Table S1. Baseline characteristics

	Controls	Liver disease
	1541	358
Male (%)	861 (55.9)	168 (46.9)
Age at cohort entry (mean [SD])	16.90 (6.23)	17.89 (5.30)
Index of Multiple Deprivation		
Least deprived (IMD 1)	323 (21.0)	70 (19.6)
IMD2	283 (18.4)	69 (19.3)
IMD3	271 (17.6)	73 (20.4)
IMD4	340 (22.1)	85 (23.7)
Most deprived (IMD5)	321 (20.9)	61 (17.0)
Presence of other conditions		
Asthma (%)	255 (16.5)	103 (28.8)
Epilepsy (%)	8 (0.5)	2 (0.6)
Diabetes (%)	30 (1.9)	74 (20.7)
Mental disorders		
Anxiety disorders (%)	211 (13.7)	85 (23.7)
Depression (%)	156 (10.1)	83 (23.2)
Self-harm (%)	75 (4.9)	23 (6.4)
Substance abuse (%)	273 (17.7)	175 (48.9)

Table S2. Cumulative burden of events for anxiety disorders, depression, substance abuse and non-fatal self-harm in young people with chronic liver disease versus controls. Cumulative burden is shown as mean number of events per 100 individuals.

Groups	Outcome	Years of follow-up	Cumulative burden	Lower CI	Upper CI
With liver disease	Anxiety disorders	1	6.87	4.00	9.73
With liver disease	Anxiety disorders	2	12.61	5.72	19.50
With liver disease	Anxiety disorders	3	18.39	10.34	26.44
With liver disease	Anxiety disorders	4	22.52	13.32	31.73
With liver disease	Anxiety disorders	5	29.45	21.81	37.08
With liver disease	Anxiety disorders	6	36.99	27.50	46.48
With liver disease	Anxiety disorders	7	44.25	35.90	52.60
With liver disease	Anxiety disorders	8	56.03	42.85	69.21
With liver disease	Anxiety disorders	9	66.29	50.72	81.86
With liver disease	Anxiety disorders	10	80.47	66.38	94.56
Controls	Anxiety disorders	1	2.22	1.37	3.07
Controls	Anxiety disorders	2	6.20	3.07	9.33
Controls	Anxiety disorders	3	9.08	6.74	11.43
Controls	Anxiety disorders	4	10.79	8.18	13.41
Controls	Anxiety disorders	5	14.84	10.17	19.50
Controls	Anxiety disorders	6	17.93	13.80	22.06
Controls	Anxiety disorders	7	20.76	17.01	24.50
Controls	Anxiety disorders	8	24.39	21.20	27.58
Controls	Anxiety disorders	9	26.92	23.81	30.02
Controls	Anxiety disorders	10	30.86	26.93	34.79
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	1	2.08	1.20	2.96
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	2	6.80	4.88	8.72
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	3	9.93	7.78	12.09
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	4	11.47	9.40	13.53
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	5	14.06	11.19	16.92
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	6	16.84	15.93	17.76
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	7	19.86	18.75	20.97
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	8	23.25	21.18	25.33
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	9	26.06	23.20	28.92
Controls (without asthma, diabetes or epilepsy)	Anxiety disorders	10	29.82	26.79	32.86
With liver disease	Depression	1	5.10	2.83	7.37
With liver disease	Depression	2	10.21	7.10	13.32
With liver disease	Depression	3	16.51	11.93	21.10
With liver disease	Depression	4	23.54	17.17	29.91
With liver disease	Depression	5	28.02	21.02	35.03
With liver disease	Depression	6	31.75	24.95	38.55
With liver disease	Depression	7	36.98	27.85	46.12
With liver disease	Depression	8	42.75	35.50	50.00
With liver disease	Depression	9	48.12	41.29	54.94
With liver disease	Depression	10	55.79	49.24	62.34
Controls	Depression	1	0.86	0.53	1.19
Controls	Depression	2	1.72	0.99	2.45
Controls	Depression	3	2.52	1.46	3.59
Controls	Depression	4	3.46	2.60	4.32
Controls	Depression	5	5.01	4.16	5.86
Controls	Depression	6	6.58	5.75	7.40
Controls	Depression	7	8.39	6.73	10.06
Controls	Depression	8	10.38	8.34	12.41
Controls	Depression	9	11.91	9.88	13.95
Controls	Depression	10	14.44	11.85	17.03
Controls (without asthma, diabetes or epilepsy)	Depression	1	0.98	0.57	1.38
Controls (without asthma, diabetes or epilepsy)	Depression	2	1.95	1.14	2.76
Controls (without asthma, diabetes or epilepsy)	Depression	3	2.60	1.87	3.34
Controls (without asthma, diabetes or epilepsy)	Depression	4	3.75	2.44	5.06
Controls (without asthma, diabetes or epilepsy)	Depression	5	5.39	3.68	7.11
Controls (without asthma, diabetes or epilepsy)	Depression	6	7.21	5.48	8.94
Controls (without asthma, diabetes or epilepsy)	Depression	7	8.57	6.25	10.89
Controls (without asthma, diabetes or epilepsy)	Depression	8	10.63	8.28	12.98
Controls (without asthma, diabetes or epilepsy)	Depression	9	12.22	9.64	14.79
Controls (without asthma, diabetes or epilepsy)	Depression	10	14.53	11.67	17.39
With liver disease	Self-harm	1	3.09	1.12	5.05
With liver disease	Self-harm	2	4.21	1.40	7.02
With liver disease	Self-harm	3	5.06	2.80	7.33
With liver disease	Self-harm	4	5.35	3.38	7.33
With liver disease	Self-harm	5	5.94	4.24	7.64
With liver disease	Self-harm	6	6.85	4.51	9.19
With liver disease	Self-harm	7	7.49	4.84	10.15
With liver disease	Self-harm	8	7.49	4.84	10.15
With liver disease	Self-harm	9	7.49	4.84	10.15
With liver disease	Self-harm	10	7.87	5.20	10.53
Controls	Self-harm	1	0.20	0.07	0.33
Controls	Self-harm	2	0.85	0.59	1.11
Controls	Self-harm	3	1.17	0.72	1.63
Controls	Self-harm	4	1.56	1.24	1.89
Controls	Self-harm	5	1.96	1.57	2.36
Controls	Self-harm	6	2.70	2.03	3.37
Controls	Self-harm	7	2.90	2.30	3.51
Controls	Self-harm	8	3.25	2.64	3.86
Controls	Self-harm	9	3.60	2.93	4.28
Controls	Self-harm	10	4.50	3.96	5.04
Controls (without asthma, diabetes or epilepsy)	Self-harm	1	0.24	0.08	0.40
Controls (without asthma, diabetes or epilepsy)	Self-harm	2	1.04	0.40	1.67
Controls (without asthma, diabetes or epilepsy)	Self-harm	3	1.43	0.72	2.15
Controls (without asthma, diabetes or epilepsy)	Self-harm	4	1.75	1.04	2.47
Controls (without asthma, diabetes or epilepsy)	Self-harm	5	2.16	1.52	2.79
Controls (without asthma, diabetes or epilepsy)	Self-harm	6	2.89	2.01	3.77
Controls (without asthma, diabetes or epilepsy)	Self-harm	7	3.05	2.17	3.94
Controls (without asthma, diabetes or epilepsy)	Self-harm	8	3.30	2.25	4.35
Controls (without asthma, diabetes or epilepsy)	Self-harm	9	3.65	2.51	4.79
Controls (without asthma, diabetes or epilepsy)	Self-harm	10	4.64	3.57	5.72
With liver disease	Substance abuse	1	10.61	9.50	11.73
With liver disease	Substance abuse	2	29.93	26.84	33.02
With liver disease	Substance abuse	3	50.82	47.07	54.58
With liver disease	Substance abuse	4	72.15	67.90	76.40
With liver disease	Substance abuse	5	95.04	88.18	101.90
With liver disease	Substance abuse	6	116.18	109.30	123.07
With liver disease	Substance abuse	7	138.16	125.52	150.80
With liver disease	Substance abuse	8	159.86	137.65	182.08
With liver disease	Substance abuse	9	184.59	160.82	208.35
With liver disease	Substance abuse	10	201.82	178.22	225.42
Controls	Substance abuse	1	1.23	0.71	1.75
Controls	Substance abuse	2	2.08	1.23	2.92
Controls	Substance abuse	3	3.31	2.27	4.35
Controls	Substance abuse	4	4.75	3.90	5.60
Controls	Substance abuse	5	6.19	5.01	7.38
Controls	Substance abuse	6	7.33	5.94	8.71
Controls	Substance abuse	7	9.23	7.86	10.60
Controls	Substance abuse	8	11.16	10.06	12.25
Controls	Substance abuse	9	13.07	11.36	14.78
Controls	Substance abuse	10	14.99	13.31	16.68
Controls (without asthma, diabetes or epilepsy)	Substance abuse	1	0.80	0.64	0.95
Controls (without asthma, diabetes or epilepsy)	Substance abuse	2	1.59	1.19	1.99
Controls (without asthma, diabetes or epilepsy)	Substance abuse	3	2.87	1.91	3.82
Controls (without asthma, diabetes or epilepsy)	Substance abuse	4	3.98	3.27	4.70
Controls (without asthma, diabetes or epilepsy)	Substance abuse	5	5.03	4.15	5.90
Controls (without asthma, diabetes or epilepsy)	Substance abuse	6	6.24	5.44	7.04
Controls (without asthma, diabetes or epilepsy)	Substance abuse	7	8.14	7.61	8.67
Controls (without asthma, diabetes or epilepsy)	Substance abuse	8	9.99	8.91	11.07
Controls (without asthma, diabetes or epilepsy)	Substance abuse	9	11.88	10.62	13.13
Controls (without asthma, diabetes or epilepsy)	Substance abuse	10	13.94	11.96	15.92

Table S3. Logistic regression analysis for the risk of anxiety disorder, depression, substance abuse and non-fatal self-harm. Case (young people with chronic liver disease) and control groups were obtained via propensity score matching. Controls were matched by year of birth, Index of Multiple Deprivation and sex.

Outcome	Odds ratio	Lower CI	Upper CI	P value	Analysis
Depression	2.59	1.91	3.50	< 0.001	Controls vs. cases
Anxiety disorders	1.94	1.45	2.58	< 0.001	Controls vs. cases
Self-harm	1.42	0.85	2.28	0.165	Controls vs. cases
Substance abuse	4.44	3.46	5.71	< 0.001	Controls vs. cases
Depression	2.79	2.03	3.81	< 0.001	Controls (without asthma, diabetes and epilepsy) vs. cases
Anxiety disorders	2.26	1.67	3.05	< 0.001	Controls (without asthma, diabetes and epilepsy) vs. cases
Self_harm	1.41	0.84	2.30	0.184	Controls (without asthma, diabetes and epilepsy) vs. cases
Substance abuse	4.68	3.62	6.07	< 0.001	Controls (without asthma, diabetes and epilepsy) vs. cases