Data Supplement for Kendler et al., The Structure of Genetic and Environmental Risk Factors for Syndromal and Subsyndromal Common DSM-IV Axis I and All Axis II Disorders, American Journal of Psychiatry (doi: 10.1176/appi.ajp.2010.10030340)

TABLE S1. Exact Wording of Probe Questions Used When Defining Subthreshold Categories

Panic disorder: - Have you ever had an attack when all of a sudden you felt frightened, anxious, or very uneasy? Some people call it a panic attack. - Did any of your spells or attacks like that occur when you were not in danger or a lifethreatening situation? Positive responses to both questions were required for subthreshold. Agoraphobia disorder: - Now I'd like to ask you about more situations in which you may have been afraid. Have you ever had a strong fear of: being away from home alone? A. travelling in a bus, train, underground/subway or using other public transport? B. C. being in a crowd or standing in line? being in a public place like a shop, market, department store or car park? D. travelling alone or going on a long trip? E. crossing a bridge? F. At least one positive response was required for subthreshold. **Specific phobia:** - On this list there are things that make some people so afraid that they avoid them, even when there is no real danger. Have you ever had an unusually strong fear or avoidance of any of the things on the list? Living things, e.g., insects, snakes, birds, or other animals The sight of blood В. Getting an injection C. Going to the dentist or hospital D. E. Heights F. Storms, thunder, or lightning Being in water, e.g., in a lake or a pool G. H. Flying in an airplane Being in a closed space I. K. Any other situation (describe) At least one positive response was required for subthreshold.

Social phobia:

- Have you ever had an unusually strong fear or avoidance of doing things in front of others or of being the centre of attention? For example...
- A. Eating or drinking where someone could watch you?
- B. Writing while someone watches?
- C. Going to a party or other social outing?
- D. Taking an important exam or interview for which you were well prepared?
- E. Taking part or speaking in a meeting or class?
- F. Talking to people because you might have nothing to say or might sound foolish?
- G. Any other situation where you could be the centre of attention?
- When you were in a situation where you could be the centre of attention or thought you would have to be, were you especially worried ...
- A. because you might show anxiety or act in a way that might be humiliating?
- B. that people would think you were dumb or weak?
- C. that people would think you were crazy?
- D. that you would have a panic attack?
- E. or were you very upset?
- F. were you ashamed?
- G. were you worried you'd have to throw up?
- H. were you afraid you'd lose control over your bladder/bowels?
- I. were you afraid you'd blush?

At least one positive response to question 1 AND at least one positive response to question 2 were required for subthreshold.

Generalized anxiety disorder:

- Have you ever had a period of a month or more when most of the time you felt worried, tense, or anxious about everyday problems?

What is the longest period you had of feeling worried, tense or anxious?

Positive response and minimum length of period 3 months were required for subthreshold.

Eating disorder:

- Have you ever lost a lot of weight, that is, (15 LBS/6.5 KG) or more, either by dieting or without meaning to (not by having a baby or an operation)?
- Did relatives or friends ever say that you were much too thin or looked like a skeleton?

- Have you ever had a period when you would eat abnormally large amounts of food within a few hours, this is, binge eating?
- Have you ever done anything regularly in order to keep from gaining weight things like...
- A. staying on a strict diet
- B. exercise a lot?
- C. take water pills or diuretics?
- D. take medication?
- E. making yourself vomit?
- F. taking laxatives or enemas?
- G. fasting by not eating anything at all or only taking liquids?

Positive responses to both of the first two questions OR positive response to the third question in addition to at least one positive response to question 4, were required for subthreshold.

Somatoform disorder:

- Have you ever had a lot of trouble with abdominal or belly pain (not counting times when you were menstruating)?
- Have you ever had a lot of trouble with back pain?
- Have you ever had pains in the joints?
- Have you ever had pains in your arms or legs other than in the joints?
- Have you ever had chest pains?
- Have you ever had a lot of trouble with headaches?
- Have you ever had a lot of trouble with excessively painful menstrual periods?
- Have you ever had pain when you urinated?
- Have you ever had a period of 24 hours or longer when you were completely unable to urinate or had great difficulty urinating (other than after [childbirth] or surgery)?
- Have you ever had burning pain around your private parts?
- Have you ever had pain anywhere else, other than in the places we've already talked about?
- Have you ever had a lot of trouble with vomiting (when you were not pregnant)?
- During any pregnancy did you vomit all through the pregnancy?
- Have you ever had a lot of trouble with nausea, that is, feeling sick to your stomach but not actually vomiting? ["Motion sickness" is counted as a physical condition]
- Have you ever had a lot of trouble with loose bowels or diarrhea?
- Have you ever had a lot of trouble with excessive gas or bloating of your stomach or abdomen?
- Have you ever found there were several kinds of foods that you couldn't eat because they made you ill?
- Have you ever been blind in one or both eyes where you couldn't see anything at all for a few seconds or more?
- Has your vision ever become blurred for some period, when it wasn't just due to needing glasses or changing glasses?
- Have you ever been deaf, when you completely lost your hearing for a period of time?
- Have you ever had trouble keeping your balance when walking or standing?

- Have you ever lost feeling in an arm or a leg other than when it had just fallen asleep from being in one position too long?
- Have you ever been paralysed, that is, completely unable to move a part of your body for at least a few minutes?
- Was there ever a time when you lost your voice for 30 minutes or more and couldn't speak above a whisper?
- Have you ever had a seizure or convulsion since you were 12, where you were unconscious and your body jerked?
- Have you ever had fainting spells where you felt weak or dizzy and then passed out?
- Have you ever been unconscious for any (other) reason?
- Have you ever had a period of amnesia, that is, a period of several hours or days where you couldn't remember anything afterwards about what happened during that time?
- Have you ever had problems with double vision?
- Have you ever had shortness of breath, when you had not been exerting yourself?
- Have you ever been bothered by periods of weakness, that is, when you could not lift or move things you could normally lift or move?
- Have you ever been bothered a lot by blotchiness or discoloration of the skin?
- Did you ever have a lot of trouble with a bad taste in your mouth or an excessively coated tongue?
- Did having to urinate too frequently ever cause you a lot of trouble?
- Have you ever been bothered a lot by unpleasant numbness or tingling sensations?
- Have you ever felt as though there was a lump in your throat that made it difficult to swallow?
- Has your physical health been pretty good (1) or have you been sickly for the majority of your life (5)?
- Other than your first year of menstruation, have your menstrual periods ever been irregular?
- Have you ever had excessive bleeding with your menstrual periods?
- Has having sexual relations ever been physically painful for you?
- Has there been a period of several months in your life when having sex was not pleasurable for you? (even when it wasn't painful)?
- Have you had any other kinds of sexual difficulties such as a period of 2 months or more when you had trouble having an erection?
- In the past twelve months, have you had a period of 6 months or more when you worried about having a serious physical illness or deformity most of the time?

At least two positive responses to question were required for subthreshold.

Alcohol abuse/dependence:

- How often do you drink alcoholic beverage equivalent to 5 beers (half litre), 1 bottle of wine, half a bottle of fortified wine or a quarter of a bottle of liquor (amounting to five units of alcohol)?
- Have there ever been periods in your life when you drank too much?

Answered twice a month or more frequent to question 1 AND positive response to question 2 were required for subthreshold.

Drug abuse/dependence:

Have you ever in your life 10 or more times used illicit drugs or prescribed drugs to get high?

Positive response was required for subthreshold.

[Note: Tables S2, S3, and S4 appear on the pp. 6–8.]

TABLE S2. Axis I and II Phenotypic Correlations for 22 Axis I and Axis II Disorders

	mdd	gad	eat	socp	agop	spep	soma	dsyth	panic	alcad	ildrg	condx	paran	schiz	schtp	antis	borde	histr	narci	depen	avoid	obsco
mdd	1.00																					
gad	0.50	1.00																				
eat	0.26	0.32	1.00																			
socp	0.40	0.49	0.25	1.00																		
agop	0.41	0.49	0.25	0.66	1.00		٠				٠					٠					٠	
spep	0.31	0.27	0.28	0.36	0.42	1.00	٠				٠					٠					٠	
soma	0.32	0.39	0.34	0.34	0.38	0.34	1.00						•									
dsyth	0.42	0.54	0.22	0.49	0.41	0.22	0.42	1.00					•									
panic	0.39	0.49	0.22	0.52	0.63	0.34	0.40	0.52	1.00				•									
alcad	0.15	0.17	0.11	0.18	0.14	0.09	0.04	0.15	0.12	1.00												
ildrg	0.23	0.31	0.24	0.31	0.29	0.17	0.09	0.16	0.31	0.52	1.00											
condx	0.20	0.15	0.03	0.18	0.17	0.09	0.02	0.27	0.17	0.41	0.48	1.00										
paran	0.30	0.27	0.19	0.32	0.29	0.19	0.23	0.37	0.33	0.09	0.21	0.14	1.00									
schiz	0.17	0.12	0.06	0.19	0.18	0.04	0.14	0.38	0.18	-0.03	0.11	0.15	0.32	1.00								
schtp	0.30	0.25	0.18	0.34	0.31	0.24	0.30	0.42	0.35	-0.02	0.20	0.19	0.58	0.48	1.00							
antis	0.25	0.23	0.11	0.21	0.16	0.11	0.06	0.27	0.19	0.42	0.61	0.63	0.29	0.19	0.26	1.00						
borde	0.47	0.39	0.28	0.42	0.39	0.26	0.31	0.55	0.40	0.28	0.42	0.44	0.49	0.30	0.46	0.51	1.00					
histr	0.19	0.19	0.21	0.15	0.15	0.14	0.16	0.21	0.23	0.14	0.20	0.24	0.43	0.17	0.37	0.34	0.50	1.00				
narci	0.19	0.11	0.06	0.13	0.13	0.08	0.07	0.16	0.14	0.20	0.23	0.30	0.42	0.29	0.35	0.43	0.42	0.52	1.00			
depen	0.21	0.24	0.19	0.34	0.35	0.20	0.14	0.38	0.28	0.06	0.07	0.19	0.36	0.26	0.43	0.21	0.47	0.35	0.34	1.00		
avoid	0.26	0.22	0.14	0.44	0.34	0.16	0.17	0.38	0.30	0.03	0.15	0.13	0.37	0.41	0.43	0.16	0.39	0.13	0.26	0.56	1.00	
obsco	0.19	0.19	0.14	0.19	0.18	0.13	0.16	0.18	0.14	0.01	0.04	0.15	0.39	0.26	0.34	0.21	0.34	0.36	0.41	0.24	0.23	1

Axis I: 1=major depressive disorder, 2=generalized anxiety disorder, 3=eating disorders, 4=social phobia, 5=agoraphobia, 6=specific phobia, 7=somatoform, 8=dysthymia, 9=panic disorder, 10=alcohol abuse/dependence, 11=cannabis and illicit drug combined 12=conduct disorder.

Axis II: 13=paranoid, 14=schizoid, 15=schizotypal, 16=antisocial, 17=borderline, 18=histrionic, 19=narcissistic, 20=dependent, 21=avoidant, 22=obsessive-compulsive.

TABLE S3. Additive Genetic (A) Correlations Obtained From a Saturated Cholesky Model Fit to 22 Axis I & II Disorders

	mdd	gad	eat	socp	agop	spep	soma	dsyt	pan	alcad	pldrg	cond	para	schz	scht	anti	bord	hist	narc	depn	avoi	obsc
mdd	1.00	0.63	0.75	0.67	0.78	0.59	0.71	0.74	0.68	0.16	0.43	0.23	0.50	0.49	0.46	0.17	0.57	0.36	0.21	0.48	0.48	0.28
gad	0.63	1.00	0.51	0.49	0.51	0.49	0.41	0.47	0.64	0.14	0.40	0.30	0.40	0.22	0.46	0.21	0.40	0.17	0.35	0.23	0.23	0.27
eat	0.75	0.51	1.00	0.33	0.38	0.40	0.63	0.55	0.62	0.14	0.25	0.03	0.45	0.35	0.32	0.04	0.62	0.47	0.23	0.38	0.26	0.42
socp	0.67	0.49	0.33	1.00	0.70	0.47	0.60	0.73	0.46	0.23	0.62	0.49	0.51	0.47	0.66	0.41	0.61	0.31	0.45	0.65	0.67	0.46
agop	0.78	0.51	0.38	0.70	1.00	0.62	0.58	0.55	0.68	0.20	0.60	0.29	0.51	0.17	0.43	0.25	0.51	0.21	0.13	0.45	0.39	0.17
spep	0.59	0.49	0.40	0.47	0.62	1.00	0.62	0.58	0.72	0.04	0.22	0.26	0.54	0.25	0.43	0.13	0.43	0.33	0.03	0.58	0.35	0.32
soma	0.71	0.41	0.63	0.60	0.58	0.62	1.00	0.72	0.55	-0.07	0.14	0.01	0.39	0.42	0.52	-0.15	0.42	0.05	-0.08	0.50	0.46	0.15
dsyt	0.74	0.47	0.55	0.73	0.55	0.58	0.72	1.00	0.52	0.08	0.42	0.30	0.67	0.82	0.87	0.24	0.71	0.32	0.30	0.72	0.67	0.24
pan	0.68	0.64	0.62	0.46	0.68	0.72	0.55	0.52	1.00	0.22	0.50	0.27	0.41	0.25	0.38	0.39	0.61	0.38	0.14	0.41	0.41	0.21
alcad	0.16	0.14	0.14	0.23	0.20	0.04	-0.07	0.08	0.22	1.00	0.70	0.58	0.20	0.09	0.03	0.66	0.46	0.39	0.44	0.16	0.03	0.11
pldrg	0.43	0.40	0.25	0.62	0.60	0.22	0.14	0.42	0.50	0.70	1.00	0.71	0.38	0.25	0.49	0.83	0.77	0.45	0.53	0.39	0.20	0.17
cond	0.23	0.30	0.03	0.49	0.29	0.26	0.01	0.30	0.27	0.58	0.71	1.00	0.21	0.23	0.37	0.84	0.46	0.40	0.35	0.17	0.03	0.13
para	0.50	0.40	0.45	0.51	0.51	0.54	0.39	0.67	0.41	0.20	0.38	0.21	1.00	0.40	0.54	0.12	0.72	0.54	0.45	0.65	0.54	0.38
schz	0.49	0.22	0.35	0.47	0.17	0.25	0.42	0.82	0.25	0.09	0.25	0.23	0.40	1.00	0.69	0.29	0.51	0.26	0.34	0.47	0.61	0.23
scht	0.46	0.46	0.32	0.66	0.43	0.43	0.52	0.87	0.38	0.03	0.49	0.37	0.54	0.69	1.00	0.32	0.65	0.19	0.35	0.59	0.45	0.23
anti	0.17	0.21	0.04	0.41	0.25	0.13	-0.15	0.24	0.39	0.66	0.83	0.84	0.12	0.29	0.32	1.00	0.57	0.46	0.46	0.24	0.15	0.12
bord	0.57	0.40	0.62	0.61	0.51	0.43	0.42	0.71	0.61	0.46	0.77	0.46	0.72	0.51	0.65	0.57	1.00	0.67	0.55	0.67	0.43	0.32
hist	0.36	0.17	0.47	0.31	0.21	0.33	0.05	0.32	0.38	0.39	0.45	0.40	0.54	0.26	0.19	0.46	0.67	1.00	0.72	0.49	0.26	0.41
narc	0.21	0.35	0.23	0.45	0.13	0.03	-0.08	0.30	0.14	0.44	0.53	0.35	0.45	0.34	0.35	0.46	0.55	0.72	1.00	0.44	0.34	0.48
depn	0.48	0.23	0.38	0.65	0.45	0.58	0.50	0.72	0.41	0.16	0.39	0.17	0.65	0.47	0.59	0.24	0.67	0.49	0.44	1.00	0.65	0.34
avoi	0.48	0.23	0.26	0.67	0.39	0.35	0.46	0.67	0.41	0.03	0.20	0.03	0.54	0.61	0.45	0.15	0.43	0.26	0.34	0.65	1.00	0.29
obsc	0.28	0.27	0.42	0.46	0.17	0.32	0.15	0.24	0.21	0.11	0.17	0.13	0.38	0.23	0.23	0.12	0.32	0.41	0.48	0.34	0.29	1.00

Axis I: 1=major depressive disorder, 2=generalized anxiety disorder, 3=eating disorders, 4=social phobia, 5=agoraphobia, 6=specific phobia, 7=somatoform, 8=dysthymia, 9=panic disorder, 10=alcohol abuse/dependence, 11=cannabis & illicit drug combined 12=conduct disorder.

Axis II: 13=paranoid, 14=schizoid, 15=schizotypal, 16=antisocial, 17=borderline, 18=histrionic, 19=narcissistic, 20=dependent, 21=avoidant, 22=obsessive-compulsive.

Table S4. Unique Environment (E) Correlations Obtained From a Saturated Cholesky Model Fit to 22 Axis I & II Disorders

	mdd	gad	eat	socp	agop	spep	soma	dsyt	pan	alcad	pldrg	cond	para	schz	scht	anti	bord	hist	narc	depn	avoi	obsc
mdd	1.00	0.40	-0.11	0.08	0.03	0.11	0.11	0.24	0.24	0.08	0.16	0.25	0.18	-0.09	0.11	0.40	0.45	0.07	0.18	0.07	0.07	0.16
gad	0.40	1.00	0.12	0.42	0.42	0.06	0.48	0.62	0.30	0.29	0.00	-0.17	0.16	0.04	0.03	0.20	0.42	0.23	-0.07	0.25	0.12	0.11
eat	-0.11	0.12	1.00	0.13	0.11	0.17	0.12	0.13	-0.24	0.12	0.17	-0.00	0.05	-0.11	0.08	0.20	0.02	0.04	0.03	0.08	0.13	-0.01
socp	0.08	0.42	0.13	1.00	0.60	0.23	0.07	0.29	0.50	0.13	-0.24	-0.21	0.21	-0.06	0.09	0.01	0.23	0.07	-0.10	0.09	0.15	0.01
agop	0.03	0.42	0.11	0.60	1.00	0.21	0.16	0.38	0.62	0.03	-0.37	-0.09	0.11	0.22	0.21	-0.05	0.21	0.07	0.10	0.37	0.38	0.19
spep	0.11	0.06	0.17	0.23	0.21	1.00	0.04	0.05	-0.09	0.07	0.18	-0.09	-0.05	-0.16	0.09	0.19	0.09	0.03	0.13	-0.15	-0.04	-0.05
soma	0.11	0.48	0.12	0.07	0.16	0.04	1.00	0.36	0.23	0.17	0.19	0.10	0.21	0.00	0.18	0.38	0.32	0.25	0.19	-0.05	-0.03	0.17
dsyt	0.24	0.62	0.13	0.29	0.38	0.05	0.36	1.00	0.53	0.21	0.01	0.09	0.31	0.23	0.26	0.32	0.51	0.21	0.16	0.21	0.17	0.22
pan	0.24	0.30	-0.24	0.50	0.62	-0.09	0.23	0.53	1.00	-0.03	-0.26	-0.07	0.31	0.17	0.37	-0.11	0.26	0.16	0.20	0.32	0.20	0.09
alcad	0.08	0.29	0.12	0.13	0.03	0.07	0.17	0.21	-0.03	1.00	0.20	0.24	-0.03	-0.04	-0.06	0.17	0.06	-0.05	0.02	-0.04	0.04	-0.01
pldrg	0.16	0.00	0.17	-0.24	-0.37	0.18	0.19	0.01	-0.26	0.20	1.00	0.21	0.19	-0.03	0.11	0.28	-0.03	-0.14	0.08	-0.37	0.01	0.02
cond	0.25	-0.17	-0.00	-0.21	-0.09	-0.09	0.10	0.09	-0.07	0.24	0.21	1.00	0.11	-0.05	-0.01	0.44	0.39	0.04	0.27	0.05	0.13	0.20
para	0.18	0.16	0.05	0.21	0.11	-0.05	0.21	0.31	0.31	-0.03	0.19	0.11	1.00	0.29	0.63	0.41	0.36	0.39	0.42	0.23	0.29	0.43
schz	-0.09	0.04	-0.11	-0.06	0.22	-0.16	0.00	0.23	0.17	-0.04	-0.03	-0.05	0.29	1.00	0.38	0.19	0.22	0.14	0.27	0.21	0.34	0.32
scht	0.11	0.03	0.08	0.09	0.21	0.09	0.18	0.26	0.37	-0.06	0.11	-0.01	0.63	0.38	1.00	0.19	0.34	0.44	0.33	0.37	0.44	0.41
anti	0.40	0.20	0.20	0.01	-0.05	0.19	0.38	0.32	-0.11	0.17	0.28	0.44	0.41	0.19	0.19	1.00	0.42	0.21	0.42	0.10	0.15	0.36
bord	0.45	0.42	0.02	0.23	0.21	0.09	0.32	0.51	0.26	0.06	-0.03	0.39	0.36	0.22	0.34	0.42	1.00	0.36	0.36	0.34	0.36	0.40
hist	0.07	0.23	0.04	0.07	0.07	0.03	0.25	0.21	0.16	-0.05	-0.14	0.04	0.39	0.14	0.44	0.21	0.36	1.00	0.38	0.28	0.09	0.36
narc	0.18	-0.07	0.03	-0.10	0.10	0.13	0.19	0.16	0.20	0.02	0.08	0.27	0.42	0.27	0.33	0.42	0.36	0.38	1.00	0.32	0.26	0.44
depn	0.07	0.25	0.08	0.09	0.37	-0.15	-0.05	0.21	0.32	-0.04	-0.37	0.05	0.23	0.21	0.37	0.10	0.34	0.28	0.32	1.00	0.58	0.22
avoi	0.07	0.12	0.13	0.15	0.38	-0.04	-0.03	0.17	0.20	0.04	0.01	0.13	0.29	0.34	0.44	0.15	0.36	0.09	0.26	0.58	1.00	0.32
obsc	0.16	0.11	-0.01	0.01	0.19	-0.05	0.17	0.22	0.09	-0.01	0.02	0.20	0.43	0.32	0.41	0.36	0.40	0.36	0.44	0.22	0.32	1.00

Axis I: 1=major depressive disorder, 2=generalized anxiety disorder, 3=eating disorders, 4=social phobia, 5=agoraphobia, 6=specific phobia, 7=somatoform, 8=dysthymia, 9=panic disorder, 10=alcohol abuse/dependence, 11=cannabis & illicit drug combined 12=conduct disorder.

Axis II: 13=paranoid, 14=schizoid, 15=schizotypal, 16=antisocial, 17=borderline, 18=histrionic, 19=narcissistic, 20=dependent, 21=avoidant, 22=obsessive-compulsive.