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Evaluation of the psychometric properties of the brief Internalized Stigma of Mental Illness Scale (ISMI-10)

Marie Ociskova, Jan Prasko, Dana Kamaradova, Marketa Marackova, Michaela Holubova

Department of Psychiatry, Faculty of Medicine and Dentistry, Palacky University in Olomouc, University Hospital Olomouc

Correspondence to: Marie Ociskova, PhD.
Department of Psychiatry, University Hospital Olomouc,
I. P. Pavlova 6, 779 00 Olomouc, Czech Republic.
TEL: +420 588 443 513; E-MAIL: marie.ociskova@upol.cz

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Abstract

OBJECTIVES: A significant number of psychiatric patients stigmatize themselves because of their mental struggles. Such self-stigmatization has an adverse impact on patients' well-being and effectiveness of the treatment of mental disorders. The goal of this study was to standardize the brief Internalized Stigma of Mental Illness Scale (ISMI-10), which could be used in studies targeting the self-stigma among the psychiatric patients.

METHOD: 354 psychiatric patients participated in the study between the years 2012 and 2014. All individuals were undergoing treatment in the outpatient care or the psychotherapeutic ward of the Department of Psychiatry, University Hospital Olomouc. The mean age of the participants was 41.5±13.3 years. The majority of them were women (n=195). The patients suffered from various mental disorders – neurotic disorders (n=166), mood disorders (n=65), substance use disorders (n=47), psychoses (n=40), personality disorders (n=32), and organic mental illness (n=4). Each patient completed a demographic questionnaire and the ISMI-10.

RESULTS: The ordinal alpha of the scale was 0.86, indicating its good internal consistency. The overall scores of the full and abbreviated version of the scale were almost perfectly correlated (r=0.95, $p<0.001$). The factor analysis confirmed a good internal structure of the scale. The created norms for the scale score were based on stens.

CONCLUSION: The ISMI-10 may be a useful method for measuring the self-stigma among adults with a mental disorder. The area of its use lies mainly in research.

ORIGINAL ARTICLE

INTRODUCTION

Individuals with mental disorders often struggle with the negative societal perception of psychiatric patients. The general view of mental disorders still tends to be predominantly unfavorable and skewed. The traditional stereotype of psychiatric patients describes individuals with mental health problems as dangerous, inferior, and socially undesirable (Nawka *et al.* 2012; Graves *et al.* 2005). These prejudices are significantly maintained by mass-media that tends to inform about crimes committed by psychiatric patients and hardly ever forget to comment on the mental health status of the perpetrator. At the same time, the media often omit to portray the patients in other contexts (as normally functioning members of the society or victims of crimes perpetrated by individuals who do not suffer from any mental disorder) (Nawka *et al.* 2012). This selective portrayal contributes to the maintenance of the prejudices and can lead to general feelings of fear or anger towards the individuals with mental disorders (Corrigan & Watson 2002). The psychiatric patients may then find themselves in isolation, as other avoid them because of the harmful stigma. Also, it is not rare when the patients come across discrimination (Crocker *et al.* 1998).

However, the societal stigmatization is not the only issue that many patients deal with. A considerable part of the individuals with mental disorders accept the prejudices and stigmatize themselves (Corrigan & Rao 2012). The self-stigma has been connected to the most severe consequences of the stigma (Ritsher & Phelan 2004). It leads to feelings of hopelessness (Schrank *et al.* 2014) and a lack of self-esteem (Watson *et al.* 2007). The patients, who developed the self-stigma, also often isolate themselves and avoid social contacts because of the fear that they could be stigmatized or discriminated against (Yanos *et al.* 2008). The self-concept of these individuals also changes. The personal characteristics, which previously dominantly formed the self-concept (I as a parent, a partner, an employee, etc.), lose their importance and are replaced by the stigmatizing attributes (I as a worthless person, a freak, a failure) (Yanos *et al.* 2008). In extreme cases, the self-stigma may lead to suicidal ideations and plans (Latalova *et al.* 2014).

Apart from the mental state of the patients, the self-stigma also affects the treatment of the mental disorders. The psychiatric patients, who stigmatize themselves, often show insufficient treatment adherence. They tend to avoid the treatment altogether (Bathje & Pryor 2011). If they already undergo it, these patients may voluntarily stop using their medication (Hajda *et al.* 2015; Sedlackova *et al.* 2015; Kamaradova *et al.* 2015; Vrbova *et al.* 2014). The higher levels of the self-stigma among the individuals with anxiety disorders also lead to lower effectiveness of the pharmacotherapy and psychotherapy (Ociskova *et al.* 2016).

The current state of knowledge suggests that the self-stigma is an important topic that deserves our research and therapeutic attention. The development of effective therapeutic strategies that would decrease the self-stigma is needed. This effort can be enhanced by a standardization of scales measuring the self-stigma. According to the meta-analysis of Stevelink *et al.* (2012), the best method, assessing the self-stigma among the psychiatric patients, has been the Internalized Stigma of Mental Illness Scale (ISMI) by Ritsher *et al.* (2003).

This scale consists of 29 items that form five subscales – Alienation, Stereotype Endorsement, Discrimination Experience, Social Withdrawal, and Stigma Resistance (2003). The full version of the scale was translated into Czech and standardized by Ociskova *et al.* (2014). The method had an excellent internal consistency (the Cronbach alpha of the scale was 0.91) and stability over time (r=0.90, $p<0.001$). The internal structure of the scale showed minor deficiencies. Still, it was acceptable. The convergent validity of the measure was explored and confirmed by its correlation with the Beck Depression Inventory-II and the subjective version of the Clinical Global Impression (2014).

Two years after the standardization, we used the scale in several studies (examples in the text above) and watched its use by other research teams. We found that even though the scale consists only of 29 items, it may be too extensive for some study designs. Specifically, its use can be difficult in studies in which it presents one of many scales and questionnaires. Moreover, some patient samples may benefit from the use of shortened versions of the scales, since these individuals have attention issues or are easily fatigued (such as individuals with depression, anxiety disorders, or psychoses). These reasons led us to a decision to standardize the brief version of the ISMI which includes only ten items out of 29 items of the full version (Boyd *et al.* 2014). A primary goal of this study was to verify psychometric properties of the Czech brief version of the ISMI. A secondary goal was to create norms that could be used for the purpose of the interpretation of the overall scale score.

METHODS

Subjects

The data were obtained from the patients who participated on the standardization of the full version of the ISMI and completed all ten items of the abbreviated scale (Ociskova *et al.* 2014). This way, 354 individuals were chosen for the current study. All of the patients were undergoing treatment in the outpatient care or the psychotherapeutic ward of the Department of Psychiatry, University Hospital Olomouc. The data collection took place between November 2012 and February 2014. There were more women (n=195; 55.1%) than men (n=158; 44.9%) in the sample. The mean age was 41.5±13.3 years, ranging from 18 to 85 years. The most common level of education was secondary (n=136; 38.4%), followed by a vocational training (n=102; 28.8%), university education (n=79; 22.3%), and pri-

mary education (n=37; 10.5%). The patients were usually employed or self-employed (n=165; 46.6%). Others were unemployed (n=91; 25.7%), taking the disability rent (n=48; 13.6%) or the old age pension (n=29; 8.2%), and 16 individuals were students (4.5%). Five patients did not declare their job status.

All patients were diagnosed in accordance to the diagnostic criteria of the ICD-10 (WHO 1992). The most prevalent diagnoses were neuroses (n=166; 46.9%). A lesser part of the patients suffered from mood disorders (n=65; 18.4%), substance use disorders (n=47; 13.3%), psychoses (n=40; 11.3%), personality disorders (n=32; 9.0%), and organic mental disorders (n=4; 1.1%). The mental state of the patients was stabilized during the data collection and did not require a change in the treatment.

The study fulfilled the ethical criteria postulated by the Helsinki Declaration and the Guideline of the Good Clinical Practice (EMEA 2002). A local ethical committee approved the research and all patients signed and informal consent.

Method

All participants completed a demographic questionnaire, stating information about their gender, age, the highest level of education, the job status, and the mental disorder that they were diagnosed with. They also filled in the ISMI, out of which ten items, forming the ISMI-10, were chosen for this study.

ISMI-10 – The abbreviated version of the ISMI was introduced by Boyd *et al.* (2014). The scale consists of ten items of the full scale, namely the items 2, 7, 9, 17, 20, 21, 22, 23, 27, and 28. There are two items out of each of the five original subscales of the full ISMI. Boyd *et al.* (2014) chose the items according to their psychometric characteristics – their correlation with the overall ISMI score and similar scales and according to their construct validity. Oppositely to the full ISMI, the ISMI-10 does not allow the calculation of the subscales and only offers the overall scale score. Thus, the scale can be mainly used as a screening method. The internal consistency of the English ISMI-10 was satisfactory – the Cronbach alpha was 0.75 (Boyd *et al.* 2014). The correlation between the brief and full versions of the scale was excellent (r=0.94, $p<0.01$). The convergent validity of the new measure was also satisfactory (Boyd *et al.* 2014).

Statistics

Statistical analyses were performed by using the programs SPSS 17.0 and G*Power. Descriptive statistics consisted of the calculation of the means and standard deviations of the scale score in all patients and selected subgroups. Data distribution was checked by the Shapiro-Wilk test. The relationship between the self-stigma and the age was analyzed by the Spearman's correlation coefficient, as the age category did not meet the requirements for a normal distribution. The difference between the sexes was analyzed by the independent t-test. The differences among other subgroups (according to the job status, education, and the diagnostic category of the patients) were explored by the one-way ANOVA. Interpretation of the effect sizes was realized in accordance with the Cohen's suggestions (1988). Reliability of the scale was assessed by the ordinal alpha and the inter-item correlations. We also calculated the correlation between the full ISMI and the ISMI-10. The exploratory factor analysis consisted of the maximum likelihood method with the promax rotation. The confirmatory factor analysis was also applied. The structural model of the scale was analyzed by the maximum likelihood method. Standardized regression coefficients of the scale items and the fit indices were pinpointed for the interpretation. The goodness-of-fit indices were interpreted in accordance with the work of Byrne (1994), Hu and Bentler (1999), and Ullman (1996). The norms were based on the stens. The basic level of statistical significance was set at $p<0.05$.

RESULTS

Descriptive analysis

Firstly, we calculated the mean scores of the ISMI-10 of the whole sample and the subgroups (Table 1). The significance of the differences between the subgroups was analysed. There were no significant differences between the probands according to their sex, age, education, or a diagnostic category of the disorder that they suffered from.

However, the participants differed in their mean level of the self-stigma when their job status was put in account. The patients, who were employed or self-employed, showed significantly lower tendencies to self-stigmatization than the individuals, who were unemployed or taking the disability rent. At the same time, the patients, who were taking the old age pension, also had significantly the lower self-stigma than the patients, who were unemployed, or those, who were taking the disability rent.

As for the size effect, the difference between the employed and unemployed patients was small (Cohen's d=0.4). The difference between the employed participants and the patients, who were taking the disability rent, was medium (Cohen's d=0.6). Almost the same effect size was in the difference between the patients with the old age pension and those, who were unemployed (Cohen's=0.66). The difference between the participants with the old age pension and the disability rent was large (Cohen's d=0.88).

Reliability and correlation between the full and brief version of ISMI

Internal consistency of the ISMI-10 was assessed by the ordinal alpha. This type of alpha represents an equivalent to the classic Cronbach's alpha for the ordinal-type data (such as the Likert-type scales like the ISMI-10) (Gadermann *et al.* 2012). The ordinal alpha of the scale

Tab. 1. The means and standard deviations of the ISMI-10 score of the whole sample and the subgroups and the differences among them.

Sample		ISMI-10
All participants (n = 354)		21.6±5.4
Sexes	Men (n = 158)	21.4±5.5
	Women (n = 195)	21.8±5.3
	The independent t-test	t=-0.717; df=351; ns
Age	Spearman's correlation coefficient	r=–0.10; ns
Education	Primary education (n = 37)	23.0±5.4
	Vocational training (n = 102)	22.0±5.1
	Secondary education (n = 136)	21.7±5.3
	University education (n = 79)	20.3±5.7
	One-way ANOVA	F=2.623; df=3; ns
Job status	Students (n = 16)	21.1±4.6
	Employed and self-employed (n = 165)	20.7±5.1
	Unemployed (n = 91)	22.8±5.4
	Taking the disability rent (n = 48)	23.9±5.7
	Taking the old age pension (n = 29)	19.4±4.8
	One-way ANOVA	F=5.829; df=4; $p<0.001$
Diagnostic category	Organic mental disorders (n = 4)	23.8±3.0
	Substance use disorders (n = 47)	21.3±5.3
	Psychotic disorders (n = 40)	22.2±5.1
	Mood disorders (n = 65)	22.4±5.2
	Neurotic disorders (n = 166)	20.9±5.5
	Personality disorders (n = 32)	23.6±5.4
	One-way ANOVA	F=2.054; df=5; ns

ns = non-significant

was 0.86 which suggests a good internal consistency of the scale (Kline 2000). The inter-item correlations ranged between 0.006 and 0.638. The second item of the scale displayed the lowest correlation coefficients with other scale items. It is one of two items that originated in the Stigma Resistance subscale of the full ISMI. The correlation coefficient between the full and shortened version of the ISMI was r=0.95, $p<0.001$, which indicates an almost perfect similarity.

Factor analyses

The next step consisted of the exploratory and confirmatory factor analysis. The exploratory factor analysis was performed by using the maximum likelihood method with the promax rotation. The purpose of the exploratory factor analysis was to identify all significant factors which could form the scale. This way, two factors were identified. The factors explained 55.5% of the scale scores variance. The eigenvalue of the first factor was 4.45, the value of the second factor was 1.1. The factor loadings of the items are stated in the Table 2. Two items, originating from the Stigma Resistance subscale of the full ISMI, merged into one factor. Eight remaining items mainly saturated the first factor – a factor of the self-stigma. Also, the first item of the ISMI-10 loaded on its factor only weakly.

The exploratory factor analysis showed that the scale consisted of two factors – the factor of the self-stigma and the factor of the stigma resistance. However, the scale was meant to be interpreted by one overall scale score and not two (Boyd *et al.* 2014). Thus, a confirmatory factor analysis was applied. The goal of this analysis was primarily to find out if the scale might be interpreted by a sole scale score. We were interested if the structural model of the scale, which would be based on only one latent factor – the factor of the self-stigma, could be used. The confirmatory factor analysis consisted of the application of the maximum likelihood method. The resultant standardized regression coefficients are stated in the Table 3.

Tab. 2. Factor loadings of the ISMI-10 items.

Items	Factor 1	Factor 2
Item 1	0.218	0.002
Item 2	–0.170	0.334
Item 3	0.706	0.043
Item 4	0.613	0.199
Item 5	0.760	–0.176
Item 6	0.662	–0.013
Item 7	0.834	–0.070
Item 8	0.781	–0.013
Item 9	0.268	0.529
Item 10	0.766	–0.127

Tab. 3. Standardized regression coefficients of the ISMI-10 items.

Items	Standardized regression coefficients
Item 1	0.22
Item 2	–0.01
Item 3	0.73
Item 4	0.71
Item 5	0.67
Item 6	0.66
Item 7	0.80
Item 8	0.78
Item 9	0.51
Item 10	0.70

Tab. 4. The fit indices of the structural model of the ISMI-10.

Indices	χ^2	df	*p*-value	CFI	NFI	GFI	RMSEA	RMR	RFI
Model	63.189	35	0.01	0.977	0.949	0.966	0.048	0.026	0.935

The results of this analysis were similar to the outcomes of the exploratory factor analysis. The first item of the scale loaded on the factor of the self-stigma weakly. The second item (one of the two items of the original Stigma Resistance subscale of the ISMI) failed to saturate it altogether.

More importantly, we strived to analyse the fit indices of the model consisting of a single latent factor – the factor of the self-stigma. The goodness-of-fit indices of this model are stated in the Table 4. All indices showed that this structural model of the scale was very good. Thus, only one scale score may be used for the interpretation of the scale, and the internal structure of the scale was satisfactory.

Scoring and norms

One overall scale score may be calculated. Those, who are also interested in the scores of the original ISMI subscales (Alienation, Discrimination Experience, Stereotype Agreement, Social Withdrawal, and Stigma Resistance), should use the full ISMI. The overall score of the ISMI-10 can be calculated by the sum of the Likert values circled in each item. The Likert values of the items 2 and 9 have to be inverted before their inclusion in the overall scale score. This means that if the patient marks a number 1 in these two items, the inverted score is 4, and vice versa. Also, of the individual marks the number 2, it is inverted into 3, and vice versa.

The norms for the overall scale score were based on stens (Table 5). Generally speaking, the lower is the score/sten, the lower tendencies to self-stigmatization the patient displays. The stens between 4 and 6 indicate an average level of the self-stigma in relation to the Czech norms. Lower values speak for the lower self-stigma; higher values indicate the higher self-stigma.

DISCUSSION

The goal of this research was to verify basic psychometric properties of the brief Internalized Stigma of Mental Illness Scale (ISMI-10). The ISMI-10 is based on ten of the original 29 items of the full ISMI. These items, always two out of five subscales of the ISMI, showed the best psychometric characteristics, and thus were included in the shortened version of the scale (Boyd *et al.* 2014). The Czech version of the full ISMI was standardized by Ociskova *et al.* (2014).

The research sample consisted of the patients who participated on the standardization of the full ISMI (Ociskova *et al.* 2014). The patients were mainly diagnosed with neurotic spectrum disorders. There were lesser groups of the participants who suffered from mood disorders, psychoses, personality disorders, substance use disorders, and organic mental disorders. The unequal size of the diagnostic groups present one of the limitations of this study. However, since Livingston and Boyd (2010) found that the specific diagnosis play a little to no role in the intensity of the self-stigma, this limitation does not seem very severe. In accordance to the meta-analysis of Livingston and Boyd (2010), we did not found significant differences between the patients based on their sex or the highest level of education.

Still, the patients in this study differed according to their job status. The patients, who were unemployed or taking the disability rent, displayed significantly higher levels of the self-stigma than individuals, who were (self-)employed or taking the old age pension. The analysis of the effect sizes showed that the most significant difference was between the individuals with the old age pension and the disability rent. When compared to the sten norms, the patients, who were taking the old age pension, had a mean level of the self-stigma on the border between the sten 4 and 5. Oppositely, the patients with the disability pension reached the higher border between the sten 6 and 7, indicating almost above-average tendency to self-stigmatization. The (self-)employed participants reached the mean level of the self-stigma (the sten 5), and the unemployed individuals reached the sten 6 in average.

There are several possible explanations for the significant differences. The individuals, who were unemployed or taking the disability pension, could have

Tab. 5. Norms for the overall score of the ISMI-10.

Raw Score	Sten
10	1
11–13	2
14–16	3
17–19	4
20–21	5
22–24	6
25–26	7
27–29	8
30–32	9
33+	10

suffered from more severe symptoms of the disorders when compared to the patients, who were employed or taking the old age pension. Also, the employment itself may serve as a protective factor against the development of the self-stigma, as it can maintain a sense of control over one's and "usefulness for the society" (Waters & Moore 2002). Furthermore, Rüsch *et al.* (2014) found that individuals, who work and do not come across discrimination in their job, stigmatize themselves less than unemployed people. We cannot rule out one more possible explanation that is that the self-stigma itself may cause worse employability due to its effect on self-esteem, hope, and avoidant behaviour. These suggestions present hypotheses which should be explored by further research.

The psychometric properties of the scale were largely favourable. The ordinal alpha of the scale was 0.86, indicating a good internal consistency of the scale. The Cronbach's alpha of the Czech version of the full ISMI was 0.91 (Ociskova *et al.* 2014). The reason for the lower consistency is most probably a statistical one. The lower the number of items in a scale is, the lower is the alpha (Cortina 1993). Thus, the brief ISMI does not have lower consistency than the full ISMI. It simply has fewer items. When compared to the English ISMI-10, the consistency of the Czech scale was higher (the Cronbach's alpha of their version was 0.75) (Boyd *et al.* 2014).

The correlation between the ISMI and the ISMI-10 was excellent (r=0.95; $p<0.001$), and reached a level comparable to the findings of Boyd *et al.* (2014) (r=0.94, $p<0.01$). Since the correlation coefficient should be at least r=0.85 (Kline 2000), we can conclude that both measures, the full and the brief one, are comparable. The ISMI-10 may be used as an equivalent to the full ISMI.

We also performed two different factor analyses. The goal of the exploratory factor analysis was to identify all factors that significantly form the scale. Two factors were found this way – a factor of the self-stigma and a factor of the stigma resistance. The first item of the ISMI-10 loaded on its factor weakly. It may have happened due to the items chosen for the brief scale. While the ten items showed the best psychometric properties in the English version of the ISMI-10 (Boyd *et al.* 2014), the Czech translation may have yielded different results.

The fact, that the scale split into two major factors and that the first item saturated its factor weakly, led to the application of the confirmatory factor analysis. Its goal was to verify if the scale had a good internal structure and may be interpreted by one overall scale score. The results of the confirmatory factor analysis showed that the first factor loaded on the latent factor of the self-stigma weakly. The second item of the scale (one of the two items of the original Stigma Resistance subscale of the ISMI) failed to load on it altogether. This means that this item measures a significantly different phenomenon than the self-stigma. However, the values of the fit indices strongly suggested that the evaluated model was very good. Thus, in spite of minor deficiencies, the scale proved to have a satisfactory internal structure and may be evaluated by a single scale score.

The major limitation of this study is the research sample. The patients were undergoing the outpatient care of were hospitalized in the psychotherapeutic ward of the Department of Psychiatry, University Hospital Olomouc. The participants were suffering mainly from neuroses or depression; other diagnostic groups were represented in a smaller extent. The available data did not offer us the possibility to analyse the stability of the scale in time.

The brief Internalized Stigma of Mental Illness Scale includes ten items of the original 29 items version of the scale. It may be used as a screening method measuring the level of the self-stigma in adults with a mental disorder. The scale shows satisfactory psychometric properties and should be preferably used in research.

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