# CRITICAL ANALYSIS PROBLEMS

**MOCK EXAMINATION**

**Paper II**

**2015**

# STIMULUS

**THIS STIMULUS IS NOT TO BE REMOVED FROM THE EXAMINATION ROOM**

# DIRECTIONS

**To be used as a handout while answering questions.**
**Do not answer questions in this booklet.**

**Using the 2B pencil provided, please mark your responses on the multiple choice answer sheet.**

# Critical Analysis Question 1 (20 marks)

Please read the following extracts, tables or figures and answer the questions according to this information and your other knowledge.

**BMJ OPEN**
**Jakobsen JC, *et al*. *BMJ Open* 2014; 4: e004903**

## Third-wave cognitive therapy versus mentalisation-based treatment for major depressive disorder: a randomised clinical trial

**Janus Christian Jakobsen,[1,2] Christian Gluud,[2] Mickey Kongerslev,[1] Kirsten Aaskov Larsen,[3] Per Sørensen,[4] Per Winkel,[2] Theis Lange,[5] Ulf Søgaard,[3] Erik Simonsen[1,6]**

**ABSTRACT**

**Objective:** To compare the benefits and harms of third-wave cognitive therapy versus mentalisation-based therapy in a small sample of depressed participants.
**Setting:** The trial was conducted at an outpatient psychiatric clinic for non-psychotic patients in Roskilde, Denmark.
**Participants:** 44 consecutive adult participants diagnosed with major depressive disorder.
**Interventions:** 18 weeks of third-wave cognitive therapy (n=22) versus 18 weeks of mentalisation-based treatment (n=22).
**Outcomes:** The primary outcome was the Hamilton Rating Scale for Depression (HDRS) at end of treatment (18 weeks). Secondary outcomes were: remission (HDRS <8), Beck's Depression Inventory, Symptom Checklist 90 Revised and The WHO-Five Well-being Index 1999.
**Results:** The trial inclusion lasted for about 2 years as planned but only 44 out of the planned 84 participants were randomised. Two mentalisation-based participants were lost to follow-up. The unadjusted analysis showed that third-wave participants compared with mentalisation-based participants did not differ significantly regarding the 18 weeks HDRS score (12.9 vs 17.0; mean difference -4.14; 95% CI -8.30 to 0.03; p=0.051). In the analysis adjusted for baseline HDRS score, the difference was favouring third-wave cognitive therapy (p=0.039). At 18 weeks, five of the third-wave participants (22.7%) were in remission versus none of the mentalisation-based participants (p=0.049). We recorded no suicide attempts or suicides during the intervention period in any of the 44 participants. No significant differences were found between the two intervention groups on the remaining secondary outcomes.
Conclusions: Third-wave cognitive therapy may be more effective than mentalisation-based therapy for depressive symptoms measured on the HDRS. However, more randomised clinical trials are needed to assess the effects of third-wave cognitive therapy and mentalisation-based treatment for depression.

**Excerpt 1: Inclusion of participants**

The trial was conducted at a public psychiatric out-patient clinic only treating patients on sick leave due to a psychiatric disorder. Patients were referred from general practitioners, psychiatrists in private practice and medical and psychiatric departments. No special announcement of the trial was made to the referrers. All patients referred to the psychiatric clinic had a full psychiatric examination by a physician who made the preliminary psychiatric diagnoses (Diagnostic and Statistical Manual-IV-TR, DSM-IV-TR). Eligible patients were then interviewed by the principal investigator (JCJ) who used the depression part of the structured clinical interview for DSM-IV axis I disorders (SCID I) interview to assess whether the patient fulfilled the criteria for a major depressive disorder (DSM-IV-TR). Before randomisation baseline, assessments were carried out for all outcome measures and all eligible patients were assessed with the structured clinical Interview for DSM-IV axis II disorders (SCID II). We chose to perform the SCID II assessments because we wanted to compare personality disorders at baseline in the two intervention groups and to exclude patients with schizotypal personality disorder. The participant had to meet all of the inclusion criteria and none of the exclusion criteria.

*Inclusion criteria*

1. Age from 18 years to 65 years.
2. Major depressive disorder, whether first episode or recurrent (DSM-IV-TR).
3. Beck's Depression Inventory (BDI II) score >13 points.
4. Written informed consent.

*Exclusion criteria*

1. Current psychosis, schizophrenia or schizotypal personality disorder (DSM-IV-TR).
2. A significant alcohol or substance abuse (assessed during the preliminary consultations).
3. Initiated or changed medical antidepressive treatment less than 6 weeks before randomisation.
4. Pregnancy.
5. No written informed consent.

**Excerpt 2: Randomisation**

Eligible patients with major depressive disorder were randomised 1:1 to third-wave cognitive therapy versus mentalisation-based treatment. The Copenhagen Trial Unit performed the randomisation centrally, using a computer generated block randomisation sequence that was unknown to the investigators. Participant inclusion began in February 2010 and the last patient was randomised in July 2011. Owing to an unequal allocation of the trial participants to one of the two groups in the beginning of the trial (there were only a few participants in one of the groups), the block size was reduced from 12 to 4 and a stratification variable (HDRS score ≥22 points) was removed. The block sizes were at all times unknown to the trial investigators, and the Copenhagen Trial Unit performed these changes without informing the investigators of the changes. Otherwise, the methodology was not changed after trial began.

**Excerpt 3: Reliability of the HDRS interviews**

During the trial both psychologists Hamilton-interviewed 21 patients at the same time point. The mean difference between these two HDRS ratings performed on the same patient at the same time point was 0.29 points (SD 2.21; intra-class correlation coefficient 0.96; Spearman correlation 0.94). All these 29 interviews were performed with both HDRS-raters present simultaneously. One rater interviewed and rated the interviewee and the other rater only rated the interviewee. The interviewers were not allowed to discuss the results before each interviewer had registered the HDRS result.

**Excerpt 4: Outcomes**

*Primary outcome*

- Score on the HDRS after end of treatment at week 18.

*Secondary outcomes*

- The proportion of participants in remission after cessation of treatment at week 18. We defined remission as HDRS below 8.
- Global Severity Index score (GSI-score) on the Symptom Checklist 90 Revised (SCL-90-R) after cessation of treatment at week 18.
- Score on the WHO-Five Well-being Index 1999 (WHO 5) after cessation of treatment at week 18.
- Score on the BDI II after cessation of treatment at week 18.

**Excerpt 5: A priori sample size estimate**

With a 'minimal relevant mean difference' (MIREDIF) between the two interventions of 5 HDRS points, an α of 0.05 (type I error), a power of 0.90 (type II error of 10%) and a SD of 7 HDRS points, the sample size calculation showed that a total of 84 participants would be necessary. We estimated that we would need an inclusion period of about 2 years to recruit 84 participants.

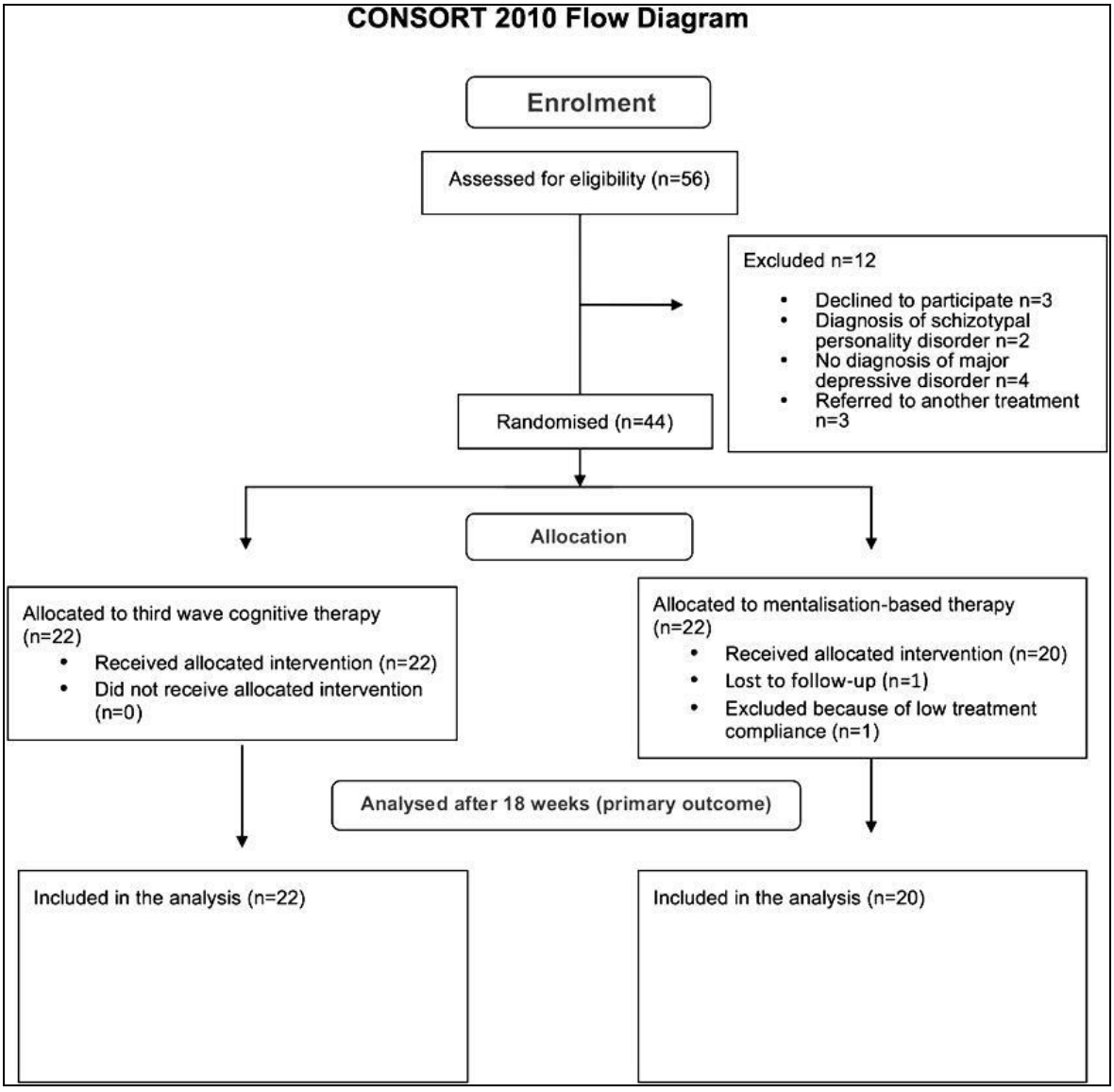
CONSORT 2010 Flow Diagram
Enrolment
Assessed for eligibility (n=56)
Excluded n=12
Declined to participate n=3
Diagnosis of schizotypal personality disorder n=2
No diagnosis of major depressive disorder n=4
Referred to another treatment n=3
Randomised (n=44)
Allocation
Allocated to third wave cognitive therapy (n=22)
Received allocated intervention (n=22)
Did not receive allocated intervention (n=0)
Allocated to mentalisation-based therapy (n=22)
Received allocated intervention (n=20)
Lost to follow-up (n=1)
Excluded because of low treatment compliance (n=1)
Analysed after 18 weeks (primary outcome)
Included in the analysis (n=22)
Included in the analysis (n=20)

Table 2 Effects of third-wave cognitive therapy versus mentalisation-based treatment

| Outcome measure | Group randomised to third-wave cognitive therapy (N=22) | | Group randomised to mentalisation-based treatment (N=22) | | p Value of unadjusted analysis at end of treatment | p Value of adjusted analysis* at end of treatment |
|---|---|---|---|---|---|---|
| | Baseline | End of treatment | Baseline | End of treatment | | |
| HDRS | | | | | | |
| N | 22 | 22 | 21 | 20 | 0.051 | 0.039 |
| Mean | 22.1 | 12.9 | 22.5 | 17.0 | | |
| 95% CI | 19.5 to 24.8 | 9.81 to 15.9 | 20.3 to 24.8 | 14.0 to 20.0 | | |
| Remission (HDRS<8) N/total | 0/22 | 5/22 | 0/21 | 0/20 | 0.049 | Not possible to calculate |
| BDI II | | | | | | |
| N | 21 | 21 | 22 | 17 | 0.46 | 0.46 |
| Mean | 36.8 | 17.6 | 36.3 | 20.5 | | |
| 95% CI | 32.5 to 41.1 | 12.2 to 23.0 | 32.1 to 40.6 | 14.5 to 26.4 | | |
| SCL 90-R (GSI score) | | | | | | |
| N | 22 | 22 | 22 | 20 | 0.52 | 0.66 |
| Mean | 1.80 | 0.88 | 1.84 | 1.00 | | |
| 95% CI | 1.54 to 2.05 | 0.62 to 1.15 | 1.66 to 2.02 | 0.74 to 1.25 | | |
| WHO 5 | | | | | | |
| N | 22 | 22 | 21 | 20 | 0.54 | 0.46 |
| Mean | 3.55 | 10.5 | 4.33 | 9.45 | | |
| 95% CI | 1.84 to 5.25 | 7.66 to 13.4 | 3.13 to 5.53 | 7.18 to 11.7 | | |

*Adjusted for baseline values of each outcome.BDI, Beck's Depression Inventory; GSI, Global Severity Index score; HDRS, Hamilton Depression Rating Scale (17-item); N, number of participants; SCL 90-R, Symptom Checklist 90 Revised; WHO 5, WHO-Five Well-being Index 1999, a high score associates to a high level of well-being.

**Excerpt 6:**

A large proportion of the included participants were diagnosed with cluster C personality disorders (anxious or fearful personality disorders). It has been debated if a diagnosis of a personality disorder is accurate when patients are acutely depressed. Our results indicate that comorbid personality disorder and depression does not lead to a poorer outcome compared to patients with depression alone…[excerpt truncated]

# Critical Analysis Question 2 (20 marks)

Please read the following extracts, tables or figures and answer the questions according to this information and your other knowledge.

BMJ, doi:10.1136/bmj.38782.575868.7C (published 16 March 2006)

## Effect of enhanced psychosocial care on antipsychotic use in nursing home residents with severe dementia: cluster randomised trial

**Jane Fossey, Clive Ballard, Edmund Juszczak, Ian James, Nicola Alder, Robin Jacoby, Robert Howard**

**Abstract**

**Objective**: To evaluate the effectiveness of a training and support intervention for nursing home staff in reducing the proportion of residents with dementia who are prescribed neuroleptics.
**Design:** Cluster randomised controlled trial with blinded assessment of outcome.
**Setting:** 12 specialist nursing homes for people with dementia in London, Newcastle, and Oxford.
**Participants:** Residents of the 12 nursing homes; numbers varied during the study period.
**Intervention:** Training and support intervention delivered to nursing home staff over 10 months, focusing on alternatives to drugs for the management of agitated behaviour in dementia.
**Main outcome measures:** Proportion of residents in each home who were prescribed neuroleptics and mean levels of agitated and disruptive behaviour (Cohen-Mansfield agitation inventory) in each home at 12 months.
**Results**: At 12 months the proportion of residents taking neuroleptics in the intervention homes (23.0%) was significantly lower than that in the control homes (42.1%): average reduction in neuroleptic use 19.1% (95% confidence interval 0.5% to 37.7%). No significant differences were found in the levels of agitated or disruptive behaviour between intervention and control homes.
**Conclusions**: Promotion of person-centred care and good practice in the management of patients with dementia with behavioural symptoms provides an effective alternative to neuroleptics.

**Excerpt 7: Participants and Randomisation:**
We recruited residents within 12 nursing homes, four each in London, Newcastle, and Oxford. Eligible homes were those registered to accept elderly mentally impaired people and with a minimum of 25% of residents with dementia who were taking neuroleptic drugs.

**Excerpt 8: Assessments and Measures**
Each patient's daily dose of drugs was translated into chlorpromazine daily equivalents according to the *British National Formulary*. The Cohen-Mansfield agitation inventory was used to measure the reported agitated and disruptive behaviours of residents. Dementia care mapping, an observational tool for quality of life research, was used to develop person-centred care practice. Baseline assessments were carried out by the trial's clinicians and psychology research assistants. Assessments at 12 months were carried out by a psychology research assistant who had not been employed during the intervention period. This member of staff was blind to the homes' intervention: the trial's staff did not identify the intervention homes to the researcher and nursing home staff were asked not to discuss their homes' intervention with the researcher. [excerpt truncated]

**Excerpt 9: Data analysis**
Primary outcomes (at the cluster level) were the proportion of patients receiving neuroleptic treatment at 12 months and the mean dose of neuroleptic. Secondary outcomes were agitation, patient level quality of life, proportion of patients taking other psychotropic drugs, adverse events (including documented falls), and incidents involving irritable behaviour directed at staff or other residents. [excerpt truncated]

**Table 1** Baseline personal and clinical characteristics of residents of care homes assigned to focused training and support package or usual care (control). Values are numbers (percentages) of residents unless stated otherwise

| Characteristics | Control homes (n=6; 168 residents) | Intervention homes (n=6; 181 residents) |
|---|---|---|
| Median (range) age (years) | 82 (53-101) | 82 (60-98) |
| Men | 102/168 (61) | 117/181 (65) |
| Taking neuroleptics | 83/167 (50) | 85/181 (47) |
| Median (range) dose of neuroleptic in chlorpromazine equivalents (No of patients) | 100 (12.5-630) (n=83) | 100 (10-1200) (n=84) |
| Taking other psychotropics | 89/168 (53) | 98/181 (54) |
| A least one fall in past 12 months | 98/168 (58) | 101/169 (60) |
| Median (range) Cohen-Mansfield agitation inventory* | 37 (29-118) n=163 | 39 (29-114) n=167 |
| At least one episode of aggression in past 12 months | 26/168 (15.5) | 11/169 (6.5) |
| Clinical dementia rating: | | |
| None, questionable, or mild | 37/163 (23) | 25/170 (15) |
| Moderate | 32/163 (20) | 46/170 (27) |
| Severe | 94/163 (58) | 99/170 (58) |
| Median (range) wellbeing†‡ (No of patients) | 0.9 (−2.5 to 2.6) (n=145) | 0.8 (−1.7 to 2.5) (n=160) |
| Spending some (>0%) time asleep‡ | 111/145 (77) | 124/160 (78) |
| Spending some (>0%) time withdrawn‡ | 98/145 (68) | 103/160 (64) |

*Range 29-203; higher scores mean more agitation (scores >40 usually accepted as clinically significant).
†Range −5 to 5.
‡Estimated using dementia care mapping.

**Table 2** Main outcomes at 12 months. Values are numbers (percentages) of nursing home residents unless stated otherwise

| Outcome | Control homes (n=6; 170 residents) | Intervention homes (n=6; 176 residents) | Weighted mean difference (95% CI)* | P value* | Intracluster correlation coefficient |
|---|---|---|---|---|---|
| Taking neuroleptics | 69/164 (42) | 40/174 (23) | 19.1 (0.5 to 37.7) | 0.045 | 0.10 |
| Mean† (SD) median dose in chlorpromazine equivalents (No of patients) | 107.1 (15.4) (n=69) | 102.1 (23.1) (n=40) | 4.9 (−20.0 to 29.9) | 0.67 | 0‡ |
| Taking other psychotropics | 92/162 (57) | 109/174 (63) | −5.9 (−27.2 to 5.5) | 0.56 | 0.080 |
| At least one fall in past 12 months | 90/165 (55) | 91/175 (52) | 2.6 (−18.7 to 23.8) | 0.27 | 0.061 |
| Mean† (SD) Cohen-Mansfield agitation inventory§ total (No of patients) | 42.0 (5.9) (n=162) | 41.6 (7.2) (n=172) | 0.3 (−8.3 to 8.9) | 0.94 | 0.087 |
| At least one episode of aggression in past 12 months | 16/165 (10) | 14/173 (8) | 1.6 (−12.7 to 15.8) | 0.25 | 0.10 |
| Mean† (SD) wellbeing¶** (No of patients) | 0.9 (0.35) (n=153) | 1.1 (0.04) (n=149) | −0.2 (−0.5 to 0.2) | 0.29 | 0.075 |
| Spending some time (>0%) asleep** | 114/153 (75) | 110/149 (74) | 0.7 (−8.5 to 9.9) | 0.87 | 0‡ |
| Spending some time (>0%) withdrawn** | 71/153 (46) | 56/149 (38) | 8.8 (−25.2 to 42.8) | 0.58 | 0.22 |

*Adjusted for clustering (estimated from weighted *t* test).
†Mean of medians (data skewed, therefore median appropriate as summary statistic for each cluster).
‡Truncated at zero.
§Range 29-203; higher scores mean more agitation (scores >40 usually accepted as clinically significant).
¶Range −5 to 5.
**Estimated using dementia care mapping.