



Bridges Between Bipolar and Borderline Personality Disorders: Clarifying Comorbidity Through the Analysis of Complex Network of Connections Between Symptoms

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Supplementary Material

Table S1. *CIDI Questions and Corresponding Symptoms Labels, Numbers, and DSM-5 Criteria*

Disorder	CIDI question	Symptom Label	Symptom Number	DSM-5 Criteria
Depressive Episode	In your lifetime, have you ever had two weeks or more when nearly every day you felt sad, blue, or depressed?	Depressed mood	1	A1
	Has there ever been a period of 2 weeks or longer when you lost your appetite?	Decreased appetite	2	A3
	Has there ever been at least 2 weeks when you had an increase in appetite, other than when you were growing (or pregnant)?	Increased appetite	3	A3
	Have you ever had 2 weeks or more when nearly every night you had trouble falling asleep?	Insomnia	4	A4
	Have you ever had 2 weeks or longer when nearly every day you were sleeping too much?	Hypersomnia	5	A4
	Has there ever been a period lasting 2 weeks or more when you lacked energy or felt tired out all the time even when you had not been working very hard?	Fatigue	6	A6
	Has there ever been 2 weeks or more when nearly every day you talked or moved more slowly than is normal for you?	Psychomotor retardation	7	A5
	Has there ever been 2 weeks or more when nearly every day you had to be moving all the time - that is, you could not sit still and paced up and down?	Psychomotor agitation	8	A5
	Has there ever been two weeks or more when you lost interest in most things like work, hobbies, or things you usually liked to do for fun?	Diminished interest	9	A2
	Has there ever been 2 weeks or more when nearly every day you felt worthless?	Worthlessness	10	A7
	Has there ever been 2 weeks or more when nearly every day you felt guilty?	Guilt	11	A7
	Has there ever been 2 weeks or more when nearly every day you had a lot more trouble concentrating than is normal for you?	Diminished concentration	12	A8
	Have you ever had 2 weeks or more when nearly every day your thoughts came much slower than usual or seemed mixed up?	Slowing thoughts	13	A8
	Have you ever had 2 weeks or more when nearly every day you were unable to make up your mind about things you ordinarily have no trouble deciding about?	Indecision	14	A8
	Has there ever been a period of 2 weeks or more when you thought a lot about death either your own, someone else's, or death in general?	Thoughts of dead	15	A9
	Have you ever felt so low you thought about committing suicide?	Suicidal ideation	16	A9
	Have you ever attempted suicide?	Suicidal attempt	17	A9

Table S1 (Continued). *CIDI Questions and Corresponding Symptoms Labels, Numbers, and DSM-5 Criteria*

Disorder	CIDI question	Symptom Label	Symptom Number	DSM-5 Criteria
Manic Episode	Has there ever been a period of at least two days when you were so happy or excited that you got into trouble, or your family or friends worried about it, or a doctor said you were manic?	Euphoria	18	A
	Has there ever been a period when you were so much more active than usual that you or your family or friends were concerned about it?	Increased activity	19	B6
	Has there ever been a period when you went on spending sprees, spending so much money that it caused you or your family some financial trouble, or a period when you made foolish decisions about money?	Money spending	20	B7
	Have you ever had a period when your interest in sex was so much stronger than is typical for you that you wanted to have sex a lot more frequently than is normal for you or with people you normally would not be interested in?	Sexual indiscretions	21	B7
	Was there ever a period when you were easily distracted so that any little interruption could get you off the track?	Distractibility	22	B5
	Has there ever been a period when you hardly slept at all but still did not feel tired or sleepy?	Decreased sleep	23	B2
	Has there ever been a period when you talked so fast that people said they could not understand you or you had to keep talking all of the time?	Talkative	24	B3
	Have you ever had a period when thoughts raced through your head so fast that you could not keep track of them?	Thought acceleration	25	B4
	Has there ever been a period of several days when you could not sit still and paced up and down?	Psychomotor agitation	8	B6

Table S1 (Continued). *CIDI Questions and Corresponding Symptoms Labels, Numbers, and DSM-5 Criteria*

Disorder	CIDI question	Symptom Label	Symptom Number	DSM-5 Criteria
Borderline Personality Disorder	Has there ever been a period of several days when you were so irritable that you threw or broke things, started arguments, shouted at people, or hit someone?	Unstable relationships	26	2
	Has there ever been a period when you went on spending sprees, spending so much money that it caused you or your family some financial trouble, or a period when you made foolish decisions about money?	Money spending	20	4
	Have you ever had a period when your interest in sex was so much stronger than is typical for you that you wanted to have sex a lot more frequently than is normal for you or with people you normally would not be interested in?	Sexual indiscretions	21	4
	In any one year period of your entire life. did you have at least 12 drinks of any kind of alcoholic beverage?	Substance abuse	27	4
	In general, how much are you unstable?	Unstable affect	28	6
	In general, how much are you irritable?	Anger	29	8
	Have you ever attempted suicide?	Suicidal attempt	17	5
	The idea of losing a close friend is terrifying to me.	Fear of abandonment	30	1
	I often find that I do not live up to my own standards or ideals.	Identity disturbance	31	3
Many times I feel helpless.	Emptiness	32	7	

Table S2. *Connections Weights Matrix*

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	M1	M2	M3	M4	M5	M6	M7	M8	B1	B2	B3	B4	B5	B6	B7	
D1		.754	.292	.803	.259	.821	.000	.344	.623	.742	.366	.733	.322	.000	1.271	.830	.000	.000	.000	.000	.000	.000	.000	.000	.000	.376	.000	.000	.000	.000	.000	.000	
D2			.127	.663	.000	.301	.280	.401	.533	.146	.128	.360	.287	.064	.216	.121	.225	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
D3				.179	.449	.822	.241	.182	.545	.000	.138	.293	.111	.071	.179	.119	.000	.000	.000	.213	.039	.126	.000	.000	.000	.000	.000	.000	.000	.000	.000	.137	.000
D4					.182	.773	.417	.622	.467	.274	.086	.599	.230	.073	.261	.074	.114	.000	.000	.000	.000	.000	.385	.000	.000	.000	.000	.000	.000	.000	.078	.000	.123
D5						1.150	.085	.000	.524	.237	.067	.200	.000	.167	.111	.137	.093	.000	.000	.341	.174	.000	.000	.000	.000	.000	.000	.000	.168	.000	.137	.000	
D6							1.373	.155	.905	.378	.317	.628	.000	.414	.302	.269	.000	.000	.000	.000	.000	.204	.000	.000	.000	.093	.000	.000	.179	.000	.051	.044	
D7								.395	.000	.257	.000	.434	.635	.460	.158	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
D8									.200	.000	.187	.244	.399	.225	.177	.000	.000	.000	.259	.000	.000	.000	.112	.250	.522	.305	.000	.000	.000	.000	.000	.000	.053
D9										.455	.252	.481	.425	.334	.581	.432	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.019	.148	.000	.000	.083	
D10											.878	.160	.451	.446	.000	.777	.357	.000	.000	.000	.000	.023	.000	.000	.000	.000	.000	.000	.081	.000	.000	.447	
D11												.430	.211	.308	.411	.434	.000	.000	.000	.000	.173	.000	.000	.000	.000	.000	.000	.045	.000	.000	.253	.093	
D12													1.457	1.130	.447	.000	.000	.000	.000	.000	.000	.219	.000	.000	.000	.000	.000	.000	.100	.000	.028	.000	
D13														1.653	.000	.000	.000	.000	.215	.095	.000	.035	.000	.000	.388	.000	.000	.082	.000	.000	.000	.000	
D14															.139	.000	.000	.000	.094	.000	.000	.078	.000	.000	.000	.000	.000	.000	.000	.000	.000	.346	
D15																.660	.161	.000	.000	.000	.000	.000	.000	.000	.334	.000	.000	.000	.000	.141	.000	.025	
D16																	3.002	.000	.000	.000	.166	.000	.000	.000	.034	.000	.216	.000	.000	.182	.141		
D17																		.000	.130	.229	.000	.000	.000	.000	.234	.124	.000	.000	.000	.000	.000	.000	
M1																			1.448	.698	.697	.909	1.174	.428	1.198	-	.000	.317	.000	.095	.000	.000	
M2																				.268	.174	.386	.724	.496	.482	1.073	.000	.000	.000	.000	.000	.000	
M3																					1.020	.518	.417	.262	.457	1.516	.000	.112	.000	.000	.000	.000	
M4																						.751	.446	.205	.420	1.214	.572	.253	.000	.000	.000	.000	
M5																							.895	.662	1.302	2.592	.000	.000	.141	.000	.000	.196	
M6																								.459	.486	2.216	.000	.000	.000	.000	.000	.000	
M7																									1.350	1.130	-	.000	.000	.000	.000	.000	
M8																										1.560	.000	.034	.000	.067	.000	.194	
B1																											.000	.000	.456	.000	.000	.000	
B2																												.000	.000	-.357	.000	-.345	
B3																													1.788	.111	.554	.879	
B4																														1.322	1.021	.751	
B5																															.925	.717	
B6																																	1.707
B7																																	

Table S3. *Symptoms Centrality, Impact, and Modular Roles*

Symptom Number	Symptom Label	Strength Impact	Structure Impact	Strength Centrality	Betweenness Centrality	Closeness Centrality	Modular Bridgeness	Modular Overlap
1	Depressed Mood	-19.176	1.733	8.536	132.000	0.012	0.113	1.244
2	Decreased Appetite	-34.744	1.431	4.606	0.000	0.008	0.028	1.189
3	Increased Appetite	-37.979	1.213	4.262	0.000	0.007	0.048	1.343
4	Insomnia	-38.002	1.272	6.401	20.000	0.010	0.086	1.282
5	Hypersomnia	-37.961	1.503	4.480	3.000	0.009	0.069	1.406
6	Fatigue	-23.100	1.743	9.178	55.000	0.009	0.157	1.235
7	Psychomotor Retardation	-50.211	1.332	4.735	0.000	0.008	0.030	1.190
8	Psychomotor Agitation	-52.449	1.650	5.032	3.000	0.009	0.064	1.561
9	Diminished Interest	-21.303	1.868	7.007	1.000	0.009	0.104	1.217
10	Worthlessness	-41.480	1.288	6.110	57.000	0.010	0.171	1.340
11	Guilt	-35.374	1.368	4.763	0.000	0.008	0.112	1.389
12	Diminished Concentration	-35.488	1.327	7.943	17.000	0.010	0.119	1.252
13	Slowing Thoughts	-40.238	1.423	6.997	27.000	0.010	0.101	1.333
14	Indecision	-41.824	1.361	6.001	15.000	0.010	0.107	1.300
15	Thoughts of Dead	-22.685	1.309	5.574	2.000	0.010	0.067	1.291
16	Suicidal Ideation	29.440	1.002	7.593	25.000	0.009	0.188	1.314
17	Suicidal Attempt	-63.091	1.363	4.669	0.000	0.008	0.057	1.432
18	Euphoria	-54.267	5.388	8.037	23.000	0.009	0.270	1.816
19	Increased Activity	-48.568	2.854	4.676	0.000	0.008	0.071	1.852
20	Money Spending	-51.288	2.802	6.147	13.000	0.010	0.179	2.055
21	Sexual Indiscretions	-50.413	2.863	6.304	20.000	0.009	0.187	2.060
22	Distractibility	-35.532	3.555	9.149	0.000	0.010	0.428	2.052
23	Decreased Sleep	-38.861	3.506	7.452	16.000	0.010	0.248	1.979
24	Talkative	-47.793	3.460	5.609	12.000	0.009	0.144	2.009
25	Thought Acceleration	-43.375	4.077	8.812	37.000	0.010	0.374	2.065
26	Unstable Relationships	-40.232	5.934	12.384	149.000	0.011	0.807	2.043
27	Substance Abuse	22.302	1.239	1.369	0.000	0.007	0.002	2.953
28	Unstable Affect	-16.797	1.410	4.659	2.000	0.008	0.299	2.821
29	Anger	-6.290	1.747	5.907	40.000	0.008	0.502	2.732
30	Fear of Abandonment	-3.866	1.713	3.813	1.000	0.007	0.172	2.611
31	Identity Disturbance	-4.375	1.943	4.980	0.000	0.008	0.288	2.488
32	Emptiness	-12.231	1.480	6.144	57.000	0.008	0.407	2.638

Table S4. *Symptoms Modular Assignment Values*

Symptom Number	Symptom Label	Node Module	Depressive Episode	Manic Episode	Borderline Personality Disorder
1	Depressed Mood	1	8.099	0.394	0.044
2	Decreased Appetite	1	4.435	0.150	0.021
3	Increased Appetite	1	3.947	0.268	0.047
4	Insomnia	1	6.023	0.324	0.055
5	Hypersomnia	1	4.086	0.317	0.077
6	Fatigue	1	8.744	0.365	0.070
7	Psychomotor Retardation	1	4.558	0.156	0.021
8	Psychomotor Agitation	1	4.304	0.686	0.042
9	Diminished Interest	1	6.712	0.231	0.064
10	Worthlessness	1	5.693	0.273	0.143
11	Guilt	1	4.382	0.258	0.123
12	Diminished Concentration	1	7.530	0.358	0.055
13	Slowing Thoughts	1	6.478	0.470	0.049
14	Indecision	1	5.634	0.287	0.080
15	Thoughts of Dead	1	5.233	0.293	0.048
16	Suicidal Ideation	1	7.105	0.378	0.111
17	Suicidal Attempt	1	4.188	0.445	0.036
18	Euphoria	2	1.638	6.244	0.155
19	Increased Activity	2	1.153	3.471	0.052
20	Money Spending	2	2.020	4.009	0.118
21	Sexual Indiscretions	2	1.962	4.193	0.148
22	Distractibility	2	2.854	6.093	0.203
23	Decreased Sleep	2	2.194	5.139	0.120
24	Talkative	2	1.736	3.779	0.094
25	Thought Acceleration	2	2.872	5.754	0.185
26	Unstable Relationships	2	3.803	8.308	0.273
27	Substance Abuse	2	0.358	0.557	0.454
28	Unstable Affect	3	1.479	0.928	2.251
29	Anger	3	1.703	1.073	3.131
30	Fear of Abandonment	3	1.053	0.575	2.185
31	Identity Disturbance	3	1.618	0.492	2.870
32	Emptiness	3	2.262	0.759	3.124