

### Supplemental Analysis

Latent class growth analysis was utilized to cluster the youth into various trajectory classes based on their percentage of weeks euthymic (Psychiatric Status Rating  $\leq 2$ ) during each of the 6-month intervals over the entire follow-up time. The analysis was done using Statistical Analysis System (procedure TRAJ-Jones et al., 2001, censored normal model). The number of classes was determined by using the change in the Bayesian Information Criterion ( $\Delta\text{BIC}$ ) between models as an approximation to the log of the Bayes factor. The log form of the Bayes factor was interpreted as the degree of evidence favoring the alternative model (model with more classes). As described in Jones BL, Nagin DS, Roeder K.A (Sociological Methods & Research, 29:374-393, 2001),  $2\log_e(B_{10}) > 10$  indicates very strong evidence against null model (model with fewer classes). We also required that each of the classes have  $>20$  subjects in order to have adequate power to analyze the multiple covariates included in this study models. Thus, clustering with the larger sample sizes was preferable. In addition, clinical interpretability of the classes was considered. We studied up to maximum 10-class models (table and figures below). Based on the criteria described above, the four-class model was chosen (Figure S4, below).

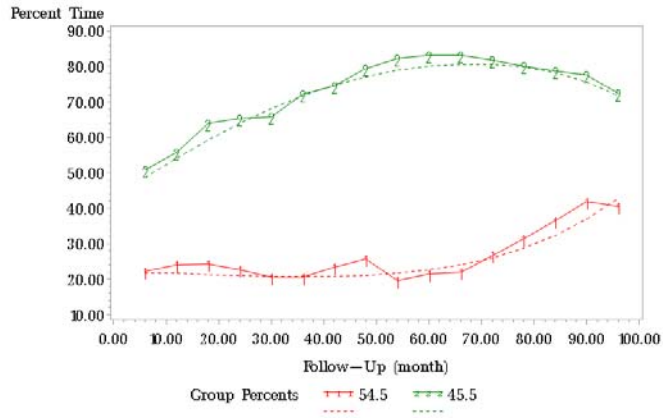
In addition to the latent class growth analysis, we validated the chosen solution using another method based on clinical impression. These results are depicted at the end of this section.

**TABLE S1**

Number of Classes	BIC	$2\log_e(B_{10}) \sim 2(\Delta\text{BIC})$	Null Model	Sample size per class
1	-17917.21			
2	-17081.87	1670.68	1	201,166
3	-16838.48	486.78	2	96,166,105
4	-16702.85	271.26	3	82,70,127,88
5	-16600.29	205.12	4	68,73, 91, 86, 49
6	-16559.52	81.54	5	67,74,19, 83, 75, 49
7	-16515.72	87.6	6	42,34,39,89,24,91,48
8	-16480.34	70.76	7	42, 27, 41, 17, 80,23,84,53
9	-16439.92	80.84	8	40,52,34,48,16,24,26,76,51
10	-16453.59	-27.34	9	39,37,50,62,15,67,8,21,37,31

**FIGURE S1**

percent time euthymic



**FIGURE S2**

percent time euthymic

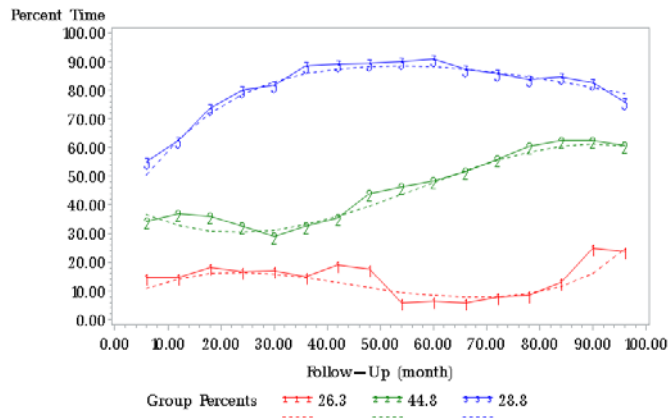


FIGURE S3

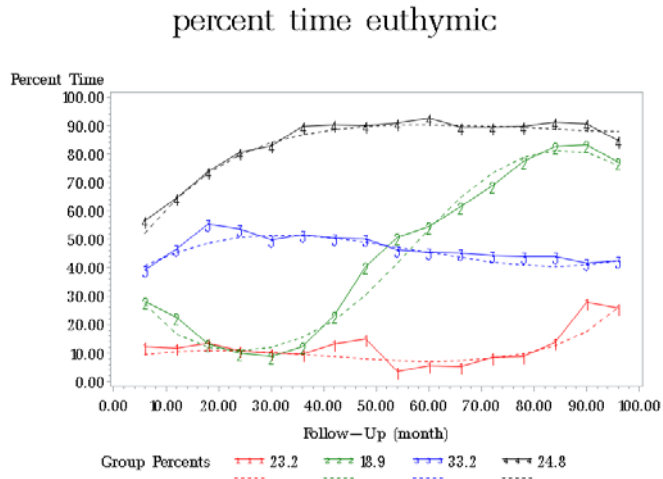


FIGURE S4

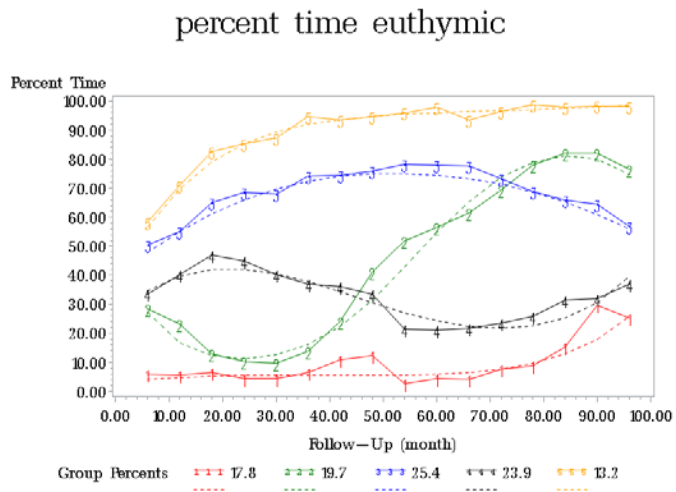


FIGURE S5

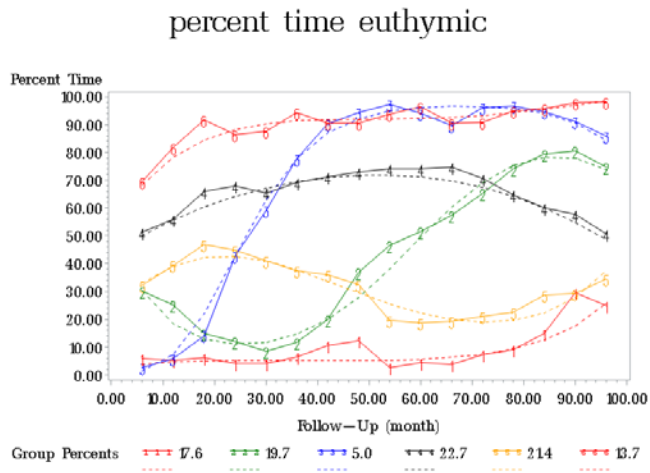
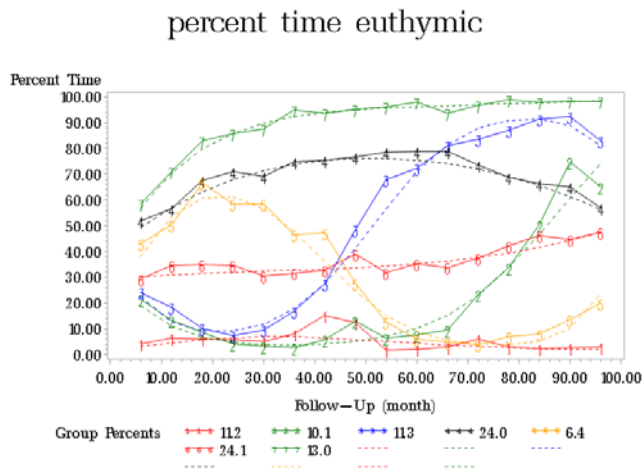
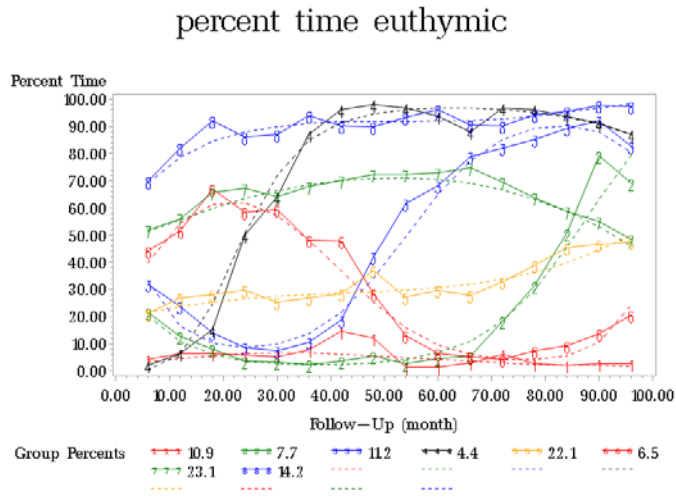


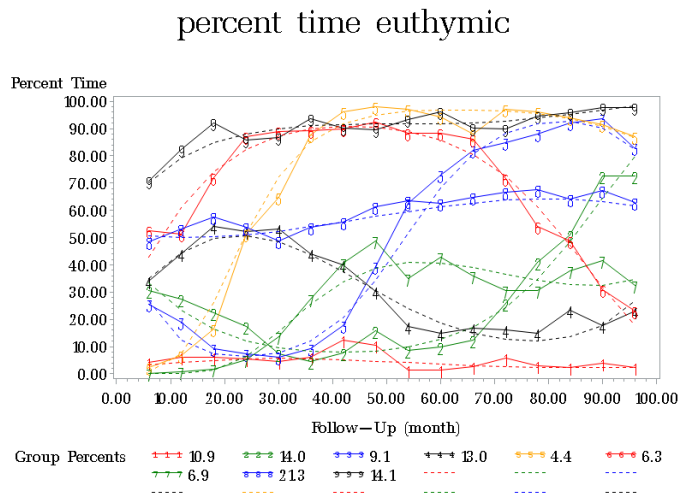
FIGURE S6



**FIGURE S7**



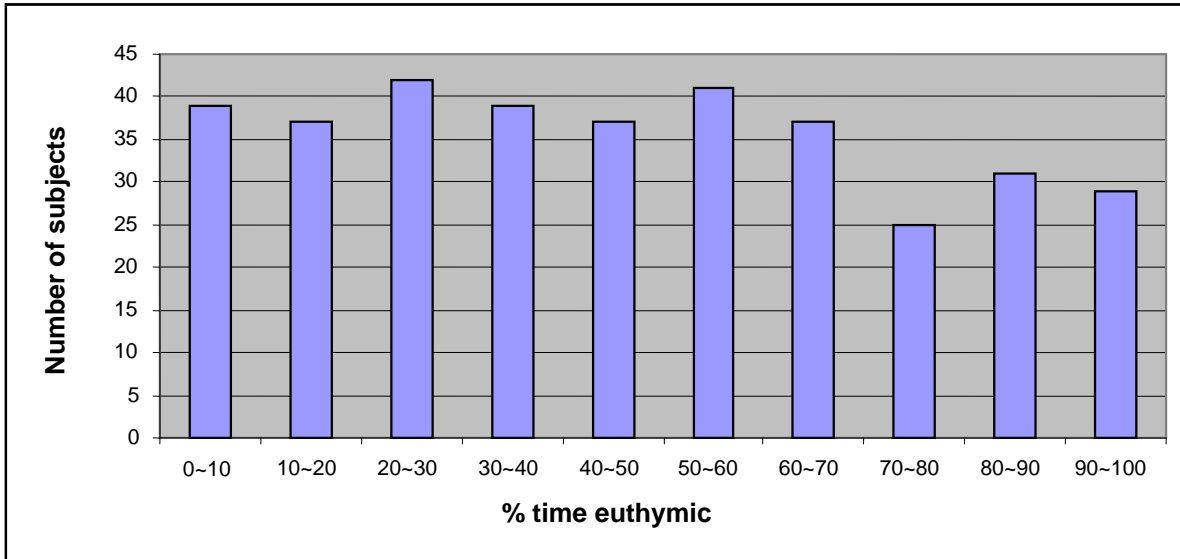
**FIGURE S8**



## Validation of the Latent class growth analyses based on clinical impression

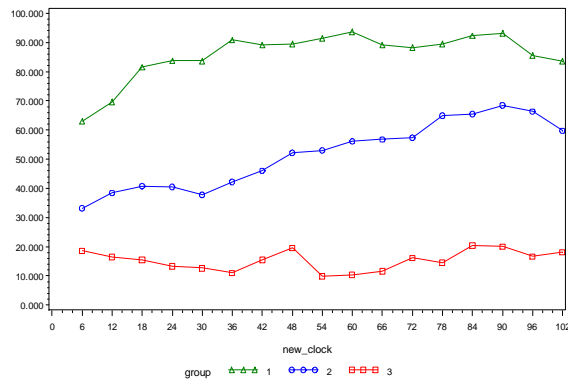
In addition to the latent class growth analysis we completed the following analyses: Using the data depicted in the histogram below, we selected 3 groups based on clinical judgment, sample size and prior analyses of our data (Birmaher et al., Am J Psychiatry 2009; 166: 795-804). We selected a class with  $\geq 70\%$  of the follow-up time with Psychiatric Status Rating  $\leq 2$  (the persistently well or euthymic class); a class with 30%-70% of Psychiatric Status Rating  $\geq 2$ , and a class with  $\leq 30\%$  of the follow-up time with Psychiatric Status Rating  $\leq 2$  (the persistently ill class).

**FIGURE S9**



The clinical selection of subjects noted above resulted in the following figure:

**Figure S10**



The selection of subjects depicted in the figure above overlapped with the subject selection obtained through the latent class growth analysis (Figure S3, above) by *almost 90%*. Thus, the consistency between the clinical impression and the latent class growth analysis further validate the findings of the latent class growth analysis. Moreover, the latent class growth analysis provided more fine-grained results because the “clinical analysis” did not allow us to see the class of youth that were “ill at the beginning of the follow-up and then improved” (in green - Figure S4 above). This provides evidence that the latent class growth analysis is a more precise analytic method to evaluate mood trajectories over time.

**TABLE S2. Maternal and Paternal Overall Functioning and Treatment and Family Functioning at Baseline<sup>a</sup>**

	Class 1 predominantly euthymic (N=88)		Class 2 moderately euthymic (N=127)		Class 3 ill with improving course (N=70)		Class 4 predominantly ill (N=82)		stat( $\chi^2$ )	p
<b>Parental history of psychiatric treatment<sup>b</sup></b>										
	N	%	N	%	N	%	N	%		
Mother										
Overall Treatment	43	55.1 <sup>3,4</sup>	82	69.5	45	80.4 <sup>1</sup>	57	82.6 <sup>1</sup>	16.46	<0.001
Outpatient	40	51.3 <sup>3,4</sup>	80	67.8	42	75.0 <sup>1</sup>	56	81.2 <sup>1</sup>	16.75	<0.001
Inpatient	11	14.1 <sup>4</sup>	19	16.1 <sup>4</sup>	13	23.2	23	33.3 <sup>1,2</sup>	10.56	0.01
Father										
Overall Treatment	25	33.8	50	45.9	29	53.7	33	49.3	5.94	0.1
Outpatient	22	29.7 <sup>3</sup>	46	42.2	29	53.7 <sup>1</sup>	29	43.3	7.65	0.05
Inpatient	9	12.2	15	13.8	8	14.8	18	26.9	6.96	0.07
<b>Primary caretaker overall functioning (GAF)</b>										
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Current score	75.3 <sup>4</sup>	14.0	70.8 <sup>4</sup>	11.5	71.3 <sup>4</sup>	13.2	65.5 <sup>1,2,3</sup>	13.8	7.99	<0.001
Most severe past score	56.7 <sup>4</sup>	20.0	50.6	17.3	52.4	17.8	46.7	18.6	4.13	0.007
Highest past level	82.3 <sup>4</sup>	10.5	79.0	12.5	79.0	10.3	74.9 <sup>1</sup>	13.5	5.46	0.001
<b>Family Functioning and Conflicts at Baseline</b>										
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
FACES										
Cohesion-Child	58.1	13.7	55.7	11.2	55.2	11.9	55.9	14.1	F=0.75	0.5
Cohesion-Parent	58.5	12.1	60.1	10.2	57.6	11.7	59.6	10.0	F=0.87	0.5
Adaptability-Child	46.0	10.7	43.5	8.2	43.5	8.1	44.3	9.1	F=1.32	0.3
Adaptability-Parent	46.6	7.9	45.2	6.8	44.5	7.3	45.8	7.1	F=1.18	0.3
CBQ										
Child	8.4	6.2	7.9	5.6	9.1	6.2	8.1	5.4	F=0.61	0.6
Parent	10.3 <sup>3</sup>	7.0	10.3 <sup>3</sup>	5.5	13.6 <sup>1,2</sup>	5.3	12.1	4.6	F=5.90	<0.001

<sup>a</sup> Superscripts denote significant between class differences, with p values  $\leq 0.05$  after Bonferroni correction. ADHD=attention deficit hyperactive disorder; CBQ=Conflict Behavior Questionnaire; FACES=Family Adaptability and Cohesion Evaluation Scale-II.

<sup>b</sup> Information represents the combined baseline and follow-up data.