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Statistical Report

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Description:	Analysis examining inter-rater reliability for Core Audit data from National Clinical Audit of Anxiety and Depression (NCAAD)

Introduction

As part of the National Clinical Audit of Anxiety and Depression (NCAAD), a core audit of NHS trusts was performed relating to service users with a primary diagnosis of an anxiety and/or depressive disorder. The aim of the audit was to collate data on the assessment, care, treatment, and discharge planning of the serviced users.

A subgroup of patients was assessed twice by two different raters. The aim of the analysis was to examine the inter-rater repeatability of the key questions contained within the data collection tool.

Statistical Methods

The data collection tool consisted of a series of questions. Each of these questions was categorical in nature, with a finite number of different responses.

Due to the categorical nature of the measurements, the agreement between the two measurements from each patient was assessed using the kappa statistic. This method measures the agreement between repeat measurements over and above that which would be expected due to chance. This is measured on a scale ranging up to a maximum agreement of 1. An interpretation of kappa is suggested in the subsequent table.

Value of Kappa	Strength of agreement
< 0.20	Poor
$0.21 - 0.40$	Fair
$0.41 - 0.60$	Moderate
$0.61 - 0.80$	Good
$0.81 - 1.00$	Very Good

The kappa values from the patient sample was calculated, along with a corresponding confidence interval, indicating the level of uncertainty in the calculated value.

For the purposes of analysis, some categories with small numbers of responses in them were combined with a similar category to give larger numbers. Additionally, responses that were 'unknown' or 'not applicable' were omitted from the analyses.

Results

Data was originally obtained from 203 patients who were each evaluated twice, by two different raters. There were some discrepancies on the basic demographics between the two raters from 4 patients. Potentially these could represent different patients, rather than the same patient measured twice, and thus these patients were excluded from the analyses. This left 199 patients that were included in the analysis.

The kappa method was used to examine the repeatability of each of the individual questions. A summary of the analysis results is given in Table1 and Table 2. The figures are the number

of patients on which the analyses were based, and the calculated kappa values (with corresponding confidence intervals). The final column gives an interpretation of the kappa value using the guidance in the methods section.

Table 1: Agreement between raters (part 1)

Question	Question details	N	Kappa (95% CI)	Interpretation
Diagnosis				
Q7	Primary diagnosis	197	0.79 (0.74, 0.83)	Good / Very Good
Q8	No additional diagnosis	199	0.71 (0.57, 0.85)	Good
Q8	Organic	199	0.66 (0.53, 0.80)	Good
Q8	Mental & behavioural	199	0.82 (0.68, 0.96)	Very Good
Q8	Schizophrenia	199	1.00 (0.86, 1.00)	Very Good
Q8	Mood disorders	199	0.70 (0.57, 0.84)	Good
Q8	Neurotic, stress-related	199	0.65 (0.52, 0.79)	Good
Q8	Behavioural syndromes	199	-0.01 (-0.14, 0.12)	Poor
Q8	Personality disorders	199	0.62 (0.48, 0.75)	Good
Q8	Mental retardation	199	0.00 (-0.12, 0.12)	Poor
Q8	Psychological develop.	199	0.85 (0.72, 0.99)	Very Good
Q8	Behavioural/emotional	199	0.00 (-0.12, 0.12)	Poor
Q8	Unspecified disorder	199	(*)	
Q8	Physical health disorder	199	0.62 (0.48, 0.75)	Good
Admission				
Q12	Type of admission	195	0.66 (0.60, 0.73)	Good
Q13	Voluntary admission	195	0.92 (0.78, 1.00)	Very Good
Assessment				
Q15	Past response to trt	167	0.47 (0.33, 0.62)	Moderate
Q16	Employment/education	144	0.55 (0.39, 0.72)	Moderate
Q16	Financial situation	157	0.63 (0.47, 0.78)	Good
Q16	Social situation	188	-0.01 (-0.15, 0.13)	Poor
Q17	Info on dependents	106	0.43 (0.26, 0.61)	Moderate
Q18	History trauma	154	0.77 (0.61, 0.93)	Good
Care Plan				
Q21	Care plan	195	0.22 (0.08, 0.36)	Fair
Q22	Jointly developed	181	0.48 (0.33, 0.62)	Moderate
Q23	Copy to service user	181	0.60 (0.46, 0.74)	Moderate / Good
Q24	Date for review	181	0.60 (0.45, 0.74)	Moderate / Good
Medication				
Q25	Psychotropic meds	195	0.66 (0.52, 0.80)	Good
Q26	Verbal/written info	174	0.50 (0.36, 0.65)	Moderate
Q27	Review of medication	172	0.46 (0.31, 0.60)	Moderate

(*) No analysis performed as no occurrence of this diagnosis

The results for the diagnosis variables suggested that there was good/very good agreement between the two raters for the primary diagnosis (kappa=0.79). There was generally good or very good between raters for the majority of the additional diagnoses. However, there was found to be poor agreement for behavioural syndromes, mental retardation and behaviour/emotional disorders. However, it is noted that there were very few of these diagnosis in the patients included in the analysis.

There was good agreement between raters for the type of admission, and very good agreement as to whether the admission was voluntary.

Agreement was lower on the assessment variables. There was at best moderate agreement between variables for all measures.

There was only fair agreement between raters as to whether a care plan was produced. However, agreement was better at moderate/good for whether a copy of the care plan went to service users and on the date for review.

There was good agreement on whether psychotropic medication was given, but only moderate agreement on aspects of medication.

Variables relating to psychological therapies generally showed good agreement between raters, with all kappa values being over 0.7. There was also typically good agreement on all measures of physical health.

There was only moderate agreement between raters on whether the patient was discharged, and on the notice given to care users and family. Agreement was slightly better for the other discharge measures.

There was good agreement on whether the patient was readmitted. Conversely, there was poor agreement between raters on whether there was follow-up, although it is noted that almost all patients were followed-up.

There was good agreement on the completion of patient outcomes.

Table 2: Agreement between raters (part 2)

Question	Question details	N	Kappa (95% CI)	Interpretation
Psychological Therapies				
Q28	Referred to therapy	171	0.77 (0.62, 0.92)	Good
Q29	Individual therapy [+]	73	0.84 (0.61, 1.00)	Very Good
Q29	Group therapy [+]	73	0.79 (0.56, 1.00)	Good / Very Good
Q30	Referral made to	55	0.73 (0.52, 0.93)	Good
Q31	Started ind. therapy	49	0.76 (0.48, 1.00)	Good
Q34	Started group therapy	73	1.00 (0.54, 1.00)	Excellent
Physical health				
Q41	Smoking status	163	0.86 (0.74, 0.98)	Very Good
Q42	Drink alcohol	136	0.68 (0.51, 0.84)	Good
Q43	Misusing drugs/alcohol	173	0.85 (0.70, 0.99)	Very Good
Q44	Diet / exercise	194	0.60 (0.46, 0.74)	Moderate / Good
Q44	Smoking cessation	194	0.77 (0.63, 0.91)	Good
Q44	Reducing alcohol	194	0.79 (0.65, 0.93)	Very Good
Q44	Help substance misuse	194	0.81 (0.67, 0.95)	Good / Very Good
Q44	Treatment CVD	194	0.71 (0.57, 0.85)	Good
Q44	Treatment diabetes	194	0.87 (0.73, 1.00)	Very Good
Discharge				
Q45	Discharged	195	0.57 (0.43, 0.71)	Moderate
Q46	Care user 24hrs notice	156	0.46 (0.30, 0.61)	Moderate
Q47	Family 24hrs notice	88	0.59 (0.38, 0.80)	Moderate / Good
Q48	TTO medication	188	0.80 (0.63, 0.97)	Good / Very Good
Q49	Review taken place	137	0.62 (0.46, 0.79)	Good
Q50	Letter to GP	156	0.66 (0.51, 0.82)	Good
Q52	Care plan sent	71	0.76 (0.53, 0.99)	Good
Readmission & Follow-up				
Q53	Readmission	156	0.78 (0.62, 0.93)	Good
Q54	Follow-up	147	-0.03 (-0.18, 0.12)	Poor
Q55	Follow-up method	138	0.68 (0.51, 0.84)	Good
Q56	Crisis plan at discharge	156	0.43 (0.27, 0.58)	Fair
Outcomes				
Q57	CGAS completed	6	(*)	
Q58	HoNOS completed	189	0.68 (0.54, 0.82)	Good
Q59	Other outcomes	195	0.60 (0.46, 0.74)	Moderate / Good

(*) Insufficient data for analysis
(+) Data for those referred to therapy only