Data supplement to Reininghaus et al. Evaluation of the validity and utility of a dimensional approach to the diagnosis of psychosis. Br J Psychiatry doi: 10.1192/bjp.bp.115.167882

Online supplement DS1

Use of OPCRIT system in the UK700 study and BACCS

The OPerational CRITeria (OPCRIT) system as described by McGuffin et al.[23] was used in both the Bipolar Association Case-Control Study (BACCS)[25] and UK700 study[24] to assess psychiatric symptoms. In the BACCS study, OPCRIT ratings were made using written case vignettes that were generated based on a review of case notes and research interviews using the Schedules for Clinical Assessment in Neuropsychiatry (SCAN).[41] The OPCRIT checklist was then used to rate presence or absence of psychiatric symptoms. Key clinical variables were rated independently by at least two raters and a consensus was reached. Raters were either fully trained research psychologists or psychiatrists. Interrater reliability was assessed based on 20 cases, with mean kappa statistics for key clinical variables being in the range of 0.81-0.99. In the UK700 study, OPCRIT ratings were made based on an inspection of cases notes with a focus on key search terms for symptoms of major psychiatric disorders. Presence or absence of psychiatric symptoms were rated using the OPCRIT checklist based on identified terms and definitions provided for each item. Raters were fully trained psychiatrists (i.e., senior registrars), who had completed the OPCRIT self-training module, which involves the rating of a series of training vignettes to ensure consistency in ratings across psychiatrists. Interrater reliability was not formally assessed. Taken together, the key differences in the use of OPCRIT across the two studies were in the available sources for assigning ratings, the number and professional background of raters, and training methods for ensuring consistency across ratings. However, it is noteworthy that OPCRIT has been purposefully designed to allow flexibility in the source of ratings as well as knowledge and training requirements in psychiatric assessment and eliciting psychopathology.[23,27] OPCRIT has also been demonstrated to achieve good interrater reliability with less experienced raters using the OPCRIT training vignettes and, more generally, is a well-established and well-validated tool in research settings.[23,27,34]

Additional reference

41 Wing J, Babor M, Brugha T, Burke J, Cooper J, Giel R, Jablenski A, Regier D. SCAN: Schedules for Clinical Assessment in Neuropsychiatry. *Arch Gen Psychiatry* 1990; **47:** 589–93.

Table DS1 Basic characteristics of pooled sample, UK700 study, and BACCS

	Pooled sample (n=1168)	UK700 study (n=691)	BACCS (n=477)
Age (years), mean (S.D.)	42.1 (12.4)	38.1 (11.5)	48.0 (11.3)
Gender[a], n (%)			
Men	559 (47.9)	399 (57.7)	160 (33.6)
Women	608 (52.1)	292 (42.3)	316 (66.4)
Age at illness onset[b] (years), mean (S.D.)	22.2 (10.6)	25.3 (8.0)	17.8 (12.1)
RDC diagnosis[c], n (%)			
Mania or bipolar disorder	366 (31.3)	34 (4.9)	332 (49.6)
Hypomania	143 (12.2)	—	143 (30.0)
Schizoaffective disorder	345 (29.5)	345 (49.9)	—
Schizophrenia	270 (23.1)	270 (39.1)	—
Unspecified functional psychosis	44 (3.8)	42 (6.1)	2 (0.4)

Note: Missing values: [a]1, [b]12; BACCS, Bipolar Association Case-Control Study

Table DS2 Prevalence of affective and non-affective psychotic symptoms in pooled sample, UK700 study, and BACCS

OPCRIT Items	Item no.	Pooled sample (%)	UK700 study (%)	BACCS (%)
Positive symptoms				
Persecutory delusions	54	49.7	82.2	2.7
Well organised delusions	55	27.4	46.5	0.0
Delusions of influence	58	36.2	43.6	25.6
Bizarre delusions	59	30.1	51.0	0.0
Widespread delusions	60	28.6	48.4	0.0
Delusions of passivity	61	19.5	33.1	0.0
Delusions & hallucinations for 1 week	64	40.5	68.9	0.0
Persecutory delusions & hallucinations	65	36.0	61.1	0.0
Thought insertion	66	15.0	25.4	0.0
Thought withdrawal	67	10.5	17.8	0.0
Thought broadcast	68	14.3	24.3	0.0
Third person auditory hallucinations	73	23.0	39.1	0.0
Running commentary voices	74	12.6	21.5	0.0
Abusive/accusatory/persecutory voices	75	28.6	48.5	0.0
Other auditory hallucinations	76	15.9	26.9	0.0
Non-affective hallucination any modality	77	15.3	26.0	0.0
Negative symptoms				
Negative formal thought disorder	29	11.3	19.2	0.0
Restricted affect	32	20.6	35.0	0.0
Blunted affect	33	17.2	29.2	0.0
Disorganization				
Bizarre behaviour	17	39.3	66.7	0.0
Speech difficult to understand	26	22.9	38.9	0.0
Incoherent	27	13.5	22.9	0.0
Positive formal thought disorder	28	30.9	52.4	0.0
Inappropriate affect	34	25.2	42.8	0.0
Mania				
Excessive activity	19	65.4	45.4	94.1
Reckless activity	20	70.9	60.0	86.6
Distractibility	21	69.2	55.9	88.3
Reduced need for sleep	22	57.0	33.4	90.6
Pressured speech	30	61.1	39.9	91.4
Thoughts racing	31	57.7	31.5	95.2
Elevated mood	35	60.2	34.1	97.7
Irritable mood	36	70.8	67.6	75.3
Increased sociability	53	47.5	26.1	78.2
Increased self esteem	56	56.5	35.7	86.4
Grandiose delusions	57	48.8	43.9	55.8
Depression				
Slowed activity	24	15.0	24.7	1.1
Loss of energy/tiredness	25	20.0	33.1	1.3
Dysphoria	37	31.0	50.9	2.3
Loss of pleasure	39	21.1	34.5	2.1
Altered libido	40	12.0	19.2	1.9
Poor concentration	41	46.0	62.6	22.2
Excessive self reproach	42	9.8	16.1	0.8
Suicidal ideation	43	26.9	45.0	0.8
Initial insomnia	44	33.7	41.8	22.0
Middle insomnia (broken sleep)	45	32.9	46.4	13.6
Early morning waking	46	23.9	26.5	20.3
Poor appetite	48	36.8	37.4	35.9
Weight loss	49	26.9	21.4	34.8
Increased appetite	50	10.3	5.7	17.0

Note: BACCS, Bipolar Association Case-Control Study; OPCRIT, OPerational CRITeria system

Table DS3 Standardized factor loadings in bifactor model

OPCRIT Items	Item no.	Factor loadings						h^2
		General	Positive symptoms	Negative symptoms	Disorganization	Mania	Depression	
Persecutory delusions	54	0.90	0.21					0.86
Well organised delusions	55	0.93	-0.08					0.88
Delusions of influence	58	0.31	0.44					0.29
Bizarre delusions	59	0.91	-0.05					0.84
Widespread delusions	60	0.97	-0.06					0.94
Delusions of passivity	61	0.78	0.37					0.74
Delusions & hallucinations for 1 week	64	0.91	0.34					0.94
Persecutory delusions & hallucinations	65	0.91	0.30					0.91
Thought insertion	66	0.74	0.55					0.84
Thought withdrawal	67	0.80	0.42					0.82
Thought broadcast	68	0.72	0.49					0.76
Third person auditory hallucinations	73	0.78	0.40					0.77
Running commentary voices	74	0.67	0.45					0.65
Abusive/accusatory/persecutory voices	75	0.83	0.30					0.78
Other auditory hallucinations	76	0.77	0.02					0.59
Non-affective hallucination any modality	77	0.79	0.13					0.64
Negative formal thought disorder	29	0.77		0.35				0.71
Restricted affect	32	0.81		0.42				0.82
Blunted affect	33	0.84		0.42				0.88
Bizarre behaviour	17	0.82			0.28			0.75
Speech difficult to understand	26	0.76			0.57			0.91
Incoherent	27	0.70			0.65			0.91
Positive formal thought disorder	28	0.80			0.48			0.87
Inappropriate affect	34	0.73			0.25			0.59
Excessive activity	19	-0.56				0.66		0.75
Reckless activity	20	-0.31				0.54		0.39
Distractibility	21	-0.34				0.62		0.50
Reduced need for sleep	22	-0.63				0.61		0.76
Pressured speech	30	-0.58				0.68		0.81
Thoughts racing	31	-0.72				0.62		0.89
Elevated mood	35	-0.73				0.61		0.90
Irritable mood	36	-0.01				0.54		0.29
Increased sociability	53	-0.54				0.63		0.68
Increased self esteem	56	-0.51				0.65		0.69
Grandiose delusions	57	-0.09				0.66		0.45
Slowed activity	24	0.54					0.62	0.67
Loss of energy/tiredness	25	0.56					0.70	0.81
Dysphoria	37	0.65					0.61	0.80
Loss of pleasure	39	0.51					0.76	0.84
Altered libido	40	0.49					0.67	0.69
Poor concentration	41	0.47					0.61	0.59
Excessive self reproach	42	0.36					0.80	0.78
Suicidal ideation	43	0.64					0.54	0.70
Initial insomnia	44	0.29					0.58	0.42
Middle insomnia (broken sleep)	45	0.46					0.53	0.50
Early morning waking	46	0.07					0.69	0.48
Poor appetite	48	0.00					0.61	0.37
Weight loss	49	-0.21					0.55	0.34
Increased appetite	50	-0.28					0.05	0.08

Table DS4 Bias and relative bias of factor loadings and item difficulty parameters in bifactor model (bootstrap procedure)‡

OPCRIT Items	Item no.	Parameter type	Estimate	Bias	Standard error (SE)	Relative bias	Relative bias > 5%	Relative bias > 10%	Bias > SE	Rank Relative Bias
Persecutory delusions	54	GP	3.14	0.08	0.26	0.02	0	0	0	61
	54	PS	1.74	0.08	0.24	0.04	0	0	0	36
	54	d	-0.90	-0.05	0.32	0.06	1	0	0	27
Well organised delusions	55	GP	2.63	0.22	0.73	0.08	1	0	0	15
	55	PS	0.26	0.03	0.17	0.12	1	1	0	11
	55	d	-3.07	-0.32	1.08	0.10	1	1	0	14
Delusions of influence	58	GP	0.54	0.00	0.07	0.00	0	0	0	113
	58	PS	0.71	0.04	0.16	0.05	1	0	0	30
	58	d	-0.77	-0.01	0.08	0.01	0	0	0	86
Bizarre delusions	59	GP	2.33	0.06	0.27	0.03	0	0	0	58
	59	PS	0.34	0.02	0.15	0.07	1	0	0	23
	59	d	-2.47	-0.10	0.45	0.04	0	0	0	39
Widespread delusions	60	GP	3.37	0.45	1.17	0.13	1	1	0	9
	60	PS	0.39	0.05	0.20	0.12	1	1	0	10
	60	d	-3.87	-0.65	1.72	0.17	1	1	0	7
Delusions of passivity	61	GP	2.15	0.17	0.59	0.08	1	0	0	17
	61	PS	1.20	0.01	0.21	0.01	0	0	0	106
	61	d	-3.31	-0.25	0.83	0.07	1	0	0	19
Delusions & hallucinations for 1 week	64	GP	4.70	0.13	0.58	0.03	0	0	0	54
	64	PS	3.26	0.07	0.40	0.02	0	0	0	63
	64	d	-3.22	-0.10	0.61	0.03	0	0	0	53
Persecutory delusions & hallucinations	65	GP	4.19	0.19	0.64	0.05	0	0	0	35
	65	PS	3.10	0.19	0.76	0.06	1	0	0	26
	65	d	-3.77	-0.25	0.89	0.07	1	0	0	25
Thought insertion	66	GP	2.51	0.27	0.69	0.11	1	1	0	12
	66	PS	2.42	0.03	0.79	0.01	0	0	0	77
	66	d	-4.70	-0.34	0.98	0.07	1	0	0	20
Thought withdrawal	67	GP	2.43	0.78	1.36	0.32	1	1	0	1
	67	PS	1.80	-0.05	0.34	-0.03	0	0	0	144
	67	d	-5.03	-1.05	1.89	0.21	1	1	0	5
Thought broadcast	68	GP	1.99	0.08	0.32	0.04	0	0	0	49
	68	PS	1.73	-0.03	0.29	-0.02	0	0	0	139
	68	d	-3.92	-0.10	0.44	0.02	0	0	0	59
Third person auditory hallucinations	73	GP	2.18	0.12	0.34	0.06	1	0	0	29
	73	PS	1.66	0.00	0.30	0.00	0	0	0	120
	73	d	-3.11	-0.16	0.47	0.05	1	0	0	32
Running commentary voices	74	GP	1.68	0.12	0.45	0.07	1	0	0	21
	74	PS	1.17	0.01	0.22	0.01	0	0	0	109
	74	d	-3.53	-0.18	0.59	0.05	1	0	0	31
Abusive/accusatory/persecutory voices	75	GP	2.30	0.09	0.33	0.04	0	0	0	45
	75	PS	1.79	-0.01	0.25	0.00	0	0	0	135
	75	d	-2.71	-0.11	0.47	0.04	0	0	0	47

OPCRIT Items	Item no.	Parameter type	Estimate	Bias	Standard error (SE)	Relative bias	Relative bias > 5%	Relative bias > 10%	Bias > SE	Rank Relative Bias
Other auditory hallucinations	76	GP	1.69	0.11	0.35	0.07	1	0	0	24
	76	PS	0.38	0.00	0.14	0.00	0	0	0	128
	76	d	-2.98	-0.17	0.51	0.06	1	0	0	28
Non-affective hallucination any modality	77	GP	1.86	0.09	0.34	0.05	0	0	0	34
	77	PS	0.57	0.02	0.14	0.04	0	0	0	41
	77	D	-3.26	-0.14	0.50	0.04	0	0	0	38
Negative formal thought disorder	29	GP	1.76	0.25	0.66	0.14	1	0	0	8
	29	NS	1.25	0.02	0.23	0.02	0	0	0	69
	29	d	-3.80	-0.40	0.95	0.10	1	0	0	13
Restricted affect	32	GP	3.89	0.10	1.20	0.03	0	0	0	55
	32	NS	3.79	-0.24	1.57	-0.06	0	0	0	146
	32	d	-5.74	-0.15	1.67	0.03	0	0	0	56
Blunted affect	33	GP	4.79	0.38	1.15	0.08	1	0	0	16
	33	NS	4.41	-0.09	1.13	-0.02	0	0	0	141
	33	d	-7.40	-0.58	1.63	0.08	1	0	0	18
Bizarre behaviour	17	GP	2.07	0.03	0.15	0.01	0	0	0	80
	17	DIS	1.16	0.04	0.18	0.04	0	0	0	48
	17	d	-1.40	-0.06	0.25	0.04	0	0	0	44
Speech difficult to understand	26	GP	4.45	0.04	1.24	0.01	0	0	0	95
	26	DIS	4.65	0.04	1.37	0.01	0	0	0	96
	26	d	-6.34	-0.10	1.74	0.02	0	0	0	73
Incoherent	27	GP	4.90	-0.17	1.12	-0.04	0	0	0	145
	27	DIS	5.63	-0.16	1.17	-0.03	0	0	0	143
	27	d	-8.73	0.17	1.42	-0.02	0	0	0	140
Positive formal thought disorder	28	GP	3.25	0.66	1.22	0.20	1	1	0	6
	28	DIS	2.91	0.71	1.35	0.24	1	1	0	4
	28	d	-3.50	-0.95	1.83	0.27	1	1	0	2
Inappropriate affect	34	GP	1.56	0.03	0.13	0.02	0	1	0	72
	34	DIS	0.76	0.03	0.14	0.04	0	0	0	46
	34	d	-2.09	-0.05	0.22	0.03	0	1	0	57
Excessive activity	19	GP	-1.75	-0.02	0.18	0.01	0	0	0	91
	19	MAN	2.12	-0.01	0.21	0.00	0	0	0	133
	19	d	1.87	0.02	0.24	0.01	0	0	0	84
Reckless activity	20	GP	-0.63	-0.01	0.10	0.01	0	0	0	78
	20	MAN	1.14	0.00	0.12	0.00	0	0	0	119
	20	d	1.36	0.01	0.11	0.01	0	0	0	102
Distractibility	21	GP	-0.75	-0.02	0.12	0.02	0	0	0	60
	21	MAN	1.43	0.00	0.15	0.00	0	0	0	130
	21	d	1.42	0.02	0.12	0.01	0	0	0	87
Reduced need for sleep	22	GP	-1.86	-0.01	0.18	0.01	0	0	0	104
	22	MAN	1.99	0.00	0.17	0.00	0	0	0	132
	22	d	1.10	0.02	0.20	0.01	0	0	0	79

OPCRIT Items	Item no.	Parameter type	Estimate	Bias	Standard error (SE)	Relative bias	Relative bias > 5%	Relative bias > 10%	Bias > SE	Rank Relative Bias
Pressured speech	30	GP	-2.03	-0.02	0.21	0.01	0	0	0	99
	30	MAN	2.76	0.04	0.36	0.01	0	0	0	75
	30	d	1.76	0.02	0.29	0.01	0	0	0	81
Thoughts racing	31	GP	-3.13	-0.01	0.28	0.00	0	0	0	116
	31	MAN	3.08	0.00	0.32	0.00	0	0	0	124
	31	d	1.87	0.02	0.32	0.01	0	0	0	88
Elevated mood	35	GP	-3.03	-0.04	0.26	0.01	0	0	0	83
	35	MAN	3.04	0.00	0.26	0.00	0	0	0	127
	35	d	2.25	0.04	0.35	0.02	0	0	0	67
Irritable mood	36	GP	-0.02	0.00	0.09	0.25	1	0	0	3
	36	MAN	1.12	0.01	0.12	0.01	0	0	0	103
	36	d	1.16	0.00	0.09	0.00	0	0	0	125
Increased sociability	53	GP	-1.36	-0.02	0.16	0.02	0	1	0	74
	53	MAN	1.73	0.02	0.15	0.01	0	0	0	97
	53	d	0.15	0.01	0.16	0.04	0	0	0	40
Increased self esteem	56	GP	-1.36	-0.01	0.15	0.01	0	0	0	110
	56	MAN	1.87	0.01	0.16	0.01	0	0	0	108
	56	d	0.85	0.02	0.17	0.02	0	0	0	64
Grandiose delusions	57	GP	-0.16	0.00	0.09	0.00	0	0	0	134
	57	MAN	1.61	0.01	0.19	0.01	0	0	0	101
	57	d	0.06	-0.01	0.09	-0.17	0	0	0	147
Slowed activity	24	GP	1.42	0.01	0.16	0.01	0	0	0	100
	24	DEP	1.88	-0.02	0.21	-0.01	0	0	0	137
	24	d	-3.01	-0.05	0.19	0.02	0	0	0	70
Loss of energy/tiredness	25	GP	2.29	0.09	0.45	0.04	0	0	0	42
	25	DEP	3.10	0.04	0.57	0.01	0	0	0	82
	25	d	-3.61	-0.15	0.62	0.04	0	0	0	43
Dysphoria	37	GP	2.36	0.03	0.21	0.01	0	0	0	76
	37	DEP	2.49	0.03	0.23	0.01	0	0	0	92
	37	d	-2.25	-0.08	0.31	0.04	0	0	0	51
Loss of pleasure	39	GP	2.82	0.12	0.64	0.04	0	0	0	37
	39	DEP	4.15	0.16	0.92	0.04	0	0	0	50
	39	d	-4.29	-0.21	0.90	0.05	0	0	0	33
Altered libido	40	GP	1.36	0.03	0.20	0.02	0	0	0	66
	40	DEP	1.97	0.01	0.25	0.00	0	0	0	118
	40	d	-3.37	-0.06	0.23	0.02	0	0	0	68
Poor concentration	41	GP	1.23	0.01	0.11	0.01	0	0	0	85
	41	DEP	1.77	0.01	0.15	0.01	0	0	0	105
	41	d	-0.31	-0.02	0.12	0.07	1	0	0	22
Excessive self reproach	42	GP	1.19	0.03	0.26	0.02	0	0	0	62
	42	DEP	2.43	0.02	0.36	0.01	0	0	0	94

	42	d	-3.93	-0.08	0.33	0.02	0	0	0	65

OPCRIT Items	Item no.	Parameter type	Estimate	Bias	Standard error (SE)	Relative bias	Relative bias > 5%	Relative bias > 10%	Bias > SE	Rank Relative Bias
Suicidal ideation	43	GP	1.84	0.03	0.17	0.02	0	0	0	71
	43	DEP	1.81	0.00	0.20	0.00	0	0	0	131
	43	d	-2.15	-0.07	0.25	0.03	0	0	0	52
Initial insomnia	44	GP	0.64	0.00	0.09	0.00	0	0	0	123
	44	DEP	1.46	0.01	0.17	0.01	0	0	0	98
	44	d	-0.91	-0.01	0.10	0.01	0	0	0	89
Middle insomnia (broken sleep)	45	GP	1.03	0.00	0.10	0.00	0	0	0	115
	45	DEP	1.47	0.01	0.16	0.01	0	0	0	93
	45	d	-1.12	-0.01	0.10	0.01	0	0	0	90
Early morning waking	46	GP	0.25	0.00	0.10	-0.01	0	0	0	138
	46	DEP	1.65	0.01	0.17	0.01	0	0	0	107
	46	d	-1.50	-0.01	0.11	0.00	0	0	0	117
Poor appetite	48	GP	0.12	0.00	0.09	-0.01	0	0	0	136
	48	DEP	1.24	0.01	0.14	0.00	0	0	0	112
	48	d	-0.58	0.00	0.08	0.01	0	0	0	111
Weight loss	49	GP	-0.27	0.00	0.08	0.00	0	0	0	126
	49	DEP	1.00	0.00	0.12	0.00	0	0	0	114
	49	d	-1.06	0.00	0.09	0.00	0	0	0	129
Increased appetite	50	GP	-0.47	0.00	0.10	0.00	0	0	0	121
	50	DEP	0.12	0.00	0.13	-0.02	0	0	0	142
	50	d	-2.21	-0.01	0.11	0.00	0	0	0	122

Note: GP, factor loading on general psychosis dimension; PS, factor loading on positive symptom dimension; NS, factor loading on negative symptom dimension; DIS, factor loading on disorganization dimension; MAN, factor loading on mania dimension; DEP, factor loading on depression dimension; d, item difficulty parameter; Relative bias > 5%, 1 = above critical value, 0 ≤ critical value; Relative bias > 10%, 1 ≤ above critical value, 0 = below critical value

‡ Explanatory Note: Replicability of findings on factor loadings in bifactor model (Table DS3) was examined in a sensitivity analysis by a bootstrap procedure with B = 500 re-samples. Of the 147 estimated parameters in the bifactor model, 32 (22%) showed a relative bias > 5% and 14 (10%) showed a relative bias > 10%. None of the bias estimates was larger than the bootstrapped estimate of its respective parameter's standard error. For those parameters for which some relevant bias (i.e., of at least 5% or 10% relative size) was detected, *absolute* values of parameters were estimated to be even larger than the respective point estimate (Table DS3). This indicates that the estimated structure of factor loadings was replicated across re-samples and only the strength of the relationship between some factors and their items tended to be underestimated.

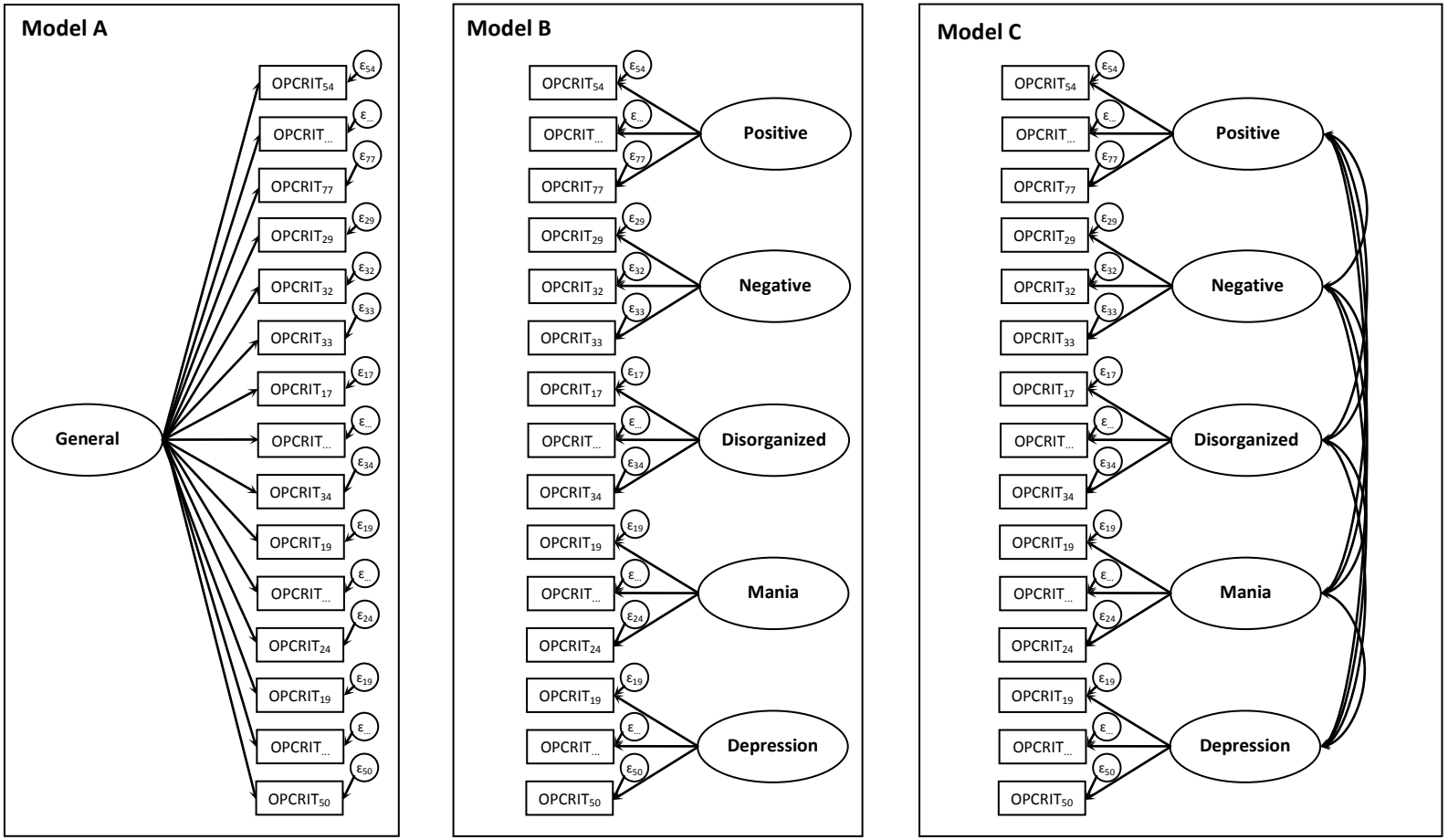
Table DS5 Categorical diagnoses of psychotic disorders by factors scores of general and specific psychosis dimension†

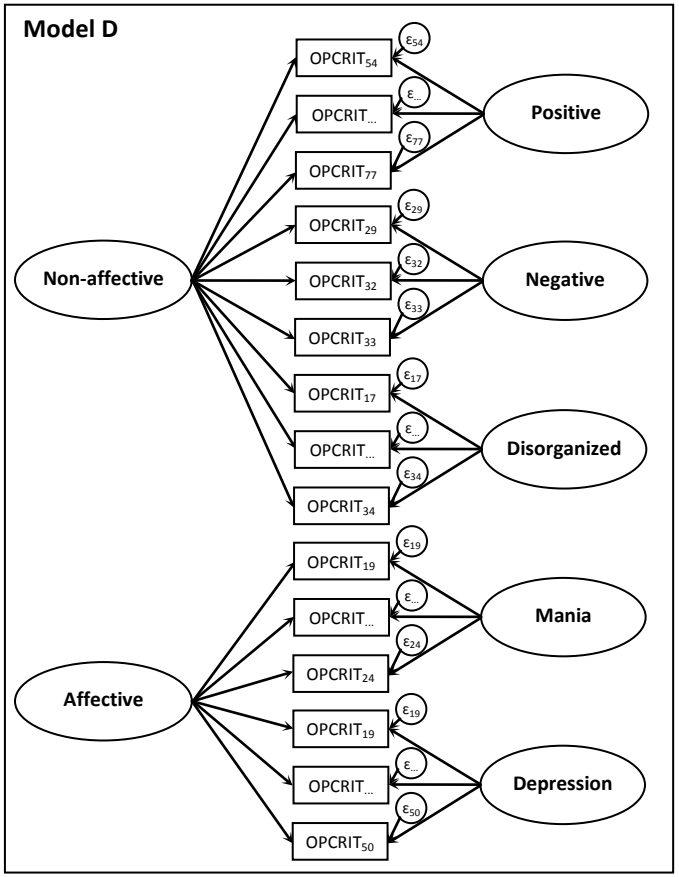
		Outcome category: RDC diagnosis									
		Bipolar disorder / mania		**Hypomania**		**Schizoaffective disorder**		**Schizophrenia**		**Unspecified functional psychosis**	
Outcome base (reference) category: RDC diagnosis	**Predictor**	Coefficient (95% CI)	p	Coefficient (95% CI)	p	Coefficient (95% CI)	p	Coefficient (95% CI)	p	Coefficient (95% CI)	p
Bipolar disorder / mania											
	General	-	-	-1.88 (-2.90 - -0.87)	<0.001	7.72 (6.33 - 9.11)	<0.001	7.93 (6.51 - 9.36)	<0.001	5.98 (4.53 - 7.43)	<0.001
	Positive symptoms	-	-	0.74 (0.06 - 1.42)	0.033	1.69 (0.78 - 2.61)	<0.001	1.80 (0.86 - 2.73)	<0.001	1.11 (0.10 - 2.11)	0.030
	Negative symptoms	-	-	-0.25 (-6.44 - 5.95)	0.937	1.21 (-1.05 - 3.47)	0.295	1.29 (-0.98 - 3.56)	0.265	0.97 (-1.34 - 3.28)	0.412
	Disorganization	-	-	-1.78 (-6.35 - 2.80)	0.447	2.03 (1.14 - 2.91)	<0.001	1.87 (0.96 - 2.77)	<0.001	1.03 (0.01 - 2.05)	0.048
	Mania	-	-	-1.90 (-2.38 - -1.43)	<0.001	-0.76 (-1.42 - -0.10)	0.025	-1.90 (-2.60 - -1.21)	<0.001	-2.16 (-2.96 - -1.36)	<0.001
	Depression	-	-	-0.38 (-0.74 - -0.02)	0.038	0.71 (0.17 - 1.25)	0.010	-1.01 (-1.59 - -0.43)	0.001	-0.32 (-0.95 - 0.31)	0.318
Hypomania											
	General	1.88 (0.87 - 2.90)	<0.001	-	-	9.60 (7.85 - 11.4)	<0.001	9.82 (8.04 - 11.60)	<0.001	7.87 (6.07 - 9.66)	<0.001
	Positive symptoms	-0.74 (-1.42 - -0.06)	0.033	-	-	0.95 (-0.14 - 2.04)	0.087	1.06 (-0.05 - 2.16)	0.061	0.37 (-0.79 - 1.53)	0.537
	Negative symptoms	0.25 (-5.95 - 6.44)	0.937	-	-	1.46 (-4.36 - 7.27)	0.623	1.54 (-4.28 - 7.35)	0.604	1.22 (-4.61 - 7.04)	0.683
	Disorganization	1.78 (-2.80 - 6.35)	0.447	-	-	3.80 (-0.80 - 8.40)	0.105	3.64 (-0.96 - 8.25)	0.121	2.80 (-1.82 - 7.43)	0.235
	Mania	1.90 (1.43 - 2.38)	<0.001	-	-	1.15 (0.38 - 1.92)	0.004	-0.00 (-0.80 - 0.80)	0.999	-0.26 (-1.14 - 0.63)	0.571
	Depression	0.38 (0.02 - 0.74)	0.038	-	-	1.09 (0.47 - 1.72)	0.001	-0.63 (-1.29 - 0.04)	0.064	0.06 (-0.64 - 0.76)	0.859
Schizoaffective disorder											
	General	-7.72 (-9.11 - -6.33)	<0.001	-9.60 (-11.4 - -7.85)	<0.001	-	-	0.21 (-0.35 - 0.78)	0.458	-1.74 (-2.72 - -0.75)	0.001
	Positive symptoms	-1.69 (-2.61 - -0.78)	<0.001	-0.95 (-2.04 - 0.14)	0.087	-	-	0.10 (-0.17 - 0.37)	0.456	-0.59 (-1.08 - -0.10)	0.018
	Negative symptoms	-1.21 (-3.47 - 1.05)	0.295	-1.46 (-7.27 - 4.36)	0.623	-	-	0.08 (-0.27 - 0.43)	0.651	-0.24 (-0.84 - 0.36)	0.428
	Disorganization	-2.03 (-2.91 - -1.14)	<0.001	-3.80 (-8.40 - 0.80)	0.105	-	-	-0.16 (-0.46 - 0.14)	0.304	-1.00 (-1.60 - -0.40)	0.001
	Mania	0.76 (0.01 - 1.42)	0.025	-1.15 (-1.92 - -0.38)	0.004	-	-	-1.15 (-1.44 - -0.85)	<0.001	-1.40 (-1.92 - -0.89)	<0.001
	Depression	-0.71 (-1.25 - -0.17)	0.010	-1.09 (-1.72 - -0.47)	0.001	-	-	-1.72 (-2.02 - -1.41)	<0.001	-1.03 (-1.46 - -0.60)	<0.001

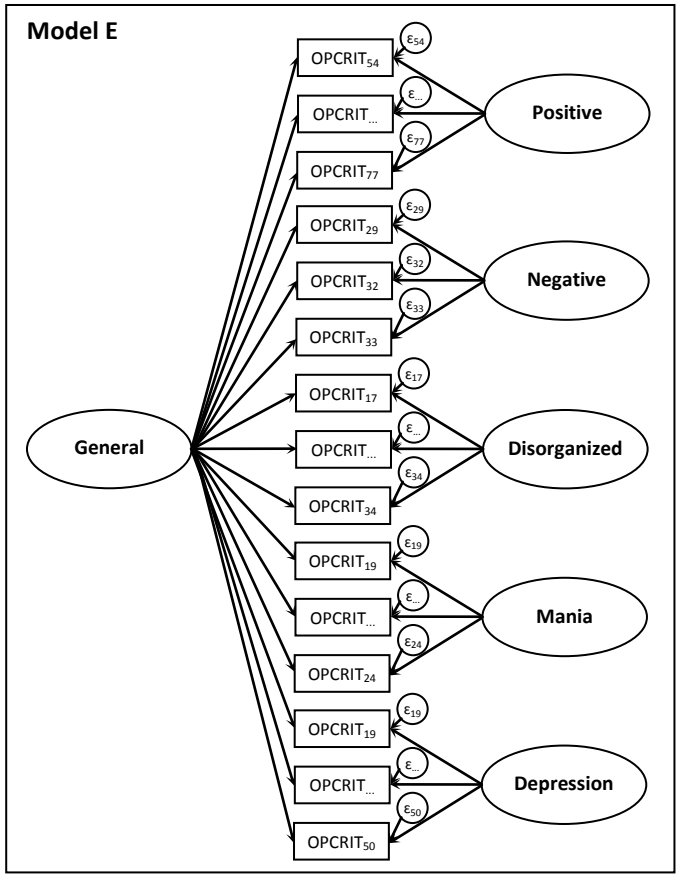
		Outcome category: RDC diagnosis									
		Bipolar disorder / mania		**Hypomania**		**Schizoaffective disorder**		**Schizophrenia**		**Unspecified functional psychosis**	
Outcome base (reference) category: RDC diagnosis	**Predictor**	Coefficient (95% CI)	p	Coefficient (95% CI)	p	Coefficient (95% CI)	p	Coefficient (95% CI)	p	Coefficient (95% CI)	p
Schizophrenia											
	General	-7.93 (-9.36 - -6.51)	<0.001	-9.82 (-11.60 - -8.04)	<0.001	-0.21 (-0.78 - 0.35)	0.458	-	-	-1.95 (-2.95 - -0.95)	<0.001
	Positive symptoms	-1.80 (-2.73 - -0.86)	<0.001	-1.06 (-2.16 - 0.05)	0.061	-0.10 (-0.37 - 0.17)	0.456	-	-	-0.69 (-1.17 - -0.21)	0.005
	Negative symptoms	-1.29 (-3.56 - 0.98)	0.265	-1.54 (-7.35 - 4.28)	0.604	-0.08 (-0.43 - 0.27)	0.651	-	-	-0.32 (-0.91 - 0.27)	0.282
	Disorganization	-1.87 (-2.77 - -0.96)	<0.001	-3.64 (-8.25 - 0.96)	0.121	0.16 (-0.14 - 0.46)	0.304	-	-	-0.84 (-1.43 - -0.25)	0.005
	Mania	1.90 (1.21 - 2.60)	<0.001	0.00 (-0.80 - 0.80)	0.999	1.15 (0.85 - 1.44)	<0.001	-	-	-0.26 (-0.77 - 0.25)	0.325
	Depression	1.01 (0.43 - 1.59)	0.001	0.63 (-0.04 - 1.29)	0.064	1.72 (1.41 - 2.02)	<0.001	-	-	0.69 (0.27 - 1.11)	0.001

† **Explanatory Note:** Table DS4 shows logit coefficients, 95% confidence intervals, and p-values of the multinomial regression model with the highest classification accuracy including factor scores of both general and specific psychosis dimensions for predicting categorical diagnoses (Figure DS3b). Consistent with findings on symptom profiles (Figure 1, Table 2), patients were less likely diagnosed with hypomania than bipolar disorder when they had higher scores on the general psychosis, specific manic and depressive symptom dimension. A diagnosis of schizoaffective disorder was more likely than a diagnosis of bipolar disorder as scores on the general psychosis, specific positive, disorganized, and depressive symptom dimension increased and scores on the manic symptom dimension decreased. Patients were more likely diagnosed with schizophrenia than bipolar disorder when they had higher scores on the general psychosis, specific positive and disorganized symptom dimension and lower scores on the specific manic and depressive symptom dimension. Compared with a diagnosis of hypomania, diagnoses of schizoaffective disorder and schizophrenia were more likely in patients with higher scores on the general psychosis dimension. While, in addition, schizoaffective disorder was more likely diagnosed than hypomania in patients with higher scores on the specific manic and depressive symptom dimension, there was some evidence that a diagnosis of schizophrenia was more likely given in those with higher scores on the positive and disorganized symptom dimension. Compared with a diagnosis of schizoaffective disorder, a diagnosis of schizophrenia was less likely in patients with higher scores on the specific manic and depressive symptom dimension. Finally, there was no evidence that the specific negative symptom dimension significantly predicted categorical diagnosis of psychotic disorders.

Figure DS1 Schematic representation of five alternative item response models†

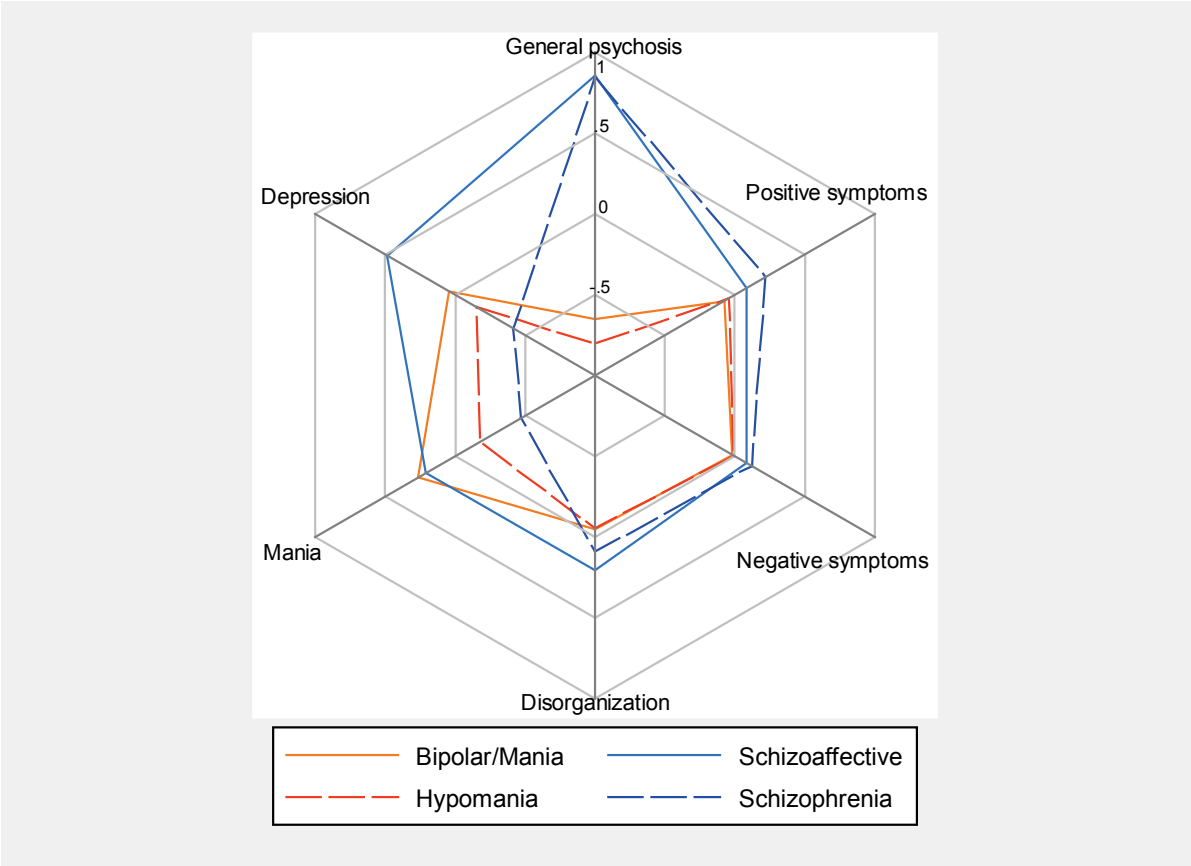






† *Notation:* (☐) items (observed variables); (⬭) latent factors (unobserved variables); (⟶) factor loadings of items onto latent factors; ε, error variance; General, general psychosis factor; Positive, specific positive symptom factor; Negative, specific negative symptom factor; Disorganized, specific disorganization factor; Mania, specific mania factor; Depression, specific depression factor; Model A, unitary (unidimensional) psychosis model with one general factor; Model B, pentagonal (multidimensional) model with five uncorrelated specific factors; Model C, pentagonal (multidimensional) model with five correlated specific factors; Model D, a bifactor model with 2 distinct factors for affective and non-affective psychosis and 5 uncorrelated factors for each specific symptom dimension; Model E, bifactor model with one general and five uncorrelated specific factors; Only 3 items for each specific factor are shown for simplicity using OPCRIT item numbers as displayed in Table DS3.

Fig. DS2 Symptom profiles for general and specific psychosis dimensions by diagnosis† (colour version of Fig. 1 in main text).

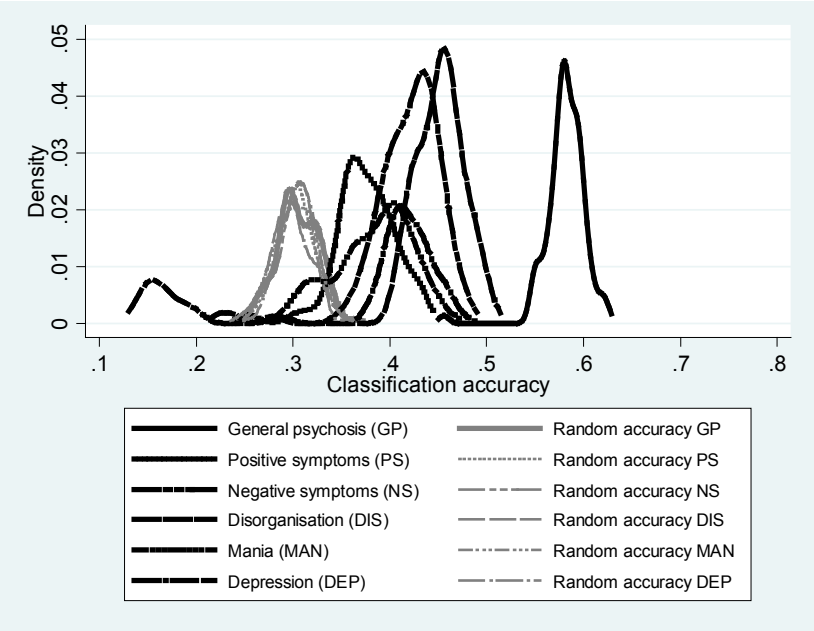


† **Explanatory Note:** Symptom profiles are the mean factor scores for one general psychosis dimension and five specific psychosis dimensions (positive symptoms, negative symptoms, disorganisation, mania, depression) by diagnostic categories (schizophrenia, schizoaffective disorder, hypomania, and bipolar disorder/mania). Factor scores are standardised with a mean of 0 and s.d.=1. Given negative factor loadings were found for mania items on the general psychosis dimension, patients with low ratings on all OPCRIT items are assigned a factor score close to the mean of 0, whereas patients with high ratings on mania items but low ratings on other psychotic symptoms are assigned a negative factor score and patients with low ratings on mania items but high ratings on other psychotic symptoms are assigned a positive factor score. Symptom profiles

showed high (positive) mean scores for schizophrenia on the general psychosis dimension as well as on the specific positive, negative and disorganised symptom dimension, but low (negative) mean scores on the specific manic and depressive symptom dimension. There were also high (positive) mean scores on the general psychosis and specific positive, negative and disorganised symptom dimension for schizoaffective disorder. However, on the specific manic symptom dimension, mean scores for schizoaffective disorders were higher than for schizophrenia and comparable with the mean scores of bipolar disorder/mania. Mean scores on the specific depressive symptom dimension were higher in schizoaffective disorder than in all other diagnostic categories. Low (negative) mean scores were found for bipolar disorder/mania and hypomania on the general psychosis dimension as well as on the specific positive, negative, disorganised and depressive symptom dimension. However, compared with other diagnostic categories, mean scores were significantly higher on the specific mania dimension for these diagnoses.

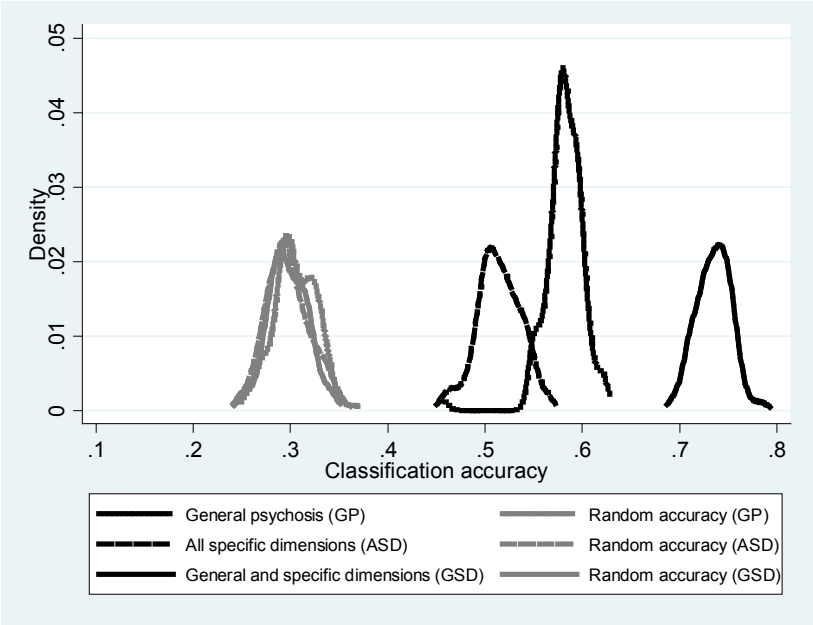
Figure DS3 Classification of patients into diagnostic categories based on general and specific psychosis dimensions compared with classification by chance†

Figure DS3 (a). Classification of patients into diagnostic categories based on each of the general and specific psychosis dimensions alone compared with classification by chance‡



‡ Explanatory Note 1: Figure DS3a shows density (y-axis) distributions of the proportion of patients correctly classified (x-axis) into diagnostic categories based on factor scores of general and specific psychosis dimensions. A density peak to the right indicates a high probability of classifying patients accurately into diagnostic categories. Classification of patients based on general psychosis (95% CI 0.45-0.63), specific positive symptom (95% CI 0.24-0.44), negative symptom (95% CI 0.14-0.48), disorganization (95% CI 0.22-0.51), mania (95% CI 0.28-0.47), and depression (95% CI 0.37-0.48) dimensions is compared with classification of patients by chance (GP, 95% CI 0.25-0.37; PS, 95% CI 0.24-0.36; NS, 95% CI 0.25-0.35; DIS, 95% CI 0.24-0.34; MAN, 95% CI 0.25-0.36; DEP, 95% CI 0.25-0.35).

Figure DS3(b) Classification of patients into diagnostic categories based on the general psychosis dimension only (GP), the specific psychosis dimensions only (ASD), and both general and specific psychosis dimensions (GSD) compared with classification by chance§



§ Explanatory Note 2: Figure DS3b shows density (y-axis) distributions of the proportion of patients correctly classified (x-axis) into diagnostic categories based on factor scores of general and specific psychosis dimensions. A density peak to the right indicates a high probability of classifying patients accurately into diagnostic categories. Classification of patients based on the general psychosis dimension only (GP, 95% CI 0.45-0.63), the specific psychosis dimensions only (ASD 95% CI 0.46-0.57), and both general and specific psychosis dimensions (GSD, 95% CI 0.69-0.79) is compared with classification of patients by chance (GP, 95% CI 0.25-0.37; ASD, 95% CI 0.24-0.36; GSD, 95% CI 0.24-0.35).

†Explanatory Note 3: Using multinomial ROC analysis (32), first *B*=100 bootstrapped multinomial regression models were fitted, each regressing the diagnostic categories on one of the six factor scores in a random set of patients. For each of the runs the share of correctly classified patients was determined and saved. In a second step, again *B*=100 bootstrap runs were performed and multinomial regression models fitted in each random set of patients, but, in this step, the labels of diagnostic categories were randomly allocated. This produces the density distribution for the correct classification of patients into diagnostic categories given the factor scores of general and specific psychosis dimensions (black, each *B* = 100 bootstrap draws) and the distribution under the null hypothesis that factor scores have no predictive power (grey, distributions of random classifications for the same bootstrap draws as for respective general and specific psychosis dimension). Comparing these two distributions provides information on whether factor scores predict better than what would be expected by chance to which of the dependent categories a patient will be allocated. The distributions from the second step are essentially the same, but we provided all those that were generated to document the variability under the null hypothesis.

Figure DS4 (Simplified) Schematic representation of schizophrenia and bipolar disorders lying on the (general) psychosis spectrum with overlapping non-affective and affective psychotic symptoms (building on van Os & Kapur[21])