

SINHALA VERSION OF THE FIVE FACET MINDFULNESS QUESTIONNAIRE (FFMQ-39-SIN): CONTENT VALIDATION THROUGH EXPERT JUDGEMENT AND INTERNAL CONSISTENCY

Background – Mindfulness is a concept deeply rooted in the Eastern philosophy of Buddhism and is currently used in psychotherapeutic interventions due to its empirically proven effects in enhancing psychological health. The Five Facet Mindfulness Questionnaire (FFMQ-39) is a psychometric tool which quantifies mindfulness and consists of five subscales: *observing, describing, acting with awareness, non-judging of inner experience,* and *non-reactivity to inner experience.* The current study aimed at adapting and validating the FFMQ-39 to the Sri Lankan context by ensuring its face, consensual and content validity and internal consistency reliability.

Methods – To ensure its face, content, and consensual validity the FFMQ-39 was subjected to backward and forward translation and a Delphi process. The resulting set of items were then pre-tested and the Sinhala version of the FFQ-39 (FFMQ-39-SIN) was developed. Upon providing informed consent, a community sample of 50 individuals (males; n=27) whose age ranged from 27-62 (*M*=42.22, *SD*=9.76) years of age completed the FFMQ-39-SIN and a demographic details form. The internal consistency reliability was explored by calculating the Cronbach's alpha coefficients. IBM Statistical Package for Social Sciences (SPSS) version 23 was used for quantitative data analysis.

Results and Discussion – The translation, Delphi and the pre-testing processes highlighted the need for altering and simplifying certain phrases/words in order to enhance conceptual and linguistic clarity of the items as well as phrasing certain items in a way that conceptual and cultural coherence is ensured. The time spent on completing the FFMQ-39-SIN was recorded to be between 8-19 minutes as indicated by the pre-test process. In terms of internal consistency, Cronbach's alpha levels for the five subscales and the overall scale was reported to be acceptable (>.70); *observing* =.81, *describing* =.77, *acting with awareness* =.92, *non-judging of inner experiences* =.83, *non-reactivity to inner experiences* =.82 and overall scale =.91, thus indicating the FFMQ-39-SIN to show good internal consistency reliability.

Conclusion – Current study findings indicate the FFMQ-39-SIN to be an instrument with face, content and consensual validity and internal consistency reliability.

Keywords: mindfulness, cross-cultural validation, FFMQ-39, Delphi process, FFMQ-39-SIN



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1. INTRODUCTION

Mindfulness, which is understood as the ability to bring one's attention to experiences in the present moment in a non-judgmental way (Kabat-Zinn, 1994), is a promising concept that is widely incorporated in to psychotherapeutic interventions at present. These include various forms of Cognitive Behaviour Therapy (CBT) including, mindfulness-based stress reduction (MBSR; Kabat-Zinn, 2004), mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002), dialectical behavior therapy (DBT; Linehan, 1993) and acceptance and commitment therapy (ACT; Hayes, Strosahal, & Wilson, 2004) which are empirically supported as effective in addressing characteristics of depression and anxiety in those who are suffering with chronic illness conditions (Bohlmeijer, Prenger, Taal and Cuijpers, 2010) and chronic pain (Veehof, van Oskan, Schreurs, & Bohlmeijer, 2011) (MBCT) and in treating generalized anxiety disorders (Roemer, Orsillo, & Salters-Pedneault, 2008), sub-clinical depression (Bohlmeijer, Fledderus, Rokx, & Pieterse, 2011) (ACT) and recurrent depression (Teasdale et al, 2002; Ma & Teasdale, 2004).

This beneficial nature of mindfulness indicates the need for accurately understanding the underlying mechanisms of mindfulness in bringing about such changes. Gaining this understanding requires the utilization of sound methods for assessing the construct (Brown and Ryan, 2004; Bishop et al., 2004; Baer, Smith and Allen, 2004) as it may facilitate examining whether individuals who practice it become more mindful over time and whether these changes mediate the effects of mindfulness training on psychological health (Baer et al., 2008). Furthermore it is noteworthy that psychometrically sound measures of mindfulness can be used to evaluate therapy outcomes of MBIs. There are a number of promising psychometric tools developed to measure mindfulness. These include, the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001), the Mindful Attention Awareness Scale (MAAS; Brown and Ryan, 2003), the Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004), the Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar, Greeson, and Laurenceau, 2007) and the Mindfulness Questionnaire (MQ; Chadwick, Hember, Mead, Lilley and Dagnan, 2005) and assesses the individuals' tendency to be mindful in their daily life in the form of self-reported questionnaires.

However, among the commonly accepted psychometric measures of mindfulness, the 39-item Five Facet Mindfulness Questionnaire (FFMQ-39) (Baer et al. 2006) is understood to be one of the most widely used and comprehensive measures of one's perceived levels of mindfulness in daily life (Baer, 2016). The FFMQ-39 is an empirically supported valid and a reliable tool to quantify mindfulness and was modified by combining five main mindfulness measures including the MAAS, FMI, KIMS, CAMS-Revised and the MQ where findings indicated a five-factor solution to be the best fit (Baer et al., 2006). The five facets of the FFMQ-39 are: *Observing* (noticing or attending to internal (perceptions, thoughts, feelings) and external stimuli (sounds, visual imagery)), *Describing* (labelling one's feelings, thoughts, emotions and experiences *Non-judging of Inner Experience* (taking a non-evaluative stance towards internal stimuli that one might experience), and *Non-reactivity to Inner Experience* (allowing emotions and thoughts to come and go, without being interfered by them). As empirically suggested overall mindfulness as well as these separate factors play a role in addressing psychopathology.

Sri Lanka too has seen a rapid increase in the use of MBIs in clinical settings and measuring the outcomes of them can be of immense use to clinicians as well as researchers in the country. However, currently there are no psychometric scales adapted or validated to the Sri Lankan concept which quantifies mindfulness in a meaningful manner. Therefore the current study aimed at: 1) establishing the face, consensual and content validity of the proposed questionnaire by translating it and adapting it to the Sri Lankan context and 2) exploring its psychometric properties in terms of internal consistency reliability.



2. METHODS

2.1. Study design and participants

The current study is a validation study conducted to ensure the face, content and consensual validity and the internal consistency reliability of the Sinhala version of the Five Facet Mindfulness Questionnaire-39 (FFMQ-39-SIN). Data were collected from participants (N=50) selected for a larger study titled, "Meditation, Mindfulness and Health" through purposive and convenient sampling and were between the ages of 18-65 years and had completed secondary level of education. Those who had been/were still under psychiatric or psychological treatment for the past five years, those who experienced learning disabilities and those who with brain damage were excluded. The study was conducted at the Faculty of Medicine of the University of Colombo.

2.2. Measures

Upon providing informed consent, the participants completed a demographic information questionnaire which explored participant information including their age, gender and highest education qualifications. The participants then completed the FFMQ-39-SIN which was translated, subjected to a Delphi process and pre-tested. The original FFMQ-39 (Baer et al, 2006) is a multifactorial scale with a five-factor structure as confirmed through exploratory and confirmatory factory analyses. The FFMQ-39 has also shown adequate to good internal consistency reliability with Cronbach's alpha coefficients ranging from 0.75 to 0.91 and construct validity where the five facets of mindfulness demonstrated positive and negative correlations with related constructs thus further ensuring incremental validity of the scale (Baer et al., 2006).

2.3. Procedure

Step 01 - Translation of the original FFMQ-39 to the Sinhala language

As an initial step, the FFMQ-39 was subjected to forward and backward translation, the widely used method of translation during cross-cultural validation processes (Epstein, Santo & Guillmin, 2015), by an independent group of bilingual translators. First, two forward translations (FWD_1 & FWD_2) from English to Sinhala were obtained from two bilingual translators. I.e. from one who was familiar with the concept of mindfulness (FWD_1) and another who was familiar with the common Sinhala dialect (FWD_2). Afterwards the FWD_1 and FWD_2 was synthesized into one translation (FWT) by a third independent bilingual translator with a background knowledge of mindfulness and the language used by locals. The FWT was then back/blind-translated to English (BT) by a fourth bilingual translator and was compared with the original scale by an expert group consisting of the researchers and the four aforementioned translators to resolve any ambiguities.

Step 02 - Establishing content and consensual validity through the Delphi process and pretesting the scale

The resulting Sinhala translation (FFMQ-SIN-a) was then subjected to a Delphi process (Jones and Hunter, 1995) which is widely used to ensure content and consensual validity in health-related research by obtaining qualitative and quantitative feedback from experts. The Delphi panel consisted of 7 professionals in the fields of mindfulness and/or clinical psychology and they rated each item on a 9-point Likert scale ranging from 1 (total agreement) to 9 (total disagreement) based on conceptual and linguistic clarity and cultural acceptability. FFMQ-SIN-b was developed based on the group's feedback. It was then administered among a sample of 10 individuals who represented the target population in order to ensure the linguistic and cultural coherence of the items. The time spent on completing the questionnaire was recorded by the researcher and the final FFMQ-39-SIN was developed based on the feedback obtained through the processes mentioned in this section.



Step 03 - Exploring internal-consistency reliability

Internal consistency reliability was evaluated by calculating Cronbach's alpha coefficients of the entire FFMQ-39-SIN and each of its subscales. Internal consistency reliability refers to the "extent to which a group of items measure the same construct, as evidenced by how well they intercorrelate" (BrckaLorenz, Chiang, & Laird, 2013, P.01) and Cronbach's alpha is the widely used objective measure for exploring reliability (Tavakol & Dennick, 2011).

Feedback obtained through the translations, Delphi process and pre-testing were qualitatively analyzed. Quantitative data were analyzed using the IBM Statistical Package for Social Sciences (SPSS-23).

3. RESULTS AND DISCUSSION

3.1. Translation, Delphi process and the pre-testing of the scale

The translation, Delphi and pre-testing processes highlighted phrases and words that needed alterations in order to enhance the conceptual and linguistic clarity of the items. The synthesis of FWD_1 and FWT_2 during the translation process ensured certain phrases/words being simplified in order to improve linguistic clarity for those familiar with the colloquial Sinhala dialect For instance, in item 29 in subscale non-reactivity to inner experiences, the Sinhala term which represented mental images (chittha ruupa) was simplified into a phrase which meant images that are drawn in one's mind (sithehi athi wana ruupa). In terms of the Delphi process all items (100%) received acceptable ratings (ratings above 4) (de Zoysa, Rajapakse & Newcombe, 2010) during the first round and experts provided further feedback to enhance the conceptual, linguistic and cultural coherence of them. For instance, the Sinhala phrase initially used to represent the term 'I notice' in item 11 of the observing subscale, was changed from mata dhaniimak atha ('I have an understanding), to mage awadhaanaya pawathii ('it captures my attention/I notice) as it was viewed to better represent colloquial terminology. The Delphi process moreover highlighted the importance of retaining certain terms that were altered during the translation process. For instance, the Sinhala term sanwedana which was used during the initial translation processes to represent 'sensation's was subsequently altered to daneem (translates into feelings) during the synthesis process as it was identified to not frequently used in the spoken form of the language. However, the Delphi experts emphasized on retaining the previous Sinhala term (sanwedana) in order to retain conceptual clarity and enhance linguistic clarity. This phrase is used in items, 06, 11, 15 and 22 to represent the English term 'sensations'. During the pre-test process, participants commented on certain terms in three items which resulted in further minor changes.

All items receiving acceptable ratings during first Delphi round and the low number of alterations required thereafter during the Delphi process and the pre-testing indicated that the cultural adaptation of the FFMQ-39-SIN required little conceptual and linguistic adaptation. These suggests of less complexity in comprehending questionnaire items which may facilitate higher response rates. The average time period for the completion of the questionnaire was between 8-19 minutes. According to Cape and Phillips (2015) the average attention span of an adult is 20 minutes and therefore the above time period can be identified as not interfering the attention process that requires in completing the scale.

3.2. Internal consistency reliability

In terms of sample characteristics, the study sample consisted of 50 participants ranging from 27 – 62 (*M*=42.22, *SD*=9.76) years of age and 54% of the group were males (n=27). Internal consistency reliability of the overall FFMQ-39-SIN and its each subscale was assessed. Cronbach's alpha correlation coefficients for the overall FFMQ-39-SIN was reported as .94 and Cronbach's alpha coefficients for all facets were adequate to good (range 0.77 to 0.92): *observing* =.81, *describing* =.77, *acting with awareness* = .92, *non-judging of inner experiences* = .83, and *non-reactivity to*



inner experiences = .82. (These values along with the alpha coefficients reported during the development of the original FFMQ-39 are indicated in Table 1). In terms of inter-item correlation analysis, items inter-correlated with one another and the deletion of any item was not able to result in an improvement in the reliability coefficient in any facet or the overall questionnaire.

Alpha levels above .70 are deemed satisfactory, adequate and acceptable (Bonett & Wright, 2014) and the current findings indicate all subscales of the FFMQ-39-SIN to show alpha levels above 0.70. These findings show similarities to the original FFMQ-39 (see Table 1). They are also in line with the Swedish validation study of the FFMQ-39 (Lilja et al, 2011) and findings related to internal consistency of the overall scale are in line with the Hindi version of the FFMQ-39 (Mandal, Arya, & Pandey, 2016). Items of the FFMQ-39-SIN being inter-correlated with one another as indicated by the study findings too are similar to that reported by Baer and colleagues during the development of the original FFMQ-39 and supports the notion that the scale items measure related but distinct constructs (Baer et al, 2006, 2008). The above findings suggest that the FFMQ-39-SIN and its subscales show good internal consistency reliability.

The use of a sound methodology including standardized and widely accepted cross-cultural validation methods is identified as a prominent strength of this study. It is further understood that using defined study samples, such as meditators and non-meditators, would provide more robust details on the psychometric properties of the scale. As an extension of this study, we hope to further explore the psychometric properties of the FFMQ-SIN-39 by evaluating its construct validity in terms of factor analysis, convergent and discriminant validity as well as its incremental validity in the Sri Lankan context and we hope to validate these findings in a larger study sample.

4. CONCLUSION

The current study aimed at establishing the face, consensual and content validity of the Sinhala version of the Five Facet Mindfulness Questionnaire and at exploring the psychometric properties of the new scale of internal consistency reliability and the objectives were achieved using a sound methodology. We believe that investigating the facets of mindfulness through quantifying them may improve the academic, clinical and empirical knowledge, thus facilitating the effective use of this concept in all aspects, including enhancing psychological adjustment. We conclude that the FFMQ-39-SIN to be an instrument with face, consensual and content validity and high internal consistency reliability.

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REFERENCES

Baer, R. (2016). Assessment of mindfulness and closely related constructs: introduction to the special issue. *Psychological Assessment*, 28, 787. https://doi.org/10.1037/pas0000309.

Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness Skills. *Assessment*, 11, 191-206.

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., and Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13(1), 27–45.

Baer, R. A., Smith, G. T., Lykins, E., Button, D., Krietemeyer, J., Sauer, S., Walsh, E., Duggan, D. and Williams, J.

Bishop, S. R. et al., (2004). Mindfulness: a proposed operational definition. *Clinical Psychology: Science and Practice*, 11, 230-241. doi:10.1093/clipsy.bph077

Bohlmeijer, E. T., Fledderus, M., Rokx, A., & Pieterse, M. E. (2011). Effectiveness of an early acceptance-based behavior therapy for adults with depressive symptomatology: Evaluation in a randomized controlled trial. *Behaviour Research and Therapy*, 49, 62-67.

Bohlmeijer, E. T., Prenger, R., Taal, E., & Cuijpers P. (2010). The effects of mindfulness-based stress reduction therapy on mental health of adults with a chronic medical disease: A meta-analysis. *Journal of Psychosomatic Research*, 68, 539-544

Bonett, D.G. & Wright, T. A. (2014). Cronbach's alpha reliability: Internal estimation, hypothesis testing, and sample size planning. *Journal of Organizational Behaviour*. DOI: 10.1002/job.1960.

BrckaLorenz, A., Chiang, Y., & Nelson Laird, T. (2013). *Internal consistency. FSSE Psychometric Portfolio*. Retrieved from fsse.indiana.edu. http://hdl.handle.net/2022/24497



- Brown, K. W., & Ryan, R. M. (2004). Perils and promise in defining and measuring mindfulness: Observations from experience. *Clinical Psychology: Science and Practice*, 11, 242-248.
- Brown, K. W., and Ryan, R. M. (2003). The benefits of being present: mindfulness and its role in psychological wellbeing. *Journal of Personality and Social Psychology*, 4, 822–848.
- Buchheld, N., Grossman, P., & Walach, H. (2001). Measuring mindfulness in insight meditation and meditation-based psychotherapy: The development of the Freiburg Mindfulness Inventory (FMI). *Journal for Meditation and Meditation Research*, 1, 11-34.
- Cape, P. & Phillips, K. (2015) *Questionnaire length and fatigue effects: the latest thinking and practical solutions.* White paper. Available online at: www.surveysampling.com/site/assets/files/1586/questionnaire-length-and-fatiigue-effects-the-latest-thinking-and-practicalsolutions.pdf
- Chadwick, P., Hember, M., Mead, S., Lilley, B., & Dagnan, D. (2005). Responding mindfully to unpleasant thoughts and images: Reliability and validity of the Mindfulness Questionnaire. Manuscript under review.
- de Zoysa, P. Rajapakse, L. and Newcombe, P. A. (2010). Adaptation and Validation of the Parent-Child Tactics for use in Sri Lanka. *Ceylon Medical Journal*, 50(1), 111-114.
- Epstein, J., Santo, R. M., and Guillemin, F. (2015). A Review of Guidelines for Cross-Cultural Adaptation of Questionnaires Could Not Bring Out a Consensus. *Journal of Clinical Epidemiology*, 68, 435–441.
- Feldman, G. C., Hayes, A. M., Kumar, S. M., Greeson, J. G., & Laurenceau, J. P. (2007). Mindfulness and emotion regulation: The development and initial validation of the Cognitive and Affective Mindfulness Scale–Revised (CAMS-R). *Journal of Psychopathology and Behavioral Assessment*, 29, 177-190.
- Hayes, S. C., Strosahl, K., & Wilson, K. G. (2004). Acceptance and commitment therapy: An experiential approach to behavior change. New York: Guilford.
- Jones, J. & Hunter, D. (1995). Consensus methods for medical and health services research. *British Medical Journal*, 311, 376-80
- Kabat-Zinn, J. (1994). Wherever you go, there you are: Mindfulness meditation in everyday life. New York: Hyperion Kabat-Zinn, J. (2004). Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness. London: Piatkus Books.
- Lilja, J. et al. (2011). Five Facets Mindfulness Questionnaire—Reliability and Factor Structure: A Swedish Version. *Cognitive behaviour therapy*. 40. 291-303. 10.1080/16506073.2011.580367.
- Linehan, M. M. (1993a). Cognitive-behavioral treatment of borderline personality disorder. New York: Guilford.
- M. G. (2008). Construct validity of the Five Facet Mindfulness in meditating and non-meditating samples. *Assessment*, 15(3), 329–342.
- Ma, S., & Teasdale, J. (2004). Mindfulness-based cognitive therapy for depression: Replication and exploration of differential relapse prevention effects. *Journal of Consulting and Clinical Psychology*, 72, 31-40.
- Mandal, S. P., Arya, Y. K. & Pandey, R. (2016). Validation of the factor structure of the five facet mindfulness questionnaire. *Indian Journal of Health and Wellbeing*, 7(1), 61-66.
- Roemer, L., Orsillo, S. M., & Salters-Pedneault, K. (2008). Efficacy of an acceptance-based behavior therapy for generalized anxiety disorder: Evaluation in a randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 76, 1083-1089.
- Segal, Z. V., Williams, J. M. G., and Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. Guilford Press.
- Tavakol, M. & Dennik, R. (2011). Making sense of Cronbach's Alpha. International Journal of Medical Education. 2, 53-55
- Taylor, N. Z., & Millear, P. M. R. (2016). Validity of the Five Facet Mindfulness Questionnaire in an Australian, meditating, demographically diverse sample. Personality and Individual Differences, 90, 73–77. https://doi.org/10.1016/j.paid.2015.10.041.
- Veehof, M. M., van Oskam, J., Schreurs, K. G. M., & Bohlmeijer, E. T. (2011). Acceptance-based interventions for the treatment of chronic pain: A systematic review and meta-analysis. *Pain*, 152, 533-542.

Additional data

Table 1. Cronbach's alpha coefficients in each study

| | Baer et al. (2006) | Present study |
|-------------------------------------|--------------------|---------------|
| | FFMQ-39 | FFMQ-39-SIN |
| Overall mindfulness | 0.87 | 0.91 |
| Observing | 0.83 | 0.81 |
| Describing | 0.91 | 0.77 |
| Acting with Awareness | 0.87 | 0.92 |
| Non-judging of Inner Experiences | 0.87 | 0.83 |
| Non-reactivity to Inner Experiences | 0.75 | 0.82 |



