Regional update

Validation of the Bangla Mindful Attention Awareness Scale

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A B S T R A C T

This study tested the reliability, validity and factor structure of the Bangla translated Mindful Attention Awareness Scale (MAAS). Three scales – the Bangla MAAS, the short form of health 36 (SF-36) and the Internet Addiction Test (IAT) – were applied to 519 university students (51.4% female). Ninety-two participants were retested over a two weeks period to examine test-retest reliability. Consistent with previous studies, the results of exploratory and confirmatory factor analyses showed a single factor solution for the Bangla MAAS ($\chi2/df = 222.243/90 = 2.47$, CFI = 0.93, NFI = 0.87, and RMSEA = 0.053). The temporal stability and internal consistency was also satisfactory (Cronbach's alpha 0.85). The Bangla MAAS was significantly and positively associated with SF-36 Mental and Physical health components and negatively with IAT scores. Additionally, MAAS scored significantly varied with the presence of physical illness and different living conditions, suggesting the validity of the tool. The Bangla version of the MAAS is, therefore, a valid and reliable tool to measure mindfulness among young Bangladeshi adults.

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1. Introduction

Recently the number of scientific investigations on mindfulness has increased significantly (Brown et al., 2007) with a large body of research showing the positive impact on psychological and physical well-being. Reviewing three broad areas of empirical research, including correlational, interventional and laboratory experiment, Keng et al. (2011) concluded 'mindfulness can bring about various positive psychological effects, including increased subjective well-being, reduced psychological symptoms, and emotional reactivity, as well as improved behavioural regulation'. Consequently, mindfulness-based interventions (MBIs) has grown steadily (Kabat-Zinn, 2003) with positive results for various conditions including generalized anxiety disorder (Koszycki et al., 2010), diabetes (Schroevers et al., 2015), psychological distress (Virgili, 2015).

Despite its wide application, the construct 'mindfulness' suffers from a lack of consensus on an operational definition (Chiesa, 2013). The disagreement on a consensus definition primarily lies in the question as to whether mindfulness is a single factor (Brown and Ryan, 2003; Feldman et al., 2007; Walach et al., 2006) or multifactor (Baer et al., 2004; Lau et al., 2006) construct. Jon Kabat-

Zinn, who introduced mindfulness in western science, defined it as the "awareness that emerges through paying attention in the present moment on purpose, and non-judgmental unfolding of experiences of moments" (Kabat-Zinn, 2003), indicating 'intention, attention to the present with nonjudgmental attitude' as the three central components of the construct. Brown and Ryan (2003) further put it in a simpler form, defining mindfulness as 'an open or receptive attention to and awareness of ongoing events and experience'. Later, Bishop et al. (2004) and Cardaciotto et al. (2008), contended mindfulness as a 'two-dimensional construct composed of awareness of one's experience and the concomitant acceptance of that experience, with the two components being conceptually and empirically different'. This varied conceptual orientations of mindfulness leads to the development of a number of self- reported measures to assess the construct (Bergomi et al., 2013a). Reviewing such eight measures, nine aspects of mindfulness were derived theoretically (Bergomi et al., 2013b): (1) observing, attending to experiences; (2) acting with awareness; (3) non-judgment, acceptance of experiences; (4) self-acceptance; (5) willingness and readiness to expose oneself to experiences, non-avoidance; (6) non-reactivity to experience; (7) non-identification with own experiences; (8) insightful understanding; and (9) labelling, describing. 'Paying attention to the present', however, remains as the core aspect of mindfulness (Shapiro et al., 2006). Without being fully aware and attentive to present internal and external stimuli, the state of mindfulness is difficult to achieve. Although, 'acceptance' was argued as a separate component of

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mindfulness (Bishop et al., 2004), Brown and Ryan (2004) contended that without accepting the present one cannot pay full attention. Their research also showed acceptance is embedded within one's ability to pay attention to present. In this regard, a single factor solution of the construct can be considered as the primary focus for research and clinical practice. In addition, some assessment tools, such as the Freiburg Mindfulness Inventory (Walach et al., 2006), the Toronto Mindfulness Scale (Lau et al., 2006) require participants to have some meditation experience which limits their application to certain group. Research, however, showed that individuals without any formal meditation experience can differ significantly in the tendency to be mindful (Brown and Ryan, 2004, 2003; Brown et al., 2007). In summary, although the construct mindfulness poses various dimensionalities, considering the general population without any experience of meditation, a single factor (i.e., attention and awareness of the present) could serve as the basis for assessing mindfulness.

Among the various self-reported measures of mindfulness, the Mindful Attention Awareness Scale (MAAS) (Brown and Ryan, 2003) assesses the tendency to be attentive and aware of present-moment experience in daily life in individual without any experience of meditation. The MAAS has been widely used in both research and clinical application (Medvedev et al., 2015). It is a 15-items questionnaire, which detects individual differences in the degree of mindfulness over a period. The MAAS was developed and validated in the USA in 2003, based on different samples. Since then, a large body of research has validated its utility in mindfulness research for various health conditions (Deng et al., 2012; Medvedev et al., 2015). Therefore the scale was translated and validated in different languages, including Italian (Veneziani and Voci, 2014), Spanish (Barajas and Garra, 2014; Johnson et al., 2014; Soler et al., 2012), Turkish (Catak, 2012), Chinese (Deng et al., 2012), Greek (Mantzios et al., 2015), French (Jermann et al., 2009), Estonian (Seema et al., 2015), Danish (de Bruin et al., 2011), and Persian (Ghorbani et al., 2009). This allows researcher and practitioner to conduct cross-cultural research, a crucial step for a deeper understanding of the construct. All previous MAAS validation studies reported sound psychometric properties (e.g., Cronbach's alpha ranged from 0.82 to 0.90) with a one-factor structure. The temporal reliability was also satisfactory. The MAAS was found to be positively associated with positive affect, WHO quality of life (WHOQOL-Brief) and inversely with negative affect (Deng et al., 2012), psychological distress (GHQ-12), impulsivity along with experimental avoidance (Catak, 2012).

To our knowledge, no systematic measure has been developed or adapted to assess mindfulness for Bangladeshi population. A reliable and valid tool to tap mindfulness would facilitate mindfulness based psychosocial supports that are currently being provided at the tertiary level education institutes of Bangladesh. MBIs, though at a very limited range, are also being practiced in some universities, so a successful implementation of these programs requires a proper assessment tool.

The present study was designed to adapt the English MAAS into Bangla language for the use of Bangladeshi young population. We also aimed to provide evidence of psychometric properties and factor structure of the Bangla MAAS. As with common evidence in the mindfulness literature, we compared a mindfulness score with the positive aspect such as health related quality of life (HRQoL) and negative aspect such as Internet addiction (IA). HRQoL has been defined as 'a subjective perception of the individual's level of physical, emotional and social functioning and well-being, as well as its repercussion on his/her daily life' (Bullinger, 2003). It was expected that a more mindful individual would score higher in the HRQoL. In contrast, IA is 'an individual's inability to control their internet use, which in turn leads to feelings of distress and functional impairment of daily activities' (Shapira et al., 2000). It is

a condition akin to 'impulse-control disorder' that does not involve an intoxicant similar to symptoms of pathological gambling, overeating and so on (Young, 2004). Individuals with higher IA seriously lack awareness of the present and control over the time spending online. Therefore, it was hypothesized that individuals with a higher MAAS score would show lower IA.

2. Method

2.1. Participants

Participants of this study were young adults ($M_{age} = 21.56$, $SD_{age} = 2.05$), taken from three higher education institutes based in Dhaka City of Bangladesh. Out of the three, two were privately managed, and one was a state funded public institution. A total of 600 undergraduate students from various departments were approached to participate. A few of them refused, and some others did not complete the entire questionnaire. Finally, data of 519 (86.5%) participants were retained and subjected to statistical analysis. Demographic information consisting of age, sex, living arrangement (with family, dormitory, rented flat with other, spouse, alone), relationship status (single, partnered, separated) were recorded through a separate demographic information recording sheet. Participants also reported whether they were suffering from any physical illness by answering 'yes' or 'no'.

2.2. Measures

2.2.1. MAAS

The MAAS (Brown and Ryan, 2003) is one of the widely used and validated scales (Medvedev et al., 2015) used to measure individual differences in the level of mindfulness. Using a 6-point Likert scale, participants are asked to rate their degree of agreement with the fifteen different conditions. Here, a higher score indicates a higher level of mindfulness. The MAAS has been translated and adapted in different languages with sound psychometric properties (Catak, 2012; Johnson et al., 2014; Morgan et al., 2014; Veneziani and Voci, 2014).

2.2.2. Short form of health 36(SF-36)

The Bangla adapted of generic health status measure SF-36 (Ware and Sherbourne, 1992) was used to assess HRQoL. The SF-36 has been validated for measuring HRQoL in Bangladesh for clinical samples (Feroz et al., 2012) as well as normal population (Ahmed et al., 2002). Eight subscales were computed, i.e., (i) physical functioning, (ii) role limitations due to physical health problems, (iii) bodily pain, (iv) social functioning, (v) general mental health, (vi) role limitations due to emotional problems, (vii) vitality, energy and fatigue and (viii) general health perceptions. The scoring of the items varied from dichotomous scales (yes/no) to six-point ordinal scales. Scores of the negative items were reversed. The total score was calculated from the mean of the eight subscales ranging from 0 to 100 where a higher score indicated better health. Besides, the mean of four mental health subscales (subscale iv, v, vi and vii) and four physical health subscales (subscale i, ii, iii and viii) score was calculated to capture the mental component summary score (MCS) and the physical component summary score (PCS) respectively. The questionnaire has been tested and found to be satisfactorily reliable and valid for Bangladeshi population (Ahmed et al., 2002; Feroz et al., 2012). Cronbach's Alpha for the current study was 0.85.

2.2.3. The internet addiction test (IAT)

The IAT (Young, 1996) was the first psychometrically valid tool to measure IA. This 20-items scale was designed to measures psychological dependence, compulsive use, and withdrawal, as