

**THE EFFECTS OF MINDFULNESS-BASED
STRESS MANAGEMENT PROGRAMME
AMONG NURSES IN
HOSPITAL UNIVERSITI SAINS MALAYSIA**

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LIST OF SYMBOLS, ABBREVIATIONS OR NOMENCLATURES

bMI:	brief mindfulness intervention
C.I.	Confident Interval
DASS:	Depression Anxiety Stress Scale
HUSM:	Hospital Universiti Sains Malaysia
ITT:	Intention to Treat
MAAS:	Mindful Attention Awareness Scales
MBCT:	Mindfulness-based Cognitive Therapy
MBSR:	Mindfulness-based Stress Reduction
MLR:	Multiple Linear Regression
PSS:	Perceived Stress Scale
SPSS:	Statistical Package for the Social Sciences
S.D.:	Standard Deviation
SLR:	Single Linear Regression

KEBERKESANAN TERAPI MINDA KETARASEDAR DALAM KALANGAN JURURAWAT DI HOSPITAL UNIVERSITI SAINS MALAYSIA

ABSTRAK

Pengenalan: Jururawat berpotensi tinggi mendapat stres kerana pekerjaan. Tambahan pula, kajian menunjukkan tahap stres yang tinggi boleh menjejaskan kesihatan mental dan fizikal. Terapi minda ketarasedar (mindfulness) memainkan peranan yang efektif dalam mengurangkan stres termasuk stres dalam bidang pekerjaan termasuk bidang kejururawatan.

Objektif: Kajian ini bertujuan untuk menguji keberkesanan teknik minda ketarasedar untuk mengurangkan stres dalam kalangan jururawat yang bertugas di hospital.

Metodologi: Kajian ini merupakan kajian intervensi. Seramai 35 orang jururawat di Hospital Universiti Sains Malaysia telah dipilih secara rawak menyertai kajian ini. Terapi minda ketarasedar telah diberikan melalui kursus satu hari teknik terapi minda ketarasedar dan diikuti oleh sesi latihan berkala setiap bulan selama tiga bulan. Instrumen kajian dalam Bahasa Malaysia merangkumi Skala Depression, Anxiety and Stress 21 (DASS 21), Persepsi Skala Stres (PSS 10), dan Skala Pengalaman Harian (Mindful Attention Awareness Scale), telah digunakan sebelum dan selepas intervensi bagi mengukur perubahan yang berlaku.

Dapatan: Kajian ini menunjukkan pengurangan persepsi stres ($p = 0.04$, 95%; CI 0.06-2.92) dan keresahan ($p = 0.04$, 95%; CI 0.06-2.34) yang signifikan secara dapatan statistik selepas mereka menjalani terapi minda ketarasedar. Namun skor tahap ketarasedar peserta kajian tidak menunjukkan peningkatan yang signifikan ($p = 0.71$, 95%; CI -3.09-4.52).

Analisis kajian ini juga membuktikan terapi minda ketarasedar merupakan satu kaedah yang efektif pengurangan persepsi stress ($p < 0.001$).

Kesimpulan: Program latihan berasaskan minda ketarasedar mempunyai kesan positif yang signifikan dalam pengurangan tahap stres dan tahap keresahan dalam kalangan jururawat di hospital. Ia juga dapat mengurangkan persepsi stres mereka terhadap cabaran pekerjaan mereka menjadikan teknik terapi minda ketara sedar yang mudah, murah dan berkesan patut dipelajari dan diamalkan sebagai teknik menangani stres.

Kata Kunci: minda ketarasedar, jururawat stres, persepsi stres

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MALAYSIA**

ABSTRACT

Introduction: Nurses have a more incredible opportunity to have stress among healthcare workers. Stressful condition at the workplace has a high risk for burnout and psychological distress. Brief mindfulness intervention has a role in decreasing stress.

Objective: This study aimed to explore the effectiveness of the one-day mindfulness intervention for stress reduction on hospital nurses.

Methods: This was a quasi-experimental, single group, pre-post intervention study design. Nurses from different speciality areas ($n = 35$) in Hospital Universiti Sains Malaysia were recruited through convenience sampling. The intervention included a one-day (eight hours) brief mindfulness workshop and monthly one-hour group practice session for three months. A set of validated Malay self-administered questionnaire was used to measure perceived stress, anxiety, depression, and mindfulness at a base line of one week before the mindfulness intervention and after completion of the study at three months. The questionnaire encompassed Depression, Anxiety, and Stress Scale (DAAS), Perceived Stress Scale 10 (PSS 10), and Mindful Attention Awareness Scales (MAAS).

Results: There were statistically significant reductions in scores of stress perception ($p = 0.04$, 95% CI 0.06-2.92) and anxiety ($p = 0.04$, 95% CI 0.06-2.34) at post-intervention. The level of mindfulness reported no significant increase from pre- to post-intervention ($p = 0.71$, 95% CI -3.09-4.52). This study also found mindfulness as a factor in reducing stress perception ($p < 0.001$) at post-intervention.

Conclusion: Brief mindfulness intervention is effective in reducing stress and anxiety among nurses.

Key Words: mindfulness, nurses, stress, anxiety, depression

CHAPTER 1 INTRODUCTION

1.1 Introduction

Nursing is a profession, in which nurses face high demands in terms of quality human service because it is considered as one of the most stressful jobs (1). Persistent experience of high-stress levels can contribute to a higher likelihood of burnout, psychological distress, and physical health and reduce job satisfaction among the nurses (1, 2). This is supported by Ghawadra *et al.* who reported that 41 per cent of hospital nurses experienced psychological distress (3). A study by Zainiyah *et al.* also found that 24.6 per cent of ward nurses in a Malaysia public hospital endured stress (4).

Intervention to cope with stress is needed to reduce stress among nursing staff. In recent years, there is an increasing amount of research and study focusing on the effectiveness of mindfulness training programs. Mindfulness is a mental state achieved by focusing self-awareness on the present moment, while calmly acknowledging and accepting own feelings, thoughts, and bodily sensations, used as a therapeutic technique (2, 5).

Mindfulness intervention is proven effective in reducing psychological distress and improving well-being among healthcare workers (6, 7). Mindfulness-based training holds the potential for addressing the unique needs of health care workers, by assists them in dealing with stressful life events, improves present moment awareness, decreases distraction, and prepares to enter stressful situations with better regulation of emotion.

Mindfulness intervention has been proven to reduce stress among nurses in western countries (8-11). Mindfulness intervention program is a potential program that can be

offered to nurses heling to cope with occupational stress in Malaysia. A study by Hee *et al.* finds that 5-weeks mindfulness intervention programs effectively reduce stress among nurses in a Malaysia teaching hospital (12). The major obstacle to implement mindfulness-based training on nursing profession is time required for training and attending the weekly practice sessions. Therefore, a brief mindfulness-based intervention is adapted to overcome this barrier. Up to researcher knowledge, there is limited published data on the topic of brief mindfulness intervention in reducing stress among nurses in Malaysia hospital.

1.2 Study Objective

1.2.1 General objective

This study aims to evaluate the effectiveness of mindfulness intervention on stress among HUSM nurses.

1.2.2 Specific Objectives

- I. To determine the effectiveness of mindfulness intervention in reducing the stress level among HUSM nurses from pre- to post-intervention.
- II. To determine the effectiveness of mindfulness intervention in reducing perceived stress among HUSM nurses from pre- to post-intervention.
- III. To determine the effectiveness of mindfulness intervention in increasing mindfulness level among HUSM nurses from pre- to post-intervention

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CHAPTER 2 RESEARCH PROPOSAL

2.1 Study Protocol Submitted for Ethical Approval

Introduction

Stress is a feeling experienced when a person perceives that demands exceed the personal and social resources of the individual can cope (1). According to National Institute for Occupational Safety and Health (NIOSH), occupational stress defined as the harmful physical and emotional responses that happen when the requirements of the job do not match the capabilities, resources, or needs of the worker (2). Not all the stress is bad, and stress is necessary for a person's growth, change, development, and performance both at work and at home, (3), stress symptoms will be experienced (4).

Occupational stress has become an important issue over the last decade, as it can cause unusual and dysfunctional behaviour at work and contribute to poor physical and mental health (3). Early warning signs of job stress, for example, mood and sleep disturbances, upset stomach and headache, difficulty in concentration and troubled relationships with family and friends, are usually easy to recognize. However, chronic work-related stress might lead to psychological disorders, cardiovascular disease, and musculoskeletal disorders (2).

Healthcare workers are under increasing stress due to a variety of jobs related issues. Multiple studies have shown high amounts of psychological distress in doctors, nurses, and other healthcare professionals (3, 5, 6). Occupational stress is more crucial in the healthcare sector due to inadequate staffing, high public expectations, long work hours, exposure to infectious diseases and hazardous substances, the threat of malpractice litigation and frequently encounters with death and dying (3).

Stress among health care workers and especially nurses are an essential aspect that could influence the health and well-being of the nurses and the quality that they provide (7). Nurse considered as one of the most stressful professions. Source of stress in nursing is mostly due to physical labour, emotional demands from patients and families, work hours, shift work, interpersonal relationships with a co-worker, use of sophisticated healthcare equipment, increased workload and constant changes in the healthcare environment (8). The effect of prolonged, unmanaged stress can lead to negative impacts on nurses' personal or professional life, causing physical and psychological disorders. According to a Malaysia study, the prevalence of job-related stress level among hospital nurse, 35.2% of nurse reported having high stress, measured by Stress Overload Scale Instrument (9). At the same time, another study found that out of 110 staff nurses in a government hospital, 24.6% of them perceived occupational stress (10).

Mindfulness-based training to help nurses cope with excessive stress (11). Mindfulness-based training holds the potential for addressing the unique needs of health care workers, by assists the individuals in dealing with stressful life events, improves present moment awareness, decreases distraction, and prepares those entering highly stressful situations to better regulation of emotion (12).

Literature Review

Overview of Workload Among Nursing Staff in Malaysia

In the high demand for effectiveness and efficiency of public health service delivery, nursing staff placed a high responsibility in the provision of the health care

system. Nurses are the sole intermediaries between the doctor and the patient and in the front line of health services. In Malaysia, nursing requires a great deal of collaboration with people of different professions, social backgrounds, cultures, as well as the ability to carry different roles during a single workday, for example, participation in teams, attendance during rounds and meetings, field trips, palliative work, providing counselling to patients and their families, and social services (13).

The issue of nurse shortages in Malaysia has caused nurses to be affected with stress in trying to cope with the heavy workload. Nurses are required to perform nursing and non-nursing work under a great deal of stress. These stressful situations caused problems for nurses in their daily work (8, 13).

Overview of Prevalence of Job Stress Among Nursing Staff in Malaysia

A local study found that, out of 110 staff nurses in a government hospital, approximately 24.6% of them perceived occupational stress. While, for those who were perceived stress experienced mild stress (13.6%), moderate stress (5.5%), extreme stress (3.6%) and severe stress (0.9%) (10). While another local study of the prevalence of job-related stress level among 108 nurses at another government hospital, 35.2% of nurse reported having high stress, as measured by Stress Overload Scale Instrument (9). Another study reported a higher prevalence of work-related, 49.3%, among medical and surgical nurses, who work in a Malaysia teaching hospital (14).

Factors Related to Job Stress Among Nursing Staff in Malaysia

It is vital to understand the contributory factors and their effects on an individual and organization to reduce occupational stress. The workload found to be one of the

contributors to job stress (15). The workload is associated with inadequacy in the number of staffs, heavy paperwork such as data entry, recording inventories, report writing and filing. These are time-consuming work and required them to stay back after working hours to complete the entire non-nursing tasks. Moreover, unrealistic time and deadlines pressures to complete nursing and non-nursing task create more stress among nursing staff in our country. They often find themselves torn between spending time on direct patient care and increased administrative duties (13, 14).

Besides, interpersonal relationships between colleagues is another source of job stress in nursing staff (13, 14, 16). Conflict occurs between doctors and nurses in terms of job demands due to doctors tend to demand a great deal of nursing job from nurses during their ward rounds. Moreover, misunderstanding also occurs between senior nurses with junior nurses, nurses between Matrons, and nurses with patients. Through an interview survey, many of the junior nurses are disappointed with the immature behaviour of senior nurses, who are reluctant to provide guidance, advice, or cooperation in their daily work. Senior nurses also do not appreciate the efforts of junior nurses, such as working more extended hour and backing up senior nurses who are on an emergency call. Apart from that, inconsiderate Matron on delegating a task and handling subordinates is a source of job stress. Some Matrons practice favouritism in task delegation and promotion. Some of them have biased and injustice treatment toward nurses (13).

Besides, the interface between work and family is another main issue that inflicts stress at the workplace (15). Most nursing staffs have family and children that demand a high level of attention, care and support from them as a wife or mother. Hence, the

interaction between demands of work and those of family life often exacerbate work-related levels of stress. These dual responsibilities are likely to add a significant load on nurses' physical and mental health (13, 14).

As a further matter, environment factor in a hospital also another source of psychological stress in staff nurse (15). For the nurses who work in an intensive care unit (ICU), they indicated that being in an environment with sophisticated machines is very stressful to handle as operating and fixing the devices requires a lot of knowledge and patience (16). Alarms from appliances connected to the patient are mandatory to respond. Noise from persisted uncontrolled alarm systems can add up to nurses mental and physical attention and noise coming from systems should be responded because noise is a stressor to the nurse and patients. Furthermore, the issue of air conditioning failure has caused discomfort among the medical staff. Nurses have to work under the hot condition and are less tolerant of frustrations with patients. Due to the frequent breakdowns of the air-conditioning system, while on duty, most of the medical staff used table fans as an alternative to reduce heat in the workplace (13).

Lastly, from a local study, facing with death and dying, lack of support from superior and co-worker, inadequate preparation (14) administrative and management issue (13), were another source of workplace stress among nursing staff in Malaysia.

Consequences of Job Stress Among Nursing Staff in Malaysia

The symptom of stress divided into psychological symptom, physical symptom, and behavioural symptom. Effects of stress on psychological consist of anger, anxiety, depression, lowered self-esteem, lower intellectual functioning, difficulty in

concentration and make decisions, anxiety and nervousness, irritability, resentment of supervision and job dissatisfaction. Deteriorate in performance, absenteeism, higher accident rates, higher turnover rates, higher alcohol and other drug abuse, impulsive behaviour and difficulties in communication are few effects of stress on behavioural. The consequence of stress toward physical symptoms included headache, musculoskeletal pain, abdominal discomfort, and bodily injury.

Based on a study by Raja Lexshimi *et al.*, among 67 ICU staff nurses, the most common physical symptom is headache, with 98.6% of them experienced an episode of headache. Fatigue (97.1%) and anxiety (97.1%) reported as the highest psychological symptom during work. Because of stress, 92.9% of them experienced injury and commit mistake while on duty, and 88.6% of them experienced conflict with others (16).

A study by Loo and Leap, Malaysian nurses were found to encounter tiredness (62.3%) almost every day, loss of concentration (44.7%) nearly every week, headache (36.5%) nearly every month and bore (20.1%) almost every two months when experiencing job stress (13).

Mindfulness-Based Intervention in Stress Reduction and Promote Well Being

Although organizational approaches to stress reduction (e.g., improving relationships with management, reducing workload) may help in relieve job stress. However, certain stress-promoting factors inherent in the nursing role (e.g., witnessing and supporting patients and families under conditions of loss) are immutable to such modifications (12). The effect of prolonged, unmanaged stress can have a negative impact on nurses' personal or professional lives. Therefore, there is a need to develop a culturally

acceptable mental health program to help nurses cope with excessive stress. A promising program is mindfulness training.

Mindfulness is a mental state achieved by focusing one's awareness on the present moment, while calmly acknowledging and accepting one's feelings, thoughts, and bodily sensations, used as a therapeutic technique. Mindfulness training holds the potential for addressing the unique needs of health care workers. It assists individuals in dealing with stressful life events when they are occurring, improves present moment awareness, decreases distraction, and prepares those entering highly stressful situations to regulate emotion better. Furthermore, mindfulness training can introduce as a component of a worksite wellness program. It offers an economical approach to support nurse retention and reduce health care costs (12).

The core principle in the mindfulness-based interventions is 'Mindfulness', which describe as the awareness that arises through intentionally attending to one's moment-to-moment experience in a non-judgmental and accepting way (17). It creates a psychological 'space' between one's perception (e.g. stressful stimulus) and response (thoughts, speech and actions). Mindfulness enables us to respond wisely instead of reacting impulsively with negative emotions. In this way, it has the benefit to lower the perception of stress, stress symptoms, and improve the ability to cope with the stressor and situational problem (18). Therefore, mindfulness training is potentially useful in promoting well-being and stress management in the nursing profession.

In Malaysia, there is a mindfulness-training program, Mindfulness-Based Stress Management (MBSM) or known as MINDFULGym can potentially offer to nurses to

cope with stress. It is Malaysia's first ever-structured stress reduction & wellness program, developed by consultant psychiatrist Dr Phang Cheng Kar in 2010 that combines the ancient wisdom of mindfulness and positive psychology. The program was design based on the principles of Mindfulness-based Stress Reduction Program, MBSR (19-21) and Mindfulness-based Cognitive Therapy MBCT (22). In a meta-analysis of 209 studies concluded that mindfulness-based interventions are effective for reducing stress, anxiety, and depression (23). Furthermore, MBSR and MBCT are effective interventions for reducing stress and promoting well-being, either in clinical or non-clinical fields (24, 25).

A mindfulness-based intervention study on medical students in Malaysia showed that the intervention group reported significant improvements in depressive symptoms, anxiety, general psychiatric symptoms, perceived stress, subjective happiness, and satisfaction with life compared to the control group (19).

Up to now, there are limited studies about mindfulness-based intervention study in stress reduction among nurses. There is a single group pre- and post-intervention study about mindfulness-based intervention conduct among critical care unit nurse in referral central in Malaysia Hospital. Perceived Stress Scale (PSS) and Depression Anxiety Stress Scale (DASS) used to measure the stress-related outcomes. Mindfulness Attention and Awareness Scale (MAAS) used to measure the level of mindfulness. After completing the program, the participants reported significant improvement in the level of perceived stress, stress, anxiety, depression, mindfulness, and happiness, with a moderate to large effect size (11).

Problem Statement

Healthcare workers are under increasing stress. Nursing is acknowledged to be a stressful profession worldwide and locally, due to a variety of work-related issues, increasing in workloads, an interpersonal relationship issue, interface between work and family, environment factors, and lack of support (13, 14, 16). The effect of prolonged, unmanaged stress can have a negative impact on nurses' personal or professional lives, causing physical and psychological, and behavioural changes, such as job stress, headache, fatigue, anger, anxiety, loss of concentration, and careless mistake during on duty (13, 14, 16). Strategies are needed to assist nurses in managing clinical work and their overall health.

A mindfulness-based intervention study done on critical unit nurses in a Malaysia tertiary hospital showed significant improvement in the level of perceived stress, stress, anxiety, depression, mindfulness, and happiness among nurses at post-intervention (11).

Thus, brief mindfulness-based intervention is one of the strategies in helping nursing staff at Hospital University Sains Malaysia (HUSM) to reduce stress in work and promote better mental health. By mastering mindfulness-based stress management, nurses can apply it anytime whenever they are in stress, to improve the productivity of work and their mental health.

Justification to Conduct the Study

A study among 110 staff nurses in a Malaysia government reported that 24.6% of them perceived occupational stress (10). Based on a meta-analysis of 209 studies, mindfulness-based intervention is an effective treatment for a variety of psychological

problems and is especially effective for reducing stress, anxiety, and depression (23). In Malaysia, there are multiple intervention studies on Mindfulness-based program done among medical students reported significant reductions in stress and increase in mindfulness, reduction in depressive symptoms, anxiety, and perceived stress (19, 21, 26). Mindfulness-training program can potentially offer to nurses to cope with occupational stress. Up to researcher knowledge, there is limited published data on the topic of Mindfulness-Based Stress Management (MBSM) in reducing stress among nurses from other disciplines in Malaysia Hospital.

Objectives

General Objective

This study aims to evaluate the effectiveness of mindfulness intervention on stress among HUSM nurses.

Specific Objectives

- I.** To determine the effectiveness of mindfulness intervention in reducing the stress level among HUSM nurses from pre- to post-intervention.
- II.** To determine the effectiveness of mindfulness intervention in reducing perceived stress among HUSM nurses from pre- to post-intervention.
- III.** To determine the effectiveness of mindfulness intervention in increasing mindfulness level among HUSM nurses from pre- to post-intervention.

Research Questions

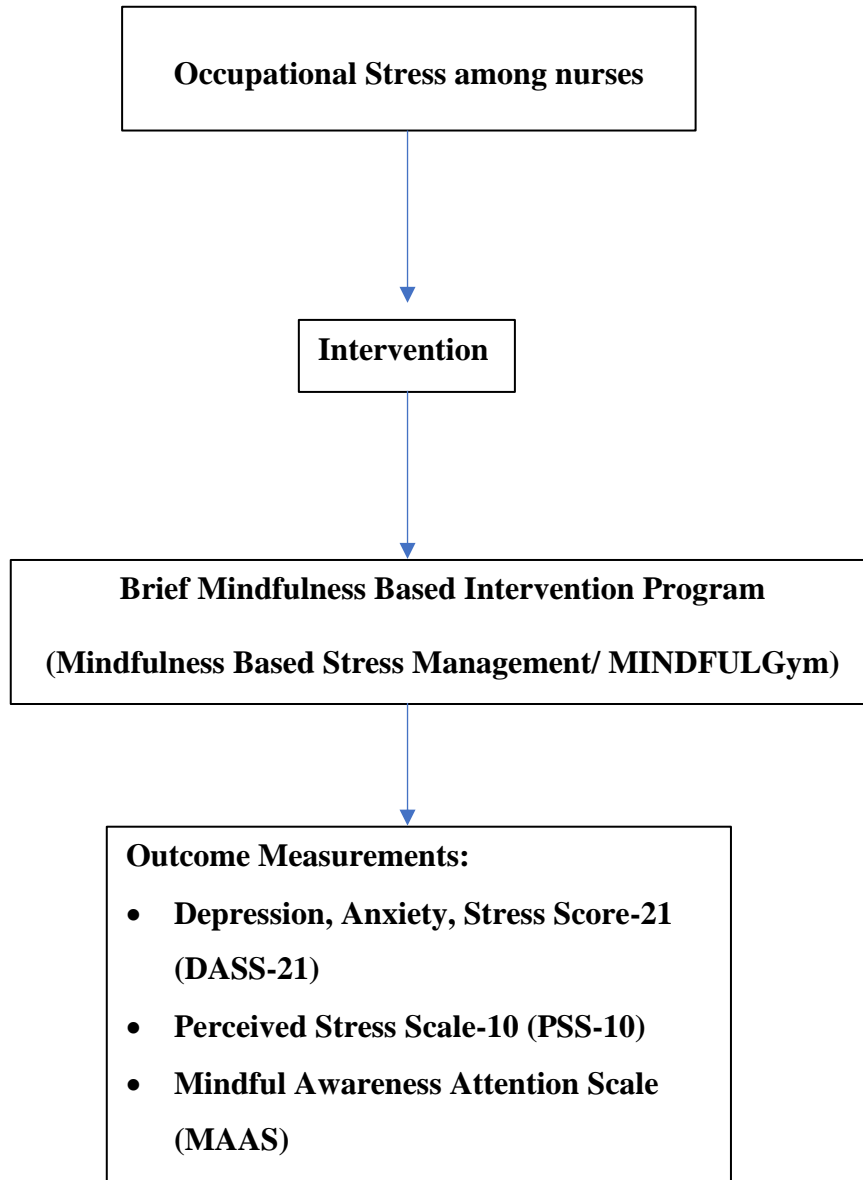
- I.** Is mindfulness intervention effective in reducing stress level among HUSM nurses from pre- to post-intervention?

- II.** Is mindfulness intervention effective in reducing perceived stress score among HUSM nurses from pre- to post-intervention?
- III.** Is mindfulness intervention effective in increasing mindfulness level among HUSM nurses from pre- to post-intervention?

Research Hypothesis

- I.** Mindfulness intervention can significantly reduce the level of stress among HUSM nurses from pre- to post-intervention.
- II.** Mindfulness intervention can significantly reduce perceived stress score HUSM nurses from pre- to post-intervention.
- III.** Mindfulness intervention can significantly increase the level of mindfulness HUSM nurses from pre- to post-intervention.

Conceptual Framework



Methodology

- I. Study Design:** A Quasi-experimental, single group, pre-post study design.
- II. Study Duration:** This study will conduct from June 2018 to October 2019
- III. Study Location:** Hospital Universiti Sains Malaysia

Sampling Frame

- I. Reference Population:** All the nurses in Malaysia hospital
- II. Source Population:** All the nurses in Kelantan state hospital
- III. Sampling Frame:** All the HUSM hospital nurses
- IV. Study sample:** HUSM nurses who express interest to participate in the MBSM intervention program by voluntary basis
- V. Study Subject:** Nurses who are consented, and fulfilled inclusion and exclusion criteria to participate in the study

Selection Criteria

I. Inclusion Criteria

- a.** Nurses who are practising as the nursing profession at HUSM, with the minimum three years working experience and having a valid annual practising certificate
- b.** Nurses with a minimum qualification of nursing diploma
- c.** Nurses who can understand English and Malay language
- d.** Nurses who are willing to give consent to participate in the study

II. Exclusion Criteria

- a.** Nurses who have a physical disability that lead to limitation of mobilization and movement

b. Nurses who have an underlying severe mental illness

A severe mental illness is a condition that affects persons who currently or at any time in the past have diagnosed to have mental, behaviour, or emotional disorder that has resulted in severe functional impairment. Severe mental illness includes schizophrenia spectrum disorder (schizophrenia, schizoaffective disorder), bipolar disorder, and major depressive disorder (27).

c. Nurses who have participated in a mindfulness training program

d. Nurses who planned to transfer or quit as a nursing profession

Sample Size Calculation

Estimate sample size calculation for objective to evaluate the effectiveness of MBSM in reducing stress level among HUSM nurses from pre- to post-intervention:

$\alpha = 0.05$, power = 80%

Standard Deviation (SD) of difference in score of stress (pre- and post-intervention) = 5.75 (11)

Expected detectable difference in level of stress = 3.0

The sample size is calculated by using Power and Sample Size Program software.

The sample size required to evaluate the effectiveness of MBSM in reducing stress among HUSM nurses is 31 participants.

Estimate sample size calculation for objective to determine the effectiveness of MBSM in reducing perceived stress score among HUSM nurses from pre- to post-intervention

$\alpha = 0.05$, power = 80%

Standard Deviation (SD) of difference in score of perceived stress (pre-and post-intervention) = 5.70 (26)

The expected detectable difference in score of perceived stress = 4

The sample size is calculated by using Power and Sample Size Program software.

The sample size required to evaluate the effectiveness of MBSM in reducing perceived stress among HUSM nurses from pre- to post-intervention is 18 participants.

Estimate sample size calculation for objective to determine the effectiveness of MBSM in increasing mindfulness score among HUSM nurses from pre- to post-intervention

$\alpha = 0.05$, power = 80%

Standard Deviation (SD) of difference in score of mindfulness = 0.8 (26)

The expected detectable difference in score of mindfulness from pre-to post-intervention = 0.5

The sample size is calculated by using Power and Sample Size Program software. The sample size required to evaluate the effectiveness of MBSM in increasing mindfulness among HUSM nurses is 22 subjects.

Among those objectives, the largest estimate sample size required for this intervention study is 31 participants. By adding 10% of drop-out (11), a total of 35 participants required for this study.

Sampling Methods

Total 35 nurses from wards, who fulfil the inclusion criteria, will be included in the study. There is a total of 1047 of nurses who are in charge of the wards in HUSM. Convenience sampling used to select nurses from each unit to represent the study population. Below is the calculation for allocation of nurses for each unit in HUSM:

Total of the nurse in Paediatric wards: 78 persons

$$78/1047 \times 35 \approx 2 \text{ Nurses}$$

Total of the nurse in Medical wards: 142 persons

$$142/1047 \times 35 \approx 4 \text{ Nurses}$$

Total of the nurse in psychiatry wards: 23 persons

$$23/1047 \times 35 \approx 1 \text{ Nurse}$$

Total of the nurses in the emergency department: 84 persons

$$84/1047 \times 35 \approx 3 \text{ Nurses}$$

Total of the nurse in the intensive care unit/high dependency unit: 223 persons

$$223/1047 \times 35 \approx 7 \text{ Nurses}$$

Total of the nurse in operation theatres: 153 persons

$$153/1047 \times 35 \approx 5 \text{ Nurses}$$

Total of the nurse in surgery wards: 151 persons

$$151/1047 \times 35 \approx 5 \text{ Nurses}$$

Total of the nurse in obstetrics and gynaecology wards: 115 persons

$$115/1047 \times 35 \approx 4 \text{ Nurses}$$

Total of the nurse in ophthalmology ward: 14 persons

$$14/1047 \times 35 \approx 1 \text{ Nurse}$$

Total of the nurse in orthopaedic wards: 50 persons

$$50/1047 \times 35 \approx 2 \text{ Nurses}$$

Total of the nurse in Otorhinolaryngology ward: 14 persons

$$50/1047 \times 35 \approx 1 \text{ Nurse}$$

Ward/ Unit	Number of participants
Paediatric	2
Medical	5
Psychiatry	1
ICU/HDU/CCU	7
Operation theatre	5
Emergency	3
Surgery	4
Obstetrics and Gynaecology	4
Ophthalmology	1
Orthopaedic	2
Otorhinolaryngology	1
	Total of 35

This study will be advertised through each ward matron/sister by giving a program flyer, information sheet, and registration form. Ward Matron/sister will select the participants, who have the interest to participate in the study, by based on the inclusion and exclusion criteria. Nurses who are taking part in this study are entirely voluntary.

Study Procedure

The study will be conducted after obtaining approval from the Universiti Sains Malaysia Human Ethical Committee. The follow is study flow of the study:

- I.** This study will be advertised through each ward matron/sister by giving a program flyer, information sheet, and registration form. Ward Matron/sister will select the participants, who have the interest to participate in the study, by based on the inclusion and exclusion criteria.
- II.** The nurses will contact via email or phone, to come for a briefing session at one week before the stress management program.
- III.** During the briefing session, detail information and purposes about the intervention study will be explained.
- IV.** Subsequently, consent will be taken from nurses.
- V.** The participant will be given four sets of questionnaires to fill in.
 - a. Socio-demographic questionnaire
 - b. Depression, anxiety and Stress Scale 21 (DASS-21)
 - c. Perceived Stress Scale-10 (PSS-10)
 - d. Mindful Attention Awareness Scale (MAAS)
- VI.** The participant who reports severe depression (score ≥ 21), anxiety (score ≥ 15) and stress (Score ≥ 26) score by DASS questionnaire pre-intervention will be offered for further psychiatry evaluation and management at HUSM psychiatry clinic. These groups of participants can go through Mindfulness program, as a therapy for stress, enhanced mood and happiness. They will be reassessed again at the end of the study. They will offer alternative therapy, for example, psychiatry evaluation if no improvement or worsening in severity after the intervention.

VII. Participants who eligible in the study will be given one-day structured mindfulness stress reduction and wellness program called MINDFULGym. Dr Phang Cheng Kar will be invited for the one-day group-training program. MINDFULGym is a mindfulness-based stress management program specially designed for relaxation and wellness, locally developed by consultant psychiatrist Dr Phang Cheng Kar in 2010. Dr Phang Cheng Kar is a consultant psychiatrist and mindfulness-based therapist. Dr Phang is the developer of MINDFULGym, which is a Malaysian mindfulness-based stress reduction and wellness program. To date, he has conducted more than a hundred talks/workshops related to mindfulness. The Ministry of Health (MySihat) and Universiti Putra Malaysia (UPM) have given grants to support his efforts in free mindfulness education for the community and medical students. (26).

Modules in MINDFULGym are Mindful Body Stretching, Now-ing, Mindful-STOP, Mindful Breathing, Beginner's Mind, Body Scan and Relaxation, and Gratitude Workout. Below is the description of each component of MINDFULGym (28):

- Mindful Body Stretching consists of a 10-posture physical exercise for progressively stretching and relaxing different parts of the body.
- NOW-ing involves the step of mentally labelling or silently verbalizing our physical activities. It helps us to be more aware of what we are doing.
- Beginner's mind is a tool for cultivating the habit of experiencing ordinary things in life with the attitude of a beginner.
- Mindful Breathing consists of a series of exercises that involve paying attention to breathing to recognize emotional states, calm the mind, and develop a positive mental attitude.

- Gratitude Workout consists of a series of exercises for training participants' mind to pay attention to the positive aspects of life. The technique is about to recall something positive aspects that happened today, recently, or a long time ago, and pays attention to the positive thing in life, for example, good deeds, accomplishments, and success.

VIII. Subsequently, monthly practical sessions will be done between participants and investigators. Each practical session will be for one hours. The participant must attend at least two out of monthly practice session; attendance for each session will be taken.

IX. Participant may withdraw their participation in the study at any time, without any penalty or loss of benefits.

X. The participants will assess again by using three questionnaires (DASS-21, PSS-10, MAAS) at the end of the study, at post-intervention. The participant who reports severe depression (score ≥ 21), anxiety (score ≥ 15) and stress (Score ≥ 26) score by DASS questionnaire post-intervention will be offered for further psychiatry evaluation at HUSM psychiatry clinic.

Potential Risk to Participant

All participants will be asked to complete short questionnaires to report information about them that may consider private or personal. This program will not involve any invasive and non-invasive procedure. The risk of the safety or health of participants in the study is very minimal.

Possible Benefits of Participation in Study