

Subjective well-being, but not subjective mental functioning shows positive associations with neuropsychological performance in schizophrenia-spectrum disorders

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Abstract

Objective: To assess the association of subjective quality of life as measured by the Subjective Well-being under Neuroleptic Treatment questionnaire (SWN-K) with neuropsychological functioning; to address interactions with the SWN-K domain mental functioning as a measure of subjective cognitive dysfunction; and to examine the interaction of subjective well-being and psychopathology ratings.

Methods: Forty-five patients diagnosed with schizophrenia spectrum disorder (SSD) were assessed regarding subjective well-being (SWN-K), neuropsychological impairment, and psychopathology (Brief Psychiatric Rating Scale; BPRS).

Results: After controlling for multiple comparisons, SWN-K total score showed significant positive correlations with concentration/attention ($r = .498$), working memory ($r = .537$), verbal memory ($r = .522$), and global cognition ($r = .459$). No correlations of SWN mental functioning and neuropsychological impairment remained significant after Bonferroni correction. Correlations between SWN-K subscales and neuropsychological functioning were generally positive, indicating higher subjective well-being in patients with better neurocognition. In multivariate analyses, global cognition was a significant predictor ($p = .011$), accounting for 19.7% of SWN total score variance. Adding BPRS total score as predictor ($p = .054$) explained an additional 6.9% of SWN-K variance. Linear regression analyses with SWN-K mental functioning as dependent variable did not yield statistically significant models.

Conclusion: Subjective well-being and objective neuropsychological functioning show only moderate associations and can be seen as largely independent parameters. In particular, subjective mental functioning cannot serve as a proxy for objective neuropsychological testing. © 2013 Elsevier Inc. All rights reserved.

1. Introduction

Quality of life (QoL) and neuropsychological dysfunction have been found to influence course and outcome in schizophrenia [1]. The Subjective Well-being under Neuroleptic Treatment scale (SWN) developed by one of the authors [2,3] and its short form (SWN-K) are the most widely used self-rating scales in recent research of subjective well-being in schizophrenia. The SWN has been shown to be a valuable outcome measure in clinical studies [4]. Subjective well-being has strong influence on compliance with antipsychotic medication [5] and impact on symptomatic outcome [6]. Amelioration of subjective well-being predicts severity of illness, negative syndrome, and social and occupational functioning [7].

Regarding psychopathology, there is broad evidence that depressive, but not positive or negative symptoms as measured with the Positive and Negative Symptom Scale

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(PANSS) are significantly associated with poorer subjective quality of life [8–11]. Regarding the SWN-K, associations of low to medium effect size with PANSS subscales have been reported [2,3,12]. In particular, depressive symptoms had a negative impact on subjective well-being [13,14].

As quality of life and neuropsychological functioning predict outcome and recovery, there is growing interest in the interactions between these domains. In a recent meta-analysis, Tolman & Kurtz [15] reported that, while some studies found no significant associations, others found significant negative associations between subjective QoL and neurocognitive performance, and that accordance was better for objective QoL. While insight is discussed as a moderating factor leading to the inverse relation between subjective QoL and neurocognition, this could not be shown in a recent study [11]. Up to now, the association between neuropsychological functioning and subjective well-being as rated with the SWN-K has not yet been examined in scientific literature. Furthermore, the connection of neuropsychological dysfunction and SWN-K mental functioning as a subjective measure of cognition is unclear.

1.1. Aims of study

The current study was conducted to assess the association of subjective QoL as measured by the SWN-K with neuropsychological functioning and psychopathology; and to explore the relationship of these domains with the SWN-K subscale “mental functioning” as a measure of subjective cognitive dysfunction.

2. Methods

2.1. Participants

Inpatients who were referred to the clinical neuropsychology unit of the Department of Psychiatry and Psychotherapy, University Medical Center Hamburg-Eppendorf, Germany, were eligible for inclusion in the current study. All patients referred from January 2004 to April 2005 were screened. During this period, the neuropsychology unit performed approximately 280 assessments per year, thus about 373 patients were screened. Inclusion criteria comprised a diagnosis of schizophrenia spectrum disorder (SSD), i.e., schizophrenia, schizoaffective disorder, or acute and transient psychotic disorders according to ICD-10 criteria. Exclusion criteria were organic brain damage, acute suicidality, intoxication or substance withdrawal syndrome, inability or refusal to provide informed consent, and insufficient knowledge of the German language. No further exclusion criteria were specified.

Patients were consecutively referred by their treating physicians who confirmed the diagnosis according to ICD-10 criteria and performed standardized psychopathology

ratings using the Brief Psychiatric Rating Scale (BPRS). Before neuropsychological testing, patients were instructed to complete the Subjective Well-being under Neuroleptic Treatment scale, short form (SWN-K). Thereafter, participants underwent a battery of neuropsychological tests, requiring approximately 2 h until completion. To ensure valid results, patients were allowed to take breaks and to perform testing in multiple sessions as needed. The study was performed according to all relevant local and national regulations, and all subjects provided written voluntary informed consent.

2.2. Assessment of subjective well-being

The SWN-K is a self-rating instrument developed to measure subjective well-being under neuroleptic treatment [2,3,16]. The original long form of the scale (SWN) included 38 items and 5 subscales (in German). In subsequent studies, a short form with 20 items has been created (SWN-K), and psychometric properties of the short and long form have been found to be comparable [3]. All items are rated on a six point Likert scale ranging from “not at all” to “very much”. The SWN-K contains five subscales, each consisting of two positively and two negatively poled items to ensure scoring reliability. The subscales assess “emotional regulation”, “self-control”, “social integration”, and “physical functioning”. One subscale explicitly pertains to “mental functioning”, requiring the self-assessment of working speed, easiness and order of thoughts, and variation of thought content. The SWN-K has been successfully used in studies on a broad spectrum of psychiatric disorders. An English language version is available and has been validated [17].

2.3. Assessment of neuropsychological functioning

A test battery covering the domains of processing speed, concentration and attention, executive function, working memory, verbal memory, verbal comprehension, and logical reasoning was employed. The applied instruments were the TMT (Trail Making Test) A, adult version; d2 test; TAP (“Testbatterie zur Aufmerksamkeitsprüfung”, an attention test battery), subtests ‘divided attention’, and ‘go-nogo’; WCST (Wisconsin Card Sorting Test); AVLT (Rey Auditory Verbal Learning Test); WMS-R (Wechsler Memory Scale, Revised), subtest ‘logical memory’; LPS (“Leistungsprüfsystem”, a performance testing system) subtest 3 (logical reasoning); and HaWIE-R (Hamburg-Wechsler Adult Intelligence Scale, Revised). Z scores were calculated for each test on the basis of the mean and standard deviations, and scores for both TAP subtests, TMT-A and WCST (perseveration errors) were inverted so that higher values conformed to better performance. To avoid an inflated probability of type I errors due to the large number of neuropsychological measures, z scores for neuropsychological domains were calculated from the summed average of the relevant neuropsychological tests: processing speed (TMT-A, HaWIE-R digit symbol test);

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