration |
|---|---|---|---|---|
| SA 1 | 3 cm from GV20 |  | using four finger pads, gently tap the area of this acupoint on the scalp | 3 minutes<br>Once a day for four weeks |
| SA 2 | 3 cm away from Ying Tang |  | using thumb pad, firmly massage the surrounding area of this acupoint with rotation movements at a rhythm of 1 second per cycle. | *3 minutes*<br>Once a day for four weeks |

| | | | | |
|---|---|---|---|---|
| SA 3 | The mastoid bone |  | using two thumbs, press in the acupoint bilaterally while the other four fingers should hold the back of the head naturally | *3 minutes*<br>Once a day for four weeks |
| SA 4 | The head of ulnar styloid |  | Using thumb pad, firmly massage the surrounding area of this acupoints and press on the acupoints with rotation movements | *3 minutes for each side (total 6 minutes)*<br>Once a day for four weeks |
| SA 5 | The base of metacarpal bone of the index finger |  | Using thumb pad, firmly massage the surrounding area of this acupoints and press on the acupoints with rotation movements | *3 minutes for each side (total 6 minutes)*<br>Once a day for four weeks |

| | | | | |
|---|---|---|---|---|
| SA 6 | 3 cm away from Tai Chong |  | Using thumb pad, firmly massage the surrounding area of this acupoints and press on the acupoints with rotation movements | *3 minutes for each side (total 3 minutes, both side at the same time)*<br><br>Once a day for four weeks |

### 4.4.3. Validation of the true self-acupressure and sham self-acupressure protocol

A panel of TCM experts was invited to validate the suitability of self-acupressure treatment and sham self-acupressure protocol before implementation of the feasibility study. To provide a sufficient level of control for chance agreement, a panel of at six experts was recommended by Lynn (1986). Six TCM experts who specialized in TCM from Hong Kong and Vietnam were invited to validate treatment protocol. The six experts work in a university. All had at least ten years of working experience related to TCM and acupuncture. Among six experts, two was appointed as associate professors, two held the positions of assistant professor, one held the position of senior lecturer, and one held the position of clinical associate. The Characteristics of the six experts are presented in the table below.

Table 3. Characteristics of experts in the panel for validating treatment protocols

| Characteristics of the Experts (n=6) | Number (%) |
|---|---|
| **TCM registration location** | |
| Hong Kong | 4 (67%) |
| Vietnam | 2 (33%) |
| **Highest academic qualifications** | |
| Doctorate | 5 (83.3%) |
| Master's degree | 1 (16.7%) |
| **Academic and professional rank** | |
| Associate Professor | 2 (33.3%) |
| Assistance Professor | 2 (33.3%) |
| Senior Lecturer | 1 (16.7%) |
| Clinical Associate | 1 (16.7%) |

After identifying potential members of the panel, an invitation email was sent by the researcher to each member. The experts had one week to respond to the invitation (Rubio, Berg-Weger, Tebb, Lee, & Rauch, 2003). After receiving the invitation letter, all six experts agreed to participate in the study. Afterward, a cover letter briefly introduced the study purposes, the criteria for selecting experts, intervention protocol and scoring method (Rubio et al., 2003) was sent to experts. The acupressure protocols were made to assessment form. Each expert rated each item on the acupressure protocol by using a 4-point Likert scale, where four = very appropriate, 3 = appropriate, 2 = inappropriate, and 1 = very inappropriate. Comment or suggestion for each item will be

encouraged (Please appendix 9). Experts were required to return their feedback by email within one week of receiving the assessment form. For expert who did not reply, a gently reminder was sent two days after the deadline for returning the validation form.

The validity index for each component (C-VI) was calculated based on the number of the expert rate the acupoints either "very appropriate" or "appropriate" divided by the total number of experts. The components were rated as valid when at least five out of six experts agree as "very appropriate" or "appropriate". The C-VI should be at least 0.83; an item has C-VI less than 0.83 were revised based on comments and suggestions of experts (Lynn, 1986). The validity index for the whole acupressure protocol (P-VI) was calculated based on the average C-VI (Lynn, 1986; Rubio et al., 2003). An C-VI of 0.83 was considered as a satisfactory agreement level.

Two round of validation was conducted in this doctoral research project. In the first round of validation study the majority of components in the true and sham acupressure protocols reached the consensus between experts. However, there were two components in the true acupressure protocol, and three in the sham acupressure protocol did not meet the agreement level (Table 4). In the proposed true acupressure protocol, *Hegu* was rated as inappropriate by two experts. One expert did not provide the reason for his decision but suggest to use *Neiguan (PC6)* instead because *Neiguan (PC6)* can support *Shenmen* to promote sleep better. Another expert indicated to trigger the effect of *Hegu*; participant should press until it is sore. Moreover, this is not pleasant, and the subject sure will not be pressing hard enough throughout the entire course of the treatment. The pressing technique of *Baihua* was also rated as inappropriate by two experts because they indicated the proposed pressing technique was wrong. In the proposed sham acupressure protocol, the location sham acupoint SA1, SA2, and SA6 were rated inappropriate because their locations are in the same meridian with the true acupoints and touch another acupoint (3 experts). In addition, the pressing technique for SA1 was rated as inappropriate by three experts. Among them, two experts indicated this pressing technique is wrong and one expert indicated it is easy to stimulating *Sishencong* if using this technique. However, none of the experts who rated "inappropriate" provide a reference for their decisions.

Based on the result, Hegu was replaced by *Neiguan* (PC6). *Neiguan* regulates the circulation of chi, strengthens the spleen and stomach which resulted in calming the mind, restoring clarity to the brain, and improving anxiety, irritability, depression, and anxiety (Cross, 2010; Stein, 2009; Young, 2001). The pressing technique for Baihui was revised (see table 2). SA1 was relocated to the base of metacarpal bone of the left index finger. As such the pressing technique for SA1 was also revised. The location of SA 2 was relocated to 2cm superior to the end of the right eyebrow. The location of SA 6 was relocated to medial malleolus.

In the second round of the acupressure protocols validation, all the components of the true and sham acupressure protocols were determined to be valid, with the validity index for each component (C-VI) ranging from 0.83 to 1.00. The validity index for the true and sham acupressure protocol (P-VI) also met the satisfactory agreement level with P-VI was 0.92 and 0.89 respectively (see table 5 and table 6 for more detail). Although satisfactory agreement for the true acupressure was achieved among panel, one expert held different opinion in term of pressing technique for *Baihui.* However, the expert did not suggest any pressing technique for this acupoint. Four experts suggested to describe the pressing technique for Baihui as "using middle or index finger pad firmly massage the surrounding area of the acupoints with moderate pressure at rhythm of one second per cycle" and for other acupoint expect for *Fengchi* as "using thumb pad firmly massage the surrounding area of the acupoints with rotation movements at rhythm of one second per cycle". After discussing between the doctoral researcher and her supervisor and a TCM expert, who both work in acupuncture/acupressure research area, the modification was made to revise the pressing technique for true acupressure protocol. The process of validation acupressure protocols was therefore completed. The revised acupressure protocol is described in table 7

*Table 4. Components of proposed acupressure protocols do not meet the agreement level in the first round of validation study*

| Components | Validation Assessment of the content | | | Reason for rating as inappropriate | I-IV |
|---|---|---|---|---|---|
| | Number of experts rating "very appropriate" | Number of experts rating "appropriate" | Number of experts rating "inappropriate" | | |
| ***Section of the true acupoints*** | | | | | |
| **Hegu** | **1** | **3** | **2** | - In order to trigger effect, this point should be pressed until it is SORE. And this is not pleasant and the subject sure will not be pressing HARD enough throughout the entire course of the treatment<br>- Do provide reason but suggest to using Neiquan instead of this acupoint | **0.67** |
| ***Location of the sham acupoints*** | | | | | |
| **SA1** (3cm away from Baihui) | **0** | **3** | **3** | Touches other acupoint | **0.5** |
| **SA2** (3cm away from Yintang) | **0** | **4** | **2** | Touches other acupoint | **0.67** |
| **SA6 (**3 cm away from Taichong) | **0** | **4** | **2** | Touches other acupoint | **0.67** |
| ***Pressing technique*** | | | | | |
| **For Baihui (***using four finger pads, gently tap the area of this acupoint on the scalp) (Yeung et al., 2017)* | **3** | **1** | **2** | Wrong technique | **0.67** |
| **For SA1 (***using four finger pads, gently tap the area of this acupoint on the scalp)* | **2** | **1** | **3** | Wrong technique<br>There is a high chance of stimulating *Sishencong* if using this pressing technique | **0.5** |

*Table 5. Result of the true acupressure protocol validation*

| **Components** | **Validation Assessment of the components** | | | **C-VI** |
|---|---|---|---|---|
| | Number of experts rating "very appropriate" | Number of experts rating "appropriate" | Number of experts rating valid | |
| **True acupressure protocol** | | | | |
| **Selection of the acupoints** | | | | |
| Baihui | 3 | 2 | 5 | 0.83 |
| Yintang | 2 | 4 | 6 | 1 |
| Fengchi | 2 | 4 | 6 | 1 |
| Neiguan | 3 | 3 | 6 | 1 |
| Shenmen | 5 | 1 | 6 | 1 |
| Taichong | 1 | 5 | 6 | 1 |
| **Pressing technique** | | | | |
| Baihui | 3 | 2 | 5 | 0.83 |
| Fengchi | 5 | 1 | 6 | 1 |
| Other acupoints | 4 | 2 | 6 | 1 |
| **Duration of each section** | 1 | 4 | 5 | 0.83 |
| **Duration of whole treatment** | 3 | 2 | 5 | 0.83 |
| **Frequency** | 4 | 1 | 5 | 0.83 |
| **Time for practice self-acupressure** | 4 | 1 | 5 | 0.83 |
| **P-VI** | | | | **0.92** |

*Table 6. Results of the sham acupressure protocol validation*

| **Components** | **Validation Assessment of the components** | | | **C-VI** |
|---|---|---|---|---|
| | Number of experts rating "very appropriate" | Number of experts rating "appropriate" | Number of experts rating valid | |
| **Selection of the sham acupoints** | | | | |
| SA 1 | 2 | 3 | 5 | 0.83 |
| SA 2 | 2 | 4 | 6 | 1 |
| SA 3 | 3 | 2 | 5 | 0.83 |
| SA 4 | 2 | 3 | 5 | 0.83 |
| SA 5 | 2 | 3 | 5 | 0.83 |
| SA 6 | 2 | 4 | 6 | 1 |
| **Pressing technique** | | | | |
| SA 3 | 3 | 3 | 6 | 1 |
| Other acupoints | 4 | 2 | 6 | 1 |
| **Duration of each section** | 2 | 3 | 5 | 0.83 |
| **Duration of whole treatment** | 4 | 1 | 5 | 0.83 |
| **Frequency** | 4 | 1 | 5 | 0.83 |
| **Time for practice self-acupressure** | 4 | 1 | 5 | 0.83 |
| **P-VI** | | | | **0.89** |

*Table 7. The revised acupressure protocols*

| Sequence acupoint | Location | Pressing technique | Frequency, duration |
|---|---|---|---|
| **True acupressure protocol** | | | |
| Baihui (GV20) | On the head, 5 B-cun superior to the anterior hairline on the anterior median line | using middle or index finger pad firmly massage the surrounding area of the acupoints with moderate pressure at rhythm of one second per cycle. | 3 mins |
| Yintang (EX-HN3) | The midpoint between the eyebrows | using thumb pad, firmly massage the surrounding area of this acupoint with rotation movements at rhythm of one second per cycle. | 3 mins |
| Fengchi (GB20) | In the anterior region of the neck, inferior to the occipital bone, in the depression between the origins of sternocleidomastoid and the trapezius muscle | using two thumbs, press in the acupoint bilaterally while the other four fingers should hold the back of the head naturally | 3 mins both size at the same time |
| Neiguan (PC6) | On the anterior aspect of the forearm, between the tendons of the palmaris longus and the flexor carpi radialis, 2 B-cun proximal to the palmar wrist crease. | using thumb pad, firmly massage the surrounding area of this acupoint with rotation movements at rhythm of one second per cycle. | 3 mins for each side |
| Shenmen (HT7) | On the anteromedial aspect of the wrist, radial to the flexor carpi ulnaris tendon, on the palmar wrist crease. | using thumb pad, firmly massage the surrounding area of this acupoint with rotation movements at rhythm of one second per cycle. | 3 mins for each side |
| Taichong (LR3) | On the dorsum of the foot in the depression distal to the junction of the first and second metatarsal bones. | using thumb pad, firmly massage the surrounding area of this acupoint with rotation movements at rhythm of one second per cycle. | 3 mins both size at the same time |
| **Sham acupressure protocol** | | | |
| SA 1 | Base of metacarpal bone of the right middle finger | using thumb pad, firmly massage the surrounding area of this acupoint with rotation movements at rhythm of one second per cycle. | 3 mins |
| SA 2 | 2 cm superior to the end of the right eyebrow | | 3 mins |
| SA 3 | Mastoid bone | using two thumbs, press in the acupoint bilaterally while the other four fingers should hold the back of the head naturally | 3 mins both size at the same time |
| SA 4 | Head of ulnar styloid | using thumb pad, firmly massage the surrounding area of this acupoint with rotation movements at rhythm of one second per cycle. | 3 mins for each side |
| SA 5 | Base of metacarpal bone of the index finger | | 3 minutes each side |
| SA 6 | Medial malleolus | | 3 mins both size at the same time |
| Duration of each section: 24 minutes | | | |
| Duration of whole treatment: 4 weeks (28 days) | | | |
| Time for practice self-acupressure: Before bedtime (final activities of the day, after practicing acupressure the participants should attempt to sleep) | | | |

### 4.5. Methods of the feasibility study

A Randomized Control Trial study is the golden standard for evaluating the efficacy of an intervention since this is the most rigorous method to examine the effectiveness of a treatment (Schulz, Altman, & Moher, 2010). This method not only minimizes the treatment bias but also control confounding or prognostic factor among groups (Viera & Bangdiwala, 2007). However, before running a large-scale trial, there is a need to assess the feasibility of the study procedure. Feasibility study generally is used to identify possible issues and resolving problems related to the implementation of the trial (Hertzog, 2008). A feasibility study is conducted to examine whether the study can be done. Therefore, it needs to be conducted to assess the research an intervention process. For this reason, a feasibility study designed as a randomized control trial was developed to assess the acceptability of the intervention and make estimations about the effectiveness of the intervention.

#### 4.5.1. The study design

A feasibility study with three-arms randomized sham-controlled trial will be set up. The three arms are the true acupressure group, the sham acupressure group, and the enhanced standard care group.

Managing non-specific effect was found to improve the reliability of acupuncture/acupressure treatment (Hrobjartsson & Gotzsche, 2010). The non-specific effect is referred to positive change in patient outcomes that are associated with patient's desire for symptom relief (Tough, White, Richards, Lord, & Campbell, 2009), or patient's perceptions of the treatment (Dowrick & Bhandari, 2012), or the communication between the therapists and participants (Paterson & Dieppe, 2005). As such, the sham acupressure group must be included to serves as a control group to test the efficacy of the treatment. In the sham acupressure group, participants will practice the same treatment protocol with those in the true acupressure group except for the acupoint. In this study, participants in the sham group will stimulate a non-acupoint without eliciting *deqi* sensation. As such, the sham treatment is believed to create no therapeutic effect (Xiang, He, & Li, 2018). Therefore, the sham treatment helps to distinguish between the specific therapeutic effect and non-specific effect of

acupressure which cannot be managed in the waiting-list control or standard care control group.

The "enhanced standard care" control group must also be included. An enhanced standard care control group refers to a group that receives no intervention but standard care provided by health professionals and leaflet with some tips to manage insomnia, depression, and anxiety provided by the researcher. The enhanced standard care control group (ESC) serves as a benchmark, allowing researchers to compare the intervention group to the control group to see the changes in the outcomes of the study. It allows researchers to assess the effect of the intervention against not receiving treatment during that same period. Also, this group also helps to test the size of the non-specific effects of the acupressure treatment by comparing the effect of the intervention between sham acupressure group and "enhanced standard care" group (Tan et al., 2015).

For these above reasons, a three-arm trial will be adopted. Specific effects of self-acupressure will be measured by comparing the patient's outcomes between the true self-acupressure group and sham self-acupressure group. The non-specific effect of the treatment will be measured by comparing the patient's outcomes between the sham self-acupressure group and the enhanced standard care group. Information about each of the three study groups will be detailed in the section 5.3.5.

### 4.5.2. Study participants

The participants are patients receiving chemotherapy at the chemotherapy unit. The results from our cross-sectional study indicate insomnia was not correlated with age, gender, cancer diagnosis, cancer stage and treatment-related factors, therefore, there are no specific inclusion criteria regarding cancer diagnosis, cancer stage, number of chemo cycles, and gender.

***Inclusion criteria:***

To be included in the trial, patients have to be:

- Undergoing chemotherapy currently.
- Age 20 – 84 years' old and legally independent with respect to signing the consent form.

- Able to read and write Vietnamese (to complete the questionnaires and provide informed consent).
- Have Karnofsky score ≥ 80 (to be able to practice self-acupressure).
- Have Insomnia Severity Index score ≥ 11 (as an optimal cutoff point to detect a majority of patients with insomnia and this score has obtained sensitivity of 97.2% and specificity of 100% (M. H. Savard et al., 2005)
- Have Anxiety score measured by HADS ≥ 8 and Depression score measured by HADS ≥ 8 (as an optimal cutoff point to detect cases with sensitivity and specificity of 90% for both anxiety and depression as shown in the study by Bjelland, Dahl, Haug, and Neckelmann (2002).

***Exclusion criteria:***

Patients are excluded from the trial if they:

- Are unable to understand or cooperate with study procedures.
- Are receiving other cancer treatments (e.g., radiotherapy, hormonal therapy) at the same time as receiving chemotherapy and during the period of their involvement in the trial.
- Are participating in other research studies which may have interacted with the current trial or affect insomnia, depression, anxiety perception.
- Have difficulties or are unable to practice self-acupressure by themselves.
- Are receiving insomnia or depression/anxiety treatment currently.

### 4.5.3. Trial arms

There are one group receiving the intervention and two control groups in this study. They are the true self-acupressure group, the sham self-acupressure group, and the enhanced standard care group. After being evaluated as eligible participants of the study, patients will be invited to the study. They will be given information sheet to provide more information about the study and the consent form to sign. After that, they will be asked to completed baseline assessment and be randomized into study groups. The following gives detail on how these three group will be operated (see table 4).

#### *4.5.3.1. True self-acupressure group [Enhanced standard care + True self-acupressure intervention protocol]:*

Participants in this group will practice the four-week acupressure protocol plus standard care. When participants admit hospital to receive chemotherapy treatment, they will receive a self-acupressure training section (Detail of training section will be described in section 4.5.8). Participants will be requested to practice acupressure at home once a day at night time (before going to bed) for four weeks. During the four weeks treatment, participants will receive a weekly phone call follow up from researchers. Enhanced standard care for the participants is described in section 4.5.3.3.

#### *4.5.3.2. Sham self-acupressure group [Enhanced standard care + Sham self-acupressure intervention protocol]:*

Patients in this group will practice the four weeks sham self-acupressure protocol plus standard care. When participants admit hospital to receive chemotherapy treatment, they will receive a self-acupressure training section (Detail of training section will be described in section 4.5.8). Participants will be requested to practice sham acupressure at home once a day at night time (before going to bed) for four weeks. During the four weeks treatment, participants will receive a weekly follow up phone call from researchers. Enhanced standard care for the participants is described in section 4.5.3.3.

#### *4.5.3.3. Enhanced standard care group*

The standard care in potential settings for cancer patients undergoing chemotherapy includes health assessment, regular health advices regarding symptoms that patients report and nutrition advice during taking chemotherapy treatment. On the first day admitted to the hospital, the patients will receive a health assessment sections by doctor and nurses. If the result of the health assessment reflects patients are able to receive chemotherapy treatment, the patients will be scheduled to start their chemo-cycles in the following day. During receiving chemotherapy treatment patients will stay in the hospital, however with patients who already completed several chemo-cycles can choose to stay in the hospital or only come to the hospital to receive the treatment then come back home/guess house in the night time. The doctors and nurses also monitor

them during the treatment. After receiving chemotherapy treatment (from one to three days), patients will receive another health assessment section by doctor and nurses. In this section, health education regarding symptoms that patients report, nutrition advice, and schedule for the next chemo-cycle will be included. Afterward, patients are being discharged from the hospital and then come back for the next chemo-cycles which are delivered three or four weeks apart. There is no standard care for depression and anxiety since patients normally do not report these symptoms during the health assessment and also these symptoms are not assessed by a healthcare professional when the patients admitted to the hospital. Unless the symptoms become so severe that patients give up on treatment or attempt suicide, the doctor will refer patients to counseling psychological services. The standard care for patients with insomnia in potential settings include given hypnotics to patients (Diazepam 5mg) and some tips to help patient improve their sleep.

However, based on the main researcher's observation, in the potential settings, the health education regarding insomnia, depression, and anxiety is provided verbally to the patient in a few minute by nurses. And a lot of participants do not received this education. This fact can be explained by the hospital overcrowding and shortages of nurses in cancer hospital. As such, in this study, apart from the standard care which provided by the hospitals, we decide to provide participants a leaflet with 10 recommendations which help participants manage insomnia, depression, and anxiety. These tips includes some basic sleep hygiene rules (Posner, 2011) and tips to manage anxiety and depression adapted from Anxiety and Depression Association of American (ADAA) website (Anxiety and Depression Association of America, 2018). Below is the detail of these recommendations:

# Take a time-out. Going out, listen to music, or do what ever you like to helps clear your head.
# Eat well-balanced meals. Avoid consuming coffee, alcohol, and nicotine.
# Exercise daily to help you feel good and maintain your health.
# When you feel anxiety, take deep breaths. Inhale and exhale slowly. Count to 10 slowly. Repeat, and count to 20 if necessary.

# Accept that you cannot control everything. Put your stress in perspective: Is it really as bad as you think?
# Welcome humor. A good laugh goes a long way.
# Maintain a positive attitude. Make an effort to replace negative thoughts with positive ones.
# Get involved. Volunteer or find another way to be active in your community, which creates a support network and gives you a break from everyday stress.
# Talk to someone. Tell friends and family you're feeling overwhelmed, and let them know how they can help you. Talk to a physician or therapist for professional help.
# Try to get good sleep by applying the following rules:

    - Regular bedtime, arising time or both
    - Avoid naps if possible
    - Avoid frequent use of bed for non-sleep related activities (e.g. watching TV, reading, studying, snacking)
    - Avoid mental activities such as thinking, planning, reminiscing, etc. to occur in bed.
    - Curtail time in bed. If you cannot sleep, you are advised to leave the bed, do some other activities such as: reading a book, listening to soft music and only come back to bed when you feel sleepy.
    - Eliminate the noise from the bedroom.
    - Have a comfortable pre-bedtime routine (light snack before bedtime, comfortable bed mattress, appropriated temperature for bed room, comfortable sleep clothes)

By providing participants in the study this leaflet, we slightly enhance the standard care but do not contaminate the effective of the intervention since these tips are basic and participants can easily read about them on the internet or newspaper. In addition, to minimize the bias cause by contacting between interventionist and participants, we also provide participants in the enhanced standard care group weekly follow up phone call in four week (same as participants in the true and sham acupressure group). It will be a neutral conversation between the main researcher and the participant in three to five minutes. The main research will ask some question such as how is the participant, does the participant take any kind of medication to manage their symptom and remind participant to come back hospital for the next chemo-cycle on time. During the call, the main research will avoid to discuss any kind of management for insomnia, depression, and anxiety.

To summarize, the enhanced standard care in this study refers to standard care provided by the hospital includes *health assessment, nutrition advice during taking chemotherapy treatment, hypnotics (Prescribe only where necessary by a doctor),* and the enhanced care provided by the main researcher includes *patient leaflet of tips on managing insomnia, depression, and anxiety; weekly follow-up phone call in four weeks.*

*Table 8. Detail of provided components in each study arm.*

| **Study arms** | **Detail of provided components** | | |
|---|---|---|---|
| | Acupressure training True-self acupressure follow the protocol 4 Weekly follow – up phone call | Acupressure training Sham-self acupressure follow the protocol 4 Weekly follow – up phone call | Heath assessment Nutrition advice Hypnotics (when necessary) Patient Leaflet 4 Weekly follow-up phone calls |
| True self-acupressure group | ✓ | | ✓ |
| Sham self-acupressure | | ✓ | ✓ |
| Enhanced standard care | | | ✓ |

✓ Components are includes in the study arm

### 4.5.4. Outcomes measurement

The aim of this feasibility study is to assess the potential for success of implementation of an RCT to test the effectiveness of acupressure in improving a symptom cluster of insomnia, depression, and anxiety. Therefore, it does not necessarily need to have a primary outcome and secondary outcomes (National Institutes of Health, 2012; Tickle-Degnen, 2013). As such, the outcomes are regarding the objective of the studies.

***Objective 1: To evaluate recruitment capability***.

- The recruitment rate, the consent rate, and refusal rate will be calculated based on the number of screened patients, the eligible patients, the number of eligible patients who finally agree to participate in the study, the number of patients who sign the informed consent form, reason for ineligibility, refusal, and time to recruit enoung participant will be recorded.

***Objective 2: To evaluate the acceptability of the intervention and study procedures***

- The attrition rate will be calculated by the number of participants who decide to discontinue the study and the number of participants who are lost to contact during the study period. Reason for dropping out and lost to contact will be recorded.
- The adherence rate will be calculated based on the number of participants correctly follows the treatment protocol which will be measured by the "Self-Acupressure Record Form". Reason for not following the treatment will be recorded.
- The acceptability score of the intervention will be measured by The Intervention Rating Profile – 15 (Martens, Witt, Elliott, & Darveaux, 1985). The Intervention Rating Profile – 15 (IRP-15) consists of 15 items, each item is rated on a six-point Likert scale ranging from one (Strongly disagree) to six (Strongly agree). The higher score indicated higher acceptability of the intervention. The scale had been validated, translated into Vietnamese with high reliability (Cronbach's $\alpha$ = 0.89) (Nguyen, Alexander, & Yates, 2018)

***Objective 3: To identify potential adverse events associated with self-acupressure***

- Participants will be requested to report potential adverse events related to acupressure in the "Self-Acupressure Record Form".

***Objective 4: To preliminary evaluate the effects of self-acupressure on the severity of insomnia, depression, anxiety, and severity of the symptom cluster of these symptoms.***

***Insomnia***

As discussed in Chapter 2, subjective (questionnaire) and objective measurements (actigraph) are required to measure sleep, but results of the cross-sectional survey in Chapter 3 indicated participant's insomnia severity is not associated with objective sleep measures and using objective measurement causes difficulty in subject recruitment. Therefore, in this intervention, we use subjective measurement to measure sleep among participants.

The Insomnia Severity Index (ISI) is used to measure insomnia severity among participants. This instrument had been validated translated into Vietnamese previously (Long, Thanasilp, & Thato, 2016) and was being used in the cross-sectional study with high reliability (Cronbach's $\alpha = 0.92$). A sleep diary is used to measure sleep parameters. The participant will be requested to complete a one-week sleep diary before starting practice acupressure, after the treatment period ends, and after. The sleep diary is used to measure these sleep parameters: Total Sleep time (minute), total time in bed (minute), the number of night awaken after sleep onset and sleep efficiency. Participants will be requested to complete the sleep diary when they wake up in the next morning.

***Depression and Anxiety***

The Hospital Anxiety and Depression Scale (HADS) was developed by Zigmond and Snaith (1983) to measure depression and anxiety among participants. This instrument had been translated into Vietnamese previously (Long et al., 2016) and was used in the cross-sectional study with the Cronbach's alpha for the scale was 0.87 and for anxiety, subscale was 0.86 and for depression, subscale was 0.76.

***The severity of the whole cluster***

Separate numerical analog scales (NAS) for each symptom will be used to measure the severity of the whole cluster in the previous month. The symptom severity score of each of symptom in the cluster will be measured by an 11-point scales with 0 means "not present" and 10 means "as bad as it could be". Symptom severity at the cluster level will be evaluated by the averaging symptom severity score of each symptom in the cluster. The symptom cluster severity is calculated by the following formula.

$$\boldsymbol{Symtom\ cluster\ severity} = \frac{\text{Anxiety score +Depression score +Insomnia score (measured by NAS)}}{3}$$

This measuring approach combined multiple outcomes of the study. Such measurement is commonly used to detect the combination of intervention effects and assessing the symptoms of cancer patient using self-reported outcomes (Freemantle, Calvert, Wood, Eastaugh, & Griffin, 2003; Kwekkeboom, 2016).

***Objective 5: To preliminary evaluate the effects of self-acupressure on participants' sleep parameter***

A sleep diary is a useful tool tool for evaluating and tracking insomnia treatment effects (Buysse, Ancoli-Israel, Edinger, Lichstein, & Morin, 2006). In this study, the sleep diary (SD) which has been developed, standarzied, and validated by 25 insomnia experts is used to measure participants' sleep parameters (Carney et al., 2012). The following sleep parameters will be measured:

Sleep onset latency (SOL): the length of time that participant takes to accomplish the transition from full wakefulness to sleep,

Total time spend in bed (TSB): is the length of time that participant spend in bed

Wakefulness after initial sleep onset (WASO): the period of wakefulness occurring after sleep onset.

The number of night awaken after sleep onset.

Total sleep time (TST): is the length of time that participant spend actually sleeping.

TST (min) = TSB (min) – SOL (min) – WASO (min)

Sleep efficiency (SE): the ratio of total sleep time to total time spend in bed.

$$SE\ (\%) = \frac{\text{TST (min) x 100}}{\text{TSB (min)}}$$

***Objective 6: To preliminary evaluate the effects of self-acupressure on participants 'quality of life.***

The Functional Assessment of Cancer Therapy-General (FACT-G) is used in this study to assess the quality of life in participants. This scale measure four domains of quality of life: Physical well-being (PWB) the severity of pain also being measured in this domain of the questionnaire; Social/family well-being (SWB); Emotional well-being (EWB) and Functional well-being (FWB). This instrument has been translated into Vietnamese by FACIT system and had been used in the previous study with the Cronbach's alpha for the scale was 0.89 and for Emotional well-being, subscales were 0.78, FWB = 0.82, PWB = 0.81 and for SWB was 0.82.

*Table 9. Time points for data collection*

| | Screening | Week 0 Baseline | Daily (from week 1-4) | Week 4 | Week 8 |
|---|---|---|---|---|---|
| Number of eligible participants | X | | | | |
| Number of eligible participants sign the informed consent form | X | | | | |
| Reason for ineligibility, refusal | X | | | | |
| ISI | | X | | X | X |
| HADS | | X | | X | X |
| NAS for each symptom | | X | | X | X |
| Sleep diary | | X | | X | X |
| FACT-G | | X | | X | X |
| Karnofsky performance status scale | | X | | | |
| Self-Acupressure Record Form | | | X | | |
| Assessment treatment fidelity | | X | | X | |

| | | | | | |
|---|---|---|---|---|---|
| Adverse Events | | | | X | X |
| IRP-15 | | | | X | |
| Concomitant medication and Supplement | X | X | | X | X |

### 4.5.5. Sample size

Applying the rule of thumb, 30 subjects will be recruited for each study groups as the requirement for feasibility study involving between-groups comparisons and effect size estimation (Hertzog, 2008; Lancaster, Dodd, & Williamson, 2004). The potential drop-out rate of 20% is used to calculate the total sample size for the feasibility study. This is the drop-out rate of previous similar RCTs using three group design to evaluate the efficacy of self-acupressure to reduce symptoms cancer patients (Chung et al., 2015; Zick et al., 2016). Therefore, the total sample size will be set at 114 patients with 38 patients per group.

### 4.5.6. Settings

The study will be conducted in three large oncology hospitals in Vietnam which are the Vietnam National Cancer Institute and Hanoi Oncology Hospital. All of them are located in Hanoi, the capital of Vietnam.

(1) **Vietnam National Cancer Institute (Hospital A)**: This is the largest cancer hospital in Vietnam, the hospital has 1500 beds and is in charge of providing cancer treatments for patients from North and Middle of Vietnam. On average, the hospital receives about 1100 patients every day. The hospital has three branches, the data will be collected in the largest branch of the hospital which has two chemotherapy units. The A1 chemotherapy unit provides chemotherapy treatment for patients diagnosed with breast cancer or gynecologic cancer. The A2 chemotherapy unit provides chemotherapy treatment for patients with various cancer diagnoses (such as lung cancer, gastrointestinal cancer, Non-Hopkin lymphoma). These units have 24 wards, 130 beds in total. There are 22 doctors and 40 nurses. Every day these units received about 160 patients.

(2) **Hanoi Oncology Hospital (Hospital C)** is a public hospital that is in charge of providing cancer treatment for patients in Hanoi. The hospital has 500 beds and receives about 300 patients per day. There are two chemotherapy units in this hospital. The C1 unit provides chemotherapy treatment for breast cancer patients and gynecologic cancer patients. The C2 unit provides the treatment for patients with various cancer diagnoses (such as lung cancer, gastrointestinal cancer, Non-Hopkin lymphoma). There are 120 beds in these units with eight doctors and 24 nurses. The chemotherapy units provide treatment for approximately 80 patients per day.

The average nurse to patient ratio is quite equal in these settings (approximately from 1:3 to 1:4). These hospitals are public institutions. Therefore, the standard care for cancer patients undergoing chemotherapy has followed the standards of the Vietnam Ministry of Health. The quality of staff and health care services among those settings are equal. So it can be said that the treatment environment in potential settings is similar.

### 4.5.7. Randomization, allocation concealment, and blinding

#### 4.5.7.1. Randomization and allocation concealment.

Randomization refers to a method based on chance only by which participants are assigned to a trial group. Randomization also helps to ensure the allocation concealment which refers to preventing researcher, clinicians, and participants from being known the next group assignment and thus influencing group assigning process (Altman, Schulz, Moher, & et al., 2001). Randomization is an important component of trial design to evaluate the true benefits of treatment since a trial with inadequate and unclear concealment of allocation sequence is believed to produce 40% larger estimation of the effectiveness of a treatment (Jüni, Altman, & Egger, 2001).

In this feasibility study, block randomization will be applied to keep the equal size of each trial arm. After being recruited in the trial, participants will be randomly assigned to three trial groups. 114 participants will be randomized into three study groups in a block of six participants. The block size must be the multiplier of the sum of the treatment ratio (1:1:1). Therefore the block size must be 3, 6, 9, 12, etc. As such, six is

the size of the block since 114 is divisible by six. A randomization table will be computer generated by using the online randomizer at https://www.sealedenvelope.com/simple-randomiser/v1/lists. The randomization table will be prepared and kept by a researcher in Thanh Tay University who does not involve in any research process. After recruiting enough participants for a block, the main researcher will send the list of participants' name to the randomization table keeper. The randomization table keeper will then randomly assign participants into trial groups based on the prepared randomization table and email the group assignments to the main researcher. By using this randomized strategy, the trial meets the criteria to have adequate allocation concealment since researchers are unable to predict the group allocation until the participants are entered into the study and researchers also are unable to change the group allocation after participants are randomized (Vickers, 2006).

#### 4.5.7.2. Blinding

Blinding refers to ensure that participants or personnel within a trial are unaware of treatment allocation. There are several levels of blinding include single-blind which refers to one party of the trial (participants or researchers) is blinded to the treatment allocation, double-blind refers to two parties (participants and researchers) are blinded to the treatment allocation, and triple-blind refers to three parties of the trial (participant, researchers and other staff involved in the trial) are blinded to the treatment allocation (Friedman, Furberg, Demets, Reboussin, & Granger, 2015). Blinding design is applied to reduce detection bias and performance bias (Probst et al., 2016).

In this study, due to the nature of the intervention, a partial double-blinded design will be employed. Participants randomize in standard care group will know their group assignment, but participants randomize to true and sham self-acupressure group will not know whether they receive true or sham self-acupressure treatment. Nevertheless, the outcomes of the study are all self-reported instruments, therefore, to some extent, the participants themselves could be viewed as "outcome assessors". Therefore, participants and "outcome assessors" located in true or sham self-acupressure group will be blinded on the treatment allocation. To ensure the successful blinding design, healthcare provider working in the wards will not know the group allocation, the main

researcher will also work with the head-nurse of the department to arrange patient in intervention group and control groups into different wards.

### 4.5.8. Study procedures

The main researcher will meet with the representative of three potential hospitals (in Hanoi, Vietnam) 2 weeks before the commencement of the feasibility study to asking for permission to collect the data. Ethical approval memos, a study packet which contained study proposal, information sheet, invitation letter, and consent form will be given to the representatives of the hospitals.

Participants from five chemotherapy units will be recruited to the study (two chemotherapy units in hospital A, one in hospital B, and two from hospital C). In each of the chemotherapy unit, one nurse will be selected to help in screening for eligible participants. A subject recruitment training section will be delivered to five nurses who help in participant recruitment by the main researcher. On the first day patients admit to the hospital, during the health assessment, nurses will ask the patients to rate the severity of insomnia, depression and anxiety that they experience during the previous month. Each of the symptom will be measured by separate Numerical Analog Scales (NAS). NAS is an 11-point scales with 0 means “not present” and 10 means “worst possible”. If the patients rate 4 or above for their insomnia, depression, and anxiety nurses will inform the main researcher and introduce the potential patient to the main researcher. The main researcher will introduce the study in detail to potential participants and give them the information sheet. The information sheet provides brief and clear information on the essential elements of the study: the aim of the study, the study procedure, the voluntary of involvement, participant rights, and potential risks, and contact information. The researcher will give participants time to read the information sheet and decide whether the study is of interest to them and whether they want to discuss it further. Participants can ask researcher any questions related to the study. If the potential participants agree to participate in the study, they will be given the informed consent form to sign. After signing the consent form, researchers will collect the demographic data of participants and instruct participants to complete the baseline assessment (ISI, HADS, FACT-G). After the participants complete the

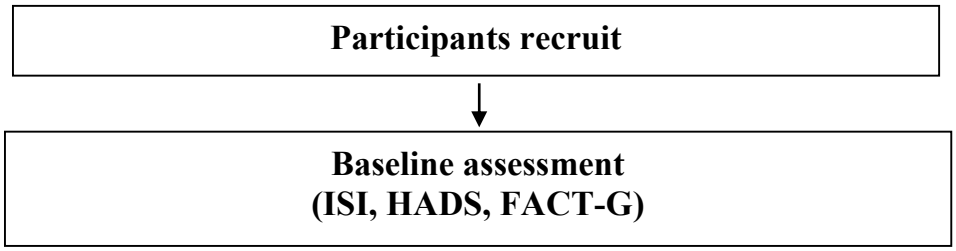
baseline assessment, the main researcher will summarize the result and if the participants is eligible for the trial they will be instructed how to complete the seven days sleep diary after they discharge from the hospital. Afterward, participants will be randomly assigned to one of the following groups: the true self-acupressure group (TSA), the sham self-acupressure group (SSA) and enhanced standard care group (ESC). Subject recruitment, baseline assessment, and randomization will be completed on the first or second day participants admit to the hospital to receive chemotherapy treatment. Training participants section will be scheduled on the same day or one day after participants finish baseline assessment based on the availability of participants and interventionist. Sleep diary will be completed in the first week after participants discharge from the hospital.

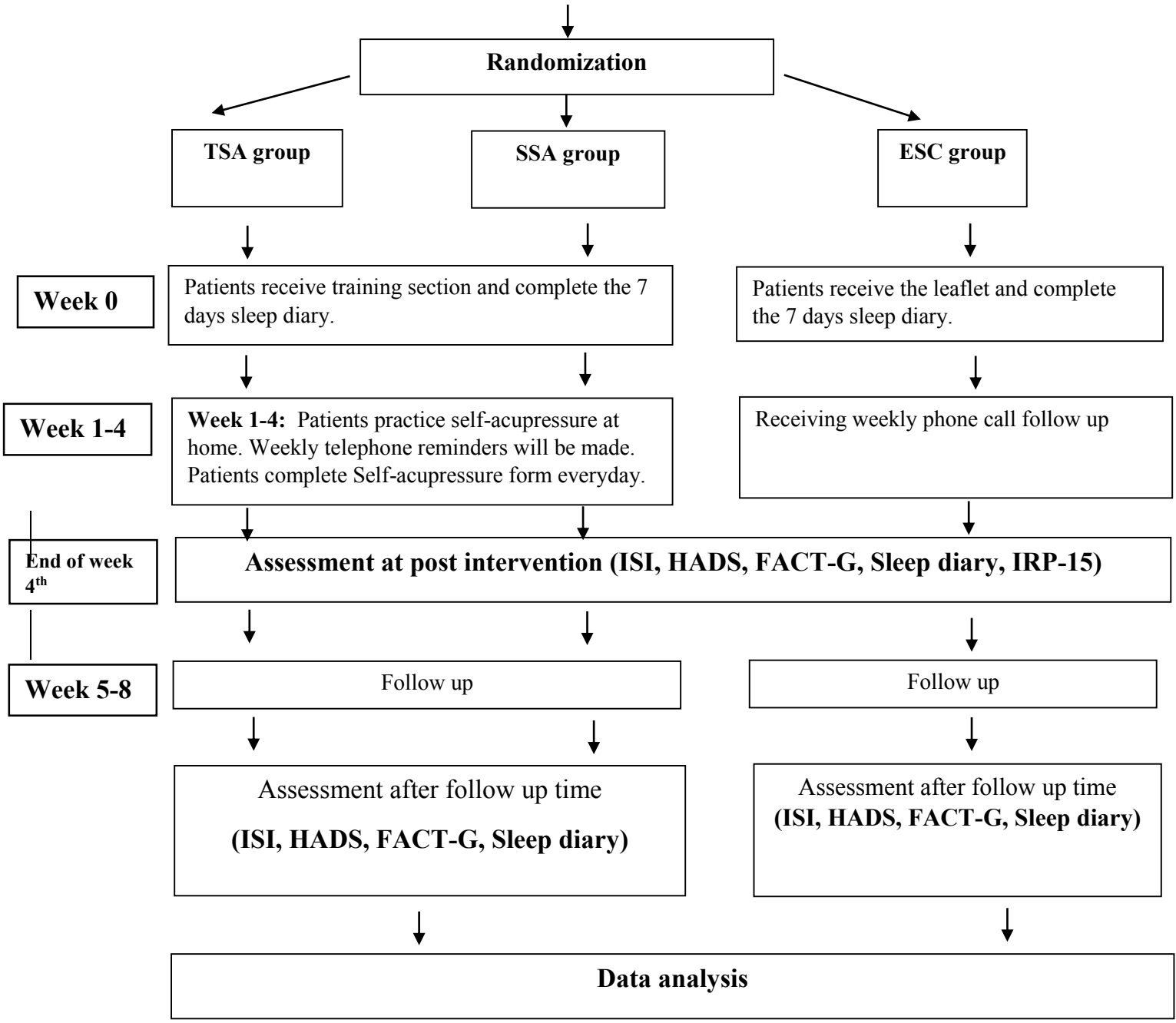
***Participant in the true self-acupressure group or sham self-acupressure group***

Participants in these group will either receive a true self-acupressure or sham acupressure training section based on their group assignment. Participants will be requested to practice acupressure at home for four weeks after they complete the sleep diary baseline assessment (a telephone reminder will be made). During the four weeks treatment, participants will receive a weekly phone call from researchers for encouraging to practice acupressure and answer inquiries may have. During this period, participant will be requested to complete Self-acupressure record form every day. After four weeks treatment, participants will be asked to complete and send back all the post-intervention assessing questionnaire to research by express service (Insomnia Severity Index [ISI], Hospital Anxiety and Depression Scale [HADS], FACT-G, Sleep Diary [SD], Self-acupressure Record Form, and Intervention Rating Profile 15 [IRP-15]). A short-term follow up will be then carried out in four weeks to assess the persistence effect of acupressure on the symptoms outcome. During this time, the patient will not practice acupressure at home. By the end of follow up time, researchers will make a telephone reminder to participants and ask them to complete and send back all the follow-up assessment questionnaire to the main research by express service (ISI, HADS, FACT-G, sleep diary). 200,000 vnd (equal to 60 HKD) will be given to participants for the express service charge by the end of the follow-up time.

***Participants in the enhanced standard control group***

Participants in the enhanced standard control group will receive the leaflet with tips to manage insomnia, depression, and anxiety. Weekly telephone reminder will also be made in four week. By the end of week fourth, participants in this group will be requested to complete post-intervention assessment and send back to research by post (ISI, HADS, FACT-G, SD). A short-term follow up will be then carried out in 4 weeks. During the follow-up period, participants receive no weekly telephone reminder. By the end of follow up time, researchers will make a telephone reminder to participants and ask them to complete and send back all the follow-up assessment questionnaire to research by express service (ISI, HADS, FACT-G, SD). 200,000 vnd (equal to 60 HKD) will be given to participants for the express service charge by the end of the follow-up time. The procedure of the feasibility study is depicted in Figure 5 depicts the main study procedures.






*TSA: True self-acupressure, SSA: Sham acupressure, ESC: Standard care*

**Figure 5. The flowchart of the study**

#### *4.5.8.1. Training of Subject recruitment*

Five nurses will be recruited for subject recruitment. Nurses who work in potential chemotherapy units with at least one year of experience in working with cancer patients

will be recruited. The main researcher will conduct a subject recruitment training section with these nurses. The main research will briefly explain the purpose of the study and study procedures to nurses then instruction them the screening questions and how to complete and score the Insomnia Severity Index (ISI) and Hospital Anxiety and Depression Scale (HADS).

#### *4.5.8.2. Training of the interventionists*

Six nurses will be trained to become interventionists for the study (2 nurses/hospital). Nurses who work in potential hospitals with at least two years experience in working with cancer patients will be recruited as interventionists of the study. A one hours training section (TOT section) will be delivered by the main researcher and a TCM professional. The TCM professional is a senior lecturer of Traditional Medicine Department, Hanoi Medical University with seven years of experience in teaching, practicing and conducting research on acupuncture/acupressure.

The TOT section consists of two parts. In the first part of the TOT section, the main researcher will briefly introduce the main study proposal include the rationale for conducting this study, the study aim and objectives, study protocol and outcomes measurement. In the second part, the TCM professional will instruct the participants how to locate and stimulate acupoint following the acupressure protocols. By the end of the TOT sections, the TCM professional will check the mastery of participant's acupressure technique by using Interventionist Skill Checklist for Acupressure and Sham Acupressure (See Appendix 6). If wrong location or technique is given, further instructions will be made until all of the participants clearly know how to locate and stimulate acupoint as indicated in the acupressure protocol. By the end of TOT section, a copy of all slides and acupressure protocols will be given to participants.

#### *4.5.8.3. Training of the participants in the true self-acupressure group and sham self-acupressure group:*

Participants locate in these groups will receive education section. The training will be conducted in a group of three to five patients in 45 minutes. The self-acupressure training section will take place in the consultation room in the chemotherapy unit. In the education section, interventionists will instruct the participants how to locate and

stimulate acupoint following the acupressure protocols. After giving instruction and time for participants to practice, interventionists checks the patient's mastery of self-acupressure technique by using the Acupressure Skill Check form for participants (Appendix 7). If the participant fails to identify the acupoint or stimulate the acupoint wrongly, the interventionist will then correct them. By the end of education section, a patient booklet includes step by step guideline with images-illustrating acupressure protocol will be given to participants.

### 4.5.9. Fidelity of the study

Fidelity of the intervention referred to strategies to ensure the intervention is implemented as planned (Bellg et al., 2004). Basic aspects of treatment fidelity are intervention design, intervention training, and receipt of intervention (Murphy & Gutman, 2012). Strategies to ensure the fidelity of this study will be listed in each of the above aspects.

#### *4.5.9.1. Intervention design*

For this aspect, a study protocol has been developed, the detail acupressure intervention was described in detail including the location of acupoints, acupressure technique, dose of the intervention. Potential setbacks and solutions are listed below:

- Provider dropout: six nurses will be trained to be instructors to deliver acupressure training sections. Three of them will be the main instructors and others will be extra instructors. The main instructor will be in charge of delivering the training sections when they are not available the extra instructor will replace them.
- Lost to follow up due to not available phone number: In order to keep contact with participants during the study period, at least two kind of phone number will be recorded: the participant's mobile phone, the participant's fixed line numbers and mobile phone of a member in participant's family. Participants will also be given the name card of the main researcher.
- To ensure the fidelity of outcome measurements, participants will be instructed how to complete the questionnaires and sleep diary. Telephone reminder will also be made to remind participants complete and send back the follow-up

questionnaire to the main researcher. Enveloped with the address of the main researcher will be provided to participants. If there is still no reply from participants after the first telephone reminder, the second ones will be made five days later.

- To ensure equivalent dose across conditions: To ensure the equal number of contacts for each intervention arms to minimizer potential therapeutic effects of the sham acupressure method and placebo effect of the treatment, patients in control groups will also receive the training in same length and enthusiasm as in the intervention group.

#### *4.5.9.2. Intervention training*

***Training interventionists***

A training section will be conducted. Six nurses will be trained to become interventionists for the study (2 nurses/hospital). **A one hours training section** (TOT section) will be delivered by the main researcher and a TCM professional. The TOT section consists of two parts. In the first part of the TOT section, the main researcher will briefly introduce the main study proposal include the rationale for conducting this study, the study aim and objectives, study protocol and outcomes measurement. In the second part, the TCM professional will instruct the participants how to locate and stimulate acupoints following the acupressure protocols. Nurses will be given time to practice. By the end of the TOT sections, the ***TCM professional will check the mastery of participant'***s acupressure technique by using Interventionist Skill Checklist for Acupressure and Sham Acupressure. If wrong location or technique is given, further instructions will be made until all of the participants clearly know how to locate and stimulate acupoint as indicated in the acupressure protocol. *By the end of TOT section, a copy of all slides and an images-illustrating acupressure protocol will be given to participants for references.*

To ensure the TOT section run smoothly, the researcher will provide comfortable environment and facilities for the TOT section. The rooms will be convenient to reach, keep quiet and clean, equipped with necessary furnitures, such as comfortable chairs, table, air condition, refreshments.

***Maintaining consistency of delivering intervention among six interventionists***

To ensure consistency of delivering of intervention among interventionist, following plans will be implemented. ***A protocol for self-acupressure training section*** (for participants) is also developed and interventionists are requested to follow this protocol when delivering the training to participants (please see Appendix 5 and Appendix 8). To ensure the training sections are implemented in the same manner, ***the researcher will monitor at least 80% of training sections.*** If there are any problems occur, the researcher will discuss with the instructor.

***Participant training***

The self-acupressure/sham acupressure training will be conducted in a small group (three to five participants). Participants will be given training how to perform the acupressure specific to the protocol for their group assignment. To ensure the training sections run smoothly, the researcher will provide comfortable environment and facilities. The rooms will be convenient to reach, keep quiet and clean, equipped with necessary furniture, such as comfortable chairs, table, air condition, refreshments.

#### *4.5.9.3. Receiving the interventions*

***Maintaining treatment fidelity during self-administration of the intervention***

Participants are expected to perform self-acupressure daily following the treatment protocol. To enhance and monitor the participant's adherence to the treatment as well as to answer any question during the study period, weekly telephone reminder will be made and contact information is also provided to participants. Participants will be requested to record their acupressure section on the intervention log during the treatment period. Participant also has a follow-up visit with interventionist when they admit to hospital for their next chemo-cycles (approximately 3 to 4 weeks after the training section). During the visit, the interventionist will check the patient's mastery of self-acupressure technique by using the Acupressure Skill Check Form. The ability of participants to perform the intervention will be evaluated with the goal of maintaining at least 80% accuracy on the Acupressure Skill Check Form.

### 4.5.10. Ethical consideration

Before collecting data, the proposal of study will be submitted for ethical approval from Human Subjects Ethics Sub-committee of The Hong Kong Polytechnic University and Vietnamese Ministry of Health. Potential participants are invited to participate in the study by the main researcher. Information regarding study aims and objective, the study procedures, and potential risks of acupressure will be explained by the main researcher. The information sheet will be given to potential participants. The information sheet is designed to explain the purpose and procedure clearly and as a way to obtain participant's consent in written form. The rights of participants, data privacy protection procedures and method of seeking assistance or further information and so on will be included. Potential participants will be given time to read the information sheet and ask any question regarding the study before deciding on taking part in the study or refuse. If the participant decides to take part in the study, written informed consent forms will be obtained accordingly. This study has followed the ethical principles for research that involves human subjects which are: autonomy, beneficence, non-maleficence, and confidentiality (Beauchamp, 2009).

***Autonomy***

The principle of autonomy refers to the right for participants to make their own choice of participating in the study (Beauchamp, 2009). In this study, potential subjects will be informed the purpose, objectives, study procedures, and potential harms of acupressure. This such information is also written in the information sheet which is provided to potential participants. Voluntary participation will be assured, and participants will be assured the services that they receive will not be affected by their decision of participating or not participating as well as withdraw from the study. Participants will also be informed about the right to withdraw from the study at any time without any harm.

***Beneficence***

The principle of beneficence refers to a concept in research ethics which indicates that researcher should have the welfare of the subject as a goal of clinical trial (Beauchamp,

2009). In this study, we use acupressure to manage symptom cluster in participants. This treatment is a non-pharmacological, non-invasive treatment with evident its safety and effectiveness in managing different symptoms (Lee, Frazier, Lee, & Frazier, 2011; H. J. Song et al., 2015; Waits et al., 2016; Yeung et al., 2012a).

***Non-maleficence***

The non-maleficence principle indicates the intervention should not put subjects in any harm (Beauchamp, 2009). In this study, we use a sham acupressure group as a control group. The purpose of having this sham group is to test the placebo effect of the intervention which is acceptable to determine the efficacy of an intervention (World Medical Association, 2018). We decide to choose the using of non-acupoints approach for sham-acupressure. Pressing non-acupoints cannot produce any therapeutic effects. Therefore, this approach creates no harm for participants.

***Confidentiality***

To ensure subject confidentiality, the following steps will be taken:

- Personal information of the participants is replaced with research identification code - Access to master code lists for key code is limited to only main researcher and research assistance.
- Contact list, recruitment records or other documents that contain personal information of the participants are destroyed when no longer required for the research ( 3 years after finishing data collection)
- Files containing electronic data are password-protected and encrypted (at least when data are transferred or transported).
- Research data are stored securely in locked cabinets.
- Electronic data are stored on password-protected computers or files.
- Files containing electronic data are closed when computers will be left unattended.
- Consent forms are stored securely in locked cabinets, separately from the research data.

***Ethical concern regarding paying participants***

Paying for human subjects for participating in scientific research is a common practice that has been reported for over 100 years (Levine, 1979). Several ethical concerns have been raised regarding this issue, among which, coercion is considered as the most common concern (Grady, 2005). However, in this study, the amount of 60 HKD given to participant cannot be considered as "paying for participation" since the purpose of the payment is for express mail service to return the outcomes assessment forms to the main researcher. As such, this payment does not attract or motive participant to the study. Therefore, it is acceptable to give 60 HKD to participants in this study.

***Ethical concern regarding not informing participants about their group allocation***

In this study, we do not inform participant in the true acupressure group and sham acupressure about their group allocation. They will be informed that the study is conducted to compare the effectiveness of two acupoint sets. One set is similar to the acupressure treatment of Chinese Traditional Medicine, and the other set does not follow the theory of TCM but has been associated with improvement of insomnia, depression, and anxiety. This explanation helps to maintain the blinding design of the study. However, by informing participants in this way, the researcher does not tell the truth to participant which is unethical in some aspects. However, in qualitative research on participant's views of not informing potential participant about their group allocation, Hughes et al. (2014) indicated that participants' perceive this approach as being acceptable. Nevertheless, testing placebo effect is acceptable, and the sham acupressure method used in this study does not create any harm to participant's health. As such, we believe it is acceptable to not informing participants in the true and sham acupressure group about their group allocation.

### 4.5.11. Data Analysis

Data will be checked for normality, outliers, and missing data. Intention to treat principle is adapted for analyzing the result of the pilot study which use the "last value carried out forward" approach to replace missing data. This strategy has been widely used in analysis RCTs. Furthermore, it is proved that measuring the effectiveness of

trial may be biased without performing an intention to treat analysis (Hollis & Campbell, 1999). Descriptive statistics will be used to analyze the sample characteristics, demographics, and data related to the intervention feasibility, acceptability and adverse event of acupressure. Baseline differences among the three groups will be compared by chi-square test and repeated measure ANOVA. In case the chi-square test is not appropriated because of low cell counts ($\leq 5$), it will be replaced by Fisher's exact test. The effect size will be calculated by Cohen *d* based on the mean difference between baseline and end of the treatment period for each symptom and the cluster of insomnia, depression, and anxiety in the true self-acupressure group and sham acupressure group. The significance level is set ai 0.05, therefore if the p-value is less than 0.05 the result would be considered significant. IBM SPSS 20.0 will be used for data analysis.

### 4.6. Potential implication of the study

**Potential implication for nursing research**

As discussed before, the clinical evidence for self-treatment for sleep-related symptom cluster is limited and not convincing due to methodological flaws in currently published studies. The finding of this study will provide evidence on the effectiveness of self-treatment for managing symptom cluster in cancer patients undergoing chemotherapy.

Acupressure treatment obvious benefit to treating single cancer symptoms, however, limited studies with rigor design have been conducted to test the effectiveness of this treatment in improving symptom cluster. As such, the finding of this study will provide evidence on the effectiveness of acupressure for managing symptom cluster in cancer patients undergoing chemotherapy.

**The potential implication for nursing practice**

The study offers an invasive treatment at low-cost and safety for patients to manage insomnia, depression, and anxiety at home. Nurses in hospital or community setting can teach patients about these treatments. With self-acupressure patients can practice at home without the need for frequent healthcare worker visit as well as paying money

which reduces patient's burdens to a larger extent. Nevertheless, the study also prompts awakeness to oncologists to the potential of acupressure to relieve cancer-related symptom clusters.

### 4.7. Proposed timeline for the study

| Study Plan | 08/2018 | 09/2018 | 10/2018 | 11/2018 | 12/2018 | 01– 06/2019 | 07/2019 – 08/2019 | 09/2019 |
|---|---|---|---|---|---|---|---|---|
| Ethical approval (from PolyU and Vietnamese MOH) | | | | | | | | |
| Sending the proposal to the hospitals for approval | | | | | | | | |
| Conducting the feasibility study | | | | | | | | |
| Data analysis | | | | | | | | |
| Presenting findings | | | | | | | | |

## 4.8. Estimated Budget for study

| Cost item | Activity/Description | Estimated expenditure (HKD) |
|---|---|---|
| (a) | Return air ticket (Vietnam Airlines), including airport taxes. Departure : ; Return: | 3500 |
| (b) | Ethical approval fee (for the feasibility study in Vietnam) | 3300 |
| (c) | Printing Booklet (include tips to manage insomnia, depression, and anxiety; acupressure protocol, sleep diary, and acupressure report form) | 3420 |
| (d) | Printing questionnaires (for the feasibility study) | 2394 |
| (e) | Printing information sheet and consent form (for the feasibility study) | 228 |
| (f) | Allowance for researcher assistants for the main study (three person at 40HKD per person per hour for 180 hours) | 7200 |
| (g) | Allowance for Interventionist (three persons at 100HKD per person per section for 30 sections) | 3000 |
| (h) | Miscellaneous (telephone service fee) | 3000 |
| (i) | Payment for participants (for express service) | 6840 |
| **Sub-total 2** | | **32,882** |
| **Total estimated expenditure (Sub total 1 + subtotal 2)** | | **32,882** |

## REFERENCES


Abedian, Z., Eskandari, L., Abdi, H., & Ebrahimzadeh, S. (2015). The Effect of Acupressure on Sleep Quality in Menopausal Women: A Randomized Control Trial. *Iranian Journal of Medical Sciences, 40*(4), 328-334.

Anxiety and Depression Association of America. (2018). Tips to manage depression and anxiety. Retrieved from https://adaa.org/tips

Altman, D. G., Schulz, K. F., Moher, D., & et al. (2001). The revised consort statement for reporting randomized trials: Explanation and elaboration. *Annals of Internal Medicine, 134*(8), 663-694.

Anderson, K. O., Getto, C. J., Mendoza, T. R., Palmer, S. N., Wang, X. S., Reyes-Gibby, C. C., & Cleeland, C. S. (2003). Fatigue and sleep disturbance in patients with cancer, patients with clinical depression, and community-dwelling adults. *Journal of Pain and Symptom Management, 25*(4), 307-318.

Beauchamp, T. L. (2009). *Principles of biomedical ethics* (6th ed.. ed.). New York, N.Y.: New York, N.Y. : Oxford University Press.

Bellg, A. J., Borrelli, B., Resnick, B., Hecht, J., Minicucci, D. S., Ory, M., . . . Czajkowski, S. (2004). Enhancing treatment fidelity in health behavior change studies: best practices and recommendations from the NIH Behavior Change Consortium. *Health Psychology, 23*(5), 443-451.

Bjelland, I., Dahl, A. A., Haug, T. T., & Neckelmann, D. (2002). The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *Journal of Psychosomatic Research, 52*(2), 69-77.

Bokmand, S., & Flyger, H. (2013). Acupuncture relieves menopausal discomfort in breast cancer patients: a prospective, double blinded, randomized study. *Breast, 22*(3), 320-323.

Bonnet, M. H., & Arand, D. L. (1998). Sleepiness as measured by modified multiple sleep latency testing varies as a function of preceding activity. *Sleep, 21*(5), 477-483.

Buysse, D. J., Ancoli-Israel, S., Edinger, J. D., Lichstein, K. L., & Morin, C. M. (2006). Recommendations for a standard research assessment of insomnia. *Sleep, 29*(9), 1155-1173.

Carney, C. E., Buysse, D. J., Ancoli-Israel, S., Edinger, J. D., Krystal, A. D., Lichstein, K. L., & Morin, C. M. (2012). The Consensus Sleep Diary: Standardizing Prospective Sleep Self-Monitoring. *Sleep, 35*(2), 287-302.

Cerrone, R., Giani, L., Galbiati, B., Messina, G., Casiraghi, M., Proserpio, E., . . . Gardani, G. (2008). Efficacy of HT 7 point acupressure stimulation in the

treatment of insomnia in cancer patients and in patients suffering from disorders other than cancer. *Minerva Medica, 99*(6), 535-537.

Choi, T. Y., Kim, J. I., Lim, H. J., & Lee, M. S. (2016). Acupuncture for Managing Cancer-Related Insomnia: A Systematic Review of Randomized Clinical Trials. *Integrative Cancer Therapies*.

Chung, K. F., Yeung, W. F., Yu, Y. M., Yung, K. P., Zhang, S. P., Zhang, Z. J., . . . Chan, L. W. (2015). Acupuncture for residual insomnia associated with major depressive disorder: a placebo- and sham-controlled, subject- and assessor-blind, randomized trial. *Journal of Clinical Psychiatry, 76*(6), e752-760.

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ, 337*.

Dowrick, A. S., & Bhandari, M. (2012). Ethical Issues in the Design of Randomized Trials: To Sham or Not to Sham. *JBJS, 94*(Supplement_1), 7-10.

Freemantle, N., Calvert, M., Wood, J., Eastaugh, J., & Griffin, C. (2003). Composite outcomes in randomized trials: Greater precision but with greater uncertainty? *JAMA, 289*(19), 2554-2559.

Friedman, L. M., Furberg, C. D., Demets, D. L., Reboussin, D. M., & Granger, C. B. (2015). Chapter 7: Blinding. In *Fundamentals of Clinical Trials* (pp. 560). Switzerland: Springer.

Grady, C. (2005). Payment of clinical research subjects. *Journal of Clinical Investigation, 115*(7), 1681-1687.

Hertzog, M. A. (2008). Considerations in determining sample size for pilot studies. *Research in Nursing and Health, 31*(2), 180-191.

Hollis, S., & Campbell, F. (1999). What is meant by intention to treat analysis? Survey of published randomised controlled trials. *BMJ, 319*(7211), 670-674.

Hrobjartsson, A., & Gotzsche, P. C. (2010). Placebo interventions for all clinical conditions. *Cochrane Database Syst Rev*(1), Cd003974.

Hughes, J. G., Russell, W., Breckons, M., Richardson, J., Lloyd-Williams, M., & Molassiotis, A. (2014). "I assumed that one was a placebo": Exploring the consent process in a sham controlled acupressure trial. *Complementary Therapies in Medicine, 22*(5), 903-908.

Jüni, P., Altman, D. G., & Egger, M. (2001). Assessing the quality of controlled clinical trials. *BMJ, 323*(7303), 42.

Kwekkeboom, K. L. (2016). Cancer Symptom Cluster Management. *Seminars in Oncology Nursing, 32*(4), 373-382.

Lancaster, G. A., Dodd, S., & Williamson, P. R. (2004). Design and analysis of pilot studies: recommendations for good practice. *Journal of Evaluation in Clinical Practice, 10*(2), 307-312.

Landolt, H. P., Roth, C., Dijk, D. J., & Borbely, A. A. (1996). Late-afternoon ethanol intake affects nocturnal sleep and the sleep EEG in middle-aged men. *Journal of Clinical Psychopharmacology, 16*(6), 428-436.

Lee, E. J., Frazier, S. K., Lee, E. J., & Frazier, S. K. (2011). The efficacy of acupressure for symptom management: a systematic review. *Journal of Pain and Symptom Management, 42*(4), 589-603.

Lenz, E. R., & Pugh, L. C. (2003). The theory of unpleasant symptoms. In S. J. Mary & L. R. Patricia (Eds.), *Middle range theory for nursing* (pp. 165-195): Springer Pub.Co.

Levine, R. (1979). What should consent forms say about cash payment? *The Institutional Review Board, 1*(6), 7.

Li, S. (2007). *Clinical Application of Commonly Used Acupuncture Points*. UK: Donica Publishing Ltd.

Liu, Y. (1998). *The essential book of traditional Chinese Medicine*. New York: Columbia University Press.

Long, N. H., Thanasilp, S., & Thato, R. (2016). A causal model for fatigue in lung cancer patients receiving chemotherapy. *European Journal of Oncology Nursing, 21*, 242-247.

Lu, M. J., Lin, S. T., Chen, K. M., Tsang, H. Y., & Su, S. F. (2013). Acupressure improves sleep quality of psychogeriatric inpatients. *Nursing Research, 62*(2), 130-137.

Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research, 35*(6), 382-385.

Mao, J. J., Bowman, M. A., Xie, S. X., Bruner, D., DeMichele, A., & Farrar, J. T. (2015). Electroacupuncture Versus Gabapentin for Hot Flashes Among Breast Cancer Survivors: A Randomized Placebo-Controlled Trial. *Journal of Clinical Oncology, 33*(31), 3615-3620.

Marley, J. (2010). Yintang: An Extraordinary Acupuncture Point. Retrieved from http://www.acupuncture-services.com/basic-theory/acupuncture/yintang-an-extraordinary-acupuncture-point/

Martens, B. K., Witt, J. C., Elliott, S. N., & Darveaux, D. X. (1985). Teacher judgments concerning the acceptability of school-based interventions. *Professional psychology: Research and practice, 16*(2), 191.

Murphy, S. L., & Gutman, S. A. (2012). Intervention Fidelity: A Necessary Aspect of Intervention Effectiveness Studies. *American Journal of Occupational Therapy, 66*(4), 387-388.

National Institutes of Health. (2012). NIHR Evaluation, Trials and Studies Coordination Centre: Glossary. Retrieved from https://www.nihr.ac.uk/funding-and-support/documents/funding-for-research-studies/research-programmes/PGfAR/Feasibility%20and%20Pilot%20studies.pdf

Nehlig, A. (1999). Are we dependent upon coffee and caffeine? A review on human and animal data. *Neuroscience and biobehavioral reviews23*(4), 563-576.

Nguyen, L. T., Alexander, K., & Yates, P. (2018). Psychoeducational Intervention for Symptom Management of Fatigue, Pain and Sleep Disturbance Cluster among Cancer Patients: A Pilot Quasi-experimental Study. *Journal of Pain and Symptom Management*.

Paterson, C., & Dieppe, P. (2005). Characteristic and incidental (placebo) effects in complex interventions such as acupuncture. *BMJ, 330*(7501), 1202.

Pilkington, K. (2010). Anxiety, depression and acupuncture: A review of the clinical research. *Autonomic Neuroscience, 157*(1), 91-95.

Pilkington, K., Kirkwood, G., Rampes, H., Cummings, M., & Richardson, J. (2007). Acupuncture for anxiety and anxiety disorders – a systematic literature review. *Acupuncture in Medicine, 25*(1-2), 1.

Posner, D., & Gehrman, P. (2011). Sleep Hygiene. In M. L. Perlis, M. S. Aloia, & B. R. Kuhn (Eds.), *Behavioral Treatments for Sleep Disorders,* Elsevier Inc.

Probst, P., Grummich, K., Heger, P., Zaschke, S., Knebel, P., Ulrich, A., . . . Diener, M. K. (2016). Blinding in randomized controlled trials in general and abdominal surgery: protocol for a systematic review and empirical study. *Systematic Reviews, 5*, 48.

Rubio, D. M., Berg-Weger, M., Tebb, S. S., Lee, E. S., & Rauch, S. (2003). Objectifying content validity: Conducting a content validity study in social work research. *Social Work Research, 27*(2), 94-104.

Schulz, K. F., Altman, D. G., & Moher, D. (2010). CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. *BMC Medicine, 8*(1), 18.

Sok, S. R., Erlen, J. A., & Kim, K. B. (2003). Effects of acupuncture therapy on insomnia. *Journal of Advanced Nursing, 44*(4), 375-384.

Song, H. J., Seo, H. J., Lee, H., Son, H., Choi, S. M., & Lee, S. (2015). Effect of self-acupressure for symptom management: a systematic review. *Complementary Therapies in Medicine, 23*(1), 68-78.

Song, J. R., Zhao, Y. L., Peng, X. H., & Hu, Y. p. (2015). Clinical randomized controlled study of usng acupuncture to treat tumor patients with insomnia. *Journal of Sichuan Traditional Chinese Medicine, 33*, 163-164.

Spence, D. W., Kayumov, L., Chen, A., Lowe, A., Jain, U., Katzman, M. A., . . . Shapiro, C. M. (2004). Acupuncture increases nocturnal melatonin secretion and reduces insomnia and anxiety: a preliminary report. *J Neuropsychiatry Clin Neurosci, 16*(1), 19-28.

Sun, J.-L., Sung, M.-S., Huang, M.-Y., Cheng, G.-C., & Lin, C.-C. (2010). Effectiveness of acupressure for residents of long-term care facilities with insomnia: A randomized controlled trial. *International journal of nursing studies, 47*(7), 798-805.

Tan, J.-Y., Suen, L. K. P., Wang, T., & Molassiotis, A. (2015). Sham Acupressure Controls Used in Randomized Controlled Trials: A Systematic Review and Critique. *PloS One, 10*(7), e0132989.

Tickle-Degnen, L. (2013). Nuts and Bolts of Conducting Feasibility Studies. *The American Journal of Occupational Therapy, 67*(2), 171-176.

Tough, E. A., White, A. R., Richards, S. H., Lord, B., & Campbell, J. L. (2009). Developing and validating a sham acupuncture needle. *Acupuncture in Medicine, 27*(3), 118-122.

Tsay, S.-L., & Chen, M.-L. (2003). Acupressure and quality of sleep in patients with end-stage renal disease—a randomized controlled trial. *International Journal of Nursing Studies, 40*(1), 1-7.

Vickers, A. J. (2006). How to randomize. *Journal of the Society for Integrative Oncology, 4*(4), 194-198.

Viera, A. J., & Bangdiwala, S. I. (2007). Eliminating bias in randomized controlled trials: importance of allocation concealment and masking. *Family Medicine, 39*(2), 132-137.

Waits, A., Tang, Y. R., Cheng, H. M., Tai, C. J., & Chien, L. Y. (2016). Acupressure effect on sleep quality: A systematic review and meta-analysis. *Sleep Medicine Reviews*.

Wang, H., Qi, H., Wang, B.-s., Cui, Y.-y., Zhu, L., Rong, Z.-x., & Chen, H.-z. (2008). Is acupuncture beneficial in depression: A meta-analysis of 8 randomized controlled trials? *Journal of Affective Disorders, 111*(2), 125-134.

Werth, E., Dijk, D. J., Achermann, P., & Borbely, A. A. (1996). Dynamics of the sleep EEG after an early evening nap: experimental data and simulations. *American Journal of Physiology, 271*(3 Pt 2), R501-510.

Wetter, D. W., Fiore, M. C., Baker, T. B., & Young, T. B. (1995). Tobacco withdrawal and nicotine replacement influence objective measures of sleep. *Journal of Consulting and Clinical Psychology, 63*(4), 658-667.

Williams, J. M., Kay, D. B., Rowe, M., & McCrae, C. S. (2013). Sleep Discrepancy, Sleep Complaint, and Poor Sleep Among Older Adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 68*(5), 712-720.

World Health Organization. (2009). *WHO Standard Acupuncture point locations in the Western Pacific Region*.

World Medical Association. (2018). WMA Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects. Retrieved from https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/

Xiang, Y., He, J. Y., & Li, R. (2018). Appropriateness of sham or placebo acupuncture for randomized controlled trials of acupuncture for nonspecific low back pain: a systematic review and meta-analysis. *Journal of Pain Research, 11*, 83-94.

Yang, X.-Y., Shi, G.-X., Li, Q.-Q., Zhang, Z.-H., Xu, Q., & Liu, C.-Z. (2013). Characterization of Deqi Sensation and Acupuncture Effect. *Evidence-Based Complementary and Alternative Medicine, 2013*, 7.

Yeung, W. F., Chung, K. F., Poon, M. M., Ho, F. Y., Zhang, S. P., Zhang, Z. J., . . . Wong, V. T. (2012a). Acupressure, reflexology, and auricular acupressure for insomnia: a systematic review of randomized controlled trials. *Sleep Medicine, 13*(8), 971-984.

Yeung, W. F., Chung, K. F., Poon, M. M., Ho, F. Y., Zhang, S. P., Zhang, Z. J., . . . Wong, V. T. (2012b). Prescription of Chinese Herbal Medicine and Selection of Acupoints in Pattern-Based Traditional Chinese Medicine Treatment for Insomnia: A Systematic Review. *Evidence-based Complementary & Alternative Medicine (eCAM), 2012*, 1-16.

Yeung, W. F., Ho, F. Y., Chung, K. F., Zhang, Z. J., Yu, B. Y., Suen, L. K., . . . Lao, L. X. (2017). Self-administered acupressure for insomnia disorder: a pilot randomized controlled trial. *Journal of Sleep Research*.

Young, J. S. (2001). *Acupressure : simple steps to health : discover your body's powerpoints for health and relaxation* ([New ed.]. ed.). London: London : Thorsons.

Zhang, H., Bian, Z., & Lin, Z. (2010). Are acupoints specific for diseases? A systematic review of the randomized controlled trials with sham acupuncture controls. *Chinese Medicine, 5*(1), 1.

Zheng, L.-W., Chen, Y., Chen, F., Zhang, P., & Wu, L.-F. (2014). *Effect of acupressure on sleep quality of middle-aged and elderly patients with hypertension* (Vol. 1).

Zick, S. M., Sen, A., Wyatt, G. K., Murphy, S. L., Arnedt, J. T., & Harris, R. E. (2016). Investigation of 2 Types of Self-administered Acupressure for Persistent Cancer-Related Fatigue in Breast Cancer Survivors: A Randomized Clinical Trial. *JAMA Oncol, 2*(11), 1470-1476.

## Appendix 1. Assessment and Evaluation form (English and Vietnamese version)

**THE HONG KONG POLYTECHNIC UNIVERSITY**

**SCHOOL OF NURSING**

**Date:** _____ **Code:** _____

**Hospital**_____ **Department:** _____

### Part 1. Demographic data

Q1: Age:.....

Q2: Gender: 1. Male 2. Female

Q3: Occupation: .....

Q4: Education: .....

Q5: Marital status: 1. Single 2. Married 3. Divorced 4. Widowed

### Part 2. Health history

Q6: Diagnosis: .....

Q7: Time from diagnosis: .....

Q8: Number of cycle completed:.....

Q9: Tumor removal surgery before: 1. No 2. Yes

Q10: Type of Chemotherapy received:.....

Q11: How Chemotherapy is given.....

Q12: Given Chemotherapy Regiment: .....

.....

**Part 3. Insomnia Severity Index**

For each question, please CIRCLE the number that best describes your answer.

*Please rate the **CURRENT SEVERITY** of your insomnia problem(s) in the last 2 weeks.*

| **Insomnia Problem** | **None** | **Mild** | **Moderate** | **Severe** | **Very severe** |
|---|---|---|---|---|---|
| 1. Difficulty falling asleep | | | | | |
| 2. Difficulty staying asleep | | | | | |
| 3. Problems waking up too early | | | | | |

4. How **SATISFIED/DISSATISFIED** are you with your *CURRENT* sleep pattern?

| Very satisfied | Satisfied | Moderately satisfied | Dissatisfied | Very Dissatisfied |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

5. How **NOTICEABLE** to others do you think your sleep problem is in terms of impairing the quality of your life?

| Not at all Noticeable | A Little | Somewhat | Much | Very Much Noticeable |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

6.How **WORRIED/DISTRESSED** are you about your current sleep problem?

| Not at all Worried | A Little | Somewhat | Much | Very Much Worried |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

7. To what extent do you consider your sleep problem to **INTERFERE** with your daily functioning (e.g. daytime fatigue, mood, ability to function at work/daily chores, concentration, memory, mood, etc.) **CURRENTLY**?

| Not at all Interfering | A Little | Somewhat | Much | Very Much Interfering |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

Add the scores for all seven items (questions 1 + 2 + 3 + 4 + 5 +6 + 7) = _____

***Total score categories:***

1. No clinically significant insomnia (0-7)
2. Subthreshold insomnia (8-14)
3. Clinical insomnia (moderate severity) (15-21)
4. Clinical insomnia (severe) (22-28)

## Part 4. Assessment depression and Anxiety

**Hospital Anxiety and Depression Scale (HADS)**

Cycle beside the reply that is closest to how you have been feeling in the past week.

Don't take too long over you replies: your immediate is best.

Section 1. Anxiety

| No | Questions | Answer | Score |
|---|---|---|---|
| 1 | I feel tense or 'wound up': | a) Most of the time<br>b) A lot of the time<br>c) From time to time, occasionally<br>d) Not at all | |
| 2 | I get a sort of frightened feeling as if something awful is about to happen | a) Very definitely and quite badly<br>b) Yes, but not too badly<br>c) A little, but it doesn't worry me<br>d) Not at all | |
| 3 | Worrying thoughts go through my mind | a) A great deal of the time<br>b) A lot of the time<br>c) From time to time, but not too often<br>d) Only occasionally | |
| 4 | I can sit at ease and feel relaxed | a) Definitely<br>b) Usually<br>c) Not Often<br>d) Not at all | |
| 5 | I get a sort of frightened feeling like "butterflies" in the stomach | a) Not at all<br>b) Occasionally<br>c) Quite often<br>d) Very often | |
| 6 | I feel restless as I have to be on the move: | a) Very much indeed<br>b) Quite a lot<br>c) Not very much<br>d) Not at all | |
| 7 | I get sudden feeling of panic | a) Very often indeed<br>b) Quite often<br>c) Not very often<br>d) Not at all | |
| **Total Score of Anxiety assessment** | | | |

Section 2. Depression

| No | Questions | Answer | Score |
|---|---|---|---|
| 1 | I still enjoy the things I used to enjoy: | a) Definitely as much<br>b) Not quite so much<br>c) Only a little<br>d) Hardly at all | |
| 2 | I can laugh and see the funny side of things | a) As much as I always could<br>b) Not quite so much<br>c) Definitely not so much now<br>d) Not at all | |
| 3 | I feel cheerful | a) Not at all<br>b) Not often<br>c) Sometimes<br>d) Most of the time | |
| 4 | I feel as if I am slowed down | a) Nearly all the time<br>b) Very often<br>c) Sometimes<br>d) Not at all | |
| 5 | I have lost interest in my appearance | a) Definitely<br>b) I don't take as much care as I should<br>c) I may not take quite as much care<br>d) I take just as much care as ever | |
| 6 | I look forward with enjoyment to things: | a) As much as I ever did<br>b) Rather less than I used to<br>c) Definitely less than I used to<br>d) Hardly at all | |
| 7 | I can enjoy a good book or radio or TV program: | a) Often<br>b) Sometimes<br>c) Not often<br>d) Very seldom | |
| . **Total Score of Depression assessment** | | | |

**Part 5. Assessment Quality of Life**

**Functional Assessment of Cancer Therapy – General**

**Please circle or mark one number per line to indicate your response as it applies to the past 7 days**

| Code | Question | Not at all | A little bit | Some what | Quite a bit | Very much |
|---|---|---|---|---|---|---|
| GE1 | I feel sad | 0 | 1 | 2 | 3 | 4 |
| GE2 | I am satisfied with how I am coping with my illness | 0 | 1 | 2 | 3 | 4 |
| GE3 | I am losing hope in fight against my illness | 0 | 1 | 2 | 3 | 4 |
| GE4 | I feel nervous | 0 | 1 | 2 | 3 | 4 |
| GE5 | I worry about dying | 0 | 1 | 2 | 3 | 4 |
| GE6 | I worry that my condition will get worse | 0 | 1 | 2 | 3 | 4 |
| | | | | | | |
| GF1 | I am able to work (include work at home) | 0 | 1 | 2 | 3 | 4 |
| GF2 | My work (include work at home) is fulfilling | 0 | 1 | 2 | 3 | 4 |
| GF3 | I am able to enjoy life | 0 | 1 | 2 | 3 | 4 |
| GF4 | I have accepted my illness | 0 | 1 | 2 | 3 | 4 |
| GF5 | I am sleeping well | 0 | 1 | 2 | 3 | 4 |
| GF6 | I am enjoying the things I usually do for fun | 0 | 1 | 2 | 3 | 4 |
| GF7 | I am content with the quality of my life right now | 0 | 1 | 2 | 3 | 4 |
| | | | | | | |
| GP1 | I have a lack of energy | 0 | 1 | 2 | 3 | 4 |
| GP2 | I have nausea | 0 | 1 | 2 | 3 | 4 |
| GP3 | Because of my physical condition, I have trouble meeting the needs of my family | 0 | 1 | 2 | 3 | 4 |
| GP4 | I have pain | 0 | 1 | 2 | 3 | 4 |
| GP5 | I am bothered by side effect of treatment | 0 | 1 | 2 | 3 | 4 |
| GP6 | I feel ill | 0 | 1 | 2 | 3 | 4 |
| GP7 | I am forced to spend time in bed | 0 | 1 | 2 | 3 | 4 |
| | | | | | | |
| GS1 | I feel close to my friends | 0 | 1 | 2 | 3 | 4 |
| GS2 | I get emotional support from my family | 0 | 1 | 2 | 3 | 4 |
| GS3 | I get support from my friends | 0 | 1 | 2 | 3 | 4 |
| GS4 | My family has accepted my illness | 0 | 1 | 2 | 3 | 4 |
| GS5 | I am satisfied with family communication about my illness | 0 | 1 | 2 | 3 | 4 |
| GS6 | I feel close to my partner (or the person who is my main support) | 0 | 1 | 2 | 3 | 4 |
| Q1 | Regardless of your current level of sexual activity, please answer the following question. If you prefer not to answer it, please mark this box ☐ And go to the next section | | | | | |
| GS7 | I am satisfied with my sex life | 0 | 1 | 2 | 3 | 4 |

**Part 6. Assessment the severity of the cluster of insomnia, depression, and anxiety**

For each of the following symptoms, please circle the number which is best describe rate the severity of the symptom that you experienced during the previous month.

***Insomnia***

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not present | | | | | | | | | | As bas as it could be |

***Depression***

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not present | | | | | | | | | | As bas as it could be |

***Anxiety***

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Not present | | | | | | | | | | As bas as it could be |

## Part 7. Sleep diary

Instruction: The sleep diary must be complete every day. If possible, please complete within one hour of getting out of bed in the morning. If you forget to fill in the diary or are unable to finish it, leave the diary blank on that day. If your sleep or daytime functioning is affected by some unusual events (such as illness, or an emergency) please make brief notes on your diary.

Item Instructions Use the guide below to clarify what is being asked for each item of the Sleep Diary.

Date: Write the date of the morning you are filling out the diary.

1. What time did you get into bed? Write the time that you got into bed. This may not be the time that you began "trying" to fall asleep.

2. What time did you try to go to sleep? Record the time that you began "trying" to fall asleep.

3. How long did it take you to fall asleep? Beginning at the time you wrote in question 2, how long did it take you to fall asleep.

4. How many times did you wake up, not counting your final awakening? How many times did you wake up between the time you first fell asleep and your final awakening?

5. In total, how long did these awakenings last? What was the total time you were awake between the time you first fell asleep and your final awakening. For example, if you woke 3 times for 20 minutes, 35 minutes, and 15 minutes, add them all up (20+35+15= 70 min or 1 hr and 10 min).

6. What time was your final awakening? Record the last time you woke up in the morning.

7. What time did you get out of bed for the day? What time did you get out of bed with no further attempt at sleeping? This may be different from your final awakening time (e.g. you may have woken up at 6:35 a.m. but did not get out of bed to start your day until 7:20 a.m.)

8. Comments If you have anything that you would like to say that is relevant to your sleep feel free to write it here.

**SLEEP DIARY**

Name of participant:……Age: …….Hospital:…….

Code: ……..

| Today's date | **Day 1** | **Day 2** | **Day 3** | **Day 4** | **Day 5** | **Day 6** | **Day 7** |
|---|---|---|---|---|---|---|---|
| 1. What time did you get into bed? | | | | | | | |
| 2. What time did you try to go to sleep? | | | | | | | |
| 3. How long did it take you to fall asleep? | | | | | | | |
| 4. How many times did you wake up, not counting your final awakening? | | | | | | | |
| 5. In total, how long did these awakenings last? | | | | | | | |
| 6. What time was your final awakening? | | | | | | | |
| 7. What time did you get out of bed for the day? | | | | | | | |
| 8. Comments | | | | | | | |

**Part 8. Self-Acupressure Record Form**

Name of participant:……Age: ……Hospital:……

Code: ……

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of acupoint | | | | | | | | | | | | | | |
| Treatment time (min) | | | | | | | | | | | | | | |
| Reason for not practicing | | | | | | | | | | | | | | |
| Adverse events related to acupressure | | | | | | | | | | | | | | |

Other self-care methods in insomnia, depression, anxiety:

Any self-taken Chinese Herb/Western medication/supplement:

Drug/supplement name: (1) Dose:……

(2) Dose:……

**Part 8. Self-Acupressure Record Form**

Name of participant:……Age: ……Hospital:……

Code: ……

| | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of acupoint | | | | | | | | | | | | | | |
| Treatment time (min) | | | | | | | | | | | | | | |
| Reason for not practicing | | | | | | | | | | | | | | |
| Adverse events related to acupressure | | | | | | | | | | | | | | |

Other self-care methods in insomnia, depression, anxiety:

Any self-taken Chinese Herb/Western medication/supplement:

Drug/supplement name: (1) Dose:……

(2) Dose:…….

**TRƯỜNG ĐẠI HỌC BÁCH KHOA HỒNG KONG**

**KHOA ĐIỀU DƯỠNG**

**Ngày: _____** **Mã: _____**

**Bệnh viện: _____** **Khoa:_____**

## Phần 1. Thông tin cá nhân

Q1: Tuổi: .....

Q2: Giới: 1. Nam 2. Nữ

Q3: Nghề nghiệp: .....

Q4: Trình độ học vấn: .....

Q5: Hôn nhân: 1. Độc thân 2. Kết hôn 3. Li dị 4. Góa

## Phần 2. Bệnh sử

Q6: Chẩn đoán: .....

Q7: Thời gian mắc bệnh: .....

Q8: Số chu kỳ hóa chất đã hoàn thành: .....

Q9: Đã phẫu thuật loại bỏ khối u: 1. Không 2. Có

Q10: Loại hóa chất sử dụng: .....

Q11: Đường dùng hóa chất .....

**Phần 3. Đánh giá mức độ mất ngủ**

Với mỗi câu hỏi sau đây, ông/bà vui lòng khoanh tròn vào câu trả lời đúng với câu trả lời của mình nhất.

*Xin hãy đánh giá mức độ trầm trọng của chứng mất ngủ của ông/bà trong 2 tuần qua*

| **Triệu chứng mất ngủ** | **Không** | **Nhẹ** | **Vừa phải** | **Nặng** | **Rất nặng** |
|---|---|---|---|---|---|
| 1. Khó khăn để chìm vào giấc ngủ | | | | | |
| 2. Khó khăn trong việc duy trì giấc ngủ | | | | | |
| 3. Tỉnh giấc quá sớm | | | | | |

4. Ông bà cảm thấy hài lòng hoặc không hài lòng với tình trạng giấc ngủ hiện nay như thế nào?

| Rất hài lòng | Hài lòng | Khá hài lòng | Không hài lòng | Rất không hài lòng |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

5. Tình trạng giấc ngủ của bạn ảnh hưởng đến chất lượng cuộc sống như thế nào?

| Không ảnh hưởng | Một chút | Hơi ảnh hưởng | Nhiều | Ảnh hưởng rất nhiều |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

6. Ông bà lo lắng như thế nào về tình trạng rất ngủ của mình?

| Không lo lắng gì | Một chút | Hơi lo lắng | Nhiều | Rất lo lắng |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

7. Ông bà có cho rằng hiện nay tình trạng giấc ngủ của mình ảnh hưởng tới các hoạt động thường ngày không (ví dụ: gây mệt mỏi, ảnh hướng tới tâm trạng, khả năng làm việc, mức độ tập trung, trí nhớ…)

| Không ảnh hương | Một chút | Hơi lo lắng | Nhiều | Rất lo lắng |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |

Tổng điểm (câu hỏi 1 + 2 + 3 + 4 + 5 +6 + 7) = _____

**Phần 5. Đánh giá mức độ lo lắng và phiền muộn**

**Hospital Anxiety and Depression Scale (HADS)**

Chọn câu trả lời đúng nhất cho tâm trạng của ông/bà trong tuần vừa qua.

Vui lòng trả lời với ý đầu tiên mà ông bà cho là đúng nhất.

Phần 1. Lo lắng

| No | Câu hỏi | Lựa chọn | Điểm |
|---|---|---|---|
| 1 | Tôi cảm thấy căng thẳng và "tổn thương" | a) Thường xuyên<br>b) Nhiều lần<br>c) Thỉnh thoảng<br>d) Không hề | |
| 2 | Tôi cảm thấy sợ hãi như sắp có chuyện chẳng lành sắp xảy ra | a) Chắc chắn<br>b) Nó sẽ xảy ra nhưng không chắc<br>c) Nó không làm tôi lo lắng<br>d) Không hề | |
| 3 | Tôi cảm thấy lo lắng | a) Thường xuyên<br>b) Nhiều lần<br>c) Thỉnh thoảng<br>d) Không hề | |
| 4 | Tôi có thể ngồi nghỉ và cảm thấy thư giãn | a) Chắc chắn<br>b) Thường xuyên<br>c) Không thường xuyên<br>d) Không hề | |
| 5 | Tôi cảm thấy nỗi lo sợ cồn cào trong bụng | a) Không hề<br>b) Thỉnh thoảng<br>c) Khá thường xuyên<br>d) Rất thường xuyên | |
| 6 | Tôi cảm thấy  mệt mỏi vì phải cố gắng bước tiếp: | a) Thật sự rất nhiều<br>b) Khá nhiều<br>c) Không nhiều lắm<br>d) Không hề | |
| 7 | Tôi bỗng dưng thấy sợ hãi | a) Thật sự rất nhiều<br>b) Khá nhiều<br>c) Không nhiều lắm<br>d) Không hề | |
| **Tổng điểm lo lắng** | | | |

Phần 1. Phiền muộn

| No | Câu hỏi | Lựa chọn | Điểm |
|---|---|---|---|
| 1 | Tôi vẫn có thể tận hưởng những thứ mình thích: | a) Rất nhiều<br>b) Không nhiều<br>c) Một chút<br>d) Rất khó khăn | |
| 2 | Tôi có cười và nhìn vào mặt tích cực | a) Vẫn thường như tôi làm<br>b) Không nhiều<br>c) Không hề nhiều<br>d) Không hề | |
| 3 | Tôi cảm thấy hài lòng | a) Không hề<br>b) Không thường xuyên<br>c) Thỉnh thoảng<br>d) Phần lớn thời gian | |
| 4 | Tôi cảm thấy tôi đang chậm lại | a) Luôn luôn<br>b) Rất thường xuyên<br>c) Thỉnh thoảng<br>d) Không hề | |
| 5 | Tôi không quan tâm đến ngoại hình của mình | a) Chắc chắn<br>b) Tôi không quan tâm nhiều như lẽ ra phải quan tâm<br>c) Tôi cũng quan tâm một chút<br>d) Tôi vẫn luôn quan tâm đến ngoại hình | |
| 6 | Tôi tìm kiếm nguồn vui | a) Vẫn như tôi thường làm<br>b) Ít hơn bình thường một chút<br>c) Ít hơn rất nhiều<br>d) Rất khó khắn | |
| 7 | Tôi có thể thưởng thức một cuốn sách hay, một chương trình phát thanh hoặc chương trình TV hay | a) Thường xuyên<br>b) Thỉnh thoảng<br>c) Không thường xuyên<br>d) Rất hiếm khi | |
| **Tổng điểm trầm cảm** | | | |

## Phần 6. Đánh giá chất lượng cuộc sống

### Đánh giá chất lượng cuộc sống của bệnh nhân đang điều trị hóa chất

Vui lòng lựa chọn đáp án phản ánh đúng nhất câu trả lời của bạn trong 7 ngày qua

| Code | Câu hỏi | Không hề | Một chút | Thỉnh thoảng | Hơi thỉnh thoảng | Rất nhiều |
|---|---|---|---|---|---|---|
| GE1 | Tôi thấy buồn | 0 | 1 | 2 | 3 | 4 |
| GE2 | Tôi hài lòng với cách mà tôi đang thích nghi với bệnh tật của mình | 0 | 1 | 2 | 3 | 4 |
| GE3 | Tôi dần mất hi vọng trong việc chống chọi lại bệnh tật của mình. | 0 | 1 | 2 | 3 | 4 |
| GE4 | Tôi thấy hồi hợp | 0 | 1 | 2 | 3 | 4 |
| GE5 | Tô lo lắng về cái chết | 0 | 1 | 2 | 3 | 4 |
| GE6 | Tôi lo lắng rằng tình trạng của tôi sẽ trầm trọng thêm | 0 | 1 | 2 | 3 | 4 |
| | | | | | | |
| GF1 | Tôi có khả năng làm việc (kể cả việc nhà) | 0 | 1 | 2 | 3 | 4 |
| GF2 | Công việc của tôi (kể cả việc ở nhà) đem lại sự hài lòng, vui thích | 0 | 1 | 2 | 3 | 4 |
| GF3 | Tôi có thể vui sống | 0 | 1 | 2 | 3 | 4 |
| GF4 | Tôi đã chấp nhận bệnh tật của mình | 0 | 1 | 2 | 3 | 4 |
| GF5 | Tôi ngủ tốt | 0 | 1 | 2 | 3 | 4 |
| GF6 | Hiện tại tôi vui thích những gì tôi thường làm để giải trí | 0 | 1 | 2 | 3 | 4 |
| GF7 | Tôi hài lòng với chất lượng cuộc sống hiện tại của tôi | 0 | 1 | 2 | 3 | 4 |
| | | | | | | |
| GP1 | Tôi cảm thấy thiếu năng lượng sống | 0 | 1 | 2 | 3 | 4 |
| GP2 | Tôi bị buồn nôn | 0 | 1 | 2 | 3 | 4 |
| GP3 | Vì tình trạng thân thể của mình, tôi khó đáp ứng các nhu cầu của gia đình của tôi | 0 | 1 | 2 | 3 | 4 |
| GP4 | Tôi bị đau | 0 | 1 | 2 | 3 | 4 |
| GP5 | Các phản ứng phụ của việc điều trị làm tôi bị khó chịu | 0 | 1 | 2 | 3 | 4 |
| GP6 | Tôi thấy ốm yếu | 0 | 1 | 2 | 3 | 4 |
| GP7 | Tôi buộc phải nằm nghỉ trên giường | 0 | 1 | 2 | 3 | 4 |
| | | | | | | |
| GS1 | Tôi thấy gần gũi với bạn bè mình | 0 | 1 | 2 | 3 | 4 |
| GS2 | Tôi nhận được sự hỗ trợ tinh thần từ gia đình | 0 | 1 | 2 | 3 | 4 |
| GS3 | Tôi được bạn bè hỗ trợ | 0 | 1 | 2 | 3 | 4 |
| GS4 | Gia đình tôi chấp nhận bệnh tật của tôi | 0 | 1 | 2 | 3 | 4 |
| GS5 | Tôi cảm thấy hài lòng với những giao tiếp trong gia đình về bệnh của tôi | 0 | 1 | 2 | 3 | 4 |
| GS6 | Tôi rất gần gũi với bạn đời của mình (hoặc người chăm sóc chính) | 0 | 1 | 2 | 3 | 4 |
| Q1 | *Bất kể mức độ hoạt động tình dục hiện nay của quý vị như thế nào* Xin vui lòng trả lời câu hỏi dưới đây về hoạt động tình dục của ông bà. Nếu ông bà không muốn trả lời vui lòng đánh dấu X vào ô bên cạnh . ☐ | | | | | |
| GS7 | Tôi hài lòng với đời sống tình dục của mình | 0 | 1 | 2 | 3 | 4 |

***Part 6. Đánh giá mức độ của cụm triệu chứng gồm mất ngủ, lo âu, phiền muộn***

Với mỗi triệu chứng dưới đây, ông/bà vui lòng khoanh tròn vào chữ số mô tả đứng nhất mức độ của triệu chứng mà ông bà cảm nhận được trong tháng qua.

***Mất ngủ***

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Không | | | | | | | | | | Trầm trọng nhất |

***Phiền muộn***

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Không | | | | | | | | | | Trầm trọng nhất |

***Lo âu***

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Không | | | | | | | | | | Trầm trọng nhất |

## Phần 7. Nhật ký giấc ngủ

Hướng dẫn:  Vui lòng điền vào nhật ký giấc ngủ hàng ngày. Nếu có thể, ông bà vui lòng điền vào nhật ký giấc ngủ trong vòng 1 tiếng sau khi ngủ dậy vào sáng hôm sau. Nếu quên, ông bà có thể điền vào thời điểm khác trong ngày nhưng nếu ông bà không nhớ rõ thì có thể bỏ trống. Nếu giấc ngủ của ông bà bị ảnh hưởng bởi một vài lí do (đi du lịch, nhập viện…) vui lòng ghi rõ vào nhật ký. Vui lòng đọc các hướng dẫn tiếp theo để biết cách điền vào nhật ký giấc ngủ.

Ngày: Vui lòng ghi ngày mà ông bà điền nhật ký giấc ngủ

1. Giờ lên giường đi ngủ? Ghi thời gian ông/bà lên giường để đi ngủ.. Lưu ý đây là thời điểm ông bà lên giường để chuẩn bị đi ngủ chứ không phải là thời gian bắt đầu ngủ

2. Ông bà bắt đầu ngủ khi nào? Ghi thời gian mà ông bà bắt đầu nhắm mắt để cố gắng chìm vào giấc ngủ.

3. Mất bao lâu ông bà mới ngủ được? Tính từ thời điểm ông bà bắt đầu nhắm mắt để cố gắng chìm vào giấc ngủ, phải mất bao lâu ông bà mới ngủ được.

4. Ông/bà thức giấc giữa đêm mấy lần? Ghi số lần ông bà thức dậy lúc đang ngủ bắt đầu từ lúc cố gắng ngủ cho đến lúc thức dậy hoàn toàn.

5. Tổng thời gian tỉnh giấc giữa đêm? Tổng thời gian thức giấc giữa đêm của ông bà hôm qua là bao lâu? Ví dụ: trong lúc ngủ ông bà tỉnh giấc 3 lần, lần thứ nhất tỉnh mất 20 phút mới ngủ lại được, lần thứ 2 tỉnh mất 35 phút, lần thứ 3 tỉnh giấc mất 15 phút mới ngủ lại được, vậy tổng cộng trong khi ngủ đêm qua ông bà tỉnh giấc 20+35+15 = 70 phút..

6. Mấy giờ ông bà ngủ dậy? Ghi thời gian ông bà tỉnh giấc vào sáng hôm sau.

7. Mấy giờ thì ông bà ra khỏi giường? Ghi thời gian ông bà ra khỏi giường vào sáng hôm sau. Thời gian này có thể khác với thời gian ông bà ngủ dậy. Ví dụ ông bà ngủ dậy lúc 7h nhưng vẫn nằm trên giường (không ngủ) cho đến 7h30 mới ra khỏi giường. Thì ghi 7h vào câu số 6 và 7.30 vào câu số 7

8. Ghi chú. Nếu giấc ngủ của ông bà bị ảnh hưởng bởi một vài lí do (đi du lịch, nhập viện…) vui lòng ghi rõ vào nhật ký.

**NHẬT KÝ GIẤC NGỦ**

Tên người bệnh: ……Tuổi: ……Bệnh viện:…….

Mã số:……...

| Ngày | **Ngày thứ 1** | **Ngày thứ 2** | **Ngày thứ 3** | **Ngày thứ 4** | **Ngày thứ 5** | **Ngày thứ 6** | **Ngày thứ 7** |
|---|---|---|---|---|---|---|---|
| 1. Giờ lên giường đi ngủ | | | | | | | |
| 2. Mấy giờ ông bà bắt đầu chìm vào giấc ngủ | | | | | | | |
| 3. Mất bao lâu ông bà mới ngủ được | | | | | | | |
| 4. Trong khi ngủ ông bà tỉnh giấc mấy lần | | | | | | | |
| 5. Tổng thời gian tỉnh giấc của ông bà | | | | | | | |
| 6. Mấy giờ ông bà dậy hẳn | | | | | | | |
| 7. Mấy giờ ông bà ra khỏi giường | | | | | | | |
| 8. Ghi chú | | | | | | | |

## Phần 8. Phiếu theo dõi bấm huyệt

Tên người bệnh: ……Tuổi: ……Bệnh viện:…….

Mã số:……

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Số huyệt ông bà bấm hôm nay | | | | | | | | | | | | | | |
| Thời gian bấm huyệt | | | | | | | | | | | | | | |
| Nếu hôm nay ông bà không bấm huyệt, làm ơn ghi lí do | | | | | | | | | | | | | | |
| Các khó chịu gặp phải khi bấm huyệt | | | | | | | | | | | | | | |

Ông bà có dùng thêm thuốc/thực phẩm chức năng gì để điều trị mất ngủ, lo âu, phiền muộn không:

Vui lòng ghi rõ tên thuốc: (1)……. Liều dùng:……

(2)……. Liều dùng:……

## Phần 8. Phiếu theo dõi bấm huyệt

Tên người bệnh: ……Tuổi: ……Bệnh viện:…….

Mã số:……

| | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Số huyệt ông bà bấm hôm nay | | | | | | | | | | | | | | |
| Thời gian bấm huyệt | | | | | | | | | | | | | | |
| Nếu hôm nay ông bà không bấm huyệt, làm ơn ghi lí do | | | | | | | | | | | | | | |
| Các khó chịu gặp phải khi bấm huyệt | | | | | | | | | | | | | | |

Ông bà có dùng thêm thuốc/thực phẩm chức năng gì để điều trị mất ngủ, lo âu, phiền muộn không:

Vui lòng ghi rõ tên thuốc: (1)……. Liều dùng:……

(2)……. Liều dùng:……

## Appendix 2. The intervention rating profile-15

The purpose of this questionnaire is to obtain information that help to refine the study protocol for future main study. Please circle the number which best describes your agreement or disagreement with each statement.

| | **Strongly disagree** | **Disagree** | **Slightly disagree** | **Slightly agree** | **Agree** | **Strongly agree** |
|---|---|---|---|---|---|---|
| 1. This was an acceptable intervention for me to reduce the symptom cluster burden | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. Most of the patient with similar symptoms would find this intervention appropriate for their needs. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. This intervention proved effective in reducing the symptom cluster burden | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. I would suggest this intervention to other patients | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. My symptoms burden was severe enough to warrant use of this intervention | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. Most patients would find this intervention suitable for their needs | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. I would be willing to use this treatment | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. This intervention did not result in negative side-effect for me | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. This treatment would be appropriate for a variety of cancer patients. | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. This intervention was consistent with those I have used | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. The intervention was a fair way to handle symptoms burden | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. This intervention is reasonable for reducing symptom burden | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. I like the procedures used in this intervention. | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. This intervention was a good way to handle symptoms burden | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. Overall, this intervention would be beneficial for me | 1 | 2 | 3 | 4 | 5 | 6 |

## Phụ lục 4. Đánh giá phương pháp bấm huyệt để giảm triệu chứng

Mục đích của bộ câu hỏi này nhằm giúp chúng tôi cải tiến quy trình của phương pháp điều trị bằng bấm huyệt cho nghiên cứu lớn hơn. Vui lòng khoang tròn vào số phản ánh đúng nhất mức độ đồng ý hoặc không đồng ý của ông bà với mỗi câu dưới đây..

| | **Rất không đồng ý** | **Không đồng ý** | **Không đồng ý một chút** | **Đồng ý một chút** | **Đồng ý** | **Rất đồng ý** |
|---|---|---|---|---|---|---|
| 1. Tôi thấy phương pháp này có thể dùng để chữa các triệu chứng của tôi | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. Phần lớn các bệnh nhân có 3 triệu chứng này sẽ thấy phương pháp này là hợp lý. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. Phương pháp này chứng minh được tác dụng giảm các triệu chứng | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. Tôi sẽ giới thiệu phương pháp này tới người khác | 1 | 2 | 3 | 4 | 5 | 6 |
| 5. Các triệu chứng của tôi ở mức độ đủ nặng để áp dụng phương pháp này | 1 | 2 | 3 | 4 | 5 | 6 |
| 6. Phần lớn các bệnh nhân sẽ thấy phương pháp này đáp ứng dc nhu cầu của họ | 1 | 2 | 3 | 4 | 5 | 6 |
| 7. Tôi rất sẵn sàng áp dụng phương pháp điều trị này | 1 | 2 | 3 | 4 | 5 | 6 |
| 8. Bấm huyệt không gây bất kỳ tác dụng phụ nào cho tôi | 1 | 2 | 3 | 4 | 5 | 6 |
| 9. Phương pháp này là thích hợp cho người bệnh ung thư. | 1 | 2 | 3 | 4 | 5 | 6 |
| 10. Phương pháp này không đi ngược lại các phương pháp tôi đã áp dụng | 1 | 2 | 3 | 4 | 5 | 6 |
| 11. The intervention was a fair way to handle symptoms burden | 1 | 2 | 3 | 4 | 5 | 6 |
| 12. Phương pháp này là rất hợp lý để điều trị các triệu chứng | 1 | 2 | 3 | 4 | 5 | 6 |
| 13. Tôi thích quy trình của phương pháp điều trị này | 1 | 2 | 3 | 4 | 5 | 6 |
| 14. Phương pháp rất tốt để giúp tôi giảm khó chịu từ các triệu chứng | 1 | 2 | 3 | 4 | 5 | 6 |
| 15. Nhìn chung, phương pháp này là hữu ích đối với tôi | 1 | 2 | 3 | 4 | 5 | 6 |

## Appendix 3. Protocol for the self-acupressure training section for participants

**1. Purpose of the training section:**

To train participants how to practice self-acupressure to manage insomnia, depression, and anxiety at home.

**2. Objective of the training section**

After receiving training section, participants are:

- Able to locate the acupoints
- Able to apply right pressure techniques in each acupoint
- Able to understand the dose of the treatment.

**3. Location**: In the consultation room of hospital.

**4. Duration**: 30 minutes.

**5. Number of participants per section**: 3 to 5 participants

**6. Instructor**: Trained interventionist.

**7. Training materials**

For TSA group: Handout of Self-acupressure protocol + Acupressure Skill check A

For SSA group: Handout of Sham acupressure protocol + Acupressure Skill check B

**7. Detail of training section**

| Step | Content | Interventionist does | Participants do |
|---|---|---|---|
| 1 | Introduce of the training section: Purpose and Objective | Lecture | |
| 2 | Introduce method of how to locate a acupoint and pressure techniques using the treatment protocol handout | Demonstration | |
| 3 | Practice of the method and skill to locate the selected acupoint and pressure techniques. | Supervise participants to practice.<br>Asking participants to locate and stimulate acupoints. | Return demonstration and practice |
| 4 | Revision and correct participant if they fail to identify or stimulate acupoints | Demonstration | Return demonstration and practice |
| 5 | Checks the patient's mastery of self-acupressure technique | Using Acupressure Skill Check form to checks the participant's mastery. | Return demonstration |
| 6 | Summarize the training section and provide the treatment protocol to participants. | Lecture | |

## Appendix 4. Interventionist Skill Check of Acupressure and Sham Acupressure

### Interventionist Skill Check of Acupressure

Name of Interventionist:.....

Date:.....

| **Skills** | **Score (*)** |
|---|---|
| ***Location of Acupoint*** | |
| 1. Acupoint AP1 | |
| 2. Acupoint AP2 | |
| 3. Acupoint AP3 | |
| 4. Acupoint AP4 | |
| 5. Acupoint AP5 | |
| 6. Acupoint AP6 | |
| ***General Stimulation techniques*** | |
| 7. Applying pressure time | |
| 8. Acupoint confirmation (identification of sore, numb, heavy, distended/warm) | |
| ***Specific stimulation techniques*** | |
| 9. Acupoint AP1: Specific techniques on applying pressure | |
| 10. Acupoint AP2: Specific techniques on applying pressure | |
| 11. Others Acupoints: Specific techniques on applying pressure | |
| Total | |

*Scoring instruction

0 = Incorrect, 1 = Correct

**Interventionist Skill Check of Sham Acupressure**

Name of Interventionist:.....

Date:.....

| **Skills** | **Score (*)** |
|---|---|
| ***Location of Acupoint*** | |
| 1. Acupoint SA1 | |
| 2. Acupoint SA2 | |
| 3. Acupoint SA3 | |
| 4. Acupoint SA4 | |
| 5. Acupoint SA5 | |
| 6. Acupoint SA6 | |
| ***General Stimulation techniques*** | |
| 7. Applying pressure time | |
| ***Specific stimulation techniques*** | |
| 8. Acupoint SA1: Specific techniques on applying pressure | |
| 9. Acupoint SA2: Specific techniques on applying pressure | |
| 10. Others Sham Acupoints: Specific techniques on applying pressure | |
| Total | |

*Scoring instruction

0 = Incorrect, 1 = Correct

**Bảng kiểm kỹ thuật bấm huyệt của điều dưỡng**

Tên điều dưỡng:

Ngày:

| **Kỹ năng** | **Điểm (*)** |
|---|---|
| ***Xác định vị trí huyệt*** | |
| 1. Huyệt AP1 | |
| 2. Huyệt AP2 | |
| 3. Huyệt AP3 | |
| 4. Huyệt AP4 | |
| 5. Huyệt AP5 | |
| 6. Huyệt AP6 | |
| ***Kỹ thuật bấm huyệt chung*** | |
| 7. Thời gian bấm | |
| 8. Đắc khí | |
| ***Kỹ thuật bấm huyệt cụ thể*** | |
| 9. Huyệt AP1: thực hiện đúng kỹ thuật bấm huyệt | |
| 10. Huyệt AP2: thực hiện đúng kỹ thuật bấm huyệt | |
| 11. Các huyệt khác:  thực hiện đúng kỹ thuật bấm huyệt | |
| Tổng điểm | |

*Hướng dẫn chấm điểm

0 = Sai, 1 = Đúng

**Bảng kiểm kỹ thuật bấm huyệt giả của điều dưỡng**

Tên điều dưỡng:

Ngày:

| **Kỹ năng** | **Điểm (*)** |
|---|---|
| ***Xác định vị trí huyệt*** | |
| 1. Huyệt SA1 | |
| 2. Huyệt SA2 | |
| 3. Huyệt SA3 | |
| 4. Huyệt SA4 | |
| 5. Huyệt SA5 | |
| 6. Huyệt SA6 | |
| ***Kỹ thuật bấm huyệt chung*** | |
| 7. Thời gian bấm huyệt | |
| ***Kỹ thuật bấm huyệt cụ thể*** | |
| 8. Huyệt SA1: thực hiện đúng kỹ thuật bấm huyệt | |
| 9. Huyệt SA2: thực hiện đúng kỹ thuật bấm huyệt | |
| 10. Các giả huyệt khác:  thực hiện đúng kỹ thuật bấm huyệt | |
| Tổng điểm | |

*Hướng dẫn chấm điểm

0 = Sai, 1 = Đúng

## Appendix 5. Acupressure Skill Check Forms for participants*

Noted: Acupressure Skill Check Form (A) is for participants in the True self-acupressure group and Acupressure Skill Check Form (B) is for participants in the Sham Self-Acupressure group

### Acupressure Skill Check Form (A)

Name of participant: .....

Hospital:.....

Code:.....

Date:.....

| **Skills** | **Score (*)** |
|---|---|
| ***Location of Acupoint*** | |
| 1. Acupoint AP1 | |
| 2. Acupoint AP2 | |
| 3. Acupoint AP3 | |
| 4. Acupoint AP4 | |
| 5. Acupoint AP5 | |
| 6. Acupoint AP6 | |
| ***General Stimulation techniques*** | |
| 7. Applying pressure time | |
| 8. Acupoint confirmation (identification of sore, numb, heavy, distended/warm) | |
| ***Specific stimulation techniques*** | |
| 9. Acupoint AP1: Specific techniques on applying pressure | |
| 10. Acupoint AP2: Specific techniques on applying pressure | |
| 11. Others Acupoints: Specific techniques on applying pressure | |
| **Total** | |

*Scoring instruction

0 = Incorrect, 1 = Correct

**Acupressure Skill Check Form (B)**

Name of participant: .....

Hospital:.....

Code:.....

Date:.....

| **Skills** | **Score (*)** |
|---|---|
| ***Location of Acupoint*** | |
| 1. Acupoint SA1 | |
| 2. Acupoint SA2 | |
| 3. Acupoint SA3 | |
| 4. Acupoint SA4 | |
| 5. Acupoint SA5 | |
| 6. Acupoint SA6 | |
| ***General Stimulation techniques*** | |
| 7. Applying pressure time | |
| ***Specific stimulation techniques*** | |
| 8. Acupoint SA1: Specific techniques on applying pressure | |
| 9. Acupoint SA2: Specific techniques on applying pressure | |
| 10. Others Acupoints:  Specific techniques on applying pressure | |
| **Total** | |

*Scoring instruction

0 = Incorrect, 1 = Correct

**Bảng kiểm kỹ thuật bấm huyệt của người bệnh***

Ghi chú: Bảng kiểm kỹ thuật bấm huyệt (A) dành cho người bệnh trong nhóm bấm huyệt thật. Bảng kiểm kỹ thuật (B) dành cho người bệnh trong nhóm bấm huyệt giả

**Bảng kiểm kỹ thuật bấm huyệt của người bệnh (A)**

Tên người bệnh:

Bệnh viện:

Code:

Ngày:

| **Kỹ năng** | **Điểm (*)** |
|---|---|
| ***Xác định vị trí huyệt*** | |
| 1. Huyệt AP1 | |
| 2. Huyệt AP2 | |
| 3. Huyệt AP3 | |
| 4. Huyệt AP4 | |
| 5. Huyệt AP5 | |
| 6. Huyệt AP6 | |
| ***Kỹ thuật bấm huyệt chung*** | |
| 7. Thời gian bấm | |
| 8. Đắc khí | |
| ***Kỹ thuật bấm huyệt cụ thể*** | |
| 9. Huyệt AP1: thực hiện đúng kỹ thuật bấm huyệt | |
| 10. Huyệt AP2: thực hiện đúng kỹ thuật bấm huyệt | |
| 11. Các huyệt khác: thực hiện đúng kỹ thuật bấm huyệt | |
| Tổng điểm | |

*Hướng dẫn chấm điểm

0 = Sai, 1 = Đúng

**Bảng kiểm kỹ thuật bấm huyệt của người bệnh (B)**

Tên người bệnh:

Bệnh viện:

Code:

Ngày:

| **Kỹ năng** | **Điểm (*)** |
|---|---|
| ***Xác định vị trí huyệt*** | |
| 1. Huyệt SA1 | |
| 2. Huyệt SA2 | |
| 3. Huyệt SA3 | |
| 4. Huyệt SA4 | |
| 5. Huyệt SA5 | |
| 6. Huyệt SA6 | |
| ***Kỹ thuật bấm huyệt chung*** | |
| 7. Thời gian bấm huyệt | |
| ***Kỹ thuật bấm huyệt cụ thể*** | |
| 8. Huyệt SA1: thực hiện đúng kỹ thuật bấm huyệt | |
| 9. Huyệt SA2: thực hiện đúng kỹ thuật bấm huyệt | |
| 10. Các giả huyệt khác:  thực hiện đúng kỹ thuật bấm huyệt | |
| Tổng điểm | |

*Hướng dẫn chấm điểm

0 = Sai, 1 = Đúng

## Appendix 6. Acupresssure Protocol Validation Form

### Acupressure Protocol Validation Form

Instruction: Please circle the number which best describes your agreement level with each of the items in the form. If you have comments or suggestion for any item please write down in the "comments" column. Please provide references if your comments or suggestions come from relevant studies.

### 1. True self-acupressure protocol

| Content | Appropriateness of the content | | | | Comments |
|---|---|---|---|---|---|
| | Very appropriate | Appropriate | Inappropriate | Very Inappropriate | |
| **Selection of the acupoint** | | | | | |
| Baihui (GV20) | 4 | 3 | 2 | 1 | |
| Yingtang (EN-HN3) | 4 | 3 | 2 | 1 | |
| Fengchi (GB20) | 4 | 3 | 2 | 1 | |
| Hegu (LI4) | 4 | 3 | 2 | 1 | |
| Shenmen (HT7) | 4 | 3 | 2 | 1 | |
| Taichong (LR3) | 4 | 3 | 2 | 1 | |
| **Pressing technique** | | | | | |
| Baihui: *using four finger pads, gently tap the area of this acupoint on the scalp* | 4 | 3 | 2 | 1 | |
| Fengchi: *using two thumbs, press in the acupoint bilaterally while the other four fingers should hold the back of the head naturally* | 4 | 3 | 2 | 1 | |
| Other acupoints: *using thumb pad, firmly massage the surrounding area of this acupoint* | 4 | 3 | 2 | 1 | |
| **Duration of each session**: 24 minute<br>(3 minute for each acupoint; for Fengchi and Taichong, participants will press both sides of the body at the same time; for Hegu and Shenmen, participant will press the right side, followed by the left side) | 4 | 3 | 2 | 1 | |
| **Duration of whole treatment**: four weeks (28 days) | 4 | 3 | 2 | 1 | |
| **Frequency**: Once a day | 4 | 3 | 2 | 1 | |
| **Time for practice self-acupressure**: Before bedtime | 4 | 3 | 2 | 1 | |

## 2. Sham self-acupressure protocol

| Content | Appropriateness of the content | | | | Comments |
|---|---|---|---|---|---|
| | Very appropriate | Appropriate | Inappropriate | Very Inappropriate | |
| **Selection of the sham acupoint** | | | | | |
| SA 1: 3cm away from Baihui | 4 | 3 | 2 | 1 | |
| SA 2: 3 cm away from Ying Tang | 4 | 3 | 2 | 1 | |
| SA 3: Mastoid bone | 4 | 3 | 2 | 1 | |
| SA 4: Head of ulnar styloid | 4 | 3 | 2 | 1 | |
| SA 5: Base of metacarpal bone of the index finger | 4 | 3 | 2 | 1 | |
| SA 6: 3 cm away from Taichong | 4 | 3 | 2 | 1 | |
| **Pressing technique** | | | | | |
| SA 1: *using four finger pads, gently tap the area of this sham acupoint on the scalp* | 4 | 3 | 2 | 1 | |
| SA 3: *using two thumbs, press in the acupoint bilaterally while the other four fingers should hold the back of the head naturally* | 4 | 3 | 2 | 1 | |
| Other acupoints: *using thumb pad, firmly massage the surrounding area of this sham acupoint* | 4 | 3 | 2 | 1 | |
| **Duration of each session**: 24 minute<br>(3 minutes for each acupoint; for SA 3 and SA 6, participants will press both sides of the body at the same time; for SA 5 and SA 4, participants will press the right side, followed by the left side) | 4 | 3 | 2 | 1 | |
| **Duration of whole treatment**: four weeks (28 days) | 4 | 3 | 2 | 1 | |
| **Frequency**: Once a day | 4 | 3 | 2 | 1 | |
| **Time for practice self-acupressure**: Before bedtime | 4 | 3 | 2 | 1 | |