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an Assessment of Practices that Support
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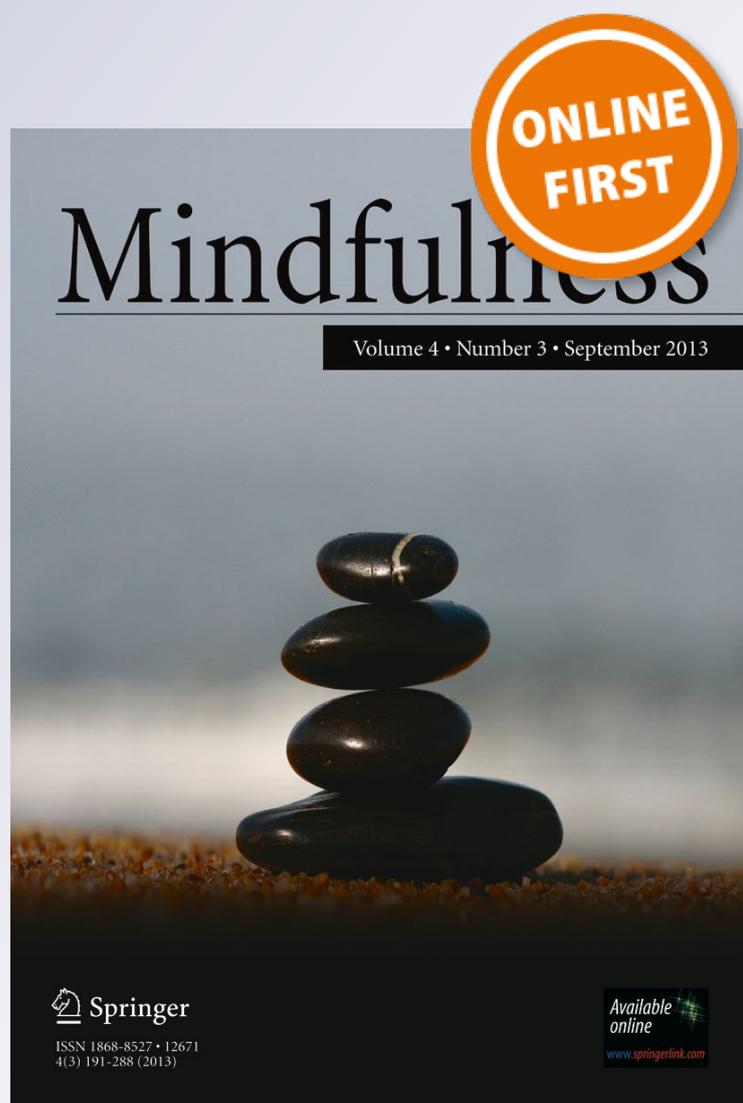
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The Development and Validation of the Mindful Self-Care Scale (MSCS): an Assessment of Practices that Support Positive Embodiment

Catherine P. Cook-Cottone¹ · Wendy M. Guyker¹

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Abstract This study details the development and validation of a measure of mindful self-care, the Mindful Self-Care Scale (MSCS). Based on theory and emerging empirical work, the MSCS items were developed to align with a set of actionable practices that promote positive embodiment and well-being. The extant literature on self-care was reviewed and a set of items developed. Following expert review, the retained items were factor analyzed ($N = 448$, aged 18–71, 79.7% female, 90.0% Caucasian) resulting in six factors: physical care, supportive relationships, mindful awareness, self-compassion and purpose, mindful relaxation, and supportive structure. Overall, the MSCS was significantly and positively correlated with body esteem and negatively correlated with eating disorder risk. Confirmatory factor analyses were applied to a second independent sample ($N = 452$, aged 18–78, 69.7% female, 70.8% Caucasian) providing cross-validation of the six-dimensional structure of the MSCS. Internal consistency was upheld for the total scale and subscales. Findings and implications for future research follow along with a review of the limitations of this study.

Keywords Mindfulness · Self-care · Eating disorder · Positive embodiment · Body esteem · Mindful self-care

Introduction

Mindful self-care is an iterative process that involves (a) mindful awareness and assessment of one's internal needs and

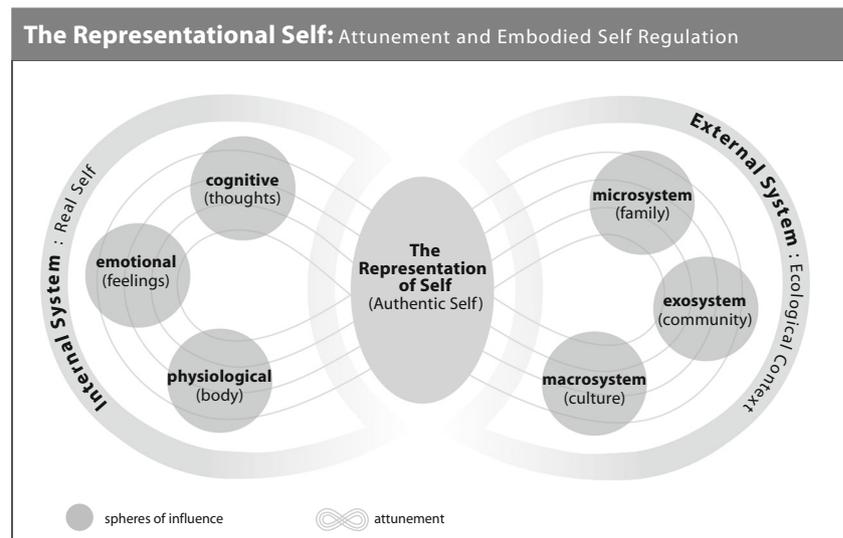
external demands and (b) intentional engagement in specific practices of self-care to address needs and demands in a manner that serves one's well-being and personal effectiveness (Cook-Cottone 2015a). With its roots in Mindfulness-Based Stress Reduction (MBSR) and Dialectic Behavioral Therapy (DBT), mindful self-care is an integration of mindfulness and practices indicated in more traditional conceptualizations of self-care (e.g., Christopher and Maris 2010; Cook-Cottone 2015a; Grabovac et al. 2011; Linehan 1993; Linehan 2015; Norcross and Guy 2007; McCusker et al. 2015; Richard and Shea 2011; Riegel et al. 2012; Shapiro et al. 2007). Rather than a set of prescribed behaviors performed to attain an externally constructed objective, such as increased health according to various medical markers, mindful self-care is a set of practices that support positive embodiment, a way of inhabiting the body (Cook-Cottone 2015a; Piran 2015; Piran and Teall 2012). When not positively embodied, an individual may experience a sense of disconnection, burnout, conflict, or self-harm as in dissociation, disturbance of body image or body dissatisfaction, substance-use problems, and disordered eating (Cook-Cottone 2015a; Homan and Tylka 2014; Woertman 2012). Giving form to positive embodiment, mindful self-care extends traditional self-care conceptualizations by integrating mindful awareness, active mindful practices, and mindful care of each aspect of the self.

Consistent with theoretical models of positive embodiment (i.e., attuned representational model of self [ARMS]), mindful self-care involves attention to an individual's inner experiences and external challenges and demands. Specifically, the ARMS model views the self as a system integrating internal experiences (i.e., physiological, emotional, and cognitive) and external experiences (i.e., familial, community, and cultural; see Fig. 1; Cook-Cottone 2015a). It is theorized that in order to maintain a healthy and positive experience of self, an individual must do two things: (a) maintain positive attunement with

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Fig. 1 The attuned model of self (ARMS). Adapted from Cook-Cottone 2015b



and regulation of each of the internal aspects of self and (b) engage effectively in his or her relationships across each of the ecological domains from family to culture (Cook-Cottone 2015a; Piran 2015; Piran and Teall 2012). According to researchers, those who are positively embodied, feel a sense of connection with their bodies, experience agency and functionality as related to their bodies, have their bodies available to them to experience and express desire, they inhabit the body as a subjective (rather than objective) site, and practice attuned self-care (Cook-Cottone 2015a; Piran 2015; Piran and Teall 2012). According to Cook-Cottone (2016), Piran (2015), and Piran and Teall (2012), the more you positively inhabit your body, the more likely it is that you will experience your body in a positive manner. The inverse appears to be true as well. That is, when an individual is not positively embodied, they may experience a sense of disconnection from their body, disturbance of body image or body dissatisfaction, substance-use problems, burnout, and disordered eating and others forms of dysregulation (Cook-Cottone 2017; Cook-Cottone 2015a; Homan and Tylka 2014). Distinct from the broader construct of positive embodiment, mindful self-care is a set of practices that support positive embodiment.

Consistent with a larger body of theoretical work on self-regulation, the practice of mindful self-care is seen as the foundation required for physical and emotional well-being (Cook-Cottone 2015a; Linehan 1993; Linehan 2015). Specifically, a steady and intentional practice of mindful self-care may be protective, preventing the onset of symptoms and decreasing symptoms associated with mental illness, preventing and decreasing job/school burnout, and improving work and school productivity (Cook-Cottone 2015a). Further, mindful self-care practices are believed to enhance physiological stability and support emotional regulation (Linehan 1993; McCusker et al. 2015; Riegel et al. 2012). Depending on the source, program, or theory, there are a variety of potential

aspects to mindful self-care: mindful awareness, mindful relaxation, nutrition, hydration, exercise, self-soothing, rest, medical care, self-compassion, supportive relationships, environmental structure, and spiritual practices (Cook-Cottone 2015a; Linehan 1993; Norcross and Guy 2007; McCusker et al. 2015; Riegel et al. 2012).

Specifically, self-awareness and mindfulness may be fundamental and unique features of mindful self-care (Shapiro et al. 2007). Self-awareness and mindfulness self-care practices include formal (i.e., intentional practice) and informal (i.e., having a mindful awareness of daily activities) mindful and yoga practices. Self-awareness, one-mindedness, and active practices such as meditation and yoga are increasingly acknowledged for their effectiveness as self-care practices (Linehan 1993; Norcross and Guy 2007; Sayrs 2012; Shapiro and Carlson 2009). Adding a layer of mindful awareness, Riegel et al. (2012) described mindful self-care as having two layers: (a) mindful awareness within the actual self-care practices (i.e., informal and formal), as well as (b) an overall monitoring and a reflection upon the sufficiency of overall self-care.

Mindful relaxation practices can be described as techniques for self-soothing, calming, and relaxation. Self-soothing is believed to be an effective tool in emotional regulation (Linehan 1993). Self-soothing is a positive, healthy response to feeling stressed, being in distress, or an intense emotional reaction. Self-soothing can be in response to a trigger and planned as a preventative tool (Davis et al. 2008; Norcross and Guy 2007). Self-soothing includes structured relaxation techniques (e.g., progressive muscle relaxation, listening to a relaxation script), deep breathing and other types of breath work, and pursuit of stimuli or activities that are calming and relaxing (Cook-Cottone 2015b; McCusker et al. 2015). Self-soothing and relaxation can also be achieved via other practices such as reading, writing, and cultivating sensory

awareness (Cook-Cottone 2015b; Davis et al. 2008; Norcross and Guy 2007).

Physical self-care includes basic nutrition, hydration, and exercise practices as well as engaging in regular daily medical and dental care (e.g., brushing teeth and taking prescribed medications) and attendance at medical and dental prevention and maintenance appointments. Norcross and Guy (2007) identified nutrition and hydration as critical aspects of self-care. A healthy body responds to the unavoidable stress in life better than an unhealthy body (Davis et al. 2008). Nutrition and hydration self-care practices include eating a healthy amount of nourishing foods and engaging in the planning needed to make that happen (Cook-Cottone 2015b; Story et al. 2008). Issues such as drops in sugar levels, insufficient or excessive energy intake, nutrient deficits (i.e., low iron intake, low vitamin D and B12 levels) have all been identified as related to mood and sense of well-being and can be dysregulating (e.g., Beydoun 2014; Brown and Gerbarg 2015). Similarly, it is well accepted that water is essential for life, and maintaining recommended levels of hydration is critical to healthy functioning (i.e., 1.2 l per day [about 6–8 glasses]; Benelam and Wyness 2010; Cook-Cottone 2015b). If water losses are not replaced, dehydration occurs (Benelam and Wyness 2010). Mild dehydration (i.e., 2% loss of body weight) can result in headaches, fatigue, and reduced physical and mental performance (Benelam and Wyness 2010).

Review of the literature indicates that the association between exercise and well-being has been well-documented (Cook-Cottone 2015b; Norcross and Guy 2007). For example, the World Health Organization (2017) recommends that adults aged 18–64 should exercise at least 150 min of moderate-intensity aerobic physical exercise throughout the week with a bout of at least 10 min in duration to reduce risk. For additional benefits, adults should increase their physical activity to 300 min a week, and muscle training should be done at least two or more days a week (World Health Organization 2017). Exercise reduces stress by releasing endorphins into the bloodstream, decreasing muscle tension, and increasing alpha wave activity. It also improves strength and flexibility, lessens fatigue, increases resting metabolism, rids your body of toxins, and improves blood flow to the brain (Davis et al. 2008). Further, exercise reduces risk for those with stress-related conditions (Cook-Cottone 2015b; Davis et al. 2008). Overall, the beneficial effects of regular exercise have been found to include improvements on measures of cognition and psychological well-being in healthy individuals (Hopkins et al. 2012). Close to, and distinct from, the more medical approaches to self-care among populations struggling with a medical diagnosis (e.g., sugar level monitoring in diabetes), the physical and medical domains of mindful self-care address the medical care and keeping of the body (Kim et al. 2015; Potter et al. 2015). These domains speak to maintenance of medical and dental care, practicing daily hygiene, adherence

to medical advice (e.g., taking prescribed medicines or vitamins and brushing teeth), and avoiding substance abuse.

Self-compassion, spirituality, and meaning may be important self-care skills. First, self-compassion allows for an individual to maintain a growth mindset in the face of struggle and failure (Cook-Cottone 2015b). According to Neff (2011, p. 1), self-compassion entails “treating oneself with kindness, recognizing one’s shared humanity, and being mindful when considering negative aspects of oneself.” Self-compassion is the focus of a very recent and growing body of research and appears to play a role in self-regulation. It has been found to be negatively correlated with emotional regulation difficulties (Iskender and Akin 2011; Van Vliet and Kalnins 2011; Vettese et al. 2011).

Second, spirituality, or a sense of purpose, involves inspiration associated with something greater than yourself (Cook-Cottone 2015b; Norcross and Guy 2007). Specifically, spirituality can be sourced from a sense of mission, purpose, and value as well as from religion (Norcross and Guy 2007; Sayrs 2012). It is believed that spirituality can be a source of strength and meaning (Norcross and Guy 2007). There is a body of theoretical work that aligns meaning and purpose with well-being. For example, Ryan and Deci (2001) suggested that happiness and well-being may be found via an eudaimonic approach in which an individual focuses on meaning and self-realization in contrast to a hedonic approach in which happiness is pursued via search of pleasure and avoidance of pain.

Supportive relationships are believed to enhance well-being (Cook-Cottone 2015b; Norcross and Guy 2007) as well. Accordingly, being mindful of the nature of one’s relationships may be another critical aspect of mindful self-care. It is important to make a distinction between simply having relationships and engaging in healthy and supportive relationships (Cook-Cottone 2015b). An example of supportive relationships is the use of community support groups (McCusker et al. 2015). A counter-example is a relationship in which an individual feels as if he or she cannot say, “No.” This is related to the notion that an important aspect of healthy relationships is appropriate boundaries (Norcross and Guy 2007; Sayrs 2012).

Rest may also be an important variable in self-care (Cook-Cottone 2015b). This includes getting enough sleep, taking restful breaks, and planning time to rest and restore into your schedule. First, sleep is a critical aspect of self-care for both patients and mental health professionals. Both short and long durations of sleep are predictors, or markers, of cardiovascular outcomes (Cappuccio et al. 2011). Researchers have noted cognitive effects of sleep deprivation (i.e., speed and accuracy; Lim and Dinges 2010). Further, review of the literature suggests that insomnia impacts diverse areas of health-related quality of life (Kyle et al. 2010). Next, rest involves taking breaks from current activities (Norcross and Guy

2007). It is believed that planned breaks and relaxation are vital aspects of self-care (Norcross and Guy 2007). Seemingly counterproductive to some, breaks can actually create more time and energy (Norcross and Guy 2007).

Finally, Norcross and Guy (2007) noted that most approaches to self-care focus on changing the behaviors of the individual without adequately addressing environmental factors. An individual's physical environment can affect well-being (Cook-Cottone 2015b; Norcross and Guy 2007). There are several aspects of one's physical space that may matter. The comfort and appeal of lighting, furniture, decorations, flooring, and windows can make a difference in the overall tone of a space (Norcross and Guy 2007). Barriers to daily functioning can play a large role in stress. Environmental *micro-stressors* can aggregate, chipping away at an individual's resiliency and ability to cope (Cook-Cottone 2015b). The environmental factor domain also addresses maintaining an organized work space, balancing work for others and addressing your own initiatives, wearing suitable clothes, and doing small things to make each day a little bit better (Cook-Cottone 2015b).

Broadly defined and lacking empirical validation, the construct of mindful self-care is in need of an assessment tool. Logically, the construction of such a scale would begin with a look at the construct of traditional self-care and associated measures. A recent review of the literature revealed that when studying traditional self-care, authors have frequently created their own treatment- and population-specific measures (e.g., McCusker et al. 2015; Williams et al. 1998). As the construct of traditional self-care evolved within practitioner and scientific literature, it has taken on various forms depending on the population studied and concern at hand. Essentially, there are two broad manifestations of traditional self-care in terms of the definition and assessment of self-care: (a) self-care as operationalized as individual behaviors enacted to perform more basic daily living skills (e.g., bathing, getting dressed, taking medications) or engage in medical self-care (e.g., taking diabetes medication, completing physical therapy exercises, going to doctor appointments; Riegel et al. 2012) and (b) self-care operationalized as a set of skills thought to help manage stress and burnout as well as enhance daily psychosocial well-being (e.g., Cook-Cottone 2015a, 2015b; Gentile et al. 2016; Norcross and Guy 2007; Walker et al. 1987). For example, the notion of traditional self-care has become increasingly popular in the fields of medicine, psychology and mental health provision, and professional development as it may be related to increased well-being and decreases in negative outcomes like job burnout. There have been many studies exploring self-care in a variety of ways among a wide range of populations (e.g., Frank and Esbensen 2015; Kim et al. 2015; McCusker et al. 2015; Mohammadpour et al. 2015; Potter et al. 2015; Raaijmakers et al. 2015; Richard and Shea 2011; Sansó et al. 2015; Yee et al. 2015; Wong et al.

2015; Zhang et al. 2015). Despite the growing number of publications on the topic, even research on traditional self-care has been done without a universally adopted scale with documented psychometric properties supporting its use with women and men. Moreover, despite the evolution of the construct of mindful self-care, mindfulness has not been formally integrated into the construct of self-care within the context of a psychometrically developed self-care measurement tool (e.g., Linehan 1993; Linehan 2015; Richard and Shea 2011; Riegel et al. 2012).

Building upon previous work and needs in both practice and research, this study was specifically designed to develop a psychometrically sound scale of mindful self-care that can be a useful tool in studying, promoting, and enhancing a positive experience of the body and psychological well-being (i.e., the Mindful Self-Care Scale; MSCS). The development of the MSCS is based on a theoretical model of self (the ARMS model) and emerging empirical evidence on positive embodiment (Cook-Cottone 2015a; Piran and Teall 2012). In developing the MSCS, we were particularly interested in how mindful self-care affects the experience of the embodied self. There is a growing body of theoretical literature suggesting that the embodied practice of mindful self-care may be associated with positive body image and body esteem (Cook-Cottone 2015a; Cook-Cottone 2015b; Cook-Cottone 2016). Further, there is some empirical evidence that the relationship between positive body image and the practice of mindful self-care may be bidirectional. That is, if you mindfully take care of yourself, you may be more likely to appreciate your body and if you appreciate your body, you may be more likely to take care of it (Wood-Barcalow et al. 2010). This may extend to behavior. Research suggests that how we feel about and connect with ourselves matters in terms of positive behavioral choices (e.g., safe sex practices, wearing a seatbelt) and risk (e.g., substance use, smoking; Homan and Tylka 2014; Woertman 2012). Therefore, as a first step toward scale validation, this study assesses the association of the MSCS and disordered eating, a form of behavioral dysregulation and struggle with nurturing the self. This study does not address the more medically oriented daily living and treatment-related self-care skills studied among populations such as those with diabetes and in cardiac rehabilitation such as monitoring insulin levels or blood pressure. We believe the practices detailed in the MSCS have uses beyond the possible support of body esteem and potential uses in the prevention and reduction of disordered eating including burnout, substance abuse, and risk for mental illness. This study is offered as a preliminary step in the process of validating the MSCS as an assessment and research tool. Accordingly, a review of self-care and self-care assessment is provided. The steps in creating and selecting the items are described. Exploratory and confirmatory factor analyses and validity assessment are detailed. Finally, a discussion reviewing findings follows along with a review of the limitations of this study and future directions for research.

Method

Participants

After receiving IRB approval from our university, participants were recruited from graduate and undergraduate classes, Facebook and Instagram pages of researchers and graduate students within the graduate program, e-mail requests to departmental listservs, e-mail lists of graduate students, and from the online community (Amazon Mechanical Turk at a pay rate of \$2.00 per completed survey). Participants were required to be 18 years of age or older. Interested participants were provided a link to a webpage that began with obtaining informed consent. Upon providing consent, participants were directed to the survey webpage. The study was described as an investigation of self-care practices and behavior. Data were screened for duplicate, erroneous, or missing information. Participants were deleted if they failed a validity question asking them if they ever experimented with an imaginary drug (i.e., “spinners”) or had any missing data on the MSCS.

Sample 1 ($N = 448$) Two participants were deleted for failing the validity question. In addition, any participant who had missing data on the MSCS was excluded, which made up 75 participants. From the initial data set of 525, 448 participants remained (85%), and their data were analyzed. They ranged in age from 18 to 71 ($M_{\text{age}} = 33.5$, $SD = 11.7$) and identified as White (90.0%), Native American (3.3%), African American (2.6%), Asian American (1.2%), Alaskan Native (.70%), multiracial (1.9%), or other (.4%). Males made up 20.3% of the sample, while 79.7% identified as female. With regard to their education, they had attained Doctorate Degree (7.2%), Professional degree (4.2%), Master's degree (28.6%), some graduate school (11.6%), Bachelor's degree (24%), Associate degree (7.4%), some college (13.3%), high school degree (3.3%), and some high school (.5%).

Sample 2 ($N = 452$) Fifty-two participants had missing MSCS data, and no participant failed the validity question, leaving a sample of 452 from 504 (90%) total participants. They ranged in age from 18 to 78 ($M_{\text{age}} = 34.0$, $SD = 11.7$) and identified as White (70.8%), Asian American (9.3%), Native American (8.6%), African American (5.4%), multiracial (3.8%), Alaskan Native (0.20%), Native Hawaiian (0.20%), or other (1.6%). Males made up 30.1% of the sample, 69.7% of the sample identified as female, and 0.2% of the sample identified as transgender. With regard to their education, they had attained Doctorate Degree (1.1%), Professional degree (0.9%), Master's degree (16.3%), some graduate school (16.3%), Bachelor's degree (27.8%), Associate degree (8.1%), some college (20.8%), and high school degree (8.8%).

Procedure

Phase 1: Item Generation The authors conducted an extensive review of the literature using key terms: self-care, mindful self-care, assessment of self-care, measurement of self-care, and the following search tools and databases: Academic Search Complete, psychTESTS, Health and Psychological Instruments, Psych Web, PscyScholar, IngentaConnect, Journals@Ovid Full Text, Psychology and Behavioral Sciences Collection, PsycINFO, Wiley Online Library, and Google Scholar. Texts on self-care (e.g., Norcross and Guy 2007) were also reviewed. It is critical to note that an explicit purpose of the MSCS was to develop items that were directly actionable so that they could be used prescriptively following assessment. In that sense, the MSCS is intended to be quite practical, helping guide people to engage in the practices explicated in the items to help them be mindful of and improve their self-care. As the literature was reviewed, actionable self-care practices were collected. The authors reviewed these constructs and created a set of items that were based on established guidelines for effective wording, literacy, and comprehension (see Fowler 1995; Streiner and Norman 2003).

An initial version of the scale was a 120-item scale that measured the self-reported frequency of self-care practices. The original scale addressed broad domains of self-care: nutrition, hydration, exercise, soothing strategies, self-awareness, mindfulness, rest, relationships, physical and medical practices, environmental factors, self-compassion, and spiritual practices. The actionable items were accompanied by a range of possible answers: “This past week, how many days did I do the following? You can give yourself the following scores: 0 = *never* (0 days), 1 = *rarely* (1 day), 2 = *sometimes* (2 to 3 days), 3 = *often* (4 to 5) days, and 4 = *regularly* (6 to 7 days). For the items that state “reverse score,” score as: 4 = *never* (0 days), 3 = *rarely* (1 day), 2 = *sometimes* (2 to 3 days), 1 = *often* (4 to 5) days, and 0 = *regularly* (6 to 7 days).”

Phase 2: Student and Expert Review Once the pool of 120 items was developed, the items were reviewed by four classes of graduate students in the field of mental health counseling, counseling psychology, and school psychology for a total of 47 students. The students were presented with the items and asked to complete the assessment. The test developers asked the students to comment on readability, clarity, and construct validity of the self-care items. Several of the items were revised for clarity, 22 items were dropped, and three items were combined into one item.

The remaining 95 items were then sent for expert review to leaders in the fields of self-care, assessment and measurement, body image, and intuitive eating. A total of four experts reviewed the items and gave feedback on the overall scale and the specific item content. Again, items were reworded for specificity and to improve the items' assessment of the constructs

being measured. Another 14 items were removed from the scale. Also, three general items were added including a general question regarding self-care, an item that assessed the active planning of self-care, and an item asking about the consideration of new ways to engage in self-care. Some sections of the scale were integrated. For example, hydration and nutrition were originally conceptualized as separate constructs. However, an expert in the field of self-care indicated these were very likely to cluster together and conceptually, in terms of self-care, frequently vary together. Following expert review, 84 items remained.

Measures

Four measures were used during this analysis: the 84-item version of the Mindful Self-Care Scale (MSCS-84), the Eating Attitudes Test-26 (EAT-26), the Body Esteem Scale (BES), and a set of questions on demographic information that included race, gender, age, and educational level as a proxy for socioeconomic status.

The Eating Attitudes Test (EAT-26) The Eating Attitudes Test (EAT-26) is a 26-item self-report questionnaire that is used as a measure of eating pathology. The EAT-26 utilizes a 6-point Likert scale that asks questions such as “I vomit after I have eaten,” “I feel extremely guilty after eating,” “Others would prefer it if I ate more,” and “I avoid foods with sugar in them.” Participants are asked to indicate whether they engage in these practices “always,” “usually,” “often,” “sometimes,” “rarely,” or “never.” The subscales of EAT-26: D (dieting), B (bulimia), and O (oral control) allowed us to obtain more information from the same questionnaire: Factor 1-D (13 items) is closely correlated with a distorted body image; Factor 2-B (six items) is closely associated to body weight; it provides information about body image and tendency toward bulimic behavior; Factor 3-O (seven items) reflects the tendency to self-control. High scores in this area are related to low weight and to the absence of bulimia. The EAT-26 is a reliable, valid, and economical instrument useful for the screening and brief assessment of eating disorders (Garner et al. 1982). For correlational analyses, we treated the EAT-26 as a six-point continuous variable to provide a more powerful approach rather than using its scoring guidelines for clinical purposes in which three of its frequencies for “sometimes,” “rarely,” and “never” are all scored as zero (Garner et al. 1982). In our study, Cronbach’s coefficient alphas were all adequate: 0.91 for the Dieting subscale, 0.86 for the Bulimia subscale, 0.72 for the Oral Control subscale, and 0.92 for the total EAT-26 scale.

The Body Esteem Scale (BES) In order to measure participants’ satisfaction with their bodies, this study used the Body Esteem Scale (BES). The BES is a 35-item questionnaire that asks participants to rate how they feel about various areas of

their body on a 5-point Likert scale. Possible responses include “strongly dislike,” “slightly dislike,” “neutral,” “slightly like,” or “strongly like,” which correspond to numerical values 1–5, respectively, with higher scores indicating greater body esteem on all subscales. Participants are asked about various body areas such as their nose, lips, waist, muscular strength, and weight (Franzoi and Herzog 1986). Factor analysis of the scale revealed that body esteem is a multidimensional construct that differs for males and females. For males, the body esteem dimensions dealt with physical attractiveness, upper body strength, and physical condition. For females, the dimensions dealt with sexual attractiveness, weight concern, and physical condition. For these reasons, subscale scores of the BES were used in our correlational analyses. The three aspects of males’ body esteem were more highly intercorrelated than those of females’, indicating a greater degree of body esteem differentiation for females than for males (Franzoi and Herzog 1986). Test-retest reliability coefficients at 3 months for the three male subscales were quite high (Franzoi 1994). Overall, the BES has been found to be a reliable and valid measure of male and female body esteem (Franzoi 1994). In our study, Cronbach’s coefficient alphas for the BES subscales were all adequate. For males, reliability estimate values were 0.84 for the Physical Condition subscale, 0.83 for the Physical Attractiveness subscale, and 0.81 for the Upper Body Strength subscale. For females, reliability estimates were 0.83 for the Sexual Attractiveness subscale, 0.92 for the Weight Concern subscale, and 0.90 for the Physical Condition subscale.

Data Analyses

To explore the dimensional structure of the MSCS, sample 1 data was used to perform exploratory factor analyses via principle axis factoring. Internal consistency (Cronbach’s alpha) was examined. Pearson correlations with body esteem and eating disorder symptomology were calculated to examine construct validity. To cross-validate the dimensional structure derived from sample 1, sample 2 was used to perform confirmatory factor analysis.

Results

Exploratory Analyses

MSCS items were examined for normality of distribution. Skewness values greater than an absolute value of 3 and/or kurtosis values exceeding the absolute value of 7 are considered problematic for statistical analyses (Chou and Bentler 1995; Kline 2011). MSCS item values were lower than these limits; all skewness values did not exceed an absolute value of 2.585, and all kurtosis values did not exceed an absolute value

of 5.855. Of the 84 total MSCS items, the three general MSCS items were not expected to load on a single factor as they were created with the intention to assess an individual's general or more global practices of self care: planning self-care, engaging in a variety of self-care strategies, and exploring new ways of bringing self-care into one's life. Note, these general items were added to the item set as the result of feedback at the expert review phase of scale development. These three items were excluded from statistical analyses. Three other items were commonly skipped by participants ($N \geq 21$); "I accessed the medical/dental care I needed" as well as two other items that both contained the word "spiritual" in them were also eliminated.

The size of the Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO = .860$) suggested that the MSCS items in the sample had adequate common variance for factor analysis, and the significance of Bartlett's test of sphericity, $\chi^2(3486) = 14,545.05, p < .001$, suggested that the correlation matrix was factorable (Tabachnick and Fidell 2007). An exploratory factor analysis using principal axis factoring (PAF) was conducted on the sample's item-level data. A parallel analysis (Horn 1965) is commonly regarded as one of the most accurate methods for selecting the number of factors to retain in a factor analysis (Patil et al. 2008). A Web-based parallel analysis engine (Patil et al. 2008) was utilized to produce 95th percentile eigenvalues extracted from 100 randomly generated correlation matrices. We compared the 95th percentile of the randomly generated eigenvalues with the real data eigenvalues and for the seventh factor, the random eigenvalue (2.01) exceeded the real data eigenvalue (1.948), thus supporting the presence of six factors. We therefore extracted a six-factor solution by PAF, and since we did not assume the factors would be independent, an oblique (Promax) rotation was applied.

Items were retained if they had an item-factor loading of at least 0.40 on a primary factor and cross-loadings less than 0.30 on other factors (Tabachnick and Fidell 2007). Of the 78 MSCS items analyzed, 26 items were deleted for low primary item-factor loadings. Eighteen items were deleted due to redundant content, and one item ("I did something physical to help me relax") cross-loaded on both the exercise construct as well as the relaxation construct and was therefore deleted. A second factor analysis using PAF with Promax rotation on this set of 33 items revealed a six-factor solution, which accounted for 50.26% of the total variance in the items. Table 1 includes these 33 items and their item-factor loadings.

Next, the substantive makeup of the six empirical scales was explored. Factor 1 was labeled Physical Care and accounted for 22.54% of the variance after rotation. Eight items loaded on this factor, and its item-factor loadings ranged from 0.44 to 0.89. Factor 2 was labeled Supportive Relationships, included five items (item-factor loadings ranged from 0.60 to 0.84), and accounted for 8.33% of the

variance after rotation. Factor 3 was labeled Mindful Awareness and accounted for 7.79% of the variance after rotation. Four items loaded on this factor, and its item-factor loadings ranged from 0.53 to 0.99. Next, Factor 4 was labeled Self Compassion and Purpose. This factor contained six items (loadings ranged from 0.56 to 0.72) and accounted for 4.53% of the variance after rotation. Mindful Relaxation was named for Factor 5, which contained six items (item-factor loadings ranged from 0.46 to 0.71) and accounted for 4.07% of the variance after rotation. Lastly, Factor 6 was labeled Supportive Structure. This factor included four items with item-factor loadings that ranged from 0.64 to 0.67 and accounted for 3.01% of the variation after rotation. The new factor-based subscales correlated positively with each other (r s from 0.06 to 0.49; see Table 2).

Cronbach's coefficient alphas were 0.89 for the total 33-item MSCS (males 0.87; females 0.89), 0.69 for Physical Care (males 0.68; females 0.70), 0.86 for Supportive Relationships (males 0.77; females 0.87), 0.92 for Mindful Awareness (males 0.94; females 0.92), 0.83 for Self Compassion and Purpose (males 0.81; females 0.83), 0.77 for Mindful Relaxation (males 0.80; females 0.76), and 0.77 for Supportive Structure (males 0.72; females 0.78) (see also Table 2). In summary, these values support the internal consistency of MSCS total and subscale scores.

The MSCS total scale and subscales were expected to correlate in a negative direction with eating disorder symptomology and in a positive direction with body esteem. Cohen's (1992) criteria were used to indicate strength of effect. These correlations are presented in Tables 3 and 4.

It was hypothesized that higher self-care scores would be associated with higher body esteem. Among males, the positive relation between perceived physical attractiveness and MSCS scores ranged from non-significant to moderate in size (r s ranged from 0.02 to 0.30). Perceived upper body strength tended to positively correlate with MSCS scores, with effects ranging from statistically non-significant to strong (r s ranged from .05 to .47). Similarly, perceived physical condition also generally correlated positively with all MSCS scores (r s ranged from .09 to .51). Among females, even stronger, positive effects were found. Relations between perceived sexual attractiveness and MSCS scores ranged from small to moderate (r s ranged from .15 to .39). Weight concern also tended to positively correlate with self-care scores, with effect sizes ranging from insignificant to moderate (r s ranged from .07 to .45). Lastly, perceived physical condition for females positively related to all MSCS scores, with effect sizes primarily in the moderate to strong range (r s ranged from .14 to .61).

As hypothesized, MSCS scores generally correlated negatively with EAT-26 total scores, ranging from slightly/negligibly to moderately. Interestingly, MSCS physical care showed a significant, yet small, positive correlation with EAT-26 total score ($r = .16, p < .01$). The EAT-26 Dieting subscale

Table 1 Mindful self-care scale (MSCS) item-factor loadings from sample 1

Loadings		F1	F2	F3	F4	F5	F6
8	Exercised at least 30 to 60 min	<i>0.89</i>	0.00	0.00	0.02	-0.04	-0.05
14	Planned/Scheduled my exercise for the day	<i>0.86</i>	0.09	-0.01	0.00	-0.07	-0.10
9	Took part in sports, dance or other scheduled physical activities	<i>0.65</i>	0.00	0.06	-0.03	0.01	-0.15
10	Did sedentary activities instead of exercising	-0.59	0.05	0.05	-0.02	0.14	-0.12
34	Practiced yoga or another mind/body practice	<i>0.54</i>	-0.03	0.10	0.10	0.10	-0.14
1	Drank at least 6 to 8 cups of water	<i>0.49</i>	-0.07	-0.04	-0.10	0.10	0.12
6	Ate a variety of nutritious foods	<i>0.46</i>	0.04	-0.09	-0.10	0.19	0.30
7	Planned my meals and snacks	<i>0.44</i>	0.10	0.04	0.02	-0.05	0.17
45	Spent time with people who are good to me	0.05	<i>0.84</i>	-0.09	-0.08	0.13	0.00
47	Felt supported by people in my life	-0.07	<i>0.79</i>	-0.02	0.08	-0.08	0.11
51	Felt I had someone who would listen to me if I became upset	-0.02	<i>0.67</i>	0.03	0.02	-0.08	0.07
46	Scheduled/planned time to be with people who are special to me	0.08	<i>0.65</i>	-0.01	0.01	0.09	-0.05
48	Felt confident that people in my life would respect my choice if I said "no"	-0.02	<i>0.60</i>	0.10	0.03	-0.06	0.05
28	Had a calm awareness of my feelings	0.02	0.00	<i>0.99</i>	-0.02	-0.03	-0.01
29	Had a calm awareness of my thoughts	-0.02	0.02	<i>0.95</i>	-0.02	0.00	0.01
30	Had a calm awareness of my body	0.00	-0.03	<i>0.93</i>	-0.01	0.01	0.02
31	Carefully selected which of my thoughts and feelings I used to guide my actions	0.00	0.02	<i>0.53</i>	0.09	0.12	0.04
74	Reminded myself that failure and challenges are a part of the human experience	0.04	-0.08	0.04	<i>0.72</i>	0.07	-0.03
73	Engaged in supportive and comforting self-talk	0.03	-0.14	-0.02	<i>0.72</i>	0.05	0.19
75	Gave myself permission to feel my feelings	-0.02	0.04	-0.03	<i>0.67</i>	-0.02	-0.11
76	Experienced meaning and/or a larger purpose in my work/school life	-0.06	0.14	-0.03	<i>0.65</i>	0.00	-0.06
77	Experienced meaning and/or a larger purpose in my private/personal life	-0.03	0.27	0.00	<i>0.65</i>	-0.10	-0.09
71	Kindly acknowledged my own challenges and difficulties	-0.02	-0.12	0.06	<i>0.56</i>	0.01	0.26
22	Did something creative to relax	-0.02	0.03	0.00	-0.02	<i>0.71</i>	-0.04
24	Sought out images to relax	0.00	0.01	0.03	0.03	<i>0.62</i>	-0.03
23	Listened to relax	-0.08	-0.04	0.06	-0.03	<i>0.61</i>	0.02
20	Did something intellectual to relax	0.02	-0.08	-0.05	-0.06	<i>0.61</i>	0.10
21	Did something interpersonal to relax	-0.05	0.26	0.03	0.04	<i>0.48</i>	-0.05
25	Sought out smells to relax	0.11	-0.01	0.01	0.14	<i>0.46</i>	-0.08
63	Kept my work/schoolwork area organized to support my work/school tasks	0.02	-0.06	-0.08	0.16	0.06	<i>0.67</i>
64	Maintained a balance between the demands of others and what is important to me	-0.11	0.13	0.03	-0.08	0.05	<i>0.65</i>
62	Maintained a comfortable and pleasing living environment	0.08	0.10	0.14	-0.04	-0.06	<i>0.62</i>
60	Maintained a manageable schedule	0.02	0.02	0.00	-0.04	-0.09	<i>0.64</i>

Factor loadings are italicized

showed a similar pattern with MSCS scores: a small positive, significant relation was found between MSCS physical care ($r = .18, p < .01$). As expected, negative correlations were found for all other MSCS subscales and MSCS total score, with small to moderate effect sizes shown. The EAT-26 Bulimia subscale correlated negatively with all MSCS scores, with effect sizes ranging from small/negligible to moderate. Lastly, the EAT-26 Oral Control subscale showed a similar pattern with MSCS scores as the other three EAT-26 scores, with correlations with MSCS scores ranging from negligible or small, negative relations to moderately negative relations,

with the exception being MSCS physical health, where a small positive relation was evidenced. Overall, these findings provide initial support for construct validity, particularly in the relations of MSCS scores and body esteem.

Confirmatory Analyses

We sought to cross-validate the six-dimensional structure of the MSCS derived in the first sample via confirmatory factor analysis (CFA) of sample 2 data. Prior to running the CFA, individual item distributions were examined.

Table 2 Descriptive statistics and scale intercorrelations for MSCS subscales in samples 1 and 2

	PC	SR	MA	SC	MR	SS	Total	<i>M</i>	SD	α_m	α_f
PC	–	0.18	0.28	0.27	0.17	0.24	0.64	2.78	0.85	0.68	0.70
SR	0.31	–	0.32	0.39	0.11	0.39	0.59	3.86	0.85	0.77	0.87
MA	0.40	0.47	–	0.49	0.41	0.32	0.59	2.78	1.08	0.94	0.92
SC	0.41	0.57	0.59	–	0.30	0.38	0.74	3.02	0.86	0.81	0.83
MR	0.46	0.38	0.48	0.46	–	0.06	0.54	2.45	0.81	0.80	0.76
SS	0.33	0.49	0.45	0.44	0.25	–	0.55	3.52	0.84	0.72	0.78
Total	0.67	0.74	0.78	0.81	0.69	0.64	–	99.60	18.12	0.87	0.89
<i>M</i>	2.70	3.52	2.80	2.94	2.47	3.56	96.80				
SD	0.62	1.05	1.14	1.03	0.80	0.96	21.53				
α_m	0.58	0.89	0.90	0.87	0.78	0.82	0.93				
α_f	0.68	0.91	0.94	0.90	0.76	0.84	0.92				

Sample 1 is shown above diagonal, and Sample 2 is shown below diagonal. All correlations are significant at $p < .01$

MSCS Mindful Self-Care Scale, PC physical care, SR supportive relationships, MA mindful awareness, SC self-compassion, MR mindful relaxation, SS supportive structure, *m* males, *f* females

MSCS skewness values did not exceed an absolute value of 1.815, and kurtosis values did not exceed an absolute value of 2.317, indicating appropriate values for maximum likelihood (ML) estimation. ML estimation was implemented for the CFA with LISREL 8.8 (Jöreskog and Sörbom 2006) using the covariance matrix and the proposed six-factor model ($\chi^2_{(480)} = 1450.66, p < 0.01$). Several indicators were used to assess model goodness-of-fit: (a) chi-square divided by degrees of freedom (χ^2/df ; with large sample sizes as in our sample 2, this value should be 4.00 or smaller; the lower this value, the better the fit), (b) standardized root mean square residual (SRMR; less than 0.10 is acceptable, and a value of less than 0.08 indicates good fit; the lower the value, the better the fit), (c) the root mean square error of approximation (RMSEA; this value should be around 0.08 or lower; the lower the value, the better the fit), and (d) the Comparative Fit Index (CFI; this value should be 0.90 or higher for a good fit; the higher this value, the better the fit) (see

Bentler 1990; Hu and Bentler 1999; Steiger 1990). All indicators of fit were within acceptable ranges ($\chi^2/df = 3.02$, SRMR = 0.071, RMSEA = 0.071, and CFI = 0.96). In addition, the six subscales in sample 2 were generally similar in internal consistency, intercorrelations, and central tendency as compared with sample 1 (see Table 2). Taken together, results provide cross-validation support for the six-factor model of the MSCS.

Discussion

In this study, we reported on the development of a scale to assess mindful self-care as a tool to assess practices that support positive embodiment (i.e., MSCS). The MSCS is based on the ARMS model, which views the self as a manifestation of an active and ongoing process of self-regulation, attunement, and care (Cook-Cottone 2015b). A state of being, mindful self-care is an iterative process that involves (a) mindful

Table 3 Correlations between MSCS Scales and EAT-26 scales in sample 1

Variable	PC	SR	MA	SC	MR	SS	Total	α
EAT-26 Dieting Subscale	0.18**	-0.19**	-0.15**	-0.07	-0.03	-0.22**	-0.08	0.91
EAT-26 Bulimia Subscale	-0.02	-0.18**	-0.15**	-0.05	-0.05	-0.28**	-0.15**	0.86
EAT-26 Oral Control Subscale	0.14**	-0.18**	-0.05	-0.06	-0.09	-0.22**	-0.03	0.72
EAT-26 Total Score	0.16**	-0.23**	-0.14**	-0.06	0.01	-0.28**	-0.1	0.92

N = 448

MSCS Mindful Self Care Scale, PC Physical Care, SR Supportive Relationships, MA Mindful Awareness, SC Self-compassion, MR Mindful Relaxation, SS Supportive Structure, EAT-26 Eating Attitudes Test-26

* $p < .05$; ** $p < .01$

Table 4 Correlations between MSCS scales and body esteem in sample 1

Variable	α	MSCS factor 1 Physical care	MSCS factor 2 Supportive relationships	MSCS factor 3 Mindful awareness	MSCS factor 4 Self-compassion/purpose	MSCS factor 5 Mindful relaxation	MSCS factor 6 Supportive structure	MSCS Total score
Males (N = 91)								
1. Body esteem physical attractiveness	.84	0.19	0.02	0.05	0.11	0.05	.30*	0.22
2. Body esteem upper body strength	.83	.47**	0.05	.36**	.30**	0.12	.25*	.47**
3. Body esteem physical condition	.81	.51**	0.09	0.11	0.06	0.12	.48**	.36**
Females (N = 357)								
1. Body esteem sexual attractiveness	.83	.22*	.25**	.24**	.33**	0.15	.34**	.39**
2. Body esteem weight concern	.92	.31**	.37**	.27**	.37**	0.07	.30**	.45**
3. Body esteem physical condition	.90	.54**	.35**	.30**	.49**	0.14	.40**	.61**

Note: MSCS Mindful Self Care Scale, Body Esteem Body-Esteem Scale

* $p < .05$; ** $p < .01$

awareness and assessment of one's internal needs and external demands and (b) intentional engagement in specific practices of self-care to address needs and demands in a manner that serves one's well-being and personal effectiveness (Cook-Cottone 2015a). The development of the scale was conducted in three phases: item generation, expert review, and the psychometric evaluation of the measure using EFA, CFA, and correlational analyses. The result was a six-factor, 33-item measure with most correlations in expected directions with measures of body esteem and disordered eating. The six MSCS factors map well onto the ARMS model (see Fig. 2). Nurturing the internal experience of self, the Physical Care and Self-compassion and Purpose items address the emotional and cognitive aspects of the self. Specifically, nutrition, hydration, and exercise provide support for the physical experience of self. Self-compassion is a practice that nurtures the emotional self, and a sense of purpose and meaning help align the cognitive experience in a positive and creative manner. Next, Supportive Relationships and Supportive Structure are practices aligned with the external experience of self providing a framework for choosing and maintaining positive relationships, creating a supportive environment, and balancing external demands. Finally, Mindful Awareness and Mindful Relaxation are centering practices that assess both internal and external experiences in an integrative, attuned, and self-regulating manner.

Specifically, Factor 1 was labeled *Physical Care* and is comprised of eight items. Consistent with the literature, physical self-care includes basic nutrition, hydration, and exercise practices (Benelam and Wyness 2010; Beydoun 2014; Brown and Gerbarg 2015; Cook-Cottone 2015b; Davis et al. 2008; Hopkins et al. 2012; Norcross and Guy 2007; Story et al. 2008). These MSCS items include content such as exercising 30 to 60 min a day, planning daily exercise, engaging in a mind/body practice such as yoga, adequately hydrating, eating

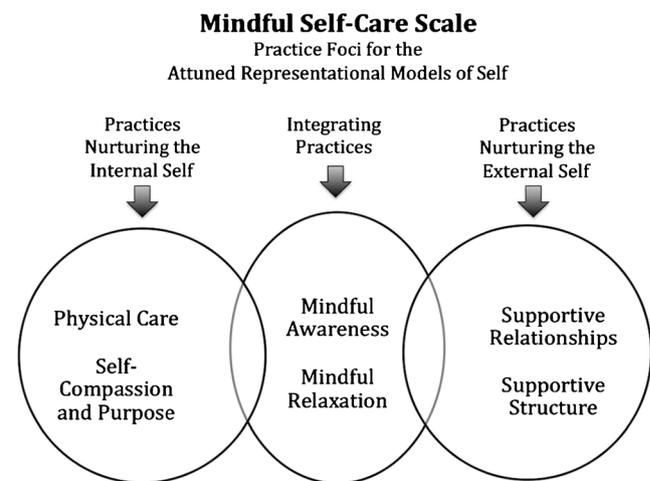


Fig. 2 Mindful self-care practices and the experience of self

nutritional foods, and planning meals and snacks. This factor did not include engagement in regular daily medical and dental care and attendance at medical and dental prevention and maintenance appointments. Medical and dental care may also be influenced by access to services. As suggested by the overlapping yet ultimately diverging conceptual paths of medical self-care and mindful self-care (Kim et al. 2015; Potter et al. 2015), the EFA indicates that items related to medical and dental care are not part of the construct of mindful self-care. These data suggest that these are distinct constructs.

Factor 2 was labeled *Supportive Relationships* and included five items. Consistent with theory and research, supportive relationships are believed to enhance well-being (Cook-Cottone 2015b; Norcross and Guy 2007; McCusker et al. 2015; Sayers 2012). The EFA retained five of the seven original items in this domain. The retained items ask if an individual is spending time with individuals who are good to him or her, if he or she feels supported, if he or she has someone who will listen, schedules time with supportive people, and has people in his or her life that respect his or her choices.

Factor 3 was labeled *Mindful Awareness* and was comprised of four items. The items in this conceptual area originally included items related to specific practices such as meditation, mindful eating, and active practices of gratitude. However, ultimately only the core aspects of mindful awareness were retained. Retained items assess a calm awareness of thoughts, feelings, and the physical body as well as the careful and intentional selection of which thoughts and feelings an individual uses to guide his or her actions. This is consistent with literature suggesting that mindful awareness may be a fundamental and unique feature of mindful self-care (Shapiro et al. 2007).

Factor 4 was labeled *Self Compassion and Purpose* and contained six items. These items were initially conceptualized as two separate constructs. When exploring the possible explanations for why these items clustered together, theories that fit point to the notion that getting through difficult times with a sense of meaning and/or purpose may be beneficial. It is theorized that this grouping of items may be related to a concept termed *grit*, the ability to work hard, toward a chosen goal with persistence and perseverance (Duckworth and Gross 2014). The research on grit explores determinants of success such as self-control and the ability to self-regulate attention, emotion, and behaviors with the context of the tenacious pursuit of a dominant superordinate goal despite setbacks. That is, grit keeps a person going, even during the hard times. The MSCS items that grouped together within the Self-Compassion and Purpose factor may function similarly, yet from a softer, mindful perspective. Perhaps, this is a *mindful grit*, a more sustainable form of grit in which a sense purpose and meaning is combined with self-compassion.

The practice of self-compassion allows an individual to maintain a growth mindset in the face of struggle and failure (Cook-Cottone 2015b; Neff 2011) and may play a role in self-regulation (Iskender and Akin 2011; Van Vliet and Kalnins 2011; Vettese et al. 2011). The self-compassion items retained in the MSCS include an acceptance of failure and challenge as part of the process, the ability to engage in supportive and comforting self-talk, permission to feel feelings, and an acknowledgement that failure and challenge are part of the human experience. It is these types of thoughts and reminders that may help an individual keep going in the face of frustration and failure. Further, a sense of purpose or mission may function like a spiritual, long-term goal (Cook-Cottone 2015b; Norcross and Guy 2007; Sayers 2012). That is, purpose can be a source of strength and meaning during the difficult and challenging times, giving an individual a reason to pick him or herself up by the proverbial bootstraps and persevere (Norcross and Guy 2007).

Mindful Relaxation was named for Factor 5, which contained six items. Originally conceptualized as two distinct constructs (i.e., self-soothing and mindfulness practices), the items that clustered together present as specific practices that can help an individual relax, such as doing something creative or engaging the senses to relax. In essence, the organizing theme of these items is relaxation. This factor is aligned with research supporting the use of relaxation skills as a form of self-care (Davis et al. 2008; Linehan 1993; Norcross and Guy 2007; McCusker et al. 2015; Sayers 2012; Shapiro and Carlson 2009).

Lastly, Factor 6 was labeled *Supportive Structure* and included four items. These findings are consistent with Norcross and Guy's (2007) notion that self-care must address environmental factors. The items that factored together came from two conceptual domains (i.e., rest and environmental factors). Items retained within this MSCS factor include keeping work areas organized, maintaining a comfortable and pleasing living environment, creating a balance between the demands of others and an individual's own needs, and maintaining a manageable work schedule. These items contribute to a healthy living and work environment and a schedule that allows for sufficient rest and restoration, constructs believed to play a role in well-being (Cappuccio et al. 2011; Cook-Cottone 2015b; Lim and Dinges 2010; Norcross and Guy 2007).

Consistent with theory and emerging empirical evidence, higher mindful self-care scores were associated with higher body esteem (Cook-Cottone 2015a; Wood-Barcalow et al. 2010). Among males, the positive relation between the subscales and the MSCS total score ranged from small and insignificant (Physical Attractiveness) to moderate and significant (Upper Body Strength, and Physical Condition). Among females, even stronger, positive effects were found. The positive and significant relations between the subscales and the MSCS total score ranged from small to strong (Sexual Attractiveness,

Concern, Physical Condition). Overall, these findings provide initial support for construct validity.

The relationships among the subscales of the MSCS and the EAT-26 were a little more complex. As hypothesized, MSCS scores generally correlated negatively with EAT-26 total scores, ranging from slightly/negligibly to moderately. Interestingly, MSCS Physical Care was found to have a weak yet significant correlation with EAT-26 total score. The EAT-26 Dieting subscale showed a similar pattern with MSCS scores; a weak, positive, significant relation was found with MSCS Physical Care. The items on the Physical Care subscale of the MSCS include items assessing daily exercise, planning exercise, planning meals, and a reverse-scored item on engaging in sedentary activities. While these activities are generally considered positive and healthy self-care practices, they may also reflect some shared variance with rigidity and overcontrol around these behaviors that is seen in those who are dieting or struggling with restricted eating.

As expected, negative correlations were found for all other MSCS subscales and MSCS total score, with small to moderate effect sizes shown. Specifically, the EAT-26 Bulimia subscale correlated negatively with all MSCS scores, with effect sizes ranging from small/negligible to moderate. Lastly, the EAT-26 Oral Control subscale showed a similar pattern with MSCS scores as the other three EAT-26 scores. Overall, these data suggest there is some preliminary evidence of divergent validity with the MSCS, with more research needed to better understand the relationship between the small positive relationship found between the MSCS Physical Care subscale and the EAT-26 Dieting subscale.

Limitations and Future Research

While our findings provide good psychometric support for the MSCS, this study represents an initial validation effort, and it is important to acknowledge the limitations of the present study. First, the sample utilized for the present study is limited in terms of its generalizability. This nonclinical, community sample is primarily White, educated adults collected from across the USA. The participants self-selected to participate in the study; therefore, this may be a unique sample of individuals particularly interested in self-care, body image, and eating disorders. Further, despite our use of a validity item (i.e., spinners), it is possible that some of the participants were answering in a socially desirable manner or demonstrating an acquiescence bias as nearly all of the items of the MSCS are positively worded. Further, it is important to note that there was a group of participants with incomplete data and those who did not respond correctly to the validity item that were not included in the data analysis. The lack of inclusion of these data may have resulted in a dataset that did not represent a subset of the population. Given these limitations, future research is needed to explore self-care as measured by the MSCS among various ethnic groups,

racial, socioeconomic statuses, and those of various sexual orientations and gender identifications to determine whether the scale continues to evidence validity across diverse samples. Mean difference tests of the MSCS subscales and total score revealed no significant differences between men and women in our study, providing empirical support that self-care is similar between men and women; however, exploration of *structural* equivalence across different groups (such as gender but also across other types of categories of interest) is warranted to examine if different groups think about the construct of mindful self-care similarly or differently. The MSCS should also be studied in terms of how the relationship between MSCS, body esteem, and eating disorder behaviors relate among those with clinical levels of eating disordered behaviors with special attention paid to the Physical Care factor. Future research should also examine temporal stability with test-retest correlations. Additionally, the MSCS ought to be compared with traditional self-care, trait mindfulness, self-compassion, additional measures of embodiment (e.g., the Body Investment Scale [Orbach and Mikulincer 1998]), intuitive eating, and measures of neuroticism and conscientiousness (and other measures of personality traits, self-efficacy, and quality of life) to further establish validity (convergent and divergent) evidence. Subsequent study of MSCS using item response analysis (e.g., Rasch analysis) or generalizability theory could also further reliability evidence for the MSCS by evaluating how well MSCS items discriminate at both high and low levels of mindful self-care and/or under specific conditions or settings.

The MSCS has potential in terms of its utility among other populations as well including care providers, medical and graduate students, veterans and their families, teachers, and coaches. We believed that, although mindful self-care may be beneficial to those in recovery or members of the general population, it may also have unique utility for those who are care providers, helping professionals, and care takers (Cook-Cottone 2015b; Norcross and Guy 2007; Sayrs 2012; Shapiro and Carlson 2009; Siegel 2010). Siegel (2010) emphasizes the significance of attending to the development of your own inner life in order to do your job well. Consider that you cannot give what you do not have (Cook-Cottone 2015b). In fact, a preliminary study by an external team at the Mayo Clinic found that the Mindful Self-Care Scale (MSCS) accounted for 16% of family medicine residents' reported wellness indicators (Gentile et al. 2016). Research and theory suggests that a therapist, care provider, teacher, professor, coach, partner, or parent, presenting as overworked, exhausted, depleted, and overly self-sacrificing, even if not spoken, does not inspire (Cook-Cottone 2015b).

Author's Contributions CC completed the initial conceptual and theoretical work, created the first batch of items, conducted the expert review, and constructed the set of items to be analyzed. CC and WG worked to collect data. WG was the primary statistician on the paper. CC and WG collaborated to interpret the EFA and CFA results and integrate previous research with findings. CC and WG contributed to the writing of the manuscript.

Compliance with Ethical Standards

Funding This study was not funded

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Appendix

Mindful Self-Care Scale (MSCS)

Directions for administration

Check the box that reflects the frequency of your behavior (how much or how often) within the past week (7 days); never (0 days), rarely (1 day) sometimes (2 to 3 days), often (4 to 5 days), and regularly (6 to 7 days). Note, one item is reverse scored (see Physical Care*). For clinical use, items can be administered in order.

Physical care (8 items)

1. I drank at least 6 to 8 cups of water.
2. I ate a variety of nutritious foods (e.g., vegetables, protein, fruits, and grains).
3. I planned my meals and snacks.
4. I exercised at least 30 to 60 min.
5. I took part in sports, dance, or other scheduled physical activities (e.g., sports teams, dance classes).
6. I did sedentary activities instead of exercising (e.g., watched TV, worked on the computer)—reversed score*.
7. I planned/scheduled my exercise for the day.
8. I practiced yoga or another mind/body practice (e.g., Tae Kwon Do, Tai Chi).

Supportive relationships (5 items)

9. I spent time with people who are good to me (e.g., support, encourage, and believe in me).
10. I felt supported by people in my life.
11. I felt that I had someone who would listen to me if I became upset (e.g., friend, counselor, group).
12. I felt confident that people in my life would respect my choice if I said “no.”
13. I scheduled/planned time to be with people who are special to me.

Mindful awareness (4 items)

14. I had a calm awareness of my thoughts.
15. I had a calm awareness of my feelings.
16. I had a calm awareness of my body.
17. I carefully selected which of my thoughts and feelings I used to guide my actions.

Self-compassion and purpose (6 items)

18. I kindly acknowledged my own challenges and difficulties.
19. I engaged in supportive and comforting self-talk (e.g., “My effort is valuable and meaningful”).
20. I reminded myself that failure and challenge are part of the human experience.
21. I gave myself permission to feel my feelings (e.g., allowed myself to cry).
22. I experienced meaning and/or a larger purpose in my *work/school* life (e.g., for a cause).
23. I experienced meaning and/or larger purpose in my *private/personal* life (e.g., for a cause).

Mindful relaxation (6 items)

24. I did something intellectual (using my mind) to help me relax (e.g., read a book, wrote).
25. I did something interpersonal to relax (e.g., connected with friends).
26. I did something creative to relax (e.g., drew, played instrument, wrote creatively, sang, organized).
27. I listened to relax (e.g., to music, a podcast, radio show, rainforest sounds).
28. I sought out images to relax (e.g., art, film, window shopping, nature).
29. I sought out smells to relax (lotions, nature, candles/incense, smells of baking).

Supportive structure (4 items)

30. I kept my work/school area organized to support my work/school tasks.
31. I maintained a manageable schedule.
32. I maintained balance between the demands of others and what is important to me.
33. I maintained a comforting and pleasing living environment.

General (3 items—not to be averaged)

- G1. I engaged in a variety of self-care strategies.
- G2. I planned my self-care

I explored new ways to bring self-care into my life.

Scoring: Each subscale should be averaged to calculate a subscale score. The total score is a sum of the averaged subscale scores. Note, the general items are not included in any subscale score or the total score.

Permission: The MSCS is free to use. We request that researchers notify the authors of publications using the scale. Please contact the author Catherine Cook-Cottone, Ph.D. at cpcook@buffalo.edu for permission to modify items.

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