

EVALUATION OF THE UTILITY OF LIEBOWITZ SOCIAL ANXIETY SCALE AND BARRATT IMPULSIVENESS SCALE IN THE DIAGNOSIS OF SOCIAL ANXIETY, IMPULSIVITY AND DEPRESSION

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SUMMARY

Background: Often mental disorders are serious problems concerning psychological well-being. They require comprehensive and specialized psychiatric and psychological help, but there are no public methods of controlling your mental state. The aim of study was the evaluation of the utility of Liebowitz Social Anxiety Scale and Barratt Impulsiveness Scale in the diagnosis of social anxiety, impulsivity and depression.

Subjects and methods: The study included 85 persons. The study group had 34 patients treated in an open ward of the Department of Psychiatry and Psychotherapy of Medical University of Silesia in Katowice. The control group included 51 persons without mental disorders. Three self-rating questionnaires were used: Beck Depression Inventory, Barratt Impulsiveness Scale and Liebowitz Social Anxiety Scale. Statistica v10 Statsoft software was used for statistical analysis.

Results: The analyzed groups had significant differences in terms of Beck Scale (U Mann-Whitney test $p=0.000001$). Average score in study group: 22.94 ± 12.50 ; in control group: 7.15 ± 6.44 . Groups had significant differences in terms of Liebowitz Scale (U test Mann-Whitney test, $p=0.000164$). Average score in the study group: 60.41 ± 30.30 ; in control group: 35.01 ± 23.94 . Groups had significant differences in terms of Barratt Scale (t-student test $p=0.000601$). Average in study group: 66.35 ± 9.49 ; in control group: 59.54 ± 7.87 . Significant positive correlation was observed between the results of Beck Scale and Liebowitz Scale ($r=0.64465$). Correlation was not observed between the results of the Liebowitz and Barratt ($r=0.12091$ and Beck and Barratt ($r=0.21482$).

Conclusions: The intensity of the Liebowitz Social Anxiety Scale is directly proportional to the severity of depression according to the Beck Depression Inventory. The degree of impulsivity by Barratt Impulsiveness Scale does not correlate with the level of depression according to Beck Depression Inventory. The analyzed scales are relevant in the diagnosis of mental disorders.

Key words: Beck Depression Inventory - Barratt Impulsiveness Scale - Liebowitz Social Anxiety Scale - mental disorders

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INTRODUCTION

Modern medicine offers many diagnostic tools, starting with the medical interview, going further by Computed Tomography scan, until molecular diagnostics of genetic diseases. A rating scale is a particular device for recording information about a patient (Hamilton 1976). In the rating scale an expert, assesses defined aspects of health, but sometimes the precise questions vary from rater to rater and from subject to subject (McDowell 2006). Through the years rating scales have become very useful in psychiatry. Standardised methods of examination are used in psychiatry to assess objectively and quantify psychopathological phenomena, making it easier to formulate these, to verify their status and to analyse them statistically (Möller 2009). In 1959 Ernest S. Barratt constructed the Impulsiveness Scale, originally to relate operationally defined measures of anxiety and impulsiveness to psychomotor learning in a conflict situation (Barratt 1959). Slightly later, the original version of the Beck Depression Inventory was published (Beck 1961), and in 1987 - The Liebowitz Social Anxiety Scale (Liebowitz 1987). Citation of these scales is not random. Mental disorders are a common and complex problem,

therefore it is possible that psychiatric patients may be also accompanied by impulsiveness, depression and anxiety.

The aim of the study was the evaluation of the utility of Liebowitz Social Anxiety Scale and Barratt Impulsiveness Scale in the diagnosis of social anxiety, impulsivity and depression.

SUBJECTS AND METHODS

Sociodemographic characteristic of participants

The study included 85 persons. The study group comprised 34 patients treated in an open ward of the Department of Psychiatry and Psychotherapy of the Medical University of Silesia in Katowice, in the period from October 2013 to March 2014. Diagnosis within the study group concerned depression, anxiety and personality disorders. The control group included 51 persons without mental disorders. Individuals participating in the study have undergone professional psychiatric examination. Subsequently the respondents were supposed to fill in a questionnaire containing the self rated -Beck Depression Inventory, Barratt Impulsiveness Scale and Liebowitz Social Anxiety Scale.

The average age in the study group was 26.14 ± 4.01 (minimum 20 years, maximum 32 years). and in the control group it was 26.41 ± 5.02 (minimum 19 years, maximum 30 years). There was no significant difference ($p=0.78$) in terms of age between groups. The study group was composed of 37.25% (19/51) male and 62.75% (32/51) female respondents. The control group consisted of 35.29% (12/34) male and 64.71% (22/34) female respondents. There was no significant difference ($p=0.18$) in terms of gender between groups. The medium education level in both groups was upper secondary education. All examined respondents were inhabitants of the city.

Instruments and procedures

The study was approved by the Ethics Committee of the Medical University of Silesia in Katowice, that it conforms to the provisions of the Declaration of Helsinki in 1995 (as revised in Edinburgh 2000).

Three questionnaires were used:

Beck Depression Inventory (BDI)

Symptoms and severity of depression were evaluated by Beck Depression Inventory, a 21-item self-report inventory (Beck et al. 1961). The form was created using the official translation of BDI, approved by the competent psychiatric association (Parnowski 1977). The range of the point scale: 0-63 points. BDI scores <10 points were considered as normal. Higher scores were categorized into minor depression: 10–19 points, moderate depression: 20–29 points and severe depression: ≥ 30 points (Parnowski 1977).

Barratt Impulsiveness Scale 11th edition of Barratt Impulsiveness Scale (BIS-11)

The Barratt Impulsiveness Scale, a 30-item self-report questionnaire was used to assess impulsivity with regard to attention, motor activity and planning. Items were rated on a four-point scale ranging from 1 (never/rarely) to 4 (almost always/always), with higher scores indicating more impulsiveness (range of the point scale: 30-120 points) (Patton 1995). The form was created using the official Polish translation of BIS-11 (Grzesiak 2008).

Liebowitz Social Anxiety Scale self-reported version (LSAS-SR)

Liebowitz Social Anxiety Scale a 24-item self-report questionnaire was used to assess social anxiety scored on a Likert-type scale of four points. It was divided into 2 subscales investigating symptoms related to fear and avoidance (Rytwinski 2009). Range of the point scale: 0-144 points. The score in the range of 55-64 points indicated minor anxiety, 65-79 points - moderate anxiety, 80-94 points - severe anxiety, >95 points - high severe anxiety.

Statistical analysis

Groups were standardized in terms of age and gender. The values have been rounded to two decimal points.

Statistical significance level was $p < 0.05$. Statistica v10 Statsoft software was used for statistical analysis. Chi square test was used for statistical analysis of categorical variables. U-Mann Whitney test, t-student test depending on number of cases and normality distribution were used for statistical analysis of quantitative variables. For analysis of correlation, Pearson's r correlation coefficient was used. Limits in interpretation of a correlation coefficient were following: 0-0.3 low correlation; 0.3-0.6 medium correlation; 0.6-1.0 high correlation.

RESULTS

Both the study and control groups had significant differences in terms of Beck Depression Inventory (U Mann-Whitney test $p=0.000001$). Average score in study group amounted to 22.94 ± 12.50 and 7.15 ± 6.44 in the control group. The proportion of the BDI scores in the study group was following: 14,70% (5/34) of respondents had no depression, there was no one with minor depression 0%, 47.06% (16/34) of respondents demonstrated moderate depression and 38.24% (13/34) of them had severe depression. The proportion of the BDI scores in the control group was different than in study group. 72.50% (37/51) of the representants of control group had no depression, 19.50% (10/51) of them had minor, 6.00% (3/51) moderate and 2.00% (1/51) severe depression.

Groups had significant differences in terms of the Liebowitz Social Anxiety Scale (U test Mann-Whitney test, $p=0.0002$). The average score in the study group amounted to 60.41 ± 30.30 points and 35.01 ± 23.94 points in the control group. The average score of fear of the situation of Liebowitz scale was significantly different ($p=0.00003$) between the analysed groups. The representants of study group received an average of 31.03 ± 15.00 points and control group – 18.00 ± 12.25 points. The average score of avoidance of the situation of the Liebowitz scale was also significantly different ($p=0.0004$) between the groups, reaching 29.09 ± 17.23 points in study group and $17.02 \pm 13,01$ points in control group. The proportion of the Liebowitz scale in the study group was the following: 44.12% (15/34) of the study group had no anxiety, 8.82% (3/34) of them had minor anxiety, 17.65% (6/34) moderate, 20.59% (7/34) severe and eventually 8.82% (3/34) had high severe anxiety. Majority of control group – 76.47% (39/51) of respondents had no anxiety. 9.80% (5/51) of them had minor anxiety, 7.84% (4/21) - moderate anxiety. 3.92% (2/51) of representants had severe anxiety and 1.96% (1/51) - high severe anxiety.

Groups had significant differences in terms of the Barratt Impulsiveness Scale (t-student test $p=0.0006$). 66.35 ± 9.49 points was the average score in study group and 59.54 ± 7.87 in control group. The average score of scales was illustrated in Figure 1.

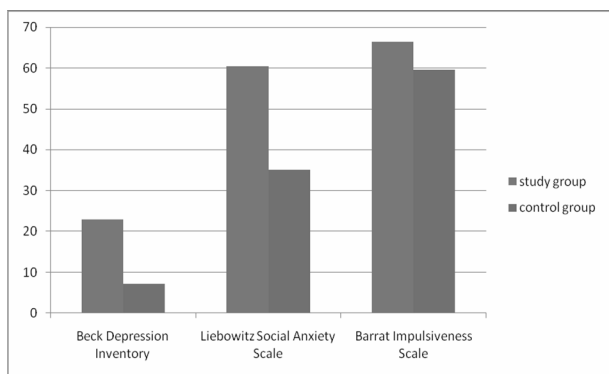


Figure 1. The average score of the Beck Depression Inventory, Liebowitz Social Anxiety Scale and Barrat Impulsiveness Scale of study and control group

Significantly high positive correlation was observed between the results of Beck Depression Inventory and Liebowitz Social Anxiety Scale ($r=0.64465$ $p=0.0001$) (Figure 2). Low correlation was observed between the results of the analysed Liebowitz and Barrat scales ($r=0.12091$ $p=0.270$) and Beck and Barrat scales ($r=0.21482$ $p=0.048$). Significantly high positive correlation was observed between the study and control group in the results of BDI ($r=0.64247$ $p=0.0001$) (Figure 3).

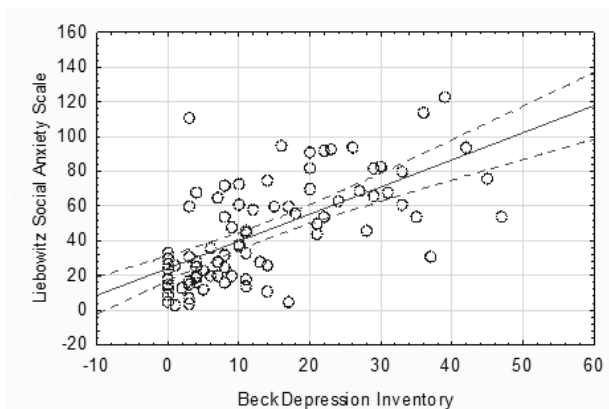


Figure 2. Correlation between the Beck Depression Inventory and Liebowitz Social Anxiety Scale of study and control group

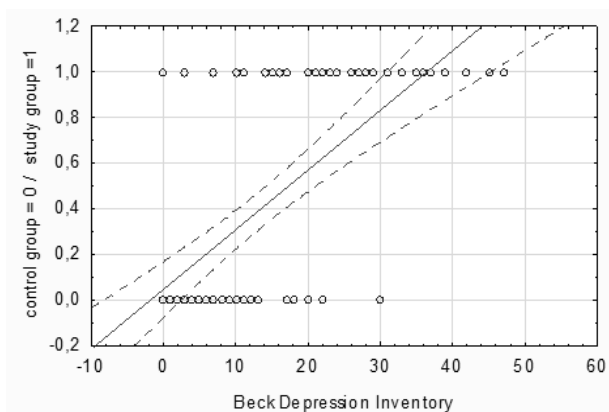


Figure 3. Correlation between the study and control group in the results of Beck Depression Inventory

Significantly medium positive correlation was observed between the study and control group in the results of Liebowitz Social Anxiety Scale ($r=0.42711$ $p=0.0001$) (Figure 4). Significantly medium positive correlation was observed between the study and control group in the results of the Barratt Impulsiveness Scale ($r=0.36697$ $p=0.001$) (Figure 5).

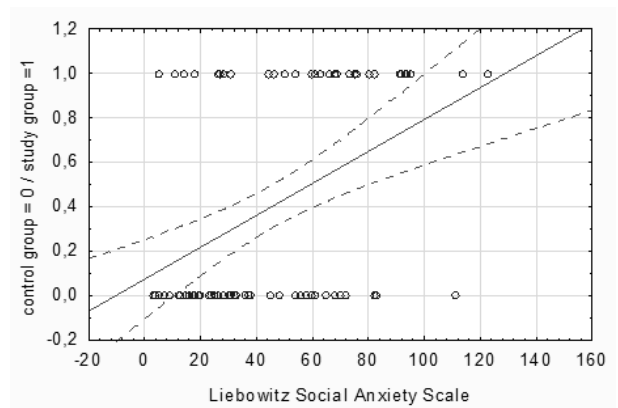


Figure 4. Correlation between study and control group in the results of Liebowitz Social Anxiety Scale

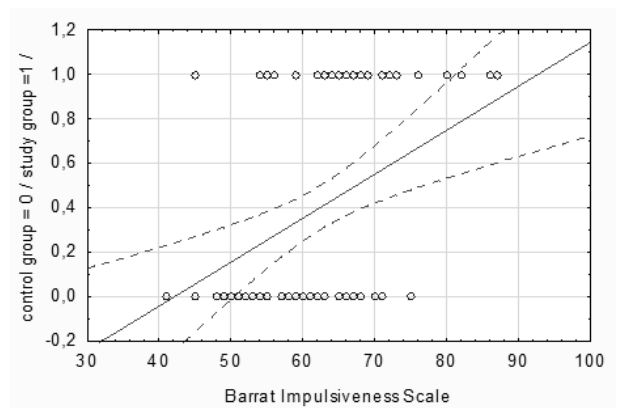


Figure 5. Correlation between the study and control group in the results of Barratt Impulsiveness Scale

DISCUSSION

There are not many studies on the psychometric evaluation of the Beck Depression Inventory (BDI) in a clinical sample (Coles 2001). Investigating the correlation of results of selected psychiatric scales can be found in a wide variety of research. In the present study, differences demonstrated in the results of the control group and the study group also suggest, that the tested scales may be useful in the diagnosis of psychiatric patients.

The high correlation found between the results of BDI, Liebowitz Social Anxiety Scale (LSAS), Barratt Impulsiveness Scale (BIS) of the test group and the control group showed a high usability of the presented scales in the diagnosis of mental disorders. Among the studies in which LSAS and BDI were used and correlated, it is possible to distinguish those focused

directly on the problem of mental disorders, which may or not be accompanied by depression and social anxiety. Dalbudak et al. showed a correlation of LSAS and BDI patients with alexithymia at $r=0.34$ and $r=0.29$ (2013). A similar result was found in this study for fear and anxiety, however, in the present study there was a higher correlation. On the other hand, Coles et al. revealed among the adult respondents a correlation between LSAS and BDI at $r=0.5$ and $r=0.44$ (2001). In the group of patients with epilepsy the literature described the correlation between LSAS and BDI scales, at the $r=0.1$ and $r=0.25$ (Evren 2009).

It in the case of the BIS and BDI in the study of Zhang et al. concerning relationship of impulsivity and depression during early methamphetamine withdrawal in Han Chinese population were disclosed correlations at $r=0.02$ and $r=0.267$ between depressive symptoms and BIS (2015). Statistical analysis of relationships of impulsiveness and depressive symptoms in alcohol dependence revealed a significant association between the level of global impulsivity as measured by the BIS-11 and severity of depressive symptoms in the BDI $r=0.483$. In addition, significant correlations for all three BIS-11 subscales were observed $r=0.541$, and $r=0.275$. (Jakubczyk 2012)

There are not many studies comparing the correlation of BIS with LSAS, however, as in the present study, there is a low level of correlation between these scales. The study was limited by low number of respondents and by the fact, that only patients who have voluntarily sought treatment at the open ward department of psychiatry were included.

CONCLUSIONS

The intensity of the Liebowitz Social Anxiety Scale is directly proportional to the severity of depression according to Beck Depression Inventory. The degree of impulsivity by Barrat Impulsiveness Scale does not correlate with the level of depression according to Beck Depression Inventory. The analyzed scales are relevant in the diagnosis of mental disorders.

Acknowledgements: None.

Conflict of interest: None to declare.

References

1. Barratt ES: Anxiety and impulsiveness related to psychomotor efficiency. *Percept Mot Skills* 1959; 9:191-198.
2. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J: An inventory for measuring depression. *Arch Gen Psychiatry* 1961; 4:561–571.
3. Coles ME, Gibb BE, Heimberg RG: Psychometric evaluation of the Beck Depression Inventory in adults with social anxiety disorder; *Depress Anxiety* 2001; 14:145-8.
4. Dalbudak E, Evren C, Aldemir S, Coskun KS, Yıldırım FG, Ugurlu H: Alexithymia and personality in relation to social anxiety among university students. *Psychiatry Res* 2013; 209:167-72.
5. Evren C, Sar V, Dalbudak E, Oncu F, Cakmak D: Social anxiety and dissociation among male patients with alcohol dependency. *Psychiatry Res.* 2009;165:273-80.
6. Grzesiak M, Beszlej JA, Szechiński M: The Barratt Impulsivity Scale. *Postepy Psychiatr Neurol* 2008; 17:61-64.
7. Hamilton M: The role of rating scales in psychiatry. *Psychol Med* 1976; 6:347-9.
8. Jakubczyk A, Klimkiewicz A, Topolewska-Wochowska A, Serafin P, Sadowska-Mazuryk J, Pupek-Pyziol J et al.: Relationships of impulsiveness and depressive symptoms in alcohol dependence. *J Affect Disord* 2012; 136:841-7.
9. Liebowitz MR: Social Phobia. *Mod Probl Pharmacopsychiatry* 1987; 22:141-173.
10. McDowell I: *Measuring Health. A Guide to Rating Scales and Questionnaires*, Oxford University Press, New York, 2006.
11. Möller HJ: Standardised rating scales in psychiatry: methodological basis, their possibilities and limitations and descriptions of important rating scales. *World J Biol Psychiatry* 2009; 10:6-26.
12. Parnowski T, Jernajczyk W: Beck's depression inventory in the rating of mood in normal subjects and in patients with affective disturbances. *Psychiatr Pol* 1977; 11:417-21.
13. Patton JH, Stanford MS, Barratt ES: Factor Structure of the Barratt Impulsiveness Scale, *J Clin Psychol* 1995; 51:768-74.
14. Rytwinski NK, Fresco DM, Heimberg RG, Coles ME, Liebowitz MR, Cissell S et al.: Screening for social anxiety disorder with the self-report version of the Liebowitz Social Anxiety Scale. *Depress Anxiety* 2009; 26:34–38.
15. Zhang J, Su H, Tao J, Xie Y, Sun Y, Li L et al.: Relationship of impulsivity and depression during early methamphetamine withdrawal in Han Chinese population. *Addict Behav* 2015; 43:7-10.

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