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Current developments and challenges in the assessment of negative symptoms

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ABSTRACT

Reliable and valid assessment of negative symptoms is crucial to further develop etiological models and improve treatments. Our understanding of the concept of negative symptoms has undergone significant advances since the introduction of quantitative assessments of negative symptoms in the 1980s. These include the conceptualization of cognitive dysfunction as separate from negative symptoms and the distinction of two main negative symptom factors (avolition and diminished expression). In this review we provide an overview of existing negative symptom scales, focusing on both observer-rated and self-rated measurement of negative symptoms. We also distinguish between measures that assess negative symptoms as part of a broader assessment of schizophrenia symptoms, those specifically developed for negative symptoms and those that assess specific domains of negative symptoms within and beyond the context of psychotic disorders. We critically discuss strengths and limitations of these measures in the light of some existing challenges, i.e. observed and subjective symptom experiences, the challenge of distinguishing between primary and secondary negative symptoms, and the overlap between negative symptoms and related factors (e.g. personality traits and premorbid functioning). This review is aimed to inform the ongoing development of negative symptom scales.

1. Introduction

Negative symptoms, including blunted affect, alogia, asociality, avolition and anhedonia, reflect a loss or reduction of certain areas of functioning most commonly described in schizophrenia. Negative symptoms have received less attention in research and clinical practice than positive symptoms, probably because they are less salient, less responsive to antipsychotics (see Aleman et al., in this issue) and more difficult to assess due to their relationship with other features of the disorder such as depression, extrapyramidal symptoms, disorganization, and cognitive deficits. Increasing evidence of the impact of negative symptoms on impaired social functioning and quality of life (e.g. Fervaha et al., 2014; Ho et al., 2004; Robertson et al., 2014) has fostered a consensus about their status as a distinct and important therapeutic domain (Kirkpatrick et al., 2006). It is also agreed that increased efforts are needed to enhance the understanding and treatment of negative symptoms and that these efforts include the ongoing development of assessment scales (Kirkpatrick et al., 2006). Major challenges in negative symptom assessment include the need to develop scales that assess the full range of negative symptom dimensions, and the ability of scales to distinguish between negative symptoms and other features of schizophrenia. With this in mind we will provide a comprehensive overview of existing measures, including their strengths and limitations before discussing some of these challenges in more detail.

2. Overview of negative symptom measures and discussion of their advantages and disadvantages

The numerous negative symptom scales previously developed can be broadly distinguished by whether they are observer-rated measures (Table 1) or self-rating instruments (Table 2). Within these categories measures can be distinguished by whether they are part of a comprehensive scale that assesses psychopathology in patients with schizophrenia spectrum disorders or are devised specifically for the assessment of negative symptoms or even more specifically for a subdomain of negative symptoms that can also be assessed in healthy populations. It is also apparent from Tables 1 and 2 that the available scales differ in length, psychometric properties, the concept of negative symptoms which they are based on, and whether different language versions have been developed. In the next section we will describe some of the more commonly used and those recently developed in more detail focusing on their advantages and disadvantages.

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Table 1
Observer-rated measures.

Measure	Focus	Symptoms/construct assessed	2-Factor structure avolition/expression	Number of items to assess negative symptoms	Length/duration (min)	Psychometric properties	Language versions
Brief Psychiatric Rating Scale (BPRS)	Global	Apathy, anergia and withdrawal	No	3 (of 18)	20–30	Acceptable psychometric properties	German, Italian, Portuguese, Spanish, French
Krawiecka–Manchester Scale (KMS)	Global	Poverty of speech, flattened incongruous affect, psychomotor retardation	No	3 (of 8)	Not reported	Reliability fair to good, good interrater reliability	Not reported
Positive and Negative Syndrome Scale (PANSS)	Global	Blunted affect, emotional withdrawal, poor-rapport, passive/apathetic social withdrawal, difficulty in abstract thinking, lack of spontaneity, flow of conversation and stereotyped thinking	Yes	7 (of 30)	Up to 45	Good validity and reliability	Swedish, French, German
Negative Symptoms Behavior Rating Scales (NSBRS)	Specific	Poverty of speech, flat affect, psychomotor retardation	Yes	13	Not reported	Good internal-consistency and Interrater reliability, good inter-correlations between the 3 scales	Not reported
Schedule for Affective Disorders and Schizophrenia — Negative Symptom Scale (SADS-NSS)	Specific	Loss of interest, blunted affect, slowed speech and body movements, fatigue, depressed appearance, inappropriate affect, thought disorder, poverty of content	No	11	Not reported	Excellent reliability and temporal stability	Not reported
Negative Symptom Rating Scale (NSRS)	Specific	Thought-processes, cognition, volition/motivation, affect		10	15	Good reliability	Not reported
High Royds Evaluation of Negativity Scale (HEN)	Specific	Appearance, behavior, speech, thought, affect, functioning	No	18	5–10	Good reliability and validity	Not reported
Negative Symptom Assessment (NSA-16/4)	Specific	Communication, emotion, motivation, sociality, retardation	No	16/4	Up to 30	High internal consistency, good reliability and validity	Not reported
Scale for the Assessment of Negative Symptoms (SANS)	Specific	Affective flattening, alogia, avolition, anhedonia, attentional impairment	Yes	20–25	30	Good validity and reliability	Not reported
Schedule for the Deficit Syndrome (SDS)	Specific	Restricted affect, diminished emotional range, poverty of speech, curbing of interests, diminished sense of purpose, diminished social drive	Yes	6	Not reported	Good validity and reliability	Turkish, French, Italian
Brief Negative Symptom Scale (BNSS)	Specific	Blunted affect, alogia, asociality, anhedonia, avolition	Yes	13	15	Very good psychometric properties	German, Italian, French, Spanish
Clinical Assessment Interview for Negative Symptoms (CAINS)	Specific	Affective flattening, alogia asociality, avolition and anhedonia	Yes	13	30	Strong convergent and discriminant validity, adequate test–retest reliability, good inter-rater agreement	German, Spanish, Chinese
Rating Scale for Emotional Blunting (EBS)	Subdomain	Affect, thought content, behavior	No	16	Not reported	High reliability and ability to discriminate between schizophrenia and affective disorders	Not reported
The Affective Flattening Scale (AFS)	Subdomain	Affective flattening	No	9	Not reported	Interrater-reliability adequate to good for most items	Not reported
Apathy Evaluation Scale (AES)	Subdomain	Apathy	No	18	10–20	Satisfactory to good reliability, excellent internal consistency, good validity	German
Lille Apathy Rating Scale (LARS)	Subdomain	Apathy	No	33	10	Satisfactory reliability, good concurrent and criterion related validity	Spanish, French
Short Scale for Rating Activity-Withdrawal in Schizophrenics (SSRAWS)	Subdomain	Activity-withdrawal (including social and speech)	No	10	Not reported	Good interrater reliability	Not reported
Motor Affective Social Scale (MASS)	Subdomain	Alogia, unit-behavior-score	No	8	5	Good internal consistency and reliability, validity	Not reported
Specific Loss of Interest and Pleasure Scale (SLIPS)	Subdomain	Anhedonia	No	23	not reported	Good validity, excellent reliability, excellent internal consistency	Not reported

Note. AES = Marin et al. (1991), German: Lueken et al. (2006); AFS = Andreasen (1979); BNSS = Kirkpatrick et al. (2011), Italian: Mucci et al. (2015), Spanish: Garcia-Portilla et al. (2016), German: Bischof et al. (submitted for publication); BPRS = Overall and Gorham (1962), German: Maß et al. (1997), Italian: Roncone et al. (1999), Portuguese: Crippa et al. (2002), Spanish: Sanchez et al. (2005), French: Mouaffak et al. (2010); CAINS = Horan et al. (2011), German: Engel et al. (2014), Spanish: Valiente-Gmez et al. (2015), Chinese: Chan et al. (2015); EBS = Abrams and Taylor (1978); HEN = Mortimer et al. (1989); KMS = Krawiecka et al. (1977); LARS French: = Sockeel et al. (2006), Spanish: García-Ramos et al. (2014); MASS = Tremeau et al. (2008); NSA-16 = Alphs et al. (1989); NSA-4 = 4-item Negative Symptom Assessment (Alphs et al., 2010); NSBRS = Pogue-Gueile and Harrow (1984); NSRS = Iager et al. (1985); PANSS = Kay et al. (1987), Swedish: Knorring and Lindström (1992), French: Lancon et al. (1999); SADS-NSS = Lewine et al. (1983); SANS = Scale for the Assessment of Negative Symptoms (Andreasen, 1989); SDS = Kirkpatrick et al. (1989), French: Ribeyre et al. (1993), Turkish: Citak et al. (2006), Italian: Galderisi et al. (2011); SLIPS = Winer et al. (2014); SSRAWS = Venables (1957).
Known translations: PANSS: German https://www.uzh.ch/ifrg/PDF/panss_D_kilchberg.pdf.