# The effectiveness of single session 20-minute mindful breathing in symptom control in kidney transplant recipients: a randomised controlled trial

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## Introduction

Therapeutic mindfulness is the practice of being aware of the present moment[1]. Previous studies have suggested benefit of mindfulness-based therapy for improving general health conditions. The body of evidence to date included both clinical trials, as well as observational and qualitative studies showing evidence of benefit[2, 3, 4]. While the majority of outcomes measured involved improvement in psychological well-being, a few other measured outcomes includes looking at physiological changes in response to mindfulness-based therapy[5]. The scope of study participants were wide, with involvement of healthy volunteers to palliative care patients, as well as patient caregivers. However, a new perspective of study is worth discovering based on population of kidney transplant recipients suffer from varying degree of symptoms. From our literature review, two RCTs were identified which have reported positive association in psychosocial symptoms reduction through mindfulness-based interventions among solid organ transplant recipients[6, 7]. Both studies involved multiple sessions of mindfulness-based intervention and long-term outcome measurement.

In this study, we aim to study the effectiveness of single session 20-minute mindful breathing in symptom control in kidney transplant recipients. Results from this study will help clinicians to manage patients for better symptom control, by offering multi-modality approaches in future patient care, more so in patients who prefer non-pharmacological interventions or are experiencing side effects of the pharmacological management.

## Objectives

To study the effectiveness of single session 20-minute mindful breathing in symptom control in kidney transplant recipients.

**Methodology**

A randomized controlled trial was conducted in renal transplant clinic of a tertiary center. A total of 192 adult kidney transplant recipients (KTR) attending renal transplant clinic were screened for eligibility. Subjects who aged ≥ 18-year-old, scored ≥ 4 in at least 1 symptom at 0-minute based on Edmonton Symptom Assessment System (ESAS), and consented to participate were being recruited. Subjects with underlying psychiatric comorbidities and who were not able to communicate were excluded. A total of 60 subjects were randomized equally into control and intervention arms by electronic number randomizer. Subjects in control arm received only standard care. Subjects in intervention arm received a single session 20-minute guided mindful breathing session in addition to standard care. Subjects in both arms were requested to rate their symptoms using ESAS at 20-minute. Data collected were analyzed using SPSS version 21.

**Ethics**

Medical ethic approval was obtained from the medical ethic committee of University Malaya Medical Center. Informed consent was obtained from all the subjects of the study. The study was conducted according to the Good Clinical Practice (GCP) guideline.

**Intervention**

Intervention involves a single session 20-minute mindful breathing guided by the investigator using a uniform script (as below). Subjects in the control group will be told to continue with their activities for 20 minutes.

**Step 1 (5 minutes): Identifying the in- breath and outbreath**

Make yourself comfortable. Relax your body. Close your eyes gently. Take two deep breaths slowly. Then, breathe naturally. Notice the flow of air through your nose. Rest your attention gently on the breath. Breathing in, you know you are breathing in. Breathing out, you know you are breathing out. In – out, in – out, in – out. If you are distracted by any sounds, body sensations, thoughts or feelings, gently come back to your breath. Be aware of your in-breath and outbreath for the next few minutes.

**Step 2 (5 minutes): Following the entire length of the breath**

Continue to relax your body with your eyes closed. Continue to pay attention to your breath. Follow the entire length of your breath. Follow the beginning, the middle and the end of your in- breath, and the beginning, middle and the end of your out-breath. If you are breathing in a long breath, you know you are breathing in a long breath. If you are breathing in a short breath, you know you are breathing in a short breath. If you are breathing out a long breath, you know you are breathing out a long breath. If you are breathing out a short breath, you know you are breathing out a short breath. Do not force yourself to take a long or short breath. Just breathe naturally. Be aware of the entire length of the breath. In – in – in, out – out – out, in – in – in, out – out – out. If you are distracted by any sounds, body sensations, thoughts or feelings, gently come back to your breath. Follow the entire length of your breath for the next few minutes.

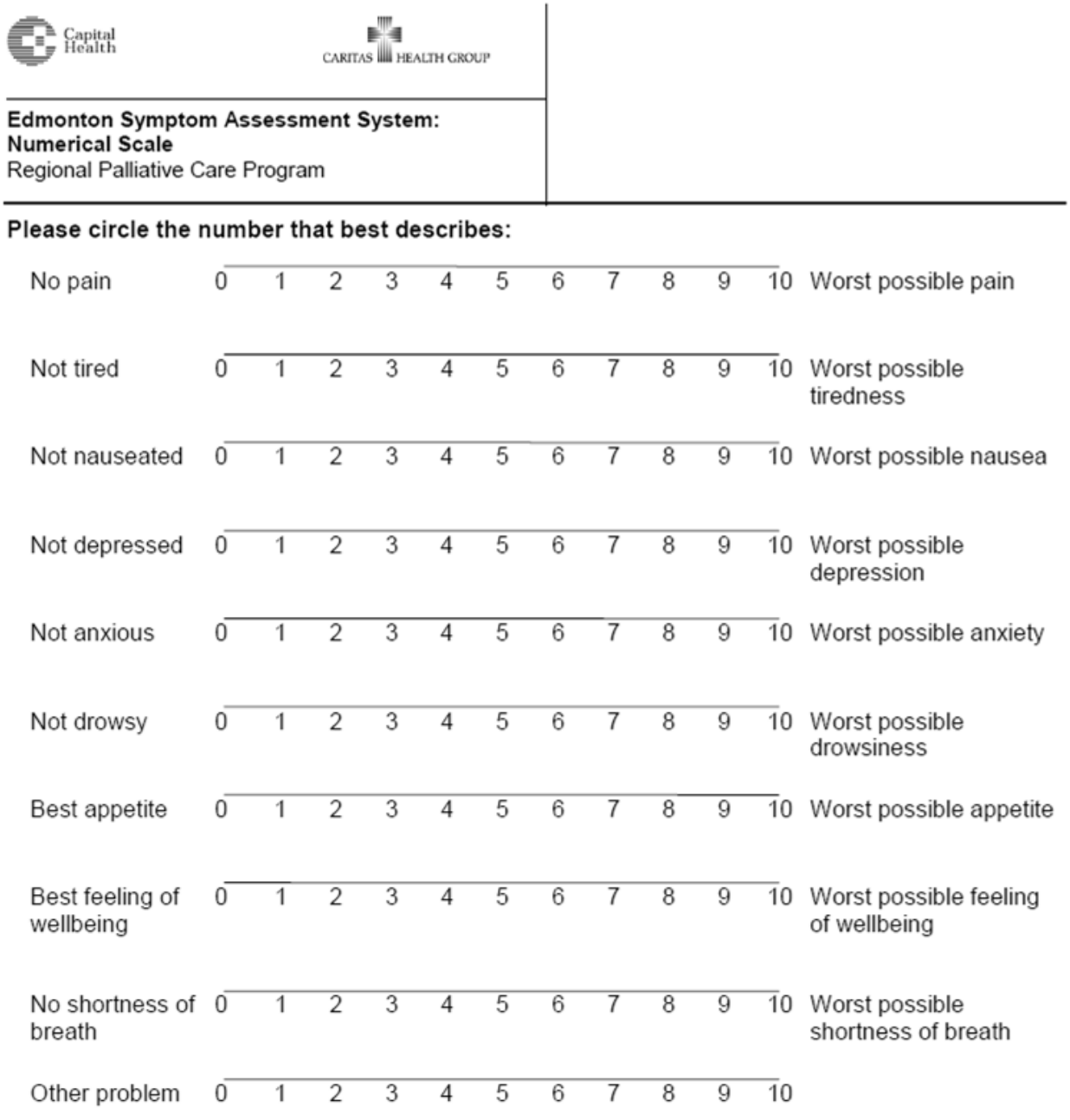
**Step 3 (5 minutes): Bringing the mind back to the body**

As you follow the entire length of your breath, bring your mind back to your body. Instead of thinking about the past or future, bring your mind back to now. Bring your mind and body together as one. As you breathe in, feel your whole body moving with your breathing in. As you breathe out, feel your whole body moving with your breathing out. Breathing in, you are aware of your whole body as you are breathing in. Breathing out, you are aware of your whole body as you are breathing out. Feel the different parts of your body as you breathe in and out. Then, feel the body as a whole, fully united with your mind. Feel the wholeness of yourself with each breath for the next few minutes.

**Step 4 (5 minutes): Relaxing the body**

Once your breathing is harmonious, your body will relax naturally. Feel whether there is any tension in your body. Breathe and relax the tension one by one, from the top to the bottom. Relax your head, face, neck, arms, forearms, hands, chest, abdomen, legs, feet. Then relax your whole body all at once. Breathing in, you calm your body when you are breathing in. Breathing out, you smile. Again, breathing in, you calm your body when you are breathing in. Breathing out, you smile. In – out – calm – smile, in – out – calm – smile, in – out – calm – smile. Feel your breath flowing through your body and calming your body. Feel your breath leaving your body and smile. Continue to relax your whole body for the next few minutes

**Outcome measured**



Capital Health

CARITAS HEALTH GROUP

**Edmonton Symptom Assessment System: Numerical Scale**
Regional Palliative Care Program

**Please circle the number that best describes:**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No pain | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible pain |
| Not tired | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible tiredness |
| Not nauseated | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible nausea |
| Not depressed | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible depression |
| Not anxious | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible anxiety |
| Not drowsy | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible drowsiness |
| Best appetite | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible appetite |
| Best feeling of wellbeing | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible feeling of wellbeing |
| No shortness of breath | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Worst possible shortness of breath |
| Other problem | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |

**Reference**

1. Grossman P, Niemann L, Schmidt S, Walach H. Mindfulness-based stress reduction and health benefits: A meta-analysis. Journal of psychosomatic research. 2004 Jul 1;57(1):35-43.

2. Shennan C, Payne S, Fenlon D. What is the evidence for the use of mindfulness-based interventions in cancer care? A review. Psycho-oncology. 2011 Jul;20(7):681-97.

3. Speca M, Carlson LE, Goodey E, Angen M. A randomized, wait-list controlled clinical trial: the effect of a mindfulness meditation-based stress reduction program on mood and symptoms of stress in cancer outpatients. Psychosomatic medicine. 2000 Sep 1;62(5):613-22.

4. Smith BW, Ortiz JA, Steffen LE, Tooley EM, Wiggins KT, Yeater EA, Montoya JD, Bernard ML. Mindfulness is associated with fewer PTSD symptoms, depressive symptoms, physical symptoms, and alcohol problems in urban firefighters. Journal of Consulting and Clinical Psychology. 2011 Oct;79(5):613.

5. Ng CG, Lai KT, Tan SB, Sulaiman AH, Zainal NZ. The effect of 5 minutes of mindful breathing to the perception of distress and physiological responses in palliative care cancer patients: a randomized controlled study. Journal of palliative medicine. 2016 Sep 1;19(9):917-24.

6. Gross, C. R., Kreitzer, M. J., Thomas, W., Reilly-Spong, M., Cramer-Bornemann, M., Nyman, J. A., Frazier, P., & Ibrahim, H. N. (2010). Mindfulness-based stress reduction for solid organ transplant recipients: a randomized controlled trial. Alternative therapies in health and medicine, 16(5), 30–38.

7. Sherr, L. J. (2010). Moderators of the effectiveness of a mindfulness-based stress reduction intervention compared to an active control for solid organ transplant patients.