

# CRITICAL ANALYSIS PROBLEMS

## MOCK EXAMINATION

Paper II

2012

## STIMULUS

To be used as a handout while answering questions.

This Stimulus must be collected by the invigilator at the end of examination.

## Critical Analysis Question **1** (20 marks)

Please read the abstract, excerpts, tables and figures, and answer the questions, based on this information and your other knowledge.

Do not answer questions in this booklet. Use the separate answer sheet and pencil provided.

### **Social Cognitive Impairments and Negative Symptoms in Schizophrenia: Are There Subtypes With Distinct Functional Correlates?**

*Morris D. Bell, Silvia Corbera, Jason K. Johannesen, Joanna M. Fiszdon and Bruce E. Wexler. Schizophrenia Bulletin Advance Access, Oct 5, 2011*

#### **Abstract:**

Social cognitive impairments and negative symptoms are core features of schizophrenia closely associated with impaired community functioning. However, little is known about whether these are independent dimensions of illness and if so, whether individuals with schizophrenia can be meaningfully classified based on these dimensions (SANS) and potentially differentially treated. Five social cognitive measures plus Scale for the Assessment of Negative Symptoms (SANS) and Positive and Negative Syndrome Scale (PANSS) scores in a sample of 77 outpatients produced 2 distinct factors—a social cognitive factor and a negative symptom factor. Factor scores were used in a cluster analysis, which yielded 3 well-defined groupings—a high negative symptom group (HN) and 2 low negative symptom groups, 1 with higher social cognition (HSC) and 1 with low social cognition (LSC). To make these findings more practicable for research and clinical settings, a rule of thumb for categorizing using only the Mayer–Salovey–Caruso Emotional Intelligence Test and PANSS negative component was created and produced 84.4% agreement with the original cluster groups. An additional 63 subjects were added to cross validate the rule of thumb. When samples were combined (N = 140), the HSC group had significantly better quality of life and Global Assessment of Functioning (GAF) scores, higher rates of marriage and more hospitalizations. The LSC group had worse criminal and substance abuse histories. With 2 common assessment instruments, people with schizophrenia can be classified into 3 subgroups that have different barriers to community integration and could potentially benefit from different treatments.

#### **Methods:**

##### **Participants**

For the first phase, participants were 77 adult outpatients meeting the Diagnostic and Statistical Manual of Mental Disorders, Fourth revision, (DSM-IV) criteria for a diagnosis of schizophrenia or schizoaffective disorder, as assessed by the Structured Clinical Interview (SCID). Participants were recruited from an urban community mental health center (CMHC) for an ongoing study of cognitive training and supported employment and were referred by their clinicians because they expressed a desire to return to work. Participants were clinically stable (no hospitalizations, emergency room visits, homelessness, or substance abuse in the past 30 days), without evidence of current neurological disease, brain injury, or developmental disability, and proficient in English. For the second phase of the study, 63 participants from other psychiatric rehabilitation studies with similar inclusion/exclusion criteria performed by the authors at the CMHC, and the Veterans Affairs Connecticut Healthcare System, were used as a holdout sample to cross-validate the subgroup classifications established in the first sample.

**Table 1.** First Phase Participant Characteristics for Demographic, Clinical, and Social Cognitive Measures ( $N = 77$ )

	All subjects $N = 77$ $n$ (%)	HN (1) $n = 24$ $n$ (%)	HSC (2) $n = 27$ $n$ (%)	LSC (3) $n = 26$ $n$ (%)
Gender				
Male	43 (55.8)	18 (75)	13 (48.1)	12 (46.2)
Female	34 (44.1)	6 (25)	14 (51.9)	14 (53.8)
Marital status				
Married	4 (5.1)	1 (4.2)	2 (7.4)	1 (3.8)
Separated/divorced	11 (14.2)	0 (0)	6 (22.2)	5 (19.2)
Single	61 (79.2)	23 (95.8)	18 (66.7)	20 (76.9)
Widowed	1 (1.2)	0 (0)	1 (3.7)	0 (0)
Schizophrenia diagnosis				
Disorganized	1 (1.2)	1 (4.2)	0 (0)	0 (0)
Paranoid	30 (38.9)	8 (33.3)	10 (37.0)	12 (46.2)
Residual	12 (15.5)	6 (25.0)	3 (11.1)	3 (11.5)
Undifferentiated	8 (10.3)	4 (16.7)	3 (11.1)	1 (3.8)
Schizoaffective	25 (32.4)	5 (20.8)	10 (37.0)	10 (38.5)
Psychosis disorder NOS	1 (1.2)	0 (0)	1 (3.7)	0 (0)
Medications				
Atypical	50 (64.9)	15 (62.5)	20 (74.1)	15 (57.7)
Conventional	13 (16.8)	3 (12.5)	5 (18.5)	5 (19.2)
Both	4 (5.1)	3 (12.5)	0 (0)	1 (3.8)
None	10 (12.9)	3 (12.5)	2 (7.4)	5 (19.2)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age	43.4 (10.4)	37.1 (10.8)	44.5 (8.8)	48.1 (8.8)
Estimated IQ <sup>a</sup>	91.3 (15.2)	94.1 (17.3)	97.7 (14.8)	82.2 (8.1)
Education	12.7 (2.4)	13.1 (3.2)	13.0 (2.0)	12.1 (1.8)
Age of onset	22.7 (9.9)	23.2 (7.7)	22.0 (11.8)	23.0 (9.9)
Lifetime # of hospitalizations	7.8 (9.07)	6.9 (10.4)	8.6 (9.7)	7.7 (7.0)
GAF	42.3 (7.9)	41.1 (6.5)	44.4 (9.4)	41.1 (7.1)
PANSS				
Positive	15.1 (5.4)	15.2 (5.3)	15.9 (5.8)	14.3 (5.3)
Negative	15.9 (6.6)	23.7 (3.9)	12.4 (4.0)	12.4 (4.3)
Cognitive	15.5 (4.3)	16.7 (4.9)	14.5 (4.1)	15.5 (3.8)
Hostility	6.4 (3.0)	6.5 (2.7)	6.5 (3.5)	6.2 (2.)
Emotional discomfort	8.8 (3.7)	9.5 (3.3)	8.7 (4.3)	8.3 (3.4)
SANS				
Flattening/blunting	7.8 (.89)	15.4 (6.9)	2.9 (3.7)	5.2 (6.2)
Alogia	3.4 (3.5)	7.2 (2.4)	1.3 (1.9)	2.1 (2.8)
Avolition/apathy	6.4 (4.9)	9.9 (4.8)	4.7 (4.2)	4.8 (4.1)
Anhedonia/asociality	11.5 (6.4)	15.7 (5.3)	9.2 (6.6)	10.1 (5.5)
Social cognition measures				
SAT-MC—score correct	10.8 (4.5)	11.4 (3.5)	13.4 (4.3)	7.7 (3.6)
BLERT—score correct	12.8 (3.3)	13.6 (2.5)	14.8 (2.6)	9.8 (2.6)
Hinting score	16.7 (2.2)	15.7 (2.4)	17.3 (2.0)	16.9 (2.0)
BORRTI egocentricity	61.4 (12.2)	59.1 (11.8)	57.4 (12.8)	67.6 (9.69)
MSCEIT-MC T-score	37.6 (13.2)	39.2 (12.6)	46.7 (8.8)	26.5 (9.1)

*Note:* HN (1) = High Negative; HSC (2) = Higher Social Cognition; LSC (3) = Low Social Cognition; GAF, Global Assessment of Functioning; PANSS, Positive and Negative Syndrome Scale; SANS, Scale for the Assessment of Negative Symptoms; SAT-MC, Social Attribution Task—Multiple Choice; BLERT, Bell Lysaker Emotion Recognition Test; BORRTI, Bell Object Relations Reality Testing Inventory; MSCEIT, Mayer-Salovey-Caruso Emotional Intelligence Test.

<sup>a</sup>Estimated IQ Wechsler Adult Scale of Intelligence III (WAIS-III) full scale deviation quotient for sum of scaled scores for vocabulary and block design dyad. ANOVA with Bonferroni post-hoc comparisons:  $F(2,74) = 8.92$ ;  $P < .01 = 1 > 3, 2 > 3$ .

**Table 4.** Differences in Social Functioning for Cluster Derived Groups and Cross-Validation Sample Using the Rule of Thumb Classification

	First Phase Sample (N = 77)					Cross-Validation Sample (N = 63)				
	Cluster Analysis Derived Groups					"Rule of Thumb" Derived Groups				
	HN (1) (n = 24) Mean (SD)	HSC (2) (n = 27) Mean (SD)	LSC (3) (n = 26) Mean (SD)	F/Chi square	Bonferroni post hoc comparisons <sup>a</sup>	HN (1) (n = 12) Mean (SD)	HSC (2) (n = 19) Mean (SD)	LSC (3) (n = 32) Mean (SD)	F/Chi square	Bonferroni post hoc comparisons <sup>a</sup>
Age of onset	23.2 (7.7)	22.0 (11.8)	23.0 (9.9)	.106	.900 ns	25.2 (9.3)	18.6 (6.0)	24.0 (8.8)	3.31	.043 ns
GAF	41.1 (6.5)	44.48 (9.4)	41.1 (7.1)	1.56	.216 ns	40.0 (7.9)	44.1 (9.0)	42.0 (8.6)	.870	.424 ns
QLS total	42.7 (15.8)	55.0 (17.1)	50.0 (22.1)	2.82	.066 ns	51.3 (10.6)	63.4 (23.2)	54.8 (20.0)	1.67	.196 ns
QLS interpersonal	15.2 (9.9)	21.4 (8.9)	19.9 (10.2)	2.71	.073 ns	15.1 (5.3)	22.4 (10.3)	20.3 (10.0)	2.26	.112 ns
QLS intrapsychic	19.6 (6.6)	26.1 (7.9)	22.6 (8.9)	4.22	.018 2>1	22.4 (5.6)	27.8 (8.1)	24.4 (8.8)	1.848	.166 ns
QLS objects/activities	6.7 (1.8)	7.0 (2.1)	5.8 (2.2)	2.33	.104 ns	7.9 (2.4)	8.1 (1.8)	6.8 (2.1)	2.68	.076 ns
Marital Status	Count (%)	Count (%)	Count (%)			Count (%)	Count (%)	Count (%)		
Single	23 (95.8)	18 (66.7)	20 (79.2)	6.69	.035 1>3>2	9 (75.0)	12 (63.2)	20 (62.5)	0.644	.725 ns
Ever Married	1 (4.2)	9 (33.3)	6 (20.8)		2>3>1	3 (25.0)	7 (36.8)	12 (37.5)		
# Lifetime hospitalizations				2.59	.273 ns				5.79	.055 ns
less than 6	16 (66.7)	12 (44.4)	15 (57.7)							
6 or more	8 (33.3)	15 (55.6)	11 (42.3)							
# Lifetime criminal arrests (n = 76) <sup>b</sup>				6.81	.033	n = 62 <sup>b</sup>				
2 or less	17 (70.8)	22 (81.5)	12 (48.0)		2>1>3	7 (58.3)	4 (21.1)	16 (51.6)		ns
More than 2	7 (29.2)	5 (18.5)	13 (52.0)		3>1>2	5 (41.7)	15 (78.9)	15 (56.5)		
Lifetime substance abuse				0.384	.825				7.88	.019
Yes	17 (70.8)	21 (77.8)	20 (76.9)							
No	7 (29.2)	6 (22.2)	6 (23.1)		ns					

Note: HN (1) = High Negative Symptoms; HSC (2) = Higher Social Cognition; LSC (3) = Low Social Cognition GAF: Global Assessment of Functioning Scale; QLS = Quality of Life Scale.

<sup>a</sup>Mean differences are significant at the 0.05 level.

<sup>b</sup>Absence of criminal or substance abuse data for some of the participants.

"We then combined the holdout sample with the original sample used to produce the cluster groupings. With greater statistical power, a few additional differences were observed. Somewhat counter to expectation, compared with both other groups, the HSC group had an earlier reported age of onset and significantly more hospitalizations." [excerpt from Discussion]

## Critical Analysis Question **2** (20 marks)

Please read the abstract, excerpts, tables and figures, and answer the questions, based on this information and your other knowledge.

Do not answer questions in this booklet. Use the separate answer sheet and pencil provided.

### Group Cognitive Behaviour Therapy for Military Service-Related Post-Traumatic Stress Disorder:

Andrew Khoo, Michael T. Dent and Tian P. S. Oei (Aust N Z J Psychiatry Aug 2011)

#### Abstract:

**Objective:** The aim of this study was to assess 12 month outcomes of Australian combat veterans with post-traumatic stress disorder (PTSD) who participated in a 6 week group based CBT programme at the Toowong Private Hospital. The study population included 496 consecutive admissions to the programme between 1999 and 2008.

**Method:** Self-report measures of PTSD, depression, anxiety, anger, alcohol use, relationship satisfaction and quality of life parameters were collected at intake and 3, 6 and 12 months post intake.

**Results:** Statistically significant and sustained improvements were noted in 12 month outcome measures for PTSD, depression, anxiety, alcohol use, anger, and quality of life. PTSD symptom reduction occurred consistently each year for 9 years and exhibited an aggregated effect size of 0.68.

**Conclusions:** This naturalistic research demonstrates that treatment administered under clinical conditions produces unequivocal magnitudes of positive change in terms of PTSD symptoms when compared with existing efficacy data in individual and group treatments. Further, these symptomatic gains are sustainable and consistently reproducible. The benefits noted from group therapy were seen as independent of whether or not individual treatment was in place.

#### Method: [excerpts]

**Participants** A total of 496 veterans participated in a group-based PTSD programme from 1999 to 2008. All veterans were formally diagnosed with chronic PTSD by their referring psychiatrists. The mean Clinician-Administered PTSD Scale (CAPS) score at assessment was 77.49 (SD = 18.35), indicating significant PTSD symptomatology. Self-report data at intake indicated 72.3% of veterans presented with depressive symptoms (Hospital Anxiety and Depression Scale (HADS) depression), 90.9% with anxiety symptoms (HADS anxiety) and 65.9% with significant alcohol abuse (Alcohol Use Disorders Identification Test (AUDIT)). The majority of veterans (75%) were unable to work in a full-time capacity because of severity of symptoms.

All veterans were male apart from one. Veterans' ages ranged from 25 years to 74 years, with a mean age of 53 years, median age of 55 years and mode age of 57 years. Nearly 80% had served in the army, 18% in the navy and 2% in the air force. The majority of veterans served in the Vietnam conflict (68%), with the remainder serving in combat zones prior to Vietnam (e.g. Korea, Malaya) and various peacekeeping operations post Vietnam (e.g. East Timor, Somalia, Rwanda, Iraq, Afghanistan). Most veterans were married or in a long-term relationship (79%).

**Measures** Participants completed a variety of mental health self-report questionnaires contained within the Australian Centre for Posttraumatic Mental Health (ACPMH) outcome measures protocol. The questionnaires targeted symptoms of PTSD, marital satisfaction, alcohol use, anger, depression, anxiety and quality of life. The questionnaires were administered on four occasions: intake, discharge, 3 months post treatment and 9 months post treatment. All participants who attended assessment occasions were administered all questionnaires. A brief description of each questionnaire is described below.



### **Procedure [excerpt]**

This programme employs a predominantly cognitive behavioural approach. The CBT is group-based and utilizes a comprehensive manual, homework tasks, video presentations, and numerous field trips. Additionally, veterans receive individual sessions on a weekly basis with an allied health clinician, have access to individual psychiatric input, and receive approximately 20% of sessions with their partners.

...The programme incorporated an initial 6 week intensive phase where veterans attended 8.30 a.m. to 4.00 p.m. 4 days per week for 6 weeks (total 24 days). The intensive phase was followed by fortnightly 2 day sessions over a 6 week period (total 6 days). Veterans then attended 1 day follow-up sessions at 3 months and 9 months post-intensive phase (total 2 days). From 2000 to 2008, 64 groups completed the programme.

### **Results [excerpts]**

#### **PCL missing data (completers and non-completers)**

Of the 496 veterans who commenced the programme, approximately 24% did not attend the final follow up session (9 months data point) and therefore did not complete the programme or questionnaires at that point. Hence, no data was available to examine non-completer outcome. Completers were defined as participants who completed both the PCL at intake and 9 months post treatment. Non-completers were defined as participants completing the PCL at intake, but not at 9 months post treatment.

There was no statistically significant difference between completers and non-completers with respect to intake PCL scores ( $p=0.298$ ). When utilizing a conservative 'last observation carried forward' (LOCF) type technique (by carrying forward the non-completers' intake PCL score to the 9 months data point), we continued to demonstrate an effect size score in the moderate range ( $d=0.5$ , down from 0.7). Investigation of skewness of data within the two groups indicated mild negative skew for both populations (completers:  $-0.654$ , non-completers:  $-1.057$ ), with neither group falling in the 'severe range' ( $>-0.2$ ), as defined by Hildebrand.

No statistically significant differences were noted between completers and non-completers with respect to symptom measures at intake; HADS depression ( $p=0.259$ ), HADS anxiety ( $p=0.8$ ), AUDIT ( $p=0.97$ ) and DAR ( $p=0.296$ ). No significant difference was noted on marital status ( $p=0.492$ ) between the two groups. A statistically significant difference with respect to age ( $p<0.001$ ) was noted with the non-completer group having a younger mean age.

### **Effect sizes**

Change scores were determined by outcome differences on a variety of clinical symptom measures from intake to 9 months post treatment. Strength or impact of group treatment was determined by effect sizes (Cohen's  $d$ ), calculated by dividing the changed score by the pooled standard deviation. In clinical terms, Cohen (1975) indicated 0.5 as a moderate change and 0.8 as a large change.

As noted in Table 1, most effect size results were in the moderate strength range (0.4 – 0.7). A small effect size was associated with a measures of marital satisfaction (ADAS:  $d=0.2$ ).

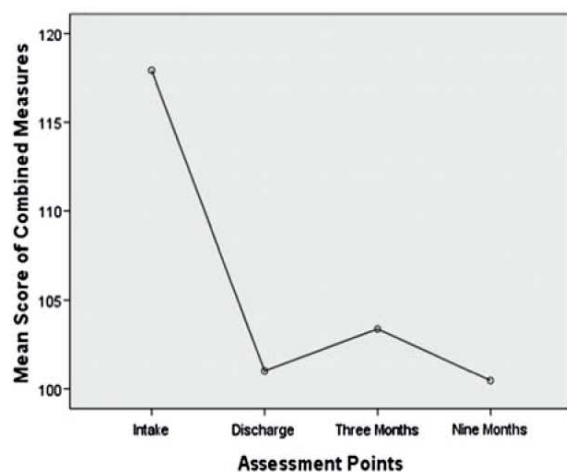
### **Dependent variables**

Outcome measures were grouped into two separate components. The first group combined measures which reflected symptom change, where improvement was noted by a decrease in test scores (PCL, HADS Anxiety, HADS Depression, DAR). The second group combined measures which reflected quality of life issues where an increase in test scores indicated improvement (WHOQOL-Bref Physical, WHOQOL-Bref Psychological, WHOQOL-Bref Social, ADAS). Both groups were subjected to separate repeated measures MANOVA analyses. Multivariate analysis was chosen to reduce the likelihood of Type I error expected with a number of repeated analyses of variance.

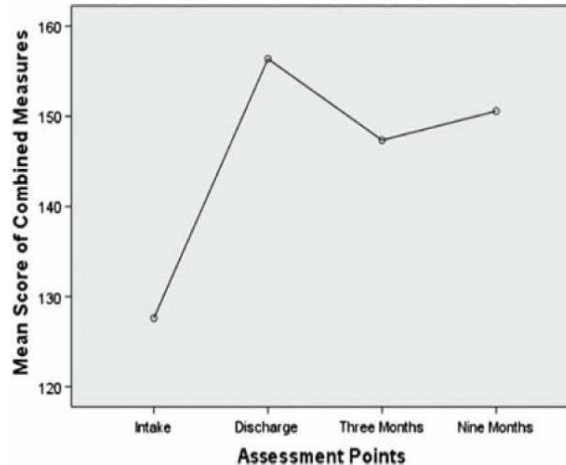
*Table 1. Univariate test results for symptom change and quality of life components; means, standard deviations at each assessment point; effect sizes (Cohen's d)*

Symptom change outcome measures	Intake	Discharge	3 months post treatment	9 months post treatment	Univariate F value	Effect sizes Intake to 9 months
PCL total score	M = 63.65 (10.72)	M = 55.30 (12.65)	M = 57.12 (11.82)	M = 55.75 (12.19)	F(3, 408) = 31.69, p = < 0.001	d = 0.7
HADS Anxiety	M = 14.03 (3.41)	M = 11.88 (3.53)	M = 12.54 (3.52)	M = 11.97 (3.95)	F(3, 408) = 22.38, p = < 0.001	d = 0.6
HADS Depression	M = 11.79 (3.81)	M = 9.74 (4.11)	M = 10.26 (3.68)	M = 9.76 (4.08)	F(3, 441) = 16.02, p = < 0.001	d = 0.5
DAR	M = 31.88 (13.13)	M = 26.03 (13.48)	M = 26.85 (13.64)	M = 24.88 (13.97)	F(3, 408) = 18.84, p = < 0.001	d = 0.5
WHOQOL-Bref Physical	M = 39.81 (14.50)	M = 45.80 (15.34)	M = 44.56 (15.49)	M = 47.11 (17.23)	F(3, 417) = 19.58, p = < 0.001	d = 0.5
WHOQOL-Bref Psychological	M = 36.42 (13.39)	M = 44.15 (15.24)	M = 41.39 (14.90)	M = 43.64 (16.15)	F(3, 441) = 19.27, p = < 0.001	d = 0.4
WHOQOL-Bref Social	M = 35.59 (18.01)	M = 47.13 (18.58)	M = 42.77 (18.75)	M = 43.92 (20.01)	F(3, 441) = 22.13, p = < 0.001	d = 0.4
ADAS	M = 17.50 (6.24)	M = 19.83 (6.15)	M = 18.90 (6.55)	M = 18.91 (6.54)	F(3, 412) = 14.04, p = < 0.001	d = 0.2

PCL, PTSD Checklist; HADS, Hospital Anxiety and Depression Scale, ADAS, Abbreviated Dyadic Adjustment Scale; DAR, Dimensions of Anger Reaction; WHOQOL-Bref, Brief World Health Organization Quality of Life Instrument.



*Figure 1. Symptom change (PCL, HADS Anxiety, HADS Depression, DAR).*



*Figure 2. Quality of life (WHOQOL-Bref Physical, Psychological, Social, ADAS).*

*Table 2. Remitters, responders and non-responders on the PCL*

Outcome classification	Percentage frequency
Remitter (clinically significant and positive reliable change: drop of at least 5 points on the PCL, and score below 50)	20.5%
Responder (positive reliable change only: drop of at least 5 points on the PCL)	39.5%
Non-responders (nil clinical significance, nil reliable change, or deterioration of PTSD symptoms)	40%