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Assessment of everyday functioning in schizophrenia: Implications for treatments aimed at negative symptoms

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Abstract

Assessment of functional impairment in schizophrenia is complicated by problems in self-assessment on the part of patients. These problems can be surmounted through the use of appropriate informants and reliable rating scales. In terms of treatment of negative symptoms, not every aspect of functional outcome is adversely impacted by negative symptoms, requiring assessment of multiple aspects of everyday functioning. Failures in the achievement of functional milestones are likely caused by complex combinations of factors, some of which may reside outside the individual. Assessment of sub-threshold milestones (looking for work vs. full time employment) may be the maximally viable strategy and this relies on the use of rating scales. In addition, there are considerable differences across informants in terms of the extent to which their ratings converge with other indices of patient functioning, such as cognitive test performance. Global scores may not adequately capture functioning in different domains, thus suggesting that rating scales with clear separation of social, vocational, and residential functioning may be preferable.

Keywords

Schizophrenia; Disability; Negative symptoms

1. Introduction

Everyday functioning is commonly impaired in schizophrenia, affecting domains of social, vocational, and residential performance. The primary predictors of these impairments are negative symptoms and cognitive deficits (Bowie et al., 2006, 2008), although influences outside of the individual such as opportunities and dis-incentives such as disability compensation affect certain domains of functioning (Rosenheck et al., 2006; Harvey et al., 2009). Although seemingly easy to assess, there are challenges in the assessment of everyday functioning, some of which arise from patient characteristics and others from the nature of the illness itself.

Assessment of everyday disability is affected by limitations in the self-assessment ability of patients (Bowie et al., 2007). Further, informant reports are reliant on the opportunity to

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observe the patient, potential response biases, and limitations on the part of some informants to make accurate judgments (Sabbag et al., 2011). Theoretically at least, rating of achievements of functional milestones such as independence in residence, financial responsibility, social milestones such as marriage, and employment should be easier to rate with reliability than assessments of the quality of social interactions or level of other functional skills. The rating of milestones is affected by their low rates of occurrence. Current full time competitive employment is typically found to be achieved by 20% or fewer of patients, while rates of current residential independence are often reported to be similarly low. As a result, even if these milestones are rated with reliability, their occurrence in only the minority of patients, the extent to which they are influenced by external factors such as disability compensation, and the duration of time required to achieve them make them poor candidates as outcome measures in treatment studies.

2. Which milestones are related to negative symptoms?

The negative symptoms that appear to have the greatest correlation with functional outcomes tend to be from the domain of motivational deficits, rather than the domain of reduced emotional expression (Ventura et al., 2009). Further, although highly specific research is often lacking, there are indications that social outcomes are more strongly affected than vocational or residential outcomes (Leifker et al., 2009). This is an area where more research is clearly required. It has been hypothesized that deficits in the ability to anticipate positive outcomes from future events are at the root of reduced engagement in reinforcing activities (Gard et al., 2007). Consequently, in addition to examination of what people with schizophrenia and substantial negative symptoms are doing (or not), examination of their subjective anticipation of the consequences of engaging in positive everyday functional acts would seem like a needed component of treatment studies. A recent development is a negative symptom rating scale, the Clinical Assessment Interview for Negative Symptoms (CAINS; Kring et al., 2013), that specifically targets and separates expression and motivation/pleasure. This promising assessment measure was specifically designed as an outcomes measure for treatment studies and is short and practical.

3. What are the most valid functional measures?

While there are several open questions about the what would be the best way to measure functioning, it is clear that the worst way to measure functioning is with self-reports. A fairly consistent literature has revealed that self-reports of functioning on the part of people with schizophrenia are routinely found to be correlated minimally or not at all with the reports of other observers, objective information about lifetime achievements, and performance-based assessments of everyday abilities (Sabbag et al., 2011). For example, we (Gould et al., in press) recently reported that patients with schizophrenia who had never had a job in their life reported that they were more competent in employment skills than people with schizophrenia who were currently employed. In that study, the only predictor of increased accuracy in self-assessment of vocational and residential ability was current or previous employment or independence in residence. As these milestones are rare, and even more rarely achieved in concert with each other (Harvey et al., 2012), self-reports of everyday functioning on the part of the majority of people with schizophrenia should be viewed as potentially suspect.

Another point of consideration is terminological. Everyday functioning is often referred to as “quality of life (QoL)”, which potentially originates from a classic everyday functioning scale, the Heinrichs-Carpenter Quality of Life Scale (QLS; Heinrichs et al., 1984). However, in the larger QoL literature, quality of life is generally viewed as a subjective assessment of current life satisfaction, illness burden, and other related self-assessment factors. In fact, the

large literature in schizophrenia, with several meta-analyses to date, has found several important findings:

- There is minimal correlation between subjective QoL measures and clinical symptoms (Eack and Newhill, 2007) and objective indices of everyday functioning (McKibbin et al., 2004)
- There are considerable correlations between self-reported disability and subjective quality of life in people with schizophrenia (McKibbin et al., 2004)
- People with schizophrenia produce QoL ratings that are considerably higher (i.e., less impaired) than those reported by people with objectively less disabling illnesses; this is in parallel to the tendency to over-estimate when reporting functional skills and abilities (Sabbag et al., 2011)

These data again suggest that self-reports of functioning may be altered in people with schizophrenia, but also strongly suggest that assessment of subjective functioning is critical. Individuals who do not perceive impairment may not be amenable to treatments and are clearly at high risk for nonadherence and early termination. The presence of certain motivation-related negative symptoms (e.g., emotional withdrawal; passive-apathetic social withdrawal) has been found both to be correlated with social impairments (Leifker et al., 2009) and to predict over-estimation of current social outcomes, relative to estimates generated by observers (Sabbag et al., 2011).

4. What strategy should be used to measure functioning in treatment studies?

It is clear that reliance on self-report as the major strategy to assess functioning is likely to generate biased results. Poor correlations at baseline do not engender optimism for detection of treatment response. Milestones are rarely achieved and may take too much time to accomplish for a treatment study. The lack of utility of milestones as an outcome recommends the use of functional outcome rating scales. These scales can either be targeted at specific outcomes, such as social functioning (Wykes and Stuart, 1986; Birchwood et al., 1990), everyday activities (Wallace et al., 2000), or hybrid scales broadly targeting functioning (Schneider and Streuening, 1983; Heinrichs et al., 1984). Both of the hybrid scales were found to be sensitive to milestone achievement (Harvey et al., 2012) and were also found to be related to performance on neuropsychological and functional capacity measures (Sabbag et al., 2011). The most consistently valid reports on these rating scales have come from high contact clinicians, particularly case managers (Sabbag et al., 2011), followed by friends or relatives who are in a caregiver role. Non-caretaker friends or relatives have been found to give reports that are convergent neither with patient nor high contact clinician reports and to be poorly associated with the patient's objectively measured characteristics.

5. What rating scale should be used?

In the Validation of Everyday Outcomes (VALERO; Leifker et al., 2011; Harvey et al., 2011) study, we performed a head to head comparison of 6 different functional status rating scales. Although one scale, the Specific Levels of Functioning (SLOF) appeared best when convergence with performance-based measures of cognition and functional capacity were the reference points, other scales worked equally well when other strategies to assess validity were employed (Sabbag et al., 2011, 2012; Harvey et al., 2012). Clinician ratings generated on subscales on the Heinrichs-Carpenter Quality of Life Scale (QLS), were as strongly related to achievements of functional milestones as the SLOF and they also were quite well correlated with the performance-based measure noted above. It is important to

exclude the subscales from the QLS that are aimed at negative symptoms (Intrapsychic Foundations), because they will overlap with the clinical ratings of negative symptoms.

6. What are the problematic aspects of other rating scales?

Functional milestones in schizophrenia do not co-occur in most patients. The convergence between social milestones and vocational and residential milestones is quite modest, with correlations in the range of $\Phi = 0.05$ to 0.15 (Harvey et al., 2012). Further, ability scores and depression and negative symptoms are differentially correlated with the achievement of residential, social, and vocational milestones. There are several rating scales that consider the three domains of milestone achievement to be essentially equivalent, where one gets a better score if there is achievement in one functional domain, but not the others. These scales have the potential to obscure deficits in some of the domains if there is adequate achievement in others (lives independently and is financially responsible, has no friends and leaves the house only to shop). We recently demonstrated that global scores on functional outcomes scales were very poorly correlated with milestone achievements, while individual subscales targeted at different functional domains (social, residential, vocational) were well-correlated with both milestone achievement and with individual domains of functional abilities (Harvey et al., 2012). Thus, scales that generate global scores, collapsing across functional domains, may give an incomplete or even misleading perspective on overall achievements. Table 1 presents a number of these rating scales along with comments regarding evidence about their usefulness. This table presents only hybrid scales which examine multiple aspects of everyday functioning.

7. Conclusions

Ratings by high contact clinicians give accurate estimations of everyday functioning across several different rating scales. Global scores aimed at “overall” functioning can be misleading because there may be no such thing in terms of the convergence of functional milestones. Ratings of social, vocational, and everyday activities need to be performed independently and self-reports need to be taken serious, even if not convergent with other information, because the patient’s perspective may influence their engagement in treatment. This strategy will require more effort than simply asking the patient participating in a treatment study how well they are functioning. Some pharmacological treatments, such as treatments for erectile dysfunction, have relied entirely on self-reports of functioning. However, pharmacological studies of treatment of conditions difficult to measure by self-report such as blood pressure and cholesterol do not rely on this as an outcome.

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Table 1

Global functional status rating scales.

Scale	Features	Comments
Heinrichs-Carpenter Quality of Life Scale	Assesses multiple functional domains	Exclude negative symptom ratings (Intrapsychic foundations)
Specific levels of functioning	Assesses multiple functional domains	Exclude disruptiveness scale
	Can be used as a questionnaire	Basic self-care has a ceiling effect
Personal and social performance scale	Assesses multiple functional domains	Total score does not allow for examination of individual functional domains
Schizophrenia objective functioning inventory	Multiple functional domains	Not widely used
Multidimensional scale of independent functioning	Multiple functional domains	Instructions may be too complex for some informants