Table S1. Univariate genetic, shared environment and non-shared environmental estimates for anxiety sensitivity subscales, anxiety and depression in childhood, adolescence and early adulthood.

		Parameter Estimates		
	Wave	**A**	**C**	**E**
AS Physical	1	.33 (.12-.48)	.00 (.00-.13)	.67 (.52-.83)
	2	.34 (.00-.48)	.00 (.00-.32)	.66 (.52-.84)
	3	.35 (.16-.45)	.04 (.00-.17)	.61 (.54-.69)
	4	.22 (.05-.40)	.12 (.00-.25)	.66 (.57-.65)
	5	.29 (.05 - .43)	.04 (.00 - .20)	.68 (.57 - .79)
AS Social	1	.15 (.00-.31)	.00 (.00-.17)	.85 (.69-1.00)
	2	.22 (.00-.40)	.00 (.00-.14)	.78 (.60-.98)
	3	.25 (.09-.34)	.02 (.00-.13)	.73 (.66-.81)
	4	.23 (.07-.42)	.04 (.00-.15)	.74 (.64-.84)
	5	.24 (.09 - .34)	.00 (.00 - .10)	.76 (.66 - .86)
AS Mental	1	.33 (.15-.48)	.00 (.00-.09)	.67 (.52-.83)
	2	.36 (.11-.52)	.00 (.00-.16)	.64 (.48-.82)
	3	.39 (.22-.47)	.00 (.00-.12)	.61 (.53-.69)
	4	.25 (.07-.42)	.06 (.00-.17)	.69 (.57-.80)
	5	.30 (.13 - .43)	.02 (.00 - .13)	.68 (.57 - .80)
Anxiety	1	.27 (.04-.41)	.00 (.00-.17)	.73 (.59-.87)
	2	.31 (.00-.53)	.08 (.00-.39)	.61 (.47-.79)
	3	.46 (.29-.57)	.05 (.00-.18)	.49 (.43-.56)
	4	.40 (.25-.51)	.02 (.00-.12)	.59 (.49-.68)
	5	.41 (.20 - .55)	.05 (.00 - .20)	.54 (.45 - .64)
Depression	1	.31 (.00-.51)	.05 (.00-.33)	.64 (.49-.82)
	2	.00 (.00-.37)	.31 (.01-.43)	.69 (.55-.81)
	3	.39 (.10-.54)	.10 (.00-.23)	.51 (.45-.59)
	4	.38 (.17-.53)	.06 (.00-.21)	.55 (.46-.65)
	5	.34 (.16 - .48)	.05 (.00- .17)	.61 (.51 - .71)

A-Additive Genetic Parameters, C – Shared Environmental Parameters, E – Non-shared Environmental Parameters AS – Anxiety Sensitivity.

95% Confidence Intervals (CIs) are presented in brackets. CIs not including 0 indicate significant estimates. Non-overlapping CIs mean significant difference between the values.

Waves 1-2 come from the ECHO sample when participants had mean ages of 8 and 10 years, respectively. Waves 3-5 come from the G1919 sample. Mean ages were 15, 17 and 20 years, respectively. The difference in the range of CIs between the ECHO and G1219 waves reflects larger sample size of G1219 which results in greater power to estimate parameters precisely.

Depression at wave 2 in the child sample (ECHO) showed a different pattern of parameter estimates than at other time points, being influenced by moderate shared environmental factors with no genetic influence. This is due to a low power to distinguish between A and C in the ECHO sample. For this reason, genetic and environmental associations between depression and the other constructs at this wave are not discussed.

Table S2. Model fitting statistics for multivariate genetic analyses

	-2LL	*df*	χ^2	Δ *df*	*p*	AIC
Wave 1						
Saturated	7329.86	2747				1835.86
Correlated Factors Solution	7433.76	2827	103.91	80	.04	1779.76
Wave 2						
Saturated	5559.60	2058				1443.60
Correlated Factors Solution	5665.53	2138	105.93	80	.03	1389.53
Wave 3						
Saturated	31129.98	12216				6697.98
Correlated Factors Solution	31896.00	12680	766.02	464	.00	6536.00
Wave 4						
Saturated	18161.86	7270				3621.86
Correlated Factors Solution	18972.69	7734	810.83	464	.00	3504.69
Wave 5						
Saturated	17612.20	6823				3966.20
Correlated Factors Solution	18196.85	7283	584.66	464	.00	3630.85

-2LL – minus twice the log likelihood; AIC – Akaike's information criterion; p – probability, df- degrees of freedom

Model fit to a saturated model was assessed at each wave using minus twice the log likelihood (−2ll) of the observations and Akaike's information criterion (AIC). When two models are nested (i.e. one is a more constrained version of the other) then the differences in −2ll can be used to select the best fitting model since it is distributed as chi-square. A

significant increase in chi-square of the reduced model suggests the model is a worse fit of the data than the full model. However, this is only a relative measure of fit and chi-square distribution does not vary linearly with change in df and models with large df are harder to fit. Instead, AIC was used to compare both fit and parsimony. Lower, negative values indicate better fit.

Table S3. Shared environmental correlations between anxiety sensitivity dimensions and anxiety and depression across childhood, adolescence and early adulthood

		Anxiety Sensitivity		
		Physical	Social	Mental
Wave 1	Anxiety	-.11	-.93	.74
Child		(-1.00 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
(mean age 8)	Depression	.15	.43	.48
		(-1.00 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
Wave 2	Anxiety	-.01	-.18	.02
Child		(-1.00 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
(mean age 10)	Depression	.19	-.26	.04
		(-1.00 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
Wave 3	Anxiety	.99	.17	.41
Adolescent		(-1.00 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
(mean age 15)	Depression	.57	.95	.50
		(-1.00 - .1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
Wave 4	Anxiety	.99	.97	.98
Adolescent		(-1.00 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
(mean age 17)	Depression	.78	.97	.95
		(-1.00 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
Wave 5	Anxiety	.42	.79	-.62
Adult		(-.59 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)
(mean age 20)	Depression	-.18	.28	1.00
		(-1.00 – 1.00)	(-1.00 – 1.00)	(-1.00 – 1.00)

95% Confidence Intervals are presented in brackets. CIs not inclusive of zeros indicate significant correlations. Owing to small, non-significant shared environmental influences on all variables, shared environmental correlations also have wide confidence intervals, the

majority spanning from -1.00 to 1.00 and thus it is not meaningful to interpret these associations.