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DISCREPANCY BETWEEN SELF-REPORTED RESILIENCE AND OBJECTIVE COGNITIVE PERFORMANCE IN ASSESSMENT OF WORK ABILITY: AN ANALYSIS OF TWO DIAGNOSTIC GROUPS

ABSTRACT

Subjective evaluation of psychiatric patients is less accurate and more variable than the average in the general population and, thus, it is important to discuss the relationship between subjective and objective ability. However, few studies have explored differences between psychiatric patients' subjective ability and objective cognitive test performance. We gathered a sample of consecutive (unselected) patients referred for psychiatric assessment of work ability at Helsinki University Hospital. Subjective resilience was measured with Wagnild's 14-item Resilience Scale (RS-14) and objective ability with Cambridge Neuropsychological Test Automated Battery (CANTAB). As a whole, the patients estimated their resilience to be low. Patients diagnosed with depressive disorder or bipolar disorder estimated their resilience significantly lower than the other psychiatric group. Yet with neuropsychological tests there was no difference between groups. Resilience correlated positively with the work ability recommendations given at the end of the assessment period. When resilience increased, the probability of belonging to the group that was able to work was significantly higher compared to the groups that were totally or partially unable to work. The result remained the same even if education was taken into account.

INTRODUCTION

Neuropsychological assessment is concerned with identifying the cognitive, emotional and behavioural consequences of brain dysfunction [1]. In addition to the objective information (for example, education, work history, standardized tests), the patient's subjective experiences of their own abilities, strengths and symptoms are collected in an interview and often via different structured questionnaires. The self-evaluation of psychiatric patients is complex, less accurate and more variable than the average in the general population [2], thus, it is important to discuss the relationship between subjective and objective functional ability [3].

Resilience has been seen as a powerful concept in psychiatry for the prevention of, and recovery from, mental illness and has many theoretical associations with work ability. Although there is no single, universally accepted definition of resilience, it has been defined as a personal competence and positive personality characteristic that enhances individual adaptation [4]. Resilience is related to one's capacity to use various and flexibly appropriate coping strategies [5], experience positive emotions [6-8] and develop higher self-esteem and a more positive attributional style [9], as well as self-regulation capacity and emotion regulation skills [10]. Weak resilience, on the other hand, has been reported to be associated with mental illness, especially depressive symptoms and depression [7, 8, 11-13]. Moreover, there is a negative relationship between resilience and the severity of depression [13].

With these observations in mind, we included subjective and objective measures in psychiatric neuropsychological assessment of work ability. Subjective measure in this study was Wagnild's 14-item Resilience Scale, which has been found to be a useful evaluation tool in the healthy Finnish population [14]. Studies have shown that mental health problems are reflected in Wagnild's Resilience Scale in that people with such problems tend to attain a lower score [12, 15-17].

Objective measure was Cambridge Neuropsychological Test Automated Battery (CANTAB) tasks [18, 19]. Psychiatric patients often have the same neuropsychological problems, regardless of their diagnosis [20, 21], and cognitive difficulties observed in psychiatry are often associated with the severity of psychiatric disorder.

To this end, our specific aims in this study were (i) to compare the resilience of healthy Finns to a sample of Helsinki University Hospital psychiatric patients, (ii) to evaluate the subjective (resilience) and objective (cognitive) performance

between the depressive group and the other psychiatric group, with a special focus on depressive patients, and (iii) to explore the extent to which resilience is associated with objectively estimated work ability.

SUBJECTS AND METHODS

STUDY FRAME AND ETHICS

The study is part of a larger HUS Helsinki University Hospital psychiatric research project that began in January 2016. The research data were collected as part of the clinical assessment in the Outpatient Clinic for Assessment of Ability to Work at HUS Helsinki University Hospital between February 2016 and March 2017. Ethics approval for the study was obtained from the Ethics Committee of HUS, Finland.

PROCEDURE

This registry study sample included 150 patients who were evaluated by neuropsychologist as part of a large, multi-professional clinical assessment, in order to obtain both subjective and objective information about patients' functional capacity within a structured and semi-structured assessment situation. The study included Finnish-speaking patients who were cognitively capable of participating in the Cambridge Neuropsychological Test Automated Battery (CANTAB®, www.cambridgecognition.com) [18, 19].

The final sample consisted of 95% of all the patients attending the specialized psychiatric unit between February 2016 and March 2017. The patients were referred primarily by occupational healthcare (37%), psychiatric clinics (31%), HUS (9%) or private physician (9%).

PARTICIPANTS

The sample consisted of an equal number of men and women. The patients ranged in age from 20 to 65 years, with an average age of 44.8 years (SD=10). There were 48 patients (32%) in the 20–39 age group, 49 patients (33%) in the 40–50 age group and 53 (35%) in the 51–65 age group. There was no significant difference in age between men and women (mean=45.5, SD=9.8 vs. mean=44.1, SD=10.2, respectively; p=.39).

We classified the participants in terms of education as follows. Two participants (1%) in the study had not completed primary school, 11 patients (7.5%) had completed primary school, but had no further education, 11 (7.5%) had complete upper secondary school without further education, 57 patients

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(38%) had acquired vocational education after primary school and 69 patients (46%) had higher education. Patients with higher education had either completed their studies at a university of applied sciences (n=36; 24%) or acquired a university degree (n=33; 22%).

All of the patients were evaluated by means of a structured interview SCID-I [22] and SCID-II [23] and diagnosed in accordance with the ICD-10 system [24]. A primary diagnosis of depression was confirmed in 75 (50%) patients and eight patients (5%) had bipolar disorder (Depressive group, F30–F39, n=83, see Table 2). Out of those patients who had psychiatric problems other than mood disorder (F30–F39), 27 patients (18%) were given an anxiety diagnosis (F40–F49), 12 patients (8%) had a primary personality disorder (F60–F69), 11 patients (7%) had psychosis spectrum diagnosis (F20–F29), four patients (3%) had substance abuse disorder, one patient (1%) had insomnia, seven patients (5%) were given an organic diagnosis and five patients (3%) were given a learning disability (F80-F89) or an ADHD diagnosis (F90).

Based on the final discussion after the large, multi-professional clinical assessment period, the work ability of the patients was classified as follows: 31 patients (21%) were unable to work, 77 patients (51%) were partially unable to work and 42 patients (28%) were able to work.

MEASURES

All participants (n=150) completed the Finnish version of the shorter Resilience Scale RS-14 [7, 8], which comprises 14 questions with a seven-point scale (1=strongly disagree, 7=strongly agree). The maximum score is 98 points and the lowest 14. According to Wagnild's rating, scores in the 14–56 range are classified as very low, 57–64 as low and 65–73 at the low end. Moderate scores range between 74 and 81, moderately high between 82 and 90, while high scores fall in the 91 to 98 range [8].

Losoi's [14] reference data "healthy Finns" were collected by researchers and psychology students mainly from the departments of their respective workplaces and universities (n=243, 75% female, with an average age of 41 years).

Patients filled in several questionnaires during the psychiatric assessment period. Since we collected the data retrospectively in this register study, some information was missing. The study included questionnaires related to depression and anxiety: the Beck Depression Inventory, BDI (n=137) [25] and the Overall Anxiety Severity and Impairment Scale, OASIS (n=105) [26]. Moreover, work-related questionnaires such as the Sheehan Disability Scale

(n=133) [27], the Return-to-Work Self-Efficacy scale, RTW-SE (n=100) [28] and the Return-to-Work Readiness Questionnaire, RTW-RQ (n=108) [2] were administered. Alcohol consumption was measured with the Alcohol Use Disorders Test, AUDIT (n=127) [29].

Full neuropsychological assessment was carried out on 50 (33%) of the examinees by a neuropsychologist. Cognitive assessment was carried out on 53 (35%) of the examinees by a psychologist. All participants completed Cambridge Neuropsychological Test Automated Battery, CANTAB [18, 19], which included Attention Shifting Task (AST), Motor Screening Task (MOT), Paired Associates Learning (PAL), Rapid Visual Information Processing (RVP) and Spatial Working Memory (SWM).

STATISTICAL ANALYSIS

The data were analysed using the IBM SPSS statistics program for Windows, version 22. The average difference between groups was examined by means of t-test. The association between resilience and education was studied using the one-way analysis of variance. Multinomial logistic regression was applied to examine how resilience was associated with work ability, and the group that was unable to work was used as the reference group.

RESULTS

RESILIENCE (RS-14) IN SAMPLE OF HEALTHY FINNS COMPARED TO PSYCHIATRIC SAMPLE

The overall resilience of the psychiatric patients was significantly lower than in Losoi's (convenience) sample of healthy Finns (mean=60.11 vs. mean=76.30). On average, the patients' scores in all of the items were lower than those of the healthy Finns [14] (see *Table 1*). There were no significant differences between the RS-14 values in women and men (p=.08), while a weak but statistically significant association was found between the RS-14 and education [F (5,144) =2.36, p=.04].

SYMPTOMS AND COGNITIVE PERFORMANCE (CANTAB) BETWEEN TWO PSYCHIATRIC GROUPS

On average, the psychiatric patients estimated their resilience as low. Patients with major depressive disorder or bipolar disorder had very low resilience (see *Table 2*). The average difference between depressive group and the other psychiatric group was highly significant with RS-14, and also

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BDI, OASIS and Sheehan Disability Scale. Return-to-Work Self-Efficacy (RTW-SE) and Return-to-work Readiness (RTW-RQ) were significantly lower with the depressive group.

In objective neuropsychological tests, Cambridge Neuropsychological Test Automated Battery (CANTAB®, www.cambridgecognition.com) [18,19], we did not find statistically significant differences between depressive group and other psychiatric group. On average, both groups had cognitive difficulties. The depressive group had a slightly better education level (higher education 49% vs. 42%).

THE RELATIONSHIP BETWEEN RESILIENCE AND WORK ABILITY

Based on the multi-professional clinical assessment, the work ability of the patients was classified into three groups. The patients were classified as unable to work, partially unable to work or able to work. In statistical terms, when resilience increased, the probability of belonging to the group that was able to work was significantly higher compared to the groups that were unable or partially unable to work [OR=1.07, 95% CI 1.04–1.11, $\chi^2(1)$ =19.51, p<.001]. In other words, the ability to work was associated with higher resilience. The result remained the same even when education was taken into account. There was no difference between the "unable to work" and the "partially unable to work" groups with regard to the questionnaires, apart from the Return-to-Work Self-Efficacy rating (see *Table 3*).

DISCUSSION

The overall aim of this study was to examine self-reported resilience (RS-14) and objective cognitive tasks (CANTAB) as components of the neuropsychological assessment of psychiatric work ability. The first objective was to compare resilience between the sample of healthy Finns to the psychiatric sample of Helsinki University Hospital patients. Another important objective was to evaluate the resilience (subjective) and the cognition (objective) performance between different diagnosis groups. The third aim was to explore how resilience is associated with objectively evaluated work ability.

MAJOR FINDINGS

In general, we found resilience to be low if the patient had mental problems, but there were differences in resilience between the diagnosis groups. Depressive and bipolar patients estimated their resilience as very low and their subjective estimation was significantly lower than the rest of the patients, even though we did not find differences in objectively tested cognition between groups. It was found that the higher the resilience, the better the work ability.

RESILIENCE AND COGNITION OF THE PSYCHIATRIC PATIENTS

As expected, the patients who took part in this study estimated that their resilience was considerably lower than the average of the healthy Finns. In Losoi's sample, the RS-14 mean was 76.30, which is moderate. In our study, the average self-reported resilience of the psychiatric patients was low, at 60.11. In other studies using the RS-14 questionnaire, the group with mental disorders was found to be less resilient than the control group [12, 15-17].

Those patients with a diagnosis of depression or bipolar disorder had the lowest resilience of all. Low resilience has been particularly associated with depression and depressive symptoms [7, 8, 11-13]. There is a negative relationship between resilience and the severity of depression [13]. Depressive patients subjectively estimated that they had more depressive symptoms, more anxiety symptoms and lower ability to work than the rest of the patients.

All the patients had the lowest scores in response RS-14-05 ("I feel that I can handle many things at a time") which is reflective of their cognitive problems. Psychiatric patients often have subjective and objective cognitive problems, regardless of their diagnosis. Objectively tested, we found that the depressive patients had, on average, as many cognitive problems as the other psychiatric patients.

Lack of resilience is associated with challenging functional deficits in patients, including secondary adverse behavioural patterns, such as fear-avoidance reactions, and tertiary deficits including a maladaptive sickness role with established negative self-expectations and a narrowed outlook [2, 30]. Confidence in one's capacity to deal with stress also increases a sense of control, active problem-oriented coping, motivation and perseverance, thereby modifying responses to stressors and buffering against stress-related psychological disorders such as depression [31]. As neuroplasticity is exhibited throughout the lifespan, many of the stress-protective resilience factors can be enhanced through practice and training [31] or psychotherapy [32].

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THE RELATIONSHIP BETWEEN RESILIENCE AND ABILITY TO WORK

The third main objective of this study was to explore whether resilience is connected with work ability. We found that resilience was related to the objective work ability recommendation that was given after the assessment period. When resilience increased, the probability of belonging to the group that was able to work was higher. For those who were able to work, the RS-14 mean total score was 72.93 (SD=14.4), which is at the low end/near moderate, according to Wagnild's rating. There was no difference between the "totally unable to work" and the "partially unable to work" groups in terms of resilience. Both groups had resilience classified as very low.

The results suggest that subjective experience was taken into account in the work ability recommendations after the assessment period. Patients' subjective experiences of their own functional capacity have been found to be relevant in predicting the return to work [33-35].

In addition to ways in which the patient can improve their personal resilience, the work community also has a role in helping less resilient workers [36].

LIMITATIONS

Due to the cross-sectional design of this study, causal relationships with resilience cannot be inferred. However, some patients spontaneously said that before their psychiatric illness they would have evaluated their resilience as being higher. On the other hand, other patients said that their resilience had been low since childhood. Hence, the RS-14 questionnaire may provide the clinician with valuable non-numerical information about rehabilitation opportunities and psychological resources for individual patients.

One limitation of the study concerns the fact that the cases who were not cognitively capable of participating in cognitive tasks were excluded. However, the strength of this study was that all of the patients received a broad and multi-professional clinical assessment, and the sample was highly representative of the patients at the specialized unit for the assessment of work ability at HUS, despite the fact that it was not homogeneous.

The reference group "healthy Finns" were a convenience sample of 243 individuals recruited by researchers and students of psychology mainly from the departments of their workplaces and universities [14]. It may not be optimal for the reference group, but in clinical assessment it seems to work very well.

PRACTICAL IMPLICATIONS

Questionnaires are an important part of neuropsychological assessment when self-reported, subjective information is combined with more objective data from standardized tests conducted by a neuropsychologist. It is also beneficial to collect objective information about the patient's education, work history and everyday functional capacity. A more complete picture of the person's situation can also be obtained by considering data provided by informants [3] and a multi-professional clinical assessment. In this context, self-assessment tools such as the RS-14 may provide clinically relevant information about the patient's style of responding, positivity, emotional regulation and self-regulation. Muschalla [37] found that a person with a mental disorder may have a higher level of work anxiety and their affective judgment about work can be negative, so it is also important to ask questions which are not directly related to work.

On the other hand, neuropsychological evaluation alone is not enough when conducting a psychiatric evaluation of work ability. Neuropsychological difficulties of psychiatric patients are often non-specific, and neuropsychological difficulties observed in psychiatry are often associated with the severity of psychiatric disorder.

CONCLUSION

In sum, resilience is generally lower if mental problems are present, but there may exist major differences in the level of resilience between different psychiatric diagnosis groups. In objective neuropsychological tests, differences between diagnosis groups seem to be small, if any. The ability to work associates significantly with higher resilience.

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Table 1. Resilience (RS-14) mean and standard deviation (SD) in sample of healthy Finnsa compared to Finnish psychiatric sample.

Items	Healthy Finns (n=243)		Patients (n=150)		
	Mean	SD	Mean	SD	t (391)
RS-14-01 I usually manage one way or another	6.22	0.87	5.06	1.58	9.38***
RS-14-02 I feel proud that I have accomplished things in my life	5.84	1.38	4.49	2.00	7.91***
RS-14-03 I usually take things in stride	4.48	1.49	3.75	1.95	4.18***
RS-14-04 I am friends with myself	5.38	1.30	4.27	1.94	6.79***
RS-14-05 I feel that I can handle many things at a time	5.51	1.17	3.33	1.80	14.39***
RS-14-06 I am determined	5.41	1.20	4.35	1.75	7.04***
RS-14-07 I can get through difficult times because I've experienced difficulties before	5.26	1.27	4.42	1.88	5.23***
RS-14-08 I have self-discipline	4.97	1.38	4.51	1.70	2.91**
RS-14-09 I keep interested in things	5.59	1.11	4.15	1.89	9.40***
RS-14-10 I can usually find something to laugh about	5.48	1.31	4.28	1.95	7.21***
RS-14-11 My belief in myself gets me through hard times	5.53	1.16	3.79	1.82	11.45***
RS-14-12 In an emergency, I'm someone people generally can rely on	5.21	1.16	4.72	1.77	3.28**
RS-14-13 My life has meaning	5.81	1.39	4.35	2.08	8.25***
RS-14-14 When I'm in a difficult situation, I can usually find my way out of it	5.59	1.03	4.64	1.65	6.95***
RS-14 total	76.30	10.70	60.11	18.60	10.82***

Note: aLosoi, H., Turunen, S., Wäljas, M., Helminen, M., Öhman, J., Julkunen, J., & Rosti-Otajärvi, E. (2013). Psychometric Properties of the Finnish Version of the Resilience Scale and its Short Version. Psychology, Community & Health, 2(1), 1-10. doi:10.5964/pch.v2i1.40. *<.05, **<.01, ***<.001

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Table 2. The Beck Depression Inventory (BDI), the Alcohol Use Disorders Test (AUDIT), Overall Anxiety Severity and Impairment Scale (OASIS), Resilience (RS-14), The Sheehan Disability Scale (Sheehan), Return-to-Work Self-Efficacy (RTW-SE), Return-to-Work Readiness (RTW-RQ), Attention shifting task (AST), Paired Associates Learning (PAL), Rapid Visual Information Processing (RVP) and Spatial Working Memory (SWM) of two diagnostic groups.

Variable	Depressive[a] (n=83)		Other psychiatric[b] (n=67)		
	Mean	SD	Mean	SD	
Age	45.35	9.49	44.09	10.61	NS
BDI	28.31	11.73	14.08	12.80	t(135)=-6.76***
AUDIT	4.10	4.53	3.49	4.47	NS
OASIS	12.25	4.42	7.39	5.51	t(103)=-5.01***
RS-14	52.45	16.53	69.61	16.60	t(148)=6.31***
Sheehan	8.47	1.64	6.54	3.24	t(131)=-4.47***
RTW-SE	17.48	12.76	28.14	18.26	t(98)=3.42**
RTW-RQ	1.94	2.18	4.05	3.85	t(106)=3.66**
AST % correct	93.05	8.86	91.90	7.78	NS
PAL total errors	19.90	24.22	25.31	33.32	NS
PAL total errors 6	6.05	7.47	7.52	10.70	NS
RVP A	0.87	0.05	0.87	0.06	NS
RVP false	3.22	9.57	2.20	3.75	NS
SWM errors	31.43	19.22	33.05	22.99	NS
SWM strategy	33.78	5.59	34.70	6.92	NS

Note: aDepressive (F30–F39): higher education 49%, female 48%; bOther psychiatric: higher education 42%, female 53%. **<.01, ***<.001

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Table 3. Resilience (RS-14), The Sheehan Disability Scale (Sheehan), Return-to-Work Self-Efficacy (RTW-SE), Return-to-Work Readiness (RTW-RQ) and demographic characteristics of the work ability groups.

Variable	Unable to work (n=31)		Partially unable to work (n=77)		Able to work (n=42)	
	Mean	SD	Mean	SD	Mean	SD
Age	48.29	9.92	43.65	9.35	44.29	10.81
RS-14	52.61	18.96	56.14	17.15	72.93	14.42
Sheehan	8.30	2.76	8.10	1.93	6.11	3.25
RTW-SE	13.86	12.59	20.21	13.52	32.75	19.03
RTW-RQ	1.44	2.47	2.49	2.69	4.52	3.66
	n	%	n	%	n	%
Male	16	52	36	47	23	55
Female	15	48	41	53	19	45
Higher education	10	32	37	48	22	52

Note: Higher education = university of applied sciences or university degree

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