

# IMPACT OF NEGATIVE SYMPTOMS ON PSYCHOSOCIAL FUNCTIONING IN SCHIZOPHRENIA

Robert Hunter<sup>1, 2</sup>, Sarah Barry<sup>3</sup> and the EGOFORs Research Group

<sup>1</sup>PsyRING, University of Glasgow, <sup>2</sup>Psychological Medicine, Gartnavel Royal Hospital; <sup>3</sup>Robertson Centre for Biostatistics, University of Glasgow, Glasgow, Scotland UK

[R.hunter@clinmed.gla.ac.uk](mailto:R.hunter@clinmed.gla.ac.uk)

## INTRODUCTION

A significant proportion (75%) of people with schizophrenia continue to experience disabling symptoms (positive, negative, affective) and cognitive difficulties that affect personal, social and occupational functioning. In one typical study based in six European countries, over 80% of adults with schizophrenia had persistent problems with social functioning.

There has been renewed interest recently in the importance of 'real world' functioning and the development of treatment strategies for negative symptoms and cognitive impairments. In parallel with these developments in neuroscience, the 'recovery movement' has emphasized the importance of supporting individuals with schizophrenia to develop meaningful lives despite continuing symptoms.

## NEGATIVE SYMPTOMS

Negative Symptoms were first described by Kraepelin in 1919 as the 'avolitional syndrome' and the term now refers to the absence or reduction in normal behaviour and functions (Negative Symptoms listed in Table 1). Persistent negative symptoms can be defined as symptoms that are either primary or secondary to schizophrenia, persist during periods of clinical stability, have not responded to treatment and which interfere with the ability to perform normal functions. Research is underway to develop new drugs that will improve negative symptoms and the National Institutes of Health (NIH) website [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov) lists over one hundred active trials in phases 1-3.

## AIMS

To examine the impact of negative symptoms on psychosocial functioning in order to assess the importance of such symptoms as a potential treatment target.

## METHODS

Recruitment of participants to the EGOFORs cohort in the 10 European study sites, and the selection and use of the assessment measures has been described previously (1).

- 295 community based participants with DSM4R schizophrenia
- 11 different European centres
- Participants assessed using the following scales:
  - o PANSS
  - o GAF
  - o Personal and Social Performance (PSP)
  - o Quality of Life Scale (QLS)
  - o Functional Recovery Scale in Schizophrenia (FRSS)
  - o Psycho-Social Remission in Schizophrenia (PSRS)
  - o the patient rated Subjective Wellbeing under Neuroleptics' Scale (SWN)
- Relationships between and negative symptoms and functionality were examined using standard statistical modelling approaches
- The relationship between functional scales (PSRS, FRSS, QLS, GAF and PSP) and PANSS Negative Subscale was examined using Spearman correlations
- Relationships between the PANSS negative and the functional scales assessed using canonical correlation analysis (CCA)

## RESULTS

- Figure 1 shows a 'scatter plot matrix' of rating scale scores of negative symptoms and function, displaying the values for each individual and the correlations between each scale
- Strong linear relationships between the PANSS negative scale and PSRS, FRSS, QLS, GAF and PSP
- No relationship between PANSS negative and SWN scores
- The Canonical Correlation Analysis (CCA) shows the functional and negative symptom scale items that were most important in each case (Table 3)

## DISCUSSION

The functional scales PSRS, FRSS, QLS, GAF and PSP have all been shown to have high inverse PSRS actually has a positive correlation while the others all have inverse correlations. correlation with the PANSS negative scale, suggesting that the relationship between negative symptoms and functioning is strong. Thus, this analysis provides evidence that higher negative symptom scores are associated with poorer psychosocial functioning. This finding emphasizes the potential importance of negative symptoms as a treatment target given that the success of community based care systems are predicated to a large extent on adequate levels of functioning by patients.

Most items in the functional scales appear in at least one of the first two variants of the CCA, suggesting that negative symptoms have an important effect on most of them.

## CONCLUSION

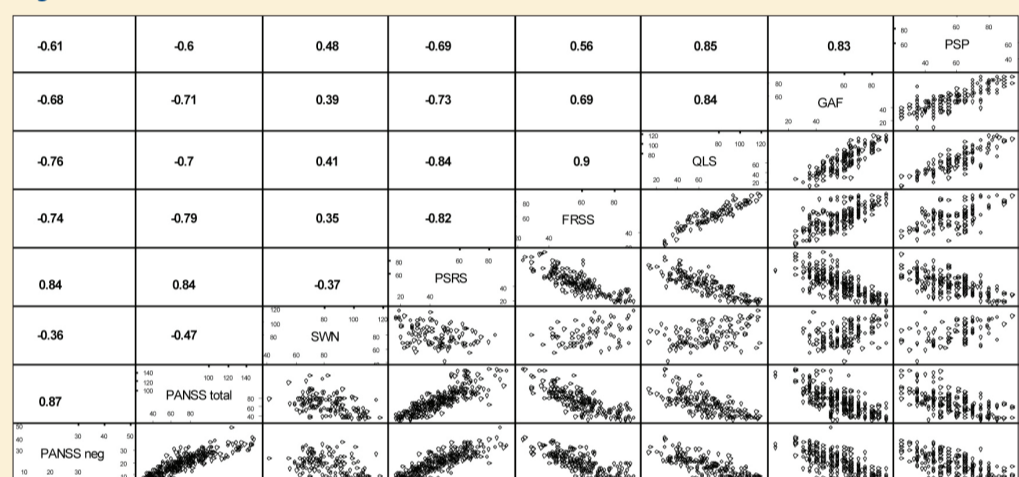
The social and economic costs of mental illness are considerable; for example in Scotland this amounts to 8% of GDP.

Despite the introduction of second generation antipsychotics, drug treatment for schizophrenia remains disappointing. The current work shows that negative symptoms assessed by PANSS are strongly related to psychosocial functioning as assessed using different scales across 11 European centres. Given the nature of such symptoms, it is reasonable to assume that negative symptoms are an important causal contribution to reduced psychosocial functioning in schizophrenia.

Implications for the care of people with schizophrenia:

- Successful community care will require adequate psychosocial functioning - improving negative symptomatology is an essential prerequisite
- Psychiatrists, psychologists, researchers and the pharmaceutical industry need to refocus on Negative Symptoms to develop effective treatments
- There is some evidence that this is starting to occur (see [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov))
- Clinicians need to undertake regular but systematic assessments of patients for negative symptoms, cognition and psychosocial functioning

Figure 1. Scatter Plots of functional scale scores for each patient versus each other and PANSS negative and total scores



Corresponding Spearman correlation coefficients in the boxes on the upper diagonal panel. Read horizontally from one scale and vertically from another to find the relationship between them.

Table 3. Items and Characteristics on which the Canonical Correlations Analysis (CCA) puts most importance [with correlation between the negative symptoms and functional variants & 95% confidence intervals (CI) for the first and second CCA variants].

PSRS			Correlation (95% CI)
1st variant	PANSS	N1, N3, N4, N5, N7, work	0.82 (0.75,0.90)
	PSRS	P2, G5, Q4, F3, F4	
2nd variant	PANSS	N1, N2, N3, N4, N7, work, education	0.33 (0.22,0.47)
	PSRS	P1, P2, P3, G5, G9, Q2, Q4, F1, F2, F3, F4	
FRSS			
1st variant	PANSS	N3, N4, N5, N7, education, work	0.84 (0.76,0.91)
	FRSS	VQ1,VQ4,AC1,AC3,QA1,QA3,ST2,VR3,VRS	
2nd variant	PANSS	N2, N3, N5, N6, N7, work	0.74 (0.64,0.83)
	FRSS	VQ1-3,AC2,AC3,QA1,QA3, ST1,ST3,VR1,VRS	
QLS			
1st variant	PANSS	N1, N2, N3, N4, N5, work	0.86 (0.77,0.93)
	QLS	2, 5, 6, 9, 15, 17, 18	
2nd variant	PANSS	N3, N4, N6, N7, work, education	0.70 (0.58,0.80)
	QLS	1, 2, 3, 5, 7, 9, 10, 11, 13, 15, 16, 17, 18, 19, 21	
GAF			
1st variant	PANSS	N2, N4, N5, N7, work	0.78 (0.70,0.85)
PSP			
1st variant	PANSS	N1, N2, N3, N4, N7, work	0.78 (0.68,0.86)

Table 1. The Positive and Negative Symptom Scale (PANSS) Negative Subscale

N1 Blunted Affect
N2 Emotional Withdrawal
N3 Poor Rapport
N4 Passive/ Apathetic Social Withdrawal
N5 Difficulty in Abstract Thinking
N6 Lack of Spontaneity and Flow of Conversation
N7 Stereotypes Thinking

Table 2. Scales Used To Measure Psycho-Social Functioning

Global Assessment of Functioning (GAF) Scale
Personal and Social Performance (PSP) Scale
Quality of Life Scale (QLS)
Functional Recovery Scale in Schizophrenia (FRSS)
Psycho-Social Remission in Schizophrenia (PSRS)
[Subjective Wellbeing under Neuroleptics' Scale (SWN)]