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Rating of Negative Symptoms Using the High Royds Evaluation of Negativity (HEN) Scale

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The concept of deterioration has always been central to schizophrenia, and forms a cornerstone of current diagnostic and conceptual thinking (e.g. DSM–III; Crow, 1985; Weinberger, 1987). Recently, there has been a renewal of interest in the deficits of schizophrenia, with attempts to identify, classify, and measure the relevant abnormalities. According to current thinking (Crow 1985; Wing, this volume) negative symptoms i.e. deficits in emotion, volition and social interaction, represent a distinctive cluster of impairments with aetiological, prognostic and therapeutic significance. Verification of this view of course requires reliable and valid measures of negative symptoms.

Several scales have become available for the study of negative symptoms (Abrams & Taylor 1978; Andreasen 1982; Iager *et al*, 1985). It was, however, felt that each had certain disadvantages, and an attempt could be made to combine the best points of each. For instance the Scale for the Assessment of Negative Symptoms (SANS) of Andreasen (1982) has been validated by extensive research use but is rather long (42 items) and requires accessory information from an informant. Some items require self-rating of negative symptoms which schizophrenic patients may find difficult and which is of questionable usefulness.

The High Royds Evaluation of Negativity (HEN)

The new scale aimed to be detailed but quick and easy to use, without needing an informant, and as objective as possible. To generate items the classical and contemporary literature was searched for descriptions of deficit symptoms. A particular emphasis of the study was the detailed evaluation of abnormal affectivity as judged directly. Groups of psychiatrists were then asked to rate patients live or on video, and it quickly became apparent which ratings were practicable.

Initially 32 items were derived and divided into six straightforward categories: appearance, behaviour, speech, thought, affect, and functioning. Each item was rated on a 5-point scale from 0 (normal) to 4 (severe). Guidelines and anchor points were devised where possible. Each category contained a 'global' item rated impressionistically according to the scores on the preceding items. This was found to increase reliability. A summary score consisting of the sum of the six 'globals' provided an overall measure of the severity of negative symptoms.

Like most procedures the administration of the scale became easier with a little practice. Eventually 5–10 minutes with the patient sufficed; the scale was particularly suitable for administration immediately following other ratings (e.g. of positive symptoms). This preliminary scale was refined using a combination of reliability and validity studies.

Reliability

Preliminary scale

Fifty patients with a clinical diagnosis of schizophrenia were rated independently by three interviewers. Patients were drawn from a range of settings including acute, rehabilitation and 'back' wards. Kendall's tau measure of inter-rater reliability was used initially; most items showed fair to good reliability with tau = 0.69–0.73. Three of the four original aspects of affect could be reliably distinguished, although the item Shallow/coarsened affect was initially liable to be confused with Inappropriate affect.

Some items with poor reliability (e.g. Sits unnaturally still) were dispensed with; others were provisionally retained but separated for special study (notably Poverty of content of speech and Inappropriate affect).

Revised scale

Thirty patients with a DSM–III/RDC diagnosis of schizophrenia from out-patient and in-patient settings were then rated independently by three raters working in pairs. Kendall's W concordance measure was used to reassess inter-rater reliability; all items showed good/excellent reliability, W = 0.72–0.99. Global items were as expected more reliable than individual items (see Table I). The separately rated items Inappropriate affect and Poverty of content of speech continued to show poor reliability, and the former emerged as being of dubious validity; both these items were therefore deleted from the final version of the scale.

TABLE 1
Kendall's coefficient of concordance W for inter-rater reliability

Appearance		
face/hair	W = 0.92	P = 0.01
body	W = 0.93	P = 0.01
clothes	W = 0.94	P = 0.01
global appearance	W = 0.01	P = 0.01
Behaviour		
reduced facial expression	W = 0.80	P = 0.05
reduced gestures	W = 0.90	P = 0.01
slow/clumsy	W = 0.77	P = 0.06
global behaviour	W = 0.88	P = 0.02
Speech		
reduced speech	W = 0.88	P = 0.22
lacks inflection	W = 0.87	P = 0.02
slow rate	W = 0.75	P = 0.07
global speech	W = 0.95	P = 0.01
Thought		
poverty of thought	W = 0.80	P = 0.05
attention impaired	W = 0.91	P = 0.02
global thought	W = 0.77	P = 0.06
Affect		
constricted affect	W = 0.86	P = 0.03
withdrawn	W = 0.72	P = 0.09
facile affect	W = 0.72	P = 0.09
global affect	W = 0.77	P = 0.04
Functioning		
reduced interests	W = 0.93	P = 0.01
social withdrawal	W = 0.91	P = 0.02
sexual interest	W = 0.90	P = 0.02
work impairment	W = 0.94	P = 0.01
global function	W = 0.92	P = 0.01

Validity

Face validity

Forty-nine in-patients with a clinical diagnosis of schizophrenia were rated on the HEN and independently rated by nurses on the Social Behaviour Scale (SBS) of Wykes & Sturt (1986). This well validated scale contains items which describe negative symptoms e.g. Inability to start a conversation, items which describe positive symptoms e.g. Responding to hallucinations, and others which describe non-specific or unclassifiable symptoms. The nurse raters had known the patients for months if not years and were thus able to provide 'longitudinal' as opposed to 'cross-sectional' judgements.

Face validity of the HEN should be demonstrable by a correlation with SBS negative symptom scores but not with SBS positive scores (in each case the scores represented the sum of scores of individual items). A highly significant positive correlation between HEN summary score and SBS negative ($r = 0.66$; $P = <0.001$) was found but there was no correlation ($r = 0.05$; NS) with SBS positive score.

Criterion validity

Individual HEN item scores were correlated with the HEN summary scores (sum of 'globals') in 64 schizophrenic patients from both wards and out-patient clinics. All main scale items were highly significantly correlated with the summary score with $P = <0.001$ for every item. Some of the items rated separately correlated less well with the summary score but still with significance; in particular Poverty of content of speech showed a correlation of 0.43 ($P = 0.01$). Inappropriate affect, on the other hand, showed no significant correlation with the summary score, ($r = -0.11$) as found previously (Andreasen & Olsen, 1982).

Further tests of validity

The 'global' scores of the six categories of the scale were significantly intercorrelated. The highest correlations were between Global thought with both Global behaviour and Global speech ($r = 0.72$, $P = <0.001$); the lowest was between Global appearance and Global speech ($r = 0.23$, $P = 0.04$).

The validity of the groupings of items in each category was tested using a cluster analysis from the SPSS-X package. At the two cluster solution Inappropriate affect Shallow coarsened affect, and Poverty of content of speech split off from the rest of the items. At the three cluster solution the remaining items split into a speech, affect, and behaviour cluster versus an appearance, function, and thought cluster. Subsequent splits showed a strong tendency to divide the items categorywise.

In conclusion the HEN emerges as a reliable, valid and detailed measure of negative symptoms, which had the added advantages of being fast and easy to use. This study also documents the syndromal status of negative symptoms, that is their pronounced tendency to occur in association with each other (see also Andreasen, this volume). As found previously, the symptom of inappropriate affect did not seem to represent a negative symptom (Andreasen, 1982). Poverty of content of speech emerged as difficult to rate reliably and its validity as a negative symptom appeared suspect; further work is needed to establish its status.

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