Copyright © Psychiatria i Psychoterapia

ISSN 1895-3166

Psychiatria i Psychoterapia 2012, Tom 8, Nr 3-4: s.20-30

Psychiatria i Psychoterapia 2012, vol. 8, issue 3-4: pp. 20-30

wersja pierwotna - elektroniczna

primary version - online

Jarosław Michałowski[1], Paweł Holas[2], Kamila Wojdyło[1], Bartłomiej Gorlewski[3]

POLISH ADAPTATION AND VALIDATION OF THE MOBILITY INVENTORY

[1] Institute of Psychology University of Gdansk, Head: dr hab. Mariola Bidzan;

[2] 2nd Psychiatric Clinic, Medical University of Warsaw;

[3] S. Kryzan Psychiatric Hospital in Starogard Gdański

Summary

Aim: The present study aimed at the adaptation and validation of the Mobility Inventory (MI; suggested Polish name: Skala Zachowań Unikowych Towarzyszących Agorafobii [SZUTA]) used to assess the frequency of agoraphobic avoidance behavior while being in company (subscale Avoidance When Accompanied) or alone (subscale Avoidance When Alone).

Method: The study included a total of 80 patients diagnosed with agoraphobia or panic disorder with agoraphobia according to the diagnostic criteria of the DSM-IV as well as 100 control subjects who did not show the presence of mental disorders.

Results: The present study showed that the Polish-language version of the MI meets basic psychometric criteria. Both of its subscales are characterized by a high content validity and reliability.

Conclusions: The Polish-language version of the MI has been found to be a highly efficient and economic research and diagnostic instrument for the measurement of the agoraphobic avoidance behavior. Both of its subscales (i.e. Avoidance When Accompanied and Avoidance When Alone) might be very useful in research or in the diagnosis and evaluation of therapeutic effects.

Key words: agoraphobia, panic disorder, fear of fear

Introduction

Previous research on the cognitive aspects of the fear response, blooming in the 1970s and 1980s, allowed to better understand the mechanisms underlying the development and maintenance of anxiety disorders [1, 2]. It was found that the fear response may be triggered not only by external stimuli and situations, but also by internal stimuli, such as symptoms of physiological arousal or thoughts. Thanks to that "cognitive revolution" of the 1970s and 1980s it became possible to explain that such internal stimuli are responsible for seemingly unjustified anxiety symptoms in panic disorder patients and in patients suffering from agoraphobia who avoid diverse and seemingly unlike situations, such as, supermarkets, riding a train, closed spaces or even lone bicycle rides.

It is now clear that agoraphobics avoid the whole range of different situations and places because they are afraid that it would be difficult/shameful to leave them or to get any help if they happen to experience an incapacitating reaction or unexpected panic attack (ICD-10, F 40.0). According to this definition, agoraphobic patients may avoid driving a car not for fear of an accident as such, but because they worry they won`t be able to turn back or stop in time in case they get a panic attack. Goldstein and Chambless [3] proposed that the fear of fear is the main motive of panic attacks and avoiding behaviors in panic disorder/agoraphobia. The fear of fear develops during the interoceptive conditioning, that is, when slight physiological symptoms of fear or arousal become associated with intense fear or strong arousal (called the interoceptive threat signal) and begin to trigger a conditioned fear response [see, e.g., 4, 5]. As a result, the fear response start to occur even in reaction to mild arousal symptoms accompanying various emotional sensations (such as fear, joy or anger), environmental conditions (such as high temperatures) or the use of substances changing the physiological activity (such as coffee).

On the basis of the three-level fear model proposed by Lang [6], Goldstein and Chambless [3] distinguished three components of fear of fear: cognitive, emotional and behavioral. First, increased fear of fear might be accompanied by *automatic thoughts* of negative physical and social consequences of fear and arousal symptoms (e.g., "I'm going to have a heart attack"). Second, people experiencing increased fear of fear demonstrate intense *fear response* to interoceptive signals (such as heart palpitations). Third, due to the negative association of arousal symptoms people with high level of fear of fear may try to *avoid* any circumstances or situations associated with a higher risk of symptom occurrence and/or lower help availability. Avoidance is the leading motive of protective behaviors in agoraphobic patients.

The present study aimed at the adaptation and validation of the Polish translation of the Mobility Inventory (MI; proposed Polish name: Skala Zachowań Unikowych Towarzyszących Agorafobii [SZUTA]) [8] in a group of agoraphobic patients and in a healthy control group. The questionnaire serves to assess the tendency to avoid the most common agoraphobic situations. For

each situation, participants are asked to rate the avoidance tendency when they are accompanied by other people (Avoidance When Accompanied; MI-A) or when they are alone (Avoidance When Alone; MI-B). Psychometric properties of the English original were defined in a series of tests performed with agoraphobic patients and healthy controls [8]. Statistical analyses showed high internal consistency (Cronbach alpha alfa $rs \geq 0.91$) for both subscales of the questionnaire. Each individual item demonstrated a satisfactory reliability when tested with the test-retest method (≤ 31 days; average correlation between items $r = 0.76$). Moreover, the tests confirmed a high construct validity of both subscales, showing that they satisfactorily differentiate between agoraphobic patients and the control group; successful psychotherapy significantly reduces the MI scores, and the results of both MI subscales are highly correlated with the results of the agoraphobia scale that forms a part of the Fear Questionnaire [9]. As expected, high MI results also showed statistically significant, though lower, correlations with trait anxiety (State-Trait Anxiety Inventory X-2) [10] and depression scales (Beck Depression Inventory) [11]. High internal consistency, reliability and content validity of the MI have also been confirmed in German [12] and Australian [13] studies.

Material

A total of 180 people were tested: 80 (48 females) out- and inpatients diagnosed as agoraphobic, and 100 (59 females) controls without diagnosed mental disorders. Patients were diagnosed by experienced clinicians according to the DSM-IV criteria [14]. The questionnaires were filled at the beginning of psychotherapy. The control and patient groups did not differ as a function of age and sex ($ts\ (178) \leq 1.8$, ns).

Methods

Translation process

At the beginning, we obtained the permission to adapt the MI from the author of the English-language original, Prof. Dianne Chambless. In light of the cultural universality of the test items and in order to maintain the opportunity to compare the results obtained with Polish and English versions we decided to use the back-translation procedure [15]. The original English-language version of the questionnaire had been translated by two translators - a linguist and a psychologist. The result of this work had been back-translated by another linguist, who did not know the original. The investigation performed by an English-speaking psychologist and a linguist did not reveal any significant differences between the translation and the original. The draft of the Polish-language version was formatted in a style similar to the English version and consulted with the author of the original. Finally, it was revised according to the authors` comments and accepted.

Procedure

A set including several questionnaires (see below) as well as written instructions about the purpose of the study and a demographic survey was distributed to patients by a psychologist/psychiatrist during the ambulatory or stationary treatment. The same set of questionnaires was anonymously completed by students recruited from different courses at two public universities or by other people recruited by these students and meeting the criteria for the inclusion in the control group.

Questionnaires

Mobility Inventory (MI) [8] is designed for measuring the tendency to avoid 26/27 different situations on a 5-point scale (I never avoid (1), I always avoid (5)). Each situation is assessed twice – for the case where the confrontation takes place in company of other people (MI-A; Avoidance When Accompanied) and for the case when the confrontation with it takes place in solitude (MI-B; Avoidance When Alone).

Body Sensations Questionnaire (BSQ) [7] is an instrument to assess the intensity of a fear response to 17 various body sensations on a 5-point scale (Not frightened or worried by this sensation (1), Extremely frightened by this sensation (5)). The Polish version of the questionnaire prepared by Michalowski and Holas [16] was used.

Agoraphobic Cognitions Questionnaire (ACQ) [7] is used to assess the incidence of 14 automatic catastrophic thoughts during the experience of anxiety and fear on a 5-point never/always scale. The ACQ includes two correlated subscales: Social/behavioral concerns subscale (subscale I) and Physical concerns subscale (subscale II). Here, we used the Polish ACQ version prepared by Michalowski and Holas [16].

Eysenck Personality Questionnaire – Revised (EPQ-R) [20] is a very common and psychometrically sound self-report personality questionnaire consisting of a 100 questions that have been assigned to four subscales: Neurotisicm, Extroversion, Psychoticism and Lie. Here, we used the Polish version of the questionnaire prepared by Brzozowski and Drwal [21].

The Anxiety Sensitivity Index - III (ASI-III) [17,18] is a self-assessment questionnaire consisting of 18 items describing various anxiety/arousal-related concerns. Participants are requested to indicate how much they share these concerns on a 5-point scale (I agree very little (0), I agree very much (4)). The ASI-III yields a total score and 3 individual subscale scores: anxiety related to organism/health (1), anxiety related to mental/cognitive processes (2) and anxiety related to being among people (3).

State-Trait Anxiety Inventory (STAI-X2) [10,19] is designed for the self-assessment of trait anxiety symptoms.

Beck Depression Inventory (BDI) [11] is a self-report instrument consisting of 22 items assessing depression symptoms intensity.

Results

Reliability analyses

The scores of both MI subscales are normally distributed (test K-S: ps > 0.05). The subscales demonstrated high internal consistency as well as acceptable test-retest reliability that was established after 28-days in the control group (see Table 1). Corrected Item-total correlations calculated for the Polish version of the ACQ ranged from 0.33 to 0.66. Calculating Cronbach α if item deleted confirmed a high internal consistency of both MI scales. Corrected Item-total correlations ranged from 0.30 to 0.76 for MI-A and from 0.33 to 0.77 MI-B (see Table 2 & Table 3).

Table 1 Mean, Standard Deviation, Test-retest and Cronbach`s Alpha reliability coefficients for each subscale of the Mobility Inventory.

	M (SD)	r	Cronbach α
Avoidance Alone			
Agoraphobics	3.14 (0.95) (n=80)		0.96** (n=26)
Controls	1.66 (0.63) (n=99)	0.71** (n=46)	0.87** (n=73)
Avoidance Accompanied			
Agoraphobics	2.43 (0.85) (n=80)		0.94** (n=31)
Controls	1.37 (0.44) (n=99)	0.48** (n=46)	0.87** (n=73)

** $p < 0.001$

Table 2 Mean, Standard Deviation, Item-total correlations for each individual item of the MI Avoidance Alone subscale in normal controls and agoraphobics.

Item content	Normal Controls			Agoraphobics		
	M	SD	Item total correlations r	M	SD	Item total correlations r
Theatres.	2.15	1.47	0.58**	3.80	1.45	0.58**
Supermarkets.	1.61	1.05	0.33**	3.13	1.41	0.72**
Shopping centers	1.74	1.04	0.44**	3.29	1.43	0.70**
Classrooms.	1.33	0.70	0.45**	2.87	1.47	0.62**
Department stores.	1.72	1.11	0.43**	3.17	1.43	0.73**
Restaurants.	1.93	1.23	0.52**	3.37	1.55	0.77**
Museums.	1.89	1.33	0.49**	1.24	1.56	0.67**
Elevators.	1.80	1.37	0.58**	2.84	1.57	0.61**
Auditoriums or stadiums.	1.72	1.34	0.63**	3.40	1.50	0.72**
Parking garages.	1.86	1.36	0.67**	2.70	1.65	0.66**
High places.	2.21	1.60	0.60**	3.33	1.56	0.42**
Enclosed spaces.	1.77	1.30	0.59**	3.08	1.60	0.61**
Open spaces						
Outside.	1.20	0.62	0.58**	2.46	1.49	0.65**
Inside.	1.19	0.57	0.62**	2.17	1.31	0.64**
P Buses.	1.51	1.10	0.59**	3.41	1.45	0.63**
Trains.	1.62	1.20	0.48**	3.35	1.45	0.55**
Subways.	1.53	1.09	0.54**	3.56	1.35	0.67**
Airplanes.	1.65	1.20	0.48**	3.90	1.40	0.49**
Boats.	1.63	1.24	0.48**	3.82	1.46	0.68**
Driving or riding in car						
At any time	1.23	0.72	0.48**	2.71	1.47	0.46**
On expressways	1.39	0.96	0.55**	2.97	1.55	0.47**
Standing in lines	2.07	1.29	0.50**	3.41	1.25	0.57**
Crossing bridges	1.53	0.95	0.58**	2.63	1.52	0.57**
Parties or social gatherings.	2.03	1.23	0.50**	3.48	1.23	0.57**
Walking on the street	1.18	0.51	0.63**	2.56	1.48	0.69**
Staying at home alone.	1.36	0.80	0.46**	2.39	1.38	0.43**
Being far away from home.	1.76	1.12	0.48**	3.27	1.43	0.54**

** $p < 0.001$

Table 3 Mean, Standard Deviation, Item-total correlations for each individual item of the MI Avoidance Accompanied subscale in normal controls and agoraphobics.

Item content	Normal Controls			Agoraphobics		
	M	SD	Item total correlations r	M	SD	Item total correlations r
Theatres.	1.18	0.46	0.49**	2.55	1.30	0.65**
Supermarkets.	1.56	0.98	0.40**	2.35	1.18	0.71**
Shopping centers	1.62	1.05	0.41**	2.46	2.28	0.71**
Classrooms.	1.26	0.67	0.42**	2.38	1.33	0.66**
Department stores.	1.61	1.00	0.53**	2.42	2.21	0.76**
Restaurants.	1.23	0.57	0.30*	2.38	1.58	0.57**
Museums.	1.44	0.96	0.46**	2.46	1.34	0.65**
Elevators.	1.36	0.93	0.46**	2.22	1.33	0.51**
Auditoriums or stadiums.	1.33	0.80	0.56**	2.54	1.36	0.76**
Parking garages.	1.48	1.04	0.58**	2.00	1.26	0.66**
High places.	1.98	1.41	0.50**	2.72	1.43	0.43**
Enclosed spaces.	1.52	1.05	0.61**	2.56	1.41	0.47**
Open spaces						
Outside.	1.10	0.39	0.62**	1.74	1.04	0.62**
Inside.	1.14	0.57	0.64**	1.67	0.89	0.62**
Buses.	1.30	0.85	0.58**	2.57	1.34	0.69**
Trains.	1.30	0.86	0.49**	2.62	1.42	0.66**
Subways.	1.23	0.72	0.51**	2.82	1.36	0.72**
Airplanes.	1.45	0.96	0.41**	3.41	1.55	0.46**
Boats.	1.43	1.08	0.64**	3.30	1.56	0.59**
Driving or riding in car						
At any time	1.15	0.48	0.36**	2.12	1.10	0.45**
On expressways	1.22	0.56	0.44**	2.33	1.27	0.41**
Standing in lines	1.64	1.04	0.41**	2.47	1.17	0.61**
Crossing bridges	1.30	0.66	0.51**	2.11	1.22	0.51**
Parties or social gatherings.	1.35	0.68	0.38**	2.68	1.25	0.59**
Walking on the street	1.09	0.46	0.48**	1.95	1.10	0.55**
Being far away from home.	1.34	0.75	0.50**	2.36	1.20	0.68**

** $p < 0.001$; * $p < 0.05$

Validity analyses

Our analyses performed for the patients group demonstrated a fairly strong correlation between both MI subscales (r = 0.69). As expected, MI-B scores were higher than MI-A scores (T (79) = 8.88, p < 0.001). Further analyses revealed statistically significant correlations between these subscales and related research tools (i.e. ASI-III, ACQ, BSQ; see Table 4). Moreover, MI-B scores correlated with other scales used in the present study (i.e. BDI, STAI-X2, EPQ-R-N; see Table 4) and MI-A scores were found to correlate with BDI (r = 0.36). Comparing the scores from agoraphobic patients with those from the control group confirmed a high MI validity. The analysis performed for the MI-B showed that the patients' scores (M = 3.14) differ significantly from the healthy control group's scores (M = 1.66; T (177) = 12.47, p < 0.001). As expected, also for the MI-A agoraphobic patients obtained significantly higher scores (M = 2.43) than healthy controls (M = 1.37; T (177) = 10.77; p < 0.001).

Table 4 Correlations (Pearson's r) of Agoraphobics responses to the MI-A and MI-B with other scales.

	MI-A n	MI-B n	BSQ n	ACQ n	ASI-III n	STAI X2 n	BDI n
MI-A							
MI-B	0.49** 80						
BSQ	0.20** 78	0.32** 78					
ACQ	0.14* 80	0.28** 80	0.44** 78				
ASI-III	0.16* 79	0.32** 79	0.44** 77	0.65** 79			
STAI X-2	0.10 68	0.33** 68	0.38** 66	0.48** 68	0.46** 68		
BDI	0.26** 66	0.47** 66	0.23** 64	0.48** 66	0.37** 66	0.70** 58	
EPQ-N	0.39 61	0.30* 61	0.33* 61	0.47** 61	0.47** 61	0.63** 53	0.41** 59

** - p < 0.001; * - p < 0.05

MI-A – Mobility Inventory Avoidance Accompanied subscale; MI-B – Mobility Inventory Avoidance Alone subscale; ACQ – Agoraphobic Cognitions Questionnaire; BSQ – Body Sensations Questionnaire; ASI-III – The Anxiety Sensitivity Index – III; STAI-X2 – State-Trait Anxiety Inventory-X2; BDI – Beck Depression Inventory; EPQ-R-N – Eysenck Personality Inventory Revised, Neuroticism Scale; n – analyzed sample size

Discussion

The present study aimed to adapt and validate the Mobility Inventory (MI; suggested Polish name: Skala Zachowań Unikowych Towarzyszących Agorafobii [SZUTA]) consisting of two subscales, on which the subjects specify their tendency to avoid different situations for the case when they are confronted with them in company of other people (MI-A; Avoidance When Accompanied) and or in solitude (MI-B; Avoidance When Alone). The adapted tool proved to meet the psychometric criteria.

The analyses showed that MI has high construct validity. It is indicated by statistically significant differences between agoraphobic patients and the control group as well as by the correlation analyses between both MI subscales as well as between each of those subscales and other tools measuring various aspects of the fear of fear. Analyzing construct validity of the adapted tool we also expected agoraphobic patients to apply more avoiding behaviors while alone than while in company, and that the high intensity of avoiding behaviors will result in isolation, loss of positive reinforcements, and occurrence of depressive symptoms. In accordance with these expectations, agoraphobic patients had higher scores for the „Avoidance when alone" subscale than for the „Avoidance when accompanied" subscale, and the results of both subscales were highly correlated with Beck Depression Inventory scores. In addition, the „Avoidance when alone" subscale was highly correlated with the State-Trait Anxiety Inventory (STAI-X2) and the EPQ-R Neuroticism Scale, confirming its high construct validity.

MI was found to have a high internal consistency, as indexed by Cronbach alpha coefficients. The results concerning internal consistency are comparable with the original [8] and the German versions [12]. Reliability analyses showed a moderately satisfactory temporal stability of the MI. i.e., the results obtained at the retest were correlated with the results of the test conducted 28 days earlier at the significance level $\alpha < 0.001$.

Conclusions

The results show that the Mobility Inventory (MI; suggested Polish name: Skala Zachowań Unikowych Towarzyszących Agorafobii [SZUTA]} meets basic psychometric criteria. High content validity and reliability of both MI subscales make them applicable for the psychological diagnostic process as well as for original and replication research.

Acknowledgements: The authors would like to thank dr. Witold Goździk, the Neurotic Disorders Unit of the Psychiatric Hospital in Międzyrzecz and the Mental Health Out-Patient Clinic os. Pod Lipami 103 in Poznań for the support of the project. The research was co-financed from the resources of the Institute of Psychology of the University of Gdansk (BW/2010/7413-5-0623-0)

granted to the first author and from the resources of the Ministry of Education (N N402 269036) granted to the second author.

Corresponding author: Dr Jarosław Michałowski
Faculty of Psychology University of Warsaw, Stawki Street 5/7, 00-183 Warsaw
E-mail address: jmichalowski@psych.uw.edu.

References

1. Abramson LY, Seligmann MEP, Teasdale JD. Learned helplessness in humans: critique and reformulation. Journal of Abnormal Psychology 1978; 87: 49-74.
2. Beck AT. Depression: causes and treatment. Philadelphia: Univ. of Pennsylvania Press; 1967.
3. Goldstein AJ, Chambless DL. A reanalysis of agoraphobia. Behav Ther 1978; 9: 47-59.
4. Bouton ME, Mineka S, Barlow DH. A modern learning theory perspective on the etiology of panic disorder. Psychol Rev 2001; 108(1): 4-32.
5. Razran G. The observable unconscious and the inferable conscious in current Soviet psychophysiology: Interoceptive conditioning, semantic conditioning, and the orienting reflex. Psychophys review 1961; 68: 81-147.
6. Lang PJ. The cognitive psychophysiology of emotion: Fear and anxiety. W: Tuma AH, Maser JD. red. Anxiety & the anxiety disorders. Hillsdale, NJ: Erlbaum; 1985. s. 131-179.
7. Chambless DL, Caputo GC, Bright P, Gallagher R. Assessment of Fear of Fear in Agoraphobics: The Body Sensations Questionnaire and the Agoraphobic Cognitions Questionnaire. J Consul Clin Psychol 1984; 52(6): 1090-1097.
8. Chambless DL, Caputo GC, Jasin SE, Gracely EJ, Williams C. The Mobility Inventory for Agoraphobia. Beh Res Ther 1985; 23: 35-44.
9. Marks IM, Mathews M. Brief Standard Self Rating for phobic patients. Behav Res Ther 1979; 17: 263-267.
10. Spielberger C, Gorsuch A, Lushene R. The State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press; 1970.
11. Beck AT, Ward CH, Mendelsohn M, Mock J, Erbaugh J. An inventory for measuring depression. Arch Gen Psychiatry 1961; 4: 561-571.
12. Ehlers A, Margraf J, Chambless DL. Fragebogen zu körperbezogenen Ängsten, Kognitionen und Vermeidung, AKV. Weinheim: Beltz Test; 1993.
13. Kwon S, Evans L, Oei TPS. Factor Structure of the Mobility Inventory for Agoraphobia: A validationals study with Australian samples of agoraphobic patients. J Psychopath Behav Assess 1990; 12(4): 365-374.
14. Wciórka J. red. Kryteria diagnostyczne według DSM-IV. Wyd. Elsevier; 2008
15. Behling O, Law KS. *Translating questionnaires and other research instruments: Problems and Solutions.* Thousand Oaks, CA: Sage; 2000.
16. Michalowski JM, Holas P. Polish adaptation and validation of the Agoraphobic Cognitions Questionnaire and the Body Sensations Questionnaire; Psychiatria Polska; 47 (4): 679-687..
17. Taylor S, Zvolensky MJ, Cox BJ, Deacon B, Heimberg RG, i in. Robust Dimensions of Anxiety Sensitivity: Development and Initial Validation of the Anxiety Sensitivity Index – 3. Psychol Assessment 2007; 19(2): 176-188.

18. Michalowski JM, Holas P. Polish adaptation and pszchometric validation of the Anxiety Sensitivity Index – III; submitted.
19. Wrześniewski K, Sosnowski T, Matusik D. Inwentarz Stanu i Cechy Lęku STAI. Polska adaptacja STAI. Podręcznik. Warszawa: PTP; 2002.
20. Eysenck HJ, Eysenck SGB. Eysenck Personality Questionnaire. San Diego, Ca: Educational and Industrial Testing Service; 1975.
21. Brzozowski P, Drwal RŁ. Kwestionariurz Osobowości Eysencka. Polska adaptacja EPQ-R. Podręcznik. Warszawa: Pracownia Testów Psychologicznych PTP; 1995.