ROCZNIKI PSYCHOLOGICZNE/ANNALS OF PSYCHOLOGY
2018, XXI, 3, 279-298
DOI: http://dx.doi.org/10.18290/rpsych.2018.21.3-5

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VALIDATION OF THE POLISH VERSION OF THE SHORT FORM OF THE FIVE FACET MINDFULNESS QUESTIONNAIRE

The objective of this study is to validate the Polish adaptation of the Short Form of the Five Facet Mindfulness Questionnaire (FFMQ-SF; Bohlmeijer, Klooster, Fledderus, Veehof, & Baer) – a 24-item inventory measuring mindfulness in daily life – in a Polish sample. The psychometric properties of the Polish version were assessed in a sample of 885 individuals: 710 meditation-naïve and 175 meditation-advanced ones. The following psychometric properties were examined: reliability (internal consistency, temporal stability, discriminant validity), internal validity (confirmatory factor analyses), and convergent validity (correlation between the five FFMQ facets and neuroticism, emotional stability, rumination, openness to experience, ego strength, extraversion, and reflection). The results confirmed the reliability (internal consistency, temporal stability, discriminant validity), internal validity (the orthogonal 5-factor model), and convergent validity of the Polish adaptation in a nonclinical meditation-naïve and meditation-advanced population aged 15-63. The FFMQ-SF proved to be an effective instrument for measuring mindfulness in nonclinical meditation-naïve and meditation-experienced Polish samples. Further replications in clinical samples are needed.

Keywords: mindfulness; assessment; questionnaire; validation; short-form.

INTRODUCTION

The concept of mindfulness originates from Buddhist meditation practice and was introduced into the psychology of health in the late 1970s and 1980s by

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Jon Kabat-Zinn. For the first time he applied Mindfulness-Based Stress Reduction (MBSR) as a treatment for patients suffering from chronic pain (see Kabat-Zinn, 1990) in the Stress Reduction Clinic in a hospital in Massachusetts. Following the spectacular success of MBSR in the clinical field, many more therapeutic techniques based on mindfulness emerged. The constantly growing evidence from rigorous clinical trials has consistently shown the benefit of mindfulness interventions in ADHD, Alzheimer's disease, asthma, burnout syndrome, certain cancers, chronic pain, pulmonary disease, dyslipidemia, fibromyalgia, heart diseases, hypertension, immunodeficiency (HIV/AIDS), irritable bowel syndrome, lupus, myocardial ischemia, obesity, organ transplant, rheumatoid arthritis, type 2 diabetes, and other medical conditions, as well as psychiatric disorders, including anxiety disorders, delusional disorder, depression, drug abuse and dependence, eating disorders, personality disorders, post-traumatic stress disorder, schizophrenia, sexual dysfunctions, suicidality, and other chronic diseases (Baer, 2014; Didonna, 2009; McCown, Reibel, & Micozzi, 2009).

The results of clinical trials suggest that mindfulness practices decrease the intensity of physical symptoms, cognitive and emotional disturbances (Brown & Ryan, 2003; Lynch, Trost, Salsman, & Linehan, 2007). Mindfulness practices also have a wide range of positive effects, including calmness (Spencer, 2010), altruism (Rosch, 1998), social openness (Hutcherson, Seppala, & Gross, 2008), compassion (Austin, 1998), creativity (Capurso, Fabbro, & Crescentini, 2014), or increased behavioral flexibility and lead to general improvement in well-being (Harrington, Loffredo, & Perz, 2014).

According to leading researchers in the field, mindfulness can be defined as a state (or trait) of the awareness of one's experience in the present moment, combined with acceptance (Kabat-Zinn, 1990; Kiken, 2015). Contemporary definitions describe mindfulness as a state of attention to details in the peripheral perception field and a tendency to register them preverbally (also referred to as *extensive attention* in the Polish literature – see Kolańczyk & Mikołajczyk, 2011; Lazar, 2005). Many studies show that individuals high in mindfulness are able to perceive stimulation usually ignored by less mindful subjects (Treadway & Lazar, 2009). Research results suggest that meditators are more sensitive (i.e., they have a reduced sensitivity threshold) and are more emotionally resilient (i.e., they have reduced reactivity and minor habituation of negative affect) (Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008; Slagter, Davidson, & Lutz, 2011). Therefore, mindful people's reactions appear to be more flexible and less controlled by habitual cognitive patterns and filters.

Mindfulness understood as a trait is characterized by specific neuro-psycho-biological correlates and differs across individuals depending on their mental constitution (Davidson, 2010). A considerably large body of research shows that mindful individuals have altered brain structure and functionality compared to nonmindful people. They have thicker gray matter (Lazar, 2005; Hölzel et al., 2011; Pagnoni & Cekic, 2007; Luders, Cherbuin, & Kurth, 2015) and thicker white matter (Tang et al., 2012), and there are also differences in other regions (see Saggar et al., 2012). Their brain stem, limbic system, and cortex are more synchronized, attention and memory networks are more integrated with the control system, corresponding areas in both hemispheres are more integrated, and mirror neurons are more active (Siegel, 2007; Slagter et al., 2011).

The outcomes suggest that mindfulness training may slow down or even reverse age-related brain degeneration (Luders et al., 2015). Many findings show that neuroplastic processes are intensified already between the fifth day and third month of intensive meditation training (Vago & Silbersweig, 2012). Considerably greater changes are observed in individuals meditating for many years over their lifetime. Practitioners with at least 15 years of meditation experience have been found in research to have better functioning attentional processes, such as initiation, control, involvement, and disengagement (Ganaden & Smith, 2011; Jha, Krompinger, & Baime, 2007; MacLean et al., 2010).

From the neurological point of view, mindfulness can be understood as a group of meditation practices characterized as *open monitoring* techniques (Lutz, Slagter, Dunne, & Davidson, 2007). They are distinguished from techniques based on concentration (*focused attention*) but can also be treated as their continuation (Lutz et al., 2007). Mindfulness as *open monitoring* includes nonanalytical mental exercises, from becoming aware of the breathing process or bodily sensations to mindfulness during everyday activities, like walking, eating, dishwashing, driving, etc. (Kabat-Zinn, 2003; Lazar, 2005).

Mindfulness – understood as a state, trait, or technique – does not solely result from meditation experience or from the usage of a particular meditation technique (see Hagen, 2003). Mindfulness training programs are typically secular, psychoeducational, and rooted in self-regulation theory (Kabat-Zinn, 1982, 1990, 1994, 2003). Mindfulness understood in this way, as an open and accepting mode of being, cannot be identified with any specific therapeutic method or meditation technique (Jankowski & Holas, 2009).

Many findings show that mindfulness has a multifaceted structure (five-factor structure – see Baer, Smith, Hopkins, Krietemeyer, & Toney 2006), with the following facets:

Acting with awareness – acting with the awareness of what one is doing in given moment, as opposed to functioning "on automatic pilot," when one is not aware of what one is doing and why;

Nonjudging of inner experience – nonjudgmental observation of thoughts, emotions, and sensual impressions appearing in the field of awareness, as opposed to critical and self-critical ruminative thinking patterns;

Nonreactivity to inner experience – low reactivity to stimulation, increased ability to focus, and widened perspective compared to normal experience;

Describing – the ability to view experiences with detachment, and to label them;

Observing – the ability to differentiate sensations deriving from muscle activity, inner organs, and parts of the body. Because of its associations with elements incompatible with the mindfulness model, this factor is currently under intense discussion.

Discovering the elements of mindfulness is an important step in exploring the specificity of the mindfulness model and its clinical efficiency. The tools that are developed and constantly psychometrically improved allow a more accurate description of the structure and typology of mindfulness (Baer et al., 2008).

HISTORY AND PSYCHOMETRIC PROPERTIES OF FFMQ-SF

The best known questionnaires for mindfulness measurement are: the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001), the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004), the Mindfulness Questionnaire (MQ; Chadwick, Hember, Mead, Lilley, & Dagnan, 2008), the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), and the Cognitive and Affective Mindfulness Scale (CAMS; Feldman, Hayes, Kumar, Greeson, & Laurenceau, 2007; Feldman & Hayes, 2003). One of the most widely used mindfulness questionnaires is the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), which served as the basis for a short version (Short Form of the Five Facet Mindfulness Questionnaire; FFMQ-SF). In 2011, Bohlmeijer and colleagues (2011) shortened the FFMQ from 39 to 24 items, thus creating the FFMQ-SF. They tested the reliability of shortened questionnaire (in a sample of 376 individuals with clinical symptoms of depression and anxiety). The results showed that the short version did not diverge significantly from the full version

in terms of reliability (internal consistency from .69 to .90, temporal stability from .61 to .84).

Veehof, ten Klooster, Taal, Westerhof and Bohlmeijer (2011) assessed the psychometric properties of the FFMQ-SF in a different clinical sample, with pain symptoms (N = 141). As before, good internal consistency (Cronbach's alpha from .69 to .90) and reliability (ICC from .61 for *Acting with awareness* to .84 for *Nonjudging*) were confirmed. In subsequent research, where the level of meditation experience was controlled, reliability varied from .60 (Cronbach's alpha) for the least experienced to .90 and over (.94) for the most experienced individuals (see discussion in Baer, Carmody, & Hunsinger, 2012).

The internal validity of the FFMQ and the FFMQ-SF was compared by confirmatory factor analyses (Veehof et al., 2011), which confirmed the five factor model in both cases. The internal validity of the FFMQ-SF was very high for the nonhierarchical (χ^2 = 1,339.338, df = 692, NNFI = .90, CFI = .91, SRMR = .10, RMSEA = .08) and hierarchical models (χ^2 = 1,395.213, df = 697; NNFI = .90, CFI = .90, SRMR = .11, RMSEA = .08). The external validity of the FFMQ-SF was also confirmed (it was related to measures of other traits, such as neuroticism, openness to experience, well-being, or experiential avoidance).

Subsequently, further adaptations of the full and short versions of the FFMQ were performed in different countries. The results of numerous studies confirmed the validity of the 5-factor model (Dundas, Vøllestad, Binder, & Sivertsen, 2013 – Norway; Heeren, Douilliez, Peschard, Debrauwere, & Philippot, 2011 – France; Hou, Wong, Lo, Mak, & Ma, 2013 – China; Sugiura, Sato, Ito, & Murakami, 2012 – Japan; Veehof, ten Klooster, Taal, Westerhof, & Bohlmeijer, 2011 – The Netherlands). However, some of the studies revealed that in some samples the four-factor model, without the *Observing* scale, seemed to be more valid (Cebolla, García-Palacios, Soler, Guillen, Baños, & Botella, 2012 – Spain; Dundas, Vøllestad, Binder, & Sivertsen, 2013 – Norway; Radoń, 2014a – Poland; Sugiura, Sato, Ito, & Murakami, 2012 – Japan; Tran, Glück, & Nader, 2013 – Austria). Many findings also suggest a better fit of empirical data to the hierarchical model in the case of individuals with considerable meditation experience (Grossman, Niemann, Schmidt, & Walach, 2006).

Some signals of psychometric problems with the reliability and validity of the FFMQ have appeared (low reliability of the *Nonreactivity* scale – see Tran et al., 2013). Due to the evidence of the low fit of the full set of questionnaire items (39) to theoretical models, more attempts were made to develop and validate shortened versions of the FFMQ (Bohlmeijer, Klooster, Fledderus, Veehof, & Baer, 2011; Tran et al., 2013).

In conclusion, the FFMQ-SF is short, reliable, and valid, which means it can be considered a valuable and promising tool for the measurement of mindfulness, especially in clinical samples. In spite of the short form of the questionnaire, all well operationalized dimensions of mindfulness are included. The fact that internal consistency depends on the level of mediation experience can be considered both an advantage and a disadvantage. Although the results of FFMQ-SF validation turned out to be positive, the authors recommend further research for the validation of the psychometric properties of the test, especially research concerning factor structure of the tool.

MATERIALS AND METHODS

Participants

The Polish sample consisted of 885 individuals: 710 meditation-naïve subjects (128 high-school students of Fine Arts School [FAS] in Kraków, aged 15 to 19, M = 17.2, SD = 1.34; 69% female and 31% male; 582 undergraduate and graduate students of the Pontifical University of John Paul II [PUJP] in Kraków, aged 20 to 50, M = 28.07, SD = 8.12; 67% female and 33% male) and 175 meditation-experienced subjects representing a mixed population trained in the Karma Kagyu Buddhist (KK) tradition from the whole of Poland (aged 17 to 63; M = 34.81, SD = 9.04; 55% female and 45% male). Validation took place from 2012 until 2014.

Procedure

The basis of the Polish adaptation was the English version of the *Five Facet Mindfulness Questionnaire*, published in 2006 (Baer et al., 2006), and its short version, the FFMQ-SF, published in 2011 (Bohlmeijer et al., 2011). Both questionnaires had satisfactory psychometric properties.

First, the questionnaire items were translated into Polish. A faithful method of translation was used in order to reproduce the precise contextual meaning of the original version within the constraints of the Polish language and cultural context. The chosen method afforded the possibility of introducing modifications should the nuances of the original language render the versions non-equivalent. Translations were performed by two independent translators, one of them a native speaker of English. Subsequently, the content validity was assessed by a panel of experts, including three psychologists. This experimental version of

the questionnaire was then verified on the sample of 128 adolescents (aged 15-20).

Measures

To assess external validity, we used four questionnaires: Costa and McCrae's NEO Five-Factor Inventory (NEO-FFI; Neuroticism, Openness to Experience, and Extraversion), Cattell's Self-Rating Questionnaire (SRQ; Emotional Stability), Strzałecki's Creative Behavior Questionnaire (CBQ; Ego Strength), and Trapnell and Campbell's Rumination-Reflection Questionnaire (RRQ; Rumination and Reflection).

NEO-FFI is a test of proven reliability (Cronbach's alpha from .68 for Openness to Experience and Agreeableness; .82 for Conscientiousness) and validity. Polish norms for males and females according to age are provided (Zawadzki, Szczepaniak, & Strelau, 1995; Zawadzki, Strelau, Szczepaniak, & Śliwińska, 1998).

Cattell's SRQ is constructed of items from the PF16 Personality Inventory, which was created to measure 16 dimensions of personality. The questionnaire has strong psychometric properties: its split-half reliability is .84, its temporal stability is .92, and its discriminant validity ranges from .40 to .90 (Siek, 1983). Polish norms for males and females according to age are provided.

CBQ, developed by Andrzej Strzałecki, measures five factors of creativity (Life Approval, Ego Strength, Self-Actualization, Flexibility of Cognitive Processes, and Nonconformism). The test has good psychometric properties (Cronbach's alpha from .88 to .90) (Strzałecki, 2000, 2003).

RRQ is 13-item questionnaire that measures two distinct forms of self--awareness: reflection and rumination. The Polish adaptation (Trapnell & Campbell, 1999) has good reliability and validity properties (Cronbach alpha from .77 for Rumination to .79 for Reflection; test-retest reliability from .79 for Rumination to .94 for Reflection) (Radoń, 2014).

Statistical analysis

To assess the psychometric properties (reliability and validity) of the FFMQ-SF, we used the following methods:

(1) reliability: internal consistency (Cronbach's α coefficient for each scale), temporal stability (test-retest method with a two-week interval), discriminant validity (correlation of each item with the respective subscale);

(2) internal validity: confirmatory factor analyses (CMIN/*df*, GFI, AGFI, CFI, RMSEA, PCLOSE);

(3) external validity: correlations between FFMQ-SF facets and others measures of psychological characteristics? (neuroticism, emotional instability, rumination, openness to experience, ego strength, extraversion, and reflection).

Descriptive and standard psychometric analyses were performed using SPSS ver. 22, whereas confirmatory factor analyses (CFAs) were conducted with AMOS ver. 22. We used maximum likelihood estimation in all CFAs.

RESULTS

In the process of assessing the psychometric properties of the Polish FFMQ-SF, we first appraised internal consistency, test-retest reliability, and discriminant validity. Next, to assess how well the empirical data fitted the theoretical model, we performed a confirmatory factor analysis (CFA). Finally, we assessed convergent and discriminant validity.

Descriptive statistics and reliability

The distributions of all variables were normal (Tables 1-3 – see Appendix). Statistical analysis revealed no statistically significant differences between males and females except for *Nonreactivity* ($t = 2.66$, $p = .008$) and *Observing* ($t = 3.71$, $p = .001$) in the PUJP group.

We assessed FFMQ-SF reliability in terms of internal consistency measured as Cronbach's alpha. The descriptive statistics of FFMQ-SF reliability are presented in Tables 1-4 (see Appendix). Reliability coefficients ranged from $\alpha = .72$ to .75, which means they were low but acceptable, lower than those obtained for the original FFMQ-SF scale (.75 to .91)

The analysis showed also that in the case of individuals experienced in meditation the questionnaire had better characteristics than in the case of meditation-naïve ones (see Table 2-4). The results indicate that in the meditation-naïve groups (FAS and PUJP) the internal consistency of the test is acceptable, except for the *Observing* scale (there is a problem with item 24 – when this item is deleted, Cronbach's α is acceptable).

To assess the temporal stability of the questionnaire, we used the test-retest method, with a two-week interval. The results showed acceptable stability for all the groups (ranging from $r = .66$ to $r = .91$).

The discriminant validity of an item reflects the extent to which the item differentiates a sample in terms of the measured trait. It is expressed as the correlation of each item with the respective subscale of the test. The results in the groups were satisfactory (ranging from .75 to .89) and statistically significant ($p < .001$) which shows the good discriminant validity of the questionnaire (a result above .70 is considered acceptable).

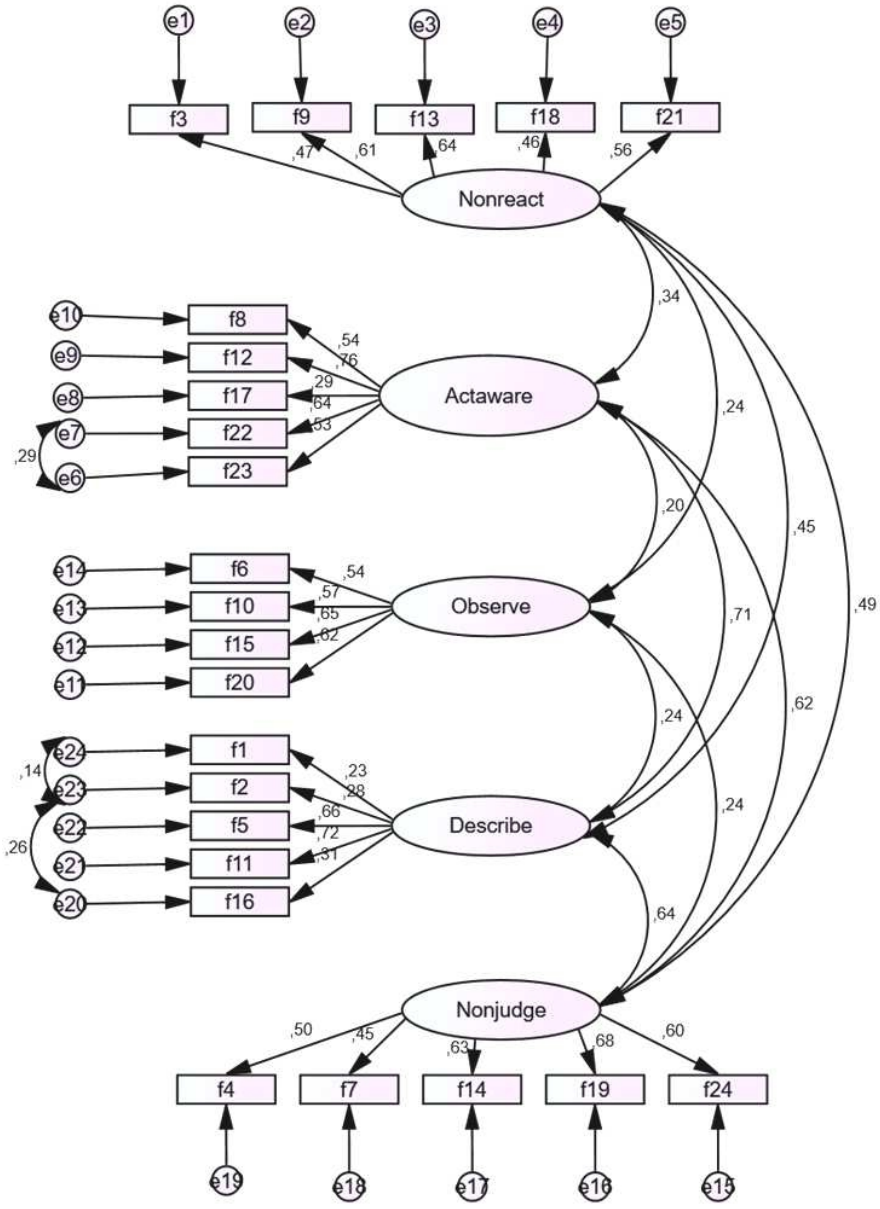
Finally, we computed the intercorrelations between all the mindfulness facets (Table 5 – see Appendix). The results suggest that the intercorrelations are weak or moderate (ranging from $r = .16$, $p = .05$ to $r = .47$, $p = .01$), resembling the intercorrelations in the original English version (from $r = .15$, $p = .05$ to $r = .34$, $p = .01$). This indicates that the facets measure related but sufficiently distinct aspects of mindfulness. Only between *Nonreactivity* and *Observing*/*Acting with awareness* there were no correlations (in the original version, *Nonjudging* was not correlated with *Describing* – see Bohlmeijer et al., 2011).

Validity

To examine the factor structure of the FFMQ-SF, we applied CFA. We performed three CFAs using the maximum likelihood method: one for the 1-factor solution and two for the 5-factor solutions. Model fit was assessed using six indices: χ^2/df, GFI, AGFI, CFI, RMSEA, and PCLOSE.

The results are shown in Table 6 (see Appendix) and in Figure 1. The 1- and 5-factor solutions yielded good fit indices. The indices were better in the case of the 5-factor orthogonal (uncorrelated) model ($\chi^2/df = 1.80$, GFI = .95, AGFI = = .94, CFI = .94, RMSEA = .04, PCLOSE = .99) and weaker in the case of the 1-factor model ($\chi^2/df = 1.73$, GFI = .95, AGFI = .93, CFI = .93, RMSEA = .03, PCLOSE = .99) and 5-factor oblique (correlated) model ($\chi^2/df = 3.07$, CFI = .91, RMSEA = .08, PCLOSE = .79). It should be stressed that in the case of the 5-factor oblique (correlated) model the indices are better than in the original version ($\chi^2/df = 3.07$, GFI = .93, AGFI = .92, CFI = .91, RMSEA = .08 – see Bohlmeijer et al., 2010).

The subjects with the best FFMQ scores were the meditation-experienced individuals from the KK group (Buddhists). The meditation-naive PUJP subjects (students) had medium scores, and the meditation-naive FAS subjects (artistically gifted youth) scored the lowest.



Note. Nonreact – Nonreactivity to Inner Experience; Observe – Observing; Actaware – Acting With Awareness; Describe – Describing; Nonjudge – Nonjudging.

Figure 1. 5-factor orthogonal (uncorrelated) model.

Correlations between the mindfulness facets and other psychological constructs are listed in Table 7 (see Appendix). On the basis of the theory presented in first part of the paper, and based on the results of research conducted in other countries, we assumed that there would be correlations between mindfulness and various psychological constructs. The results show that the facets are differentially related to the other constructs; the correlations are generally consistent with our predictions concerning their direction and relative magnitude:

(1) all the mindfulness facets correlate negatively with NEO-FFI Neuroticism (from r = -.27, p = .01 for *Observing*, to r = -.62, p = .01 for *Nonreactivity*), RRQ Rumination (from r = -.29, p = .05 – *Observing*, to r = -.62, p = .01 for *Nonreactivity*), and SRQ Emotional Instability (from r = -.30, p = .01 for *Describing*, to r = -.38, p = .01 for *Nonreactivity*);

(2) all the mindfulness facets correlate positively with NEO-FFI Openness to Experience (from r = .12, *ns*. for *Nonreactivity*, to r = -.45, p = .01 for *Acting with awareness*) and CBQ Ego Strength (from r = .15, *ns*. for *Nonjudging*, to r = .30, p = .01 – *Observing*), although some correlations are not statistically significant;

(3) all of the facets are uncorrelated with NEO-FFI Extraversion and RRQ Reflection, except for the positive correlation between RRQ Reflection and *Observing* (r = .19, p = .05).

DISCUSSION

The aim of this study was to investigate the psychometric properties of the Polish adaptation of the FFMQ-SF in three groups: two meditation-naïve (youth and students) and 1 – meditation-experienced (a mixed population of Buddhists). We examined reliability (internal consistency, temporal stability, discriminant validity), internal validity (confirmatory factor analyses), and convergent validity (correlation between the five FFMQ facets and neuroticism, emotional stability, rumination, openness to experience, ego strength, extraversion, and reflection).

The results suggest that the reliability properties of the questionnaire (internal consistency, temporal stability, and discriminant validity) are generally acceptable, especially for meditation-experienced individuals, with the exception of the internal consistency of the *Describing* scale in meditation-naïve populations (with Cronbach's alpha ranging from .65 to .69). It should be noted that similar results were obtained for the original version of questionnaire (Cronbach α = .60) as well as in other validation studies in different countries and with various sam-

ples (Baer, Carmody, & Hunsinger, 2012; Cebolla, 2012; Dundas, 2013; Sugiura, 2012; Tran, 2013). Therefore, it can be concluded that the reliability of the questionnaire is psychometrically acceptable, with methodological caution in the case of meditation-naïve individuals.

The internal consistency analysis shows that this parameter of the FFMQ-SF was better in the case of individuals experienced in meditation than in the case of meditation-naïve ones. This could be explained by the fact that the sensitivity of mindfulness scales tends to vary depending on the subjects' degree of meditation experience. The Cronbach's alpha coefficient rises with meditation experience: starting from .60 for samples with no or little experience to .90 and more (.94) for most advanced groups (Baer et al., 2012, p. 758).

The results also show that the FFMQ-SF measures five distinct but related facets of mindfulness. This finding is in accordance with the results of the original validations of the FFMQ-SF (Bohlmeijer et al., 2011; Veehov et al., 2011) and confirms the conceptualization of mindfulness as a multifaceted construct.

Indeed, CFA showed a good fit of all the models (the hierarchical and non-hierarchical 5-factor models and the 1-factor model) to the empirical results, but the fit was relatively better in case of the 5-factor non-hierarchical model. The best fit for this model was obtained in the meditation-advanced group, which confirms that the sensitivity of the FFMQ-SF depends on the subjects' meditation experience (see Grossman et al., 2006):

(1) for individuals experienced in meditation, the 5-factor nonhierarchical model seems to have greater validity;

(2) for individuals with no or little experience in meditation, the 1-factor model and the 5-factor hierarchical model seem to have greater validity.

The correlations obtained between mindfulness facets and other psychological measures were in the expected direction, supporting the construct validity of the FFMQ-SF as well as the theoretical assumptions of the mindfulness model (mindfulness correlates negatively with neuroticism, emotional instability, and rumination level, and positively with openness to experience and ego strength). The findings of our study are consistent with the results of many studies conducted in other countries (Baer et al., 2006; Bohlmeijer et al., 2011; Dundas et al., 2013; Heeren et al., 2011; Hou et al., 2013; Sugiura et al., 2012; Veehof et al., 2011).

LIMITATIONS

This study has several notable limitations. Firstly, our two samples were not homogeneous groups of people (175 meditation-advanced individuals trained in the Karma Kagyu tradition and 582 undergraduate and graduate PUJP students aged 20 to 50). Secondly, the level of meditation experience was not controlled for in the two groups (128 high school students aged 15 to 19 and 582 undergraduate and graduate students aged 20-50). Thirdly, none of the subjects were drawn from a clinical population. Fourthly, in meditation-naïve populations one scale of the questionnaire (*Observing*) is psychometrically acceptable only with methodological caution (or after rejecting item 24).

Further research on the FFMQ-SF should be conducted on other samples, with the homogeneity of the groups and the level of meditation experience controlled for. It would be interesting to compare groups having considerable meditation experience in a range of different traditions. It would also be very interesting to conduct an experimental and comparative study of meditating and non-meditating groups, measuring the influence of meditation time and quality on mindfulness.

Future studies should be conducted on clinical samples to investigate the potential differences in FFMQ-SF factorial structure and scores between nonclinical and clinical groups. More attention should be devoted to whether the obtained discrepancies result from the sampling process (depending on age, personality traits, meditation experience), cross-cultural differences, the specificity of Polish religiosity, or other psychological factors.

OVERALL CONCLUSION

The results of this study suggest that the FFMQ-SF is a sufficiently reliable and valid instrument for measuring the trait-like general tendency to be mindful in a nonclinical meditation-naïve and meditation-experienced Polish population aged from 15 to 63. They also support the thesis that mindfulness has a multifaceted structure (5-facet orthogonalmodel), as suggested in various studies conducted in other countries (Baer et al., 2006; Bohlmeijer et al., 2011; Dundas et al., 2013; Heeren et al., 2011; Hou et al., 2013; Sugiura et al., 2012; Veehof et al., 2011).

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APPENDIX

Table 1. *Descriptive Statistics and Reliability Coefficients for the Total Sample*

FACET / Scale	*M*	*SD*	A
NIEREAKTYWNOŚĆ	15.69	3.62	.75
3. Obserwuję swoje uczucia bez zatracania się w nich.	3.03	1.05	.68
9. Gdy jestem opanowany / opanowana przez straszliwe myśli i wyobrażenia, potrafię po prostu je zauważyć i nie reagować na nie.	3.11	1.07	.65
13. Gdy jestem przerażony / przerażona myślami i wyobrażeniami, szybko dochodzę do równowagi i czuję spokój.	3.25	1.08	.64
18. W trudnych sytuacjach potrafię „wyluzować się" bez natychmiastowego reagowania.	3.07	1.07	.69
21. Gdy mam rozpaczliwe myśli i wyobrażenia, po prostu je zauważam i pozwalam, aby sobie odeszły.	3.24	1.04	.66
OBSERWACJA	14.56	3.15	.73
6. Zwykle zwracam uwagę na takie wrażenia, jak wiatr w moich włosach albo słońce na mojej twarzy.	3.37	1.18	.65
10. Zwracam uwagę na takie dźwięki, jak tykanie zegara, śpiew ptaków albo dźwięk przejeżdżających samochodów.	3.63	1.04	.63
15. Odczuwam zapachy i aromaty różnych rzeczy.	3.87	1.05	.61
20. Zauważam takie elementy w sztuce i przyrodzie, jak kolory, kształty, struktura oraz wzory światła i cienia.	3.69	1.03	.65
ŚWIADOME DZIAŁANIE	16.39	3.63	.73
8. Mam trudności w koncentrowaniu się na tym, co dzieje się tu i teraz.*	3.14	1.07	.65
12. Wygląda tak, jakbym funkcjonował jak automat, nie uświadamiając sobie tego, co robię.*	3.53	1.17	.57
17. Pochopnie angażuję się w różne czynności bez zwracania na nie uwagi.	2.96	1.10	.73
22. Wykonuję zadania i prace automatycznie bez uświadamiania sobie tego, co robię.*	3.39	1.06	.59
23. Uważam siebie za kogoś, kto robi pewne rzeczy bez zwracania na nie uwagi.*	3.37	1.04	.62
OPISYWANIE	17.00	3.44	.72
1. Łatwo znajduję słowa, aby opisać swoje uczucia.	3.22	1.12	.62
2. Mogę łatwo opisać w słowach swoje oczekiwania, opinie i wierzenia.	3.61	1.07	.59
5. Trudno mi znaleźć słowa, aby opisać to, o czym myślę.*	3.41	1.10	.55
11. Kiedy odczuwam jakieś wrażenia płynące z mojego ciała, trudno mi je opisać, ponieważ nie potrafię znaleźć odpowiednich słów.*	3.34	1.07	.60
16. Nawet, gdy czuję ogromny niepokój, mogę znaleźć odpowiednie słowa, aby to wyrazić.	3.42	1.01	.58
NIEOSĄDZANIE	16.57	3.71	.74
4. Mówię sobie, że nie powinienem / powinnam odczuwać czegoś w sposób, w jaki to robię.*	3.21	1.05	.69
7. Oceniam, czy moje myśli są dobre czy złe.*	3.18	1.09	.68
14. Mówię sobie, że nie powinienem / powinnam myśleć w ten sposób, w jaki właśnie myślę.*	3.23	1.04	.65
19. Myślę, że niektóre z moich emocji są nieodpowiednie i nie powinienem / powinnam ich odczuwać.*	3.32	0.99	.62
24. Krytykuję się za to, że mam nieracjonalne pomysły i idee.*	3.63	1.25	.71

Note. *M* – mean, *SD* – standard deviation, α – Cronbach's alpha, * – reverse-coded items.

Table 2. *Descriptive Statistics and Reliability Coefficients in the FAS Sample*

Factor	Mean	Standard deviation	Skewness	Kurtosis	A
Nonreact	2.79	0.66	-0.24	-0.12	.71
Observe	3.70	0.77	-0.33	-0.58	.70
Actaware	2.67	0.75	-0.01	-0.74	.70
Describe	2.96	0.49	-0.06	0.20	.65
Nonjudge	2.80	0.98	0.98	-0.48	.75

Note. FAS – Fine Arts School.

Table 3. *Descriptive Statistics and Reliability Coefficients in the PUJP Sample*

Factor	Mean	Standard deviation	Skewness	Kurtosis	A
Nonreact	2.89	0.65	-0.11	1.30	.73
Observe	3.21	0.82	-0.36	0.02	.71
Actaware	3.47	0.76	-0.22	0.14	.71
Describe	3.29	0.73	0.15	-0.15	.69
Nonjudge	3.25	0.75	0.32	0.37	.74

Note. PUJP – Pontifical University of John Paul II.

Table 4. *Descriptive Statistics and Reliability Coefficients in the KK Sample*

Factor	Mean	Standard deviation	Skewness	Kurtosis	A
Nonreact	3.59	0.70	-0.02	-0.44	.84
Observe	3.87	0.64	-0.68	0.92	.81
Actaware	3.39	0.49	-0.04	-0.10	.79
Describe	3.07	0.63	-0.29	0.05	.76
Nonjudge	3.59	0.71	-0.26	0.30	.82

Note. KK – Karma Kagyu.

Table 5. *Intercorrelations of FFMQ-SF*

Scale	Nonreact	Observe	Actaware	Describe	Nonjudge
Nonreact		.13	.33**	.21**	.29**
Observe	.13		.12	.16*	.25**
Actaware	.33**	.12		.31**	.47**
Describe	.21**	.16*	.31**		.31**
Nonjudge	.29**	.25**	.47**	.31**	

Note. Nonreact – Nonreactivity to inner Experience, Observe – Observing, Actaware – Acting with awareness, Describe – Describing, Nonjudge – Nonjudging; * $p \leq .05$, ** $p \leq .01$.

Table 6. *Goodness-of-Fit Indices for the Polish Version of the FFMQ-SF*

Scale	χ^2	GFI	AGFI	CFI	RMSEA	PCLOSE
5-factor orthogonal model	1.80	.95	.94	.94	.04 [.02, .06]	.99
5-factor oblique model	2.30	.93	.92	.86	.05 [.02, .07]	.79
1-factor model	1.73	.95	.93	.93	.03 [.02, .05]	.99

Table 7. *Correlation Between FFMQ-SF Facets and Other Scales*

	Nonreact	Observe	Actaware	Describe	Nonjudge
Neuroticism NEO-FFI	-.62**	-.27**	-.43**	-.43**	-.43**
RRQ Rumination	-.62**	-.29**	-.32**	-.25*	-.45**
SRQ Emotional Instability	-.38**	-.33**	-.35**	-.30**	-.32**
Estimated positive correlations					
NEO-FFI Openness to Experience	.12	.29**	.45**	.37**	.43**
CBQ Ego Strength	.20*	.30**	.23*	.23*	.15
Estimated no correlation					
RRQ Reflection	.09	.23*	.11	.15	.06
NEO-FFI Extraversion	-.11	-.05	.14	-.09	-.15

Note. * $p \leq .005$; ** $p \leq .01$.

The preparation of the English version of *Roczniki Psychologiczne* (Annals of Psychology) and its publication in electronic databases was financed under contract no. 753/P-DUN/2017 from the resources of the Minister of Science and Higher Education for the popularization of science.