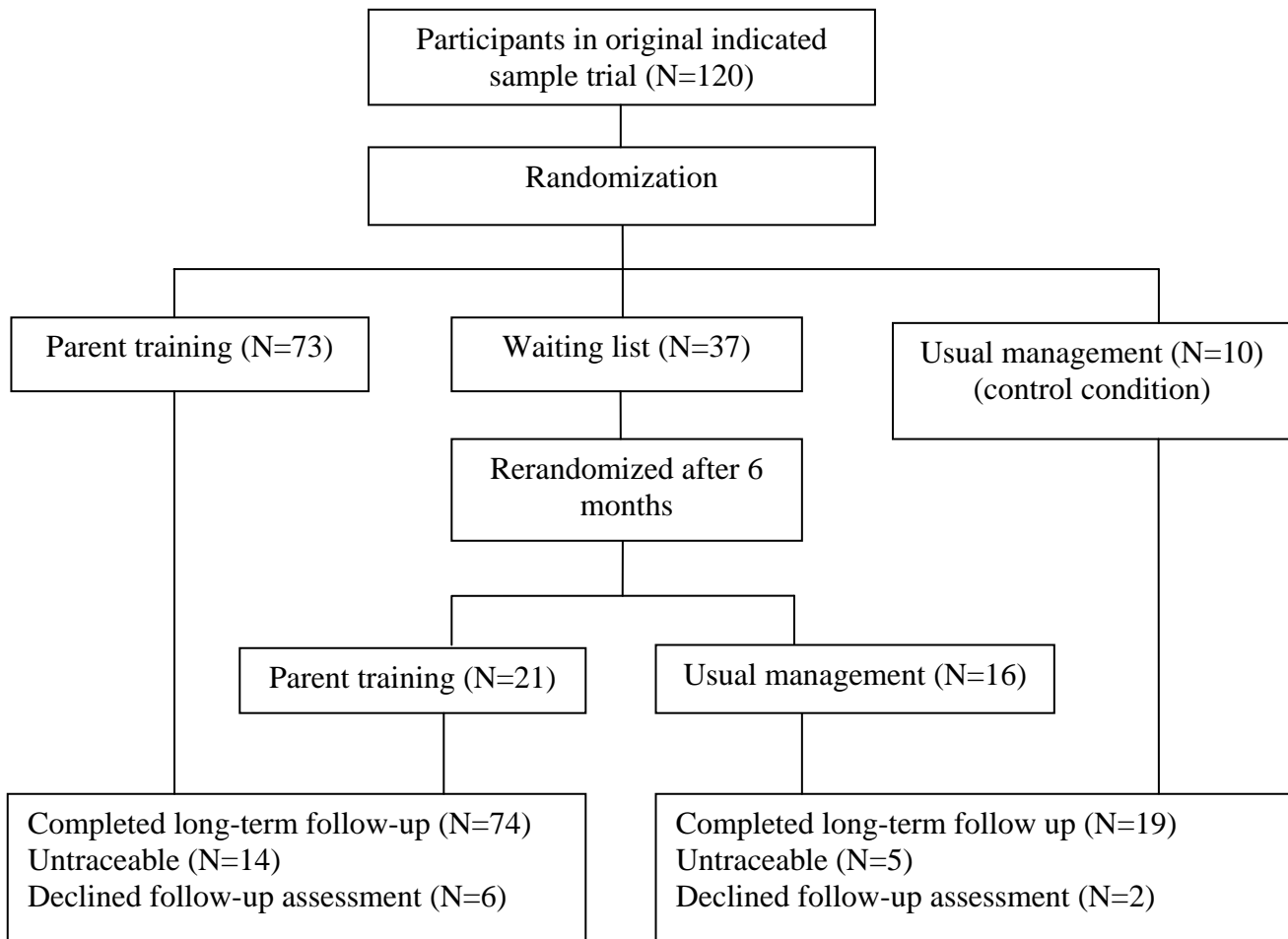
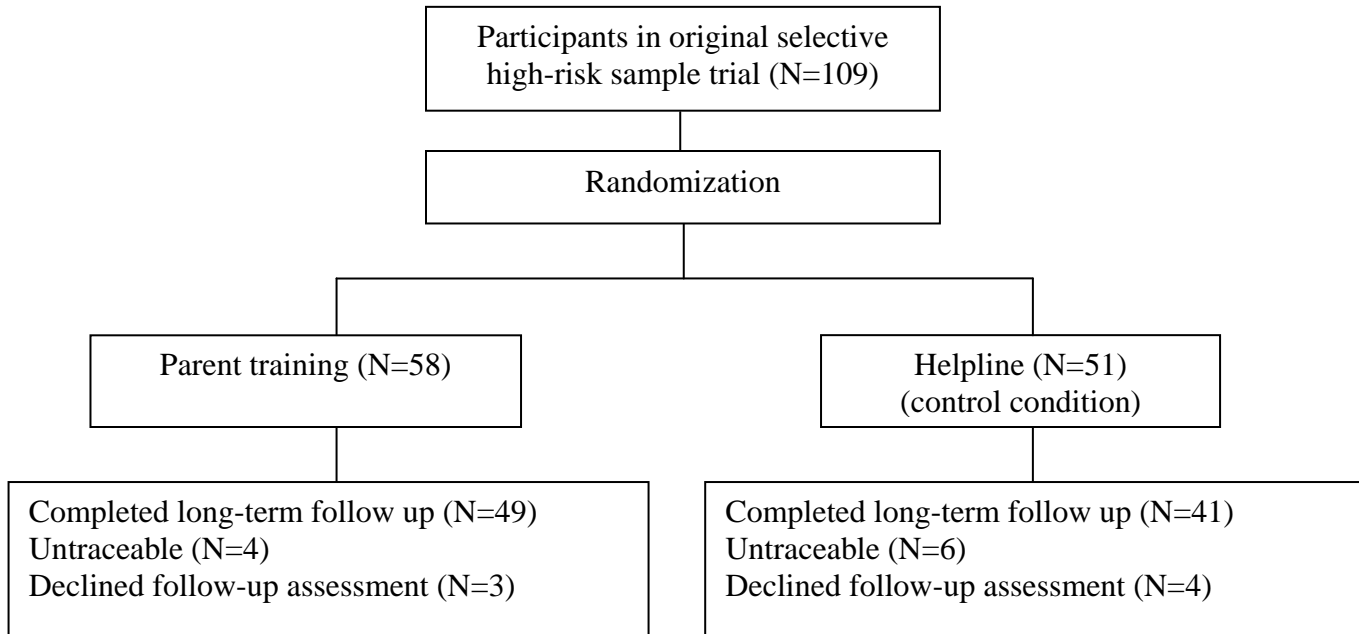


**FIGURE S1. Participant Flow for the Indicated Sample**



**Figure S2. Participant Flow for the Selective High-Risk Sample**



## Supplemental Methods

### Procedures

*Randomisation and blinding.* Randomisation sequences were generated using a computer by an independent statistician not involved in either project; case numbers with no identifying characteristics were emailed to the statistician after initial assessment. Assessors were thus blind to allocation prior to randomisation. Subsequently, follow up interviews, videotapes of parent-adolescent interaction, and psychometric testing were conducted by raters blind to allocation. However, on occasion, parents revealed to interviewers that their children had attended parenting groups.

## Measures in childhood

*Child antisocial behavior* This was assessed using the Parent Account of Child Symptoms (Taylor et al., 1986) a standard investigator-based interview. Antisocial behaviors (lying, stealing, tantrums, rudeness, disobedience, destructiveness, aggressiveness) are scored 0-3 for severity and frequency in the last month and the mean calculated (range 0-6); the mean intra-class correlation (ICC) reliability on 30 interviews was 0.89.

## Measures in adolescence

*Adolescent antisocial symptoms* Symptoms and diagnoses of Oppositional Defiant Disorder were assessed using the Child and Adolescent Psychiatric Assessment (Angold et al., 1995), a semi-structured diagnostic interview conducted with parents. The mean ICC reliability on 20 cases for eight Oppositional Defiant Disorder criteria was 0.85 (range 0.78-0.93).

*Adolescent antisocial personality traits* were assessed from parent reports on the Antisocial Process Screening Device (Frick & Hare, 2001). The total score is composed of subscales on Narcissism, Impulsivity and Callous-Unemotional traits.

*Adolescent antisocial behavior* The Strengths and Difficulties Questionnaire (Goodman, 1997), is a widely used rating scale; parent and teacher versions were included. Here we focus on the conduct problem subscale.

*Adolescent self-report delinquency* The Self-Report Delinquency instrument (Smith and McVie, 2003) covers a range of antisocial acts. The home problems scale has six questions asking about screaming or hitting parents and staying out late, the school misbehavior scale has ten questions asking about arriving late, skipping school, cheating, fighting, and destructiveness, the substance abuse scale has eight questions on drug and alcohol exposure. The instrument has good psychometric properties (Mcara and Mcvie, 2005).

*Reading ability* The Weschler Objective Reading Dimensions (The Psychological Corporation, 1997), is an investigator-administered standardized reading assessment. The composite scale is composed of subscales for reading ability, spelling and comprehension.

### Parenting quality in adolescence

*Expressed Emotion* The Five Minute Speech Sample (Caspi, Moffitt, Morgan, Rutter, Taylor, Arseneault, Tully, Jacobs, Kim-Cohen & Polo-Tomas, 2004) is an interview measure in which parents are asked to discuss the child for 5 minutes; positive and negative expressions of emotional tone are independently assessed by the researcher. ICC reliability for two coders on 20 interviews was .92 for negative comments and .93 for positive comments; here we use the ratio of positive to negative comments.

*Quality of supervision* This was assessed using the Child and Adolescent Psychiatric Assessment semi-structured interview. A global rating on a four-point scale was made from five questions such as ‘Do you always know where X is when s/he’s not at home?’; ICC on 20 interviews was 0.90.

*Directly observed interaction* We used three consecutive tasks to assess parent-adolescent interaction: a discussion where they plan a family trip (five minutes); a ‘hot topics’ discussion of subjects leading to difficulty in their relationship; and a task where they work together to complete a puzzle. Each was coded using five-point global scales (Hetherington et al., 1999); reliability on 30 tapes for parent positive relating factor was .87, for negative .78.

## Results

### *Supplementary analyses*

The possibility that the difference in effectiveness according to trial type was a function of the difference in initial severity of child antisocial behavior was tested by re-running the analysis adding a pre-treatment antisocial behavior-by-treatment interaction term. Results indicated a significant interaction between pre-treatment antisocial behavior and treatment condition in predicting oppositional symptoms from clinical interview in adolescence ( $B = -1.30$  [SE .55],  $p = .019$ ); however, we found no pre-treatment antisocial behavior-by-treatment interaction for parent-reported antisocial behavior on questionnaire ( $B = -.76$  [SE .64],  $p = .233$ ), antisocial personality ( $B = -1.09$  [SE 2.12],  $p = .608$ ), or reading achievement ( $B = 1.70$  [SE 7.24],  $p = .814$ ); nor for the parenting measures. We conclude that the stronger enduring treatment effects in the clinic-referred sample were not simply a result of initially higher levels of antisocial behavior.

Given some evidence of socio-economic and demographic differences between the clinic-referred and community samples (Table 1), we next considered maternal education and housing and ethnic minority status as moderators of treatment response because they differed between samples. For this analysis, we also included, for each outcome in Table 2, the main effects of maternal education and housing and ethnic minority status as well as, for each of these three variables, a main effect-by-treatment interaction. Results indicated that the sample-by-treatment interaction remained significant (at least  $p < .01$ ) for the three measures of antisocial behavior in adolescence after accounting for maternal education, housing and ethnic minority status as well as the interactions by treatment (and treatment effects were not significantly moderated by any of these indicators). For reading achievement, the study-by-treatment interaction was no longer

significant in this expanded model, although treatment effects were not significantly moderated by any of these indicators. We conclude that demographic differences between samples do not explain the significantly stronger enduring effect of treatment on antisocial behavior in adolescence in the clinic-referred sample.

**TABLE S1. Secondary outcomes at long-term follow-up** (means/SD, percentage)

	<u>Clinic sample</u>		<u>Community sample</u>	
	n=74	n=19	n=50	n=41
<i>Parent-Adolescent Relationship</i>				
Five Minute Speech Sample Positive:negative comments	1.8 (1.9)	.95 (.88)	3.3 (3.6)	4.1 (3.7)
Parent Interview poor supervision	.47 (.69)	.89 (.58)	.15 (.36)	.14 (.42)
Directly observed interaction Positive:negative parenting	2.9 (.98)	3.3 (.71)	3.0 (.99)	3.1 (.96)
<i>Teacher and Self-report behavior</i>				
Teacher Strengths and Difficulties Questionnaire Conduct scale	2.3 (2.4)	1.9 (2.2)	1.7 (2.2)	1.6 (2.5)
Self-report home problems	2.1 (2.7)	3.8 (3.8)	1.5 (2.1)	.95 (1.8)
Self-report substance misuse	1.1 (4.0)	.41 (1.7)	.1 (.42)	.0 (.0)

**TABLE S2. Long-term effects of early intervention on adolescent antisocial outcomes and reading level in clinic and community samples/with estimates from imputed analyses**

	<u>Clinic sample</u>		<u>Community sample</u>	
	B (SE)	p	B (SE)	p
<u>Oppositional symptoms</u>				
Child age	-.41 (.10)/-.38(.11)	.001/.001	.07 (.23)/.19(.30)	.757/.553
Male	-.78 (.48)/-.76(.46)	.108/.102	.54 (.36)/.38(.51)	.134/.462
Pre-intervention antisocial behavior	.48 (.41)/.51(.43)	.244/.234	2.29 (.58)/2.17(.58)	.001/.000
Treatment	-1.58 (.50)/-1.68(.55)	.002/.004	.29 (.36)/.00(.42)	.420/.998
<u>Antisocial personality traits</u>				
Child age	-.21 (.42)/-.26	.622/.547	-.28 (.76)/-.28(.76)	.711/.711
Male	-.07 (1.66)/1.01(1.67)	.964/.544	1.60 (1.38)/same	.247/same
Pre-intervention antisocial behavior	4.84 (1.98)4.96(1.85)	.015/.008	4.03 (1.90)/same	.034/same
Intervention	-4.41 (1.68)-4.14(1.81)	.009/.025	1.97 (1.15)/same	.085/same
<u>Antisocial behavior</u>				
Child age	-.21 (.13)/-.201(.15)	.115/.187	-.18 (.27)-.38(.35)	.491/.307
Male	-.38 (.52)/-.45(.54)	.466/.410	.61 (.41).60(.45)	.137/.185
Pre-intervention antisocial behavior	1.64 (.55)/1.57(.54)	.003/.005	1.47 (.59)/1.42(.50)	.012/.006
Intervention	-1.79 (.53)/1.67(.56)	.001/.004	.40 (.35).17(.54)	.255/.761
<u>Reading ability<sup>a</sup></u>				
Child age	1.10 (1.03)/1.04(1.06)	.287/.328	-3.36 (2.07)-4.18(2.55)	.105/.132
Male	-1.64 (3.70)/-1.60(4.59)	.658/.729	-2.22 (3.74)/-	.553/.531
Pre-intervention antisocial behavior	-4.46 (4.55)-3.60(4.80)	.327/.455	2.27(3.62)	.977/.993
Intervention	9.18 (4.36)/9.37(4.73)	.035/.050	-.14 (4.84)-.04(4.94)	.832/.453
			.76 (3.55)/2.70(3.59)	

Note: Clinic sample n's and community sample n's ranged from n=90, 85 [Oppositional symptom count & antisocial behavior], n=88, 78 [Antisocial personality traits], n=91, 86 [Reading test];

<sup>a</sup> The treatment effect on Wechsler Objective Reading Dimensions remained significant after also accounting for full scale IQ (Wechsler Abbreviated Scale of Intelligence) .

**TABLE S3. Long-term effects of treatment on adolescent antisocial behavior and parenting outcomes: Sample-by-treatment interactions**

<b>Antisocial Behavior</b>	<u>Raw data</u>		<u>Imputed data</u>	
<u>Clinical interview:</u>	<u>B (SE)</u>	<u>p</u>	<u>B (SE)</u>	<u>p</u>
<u>Oppositional Defiant Disorder symptoms</u>	n=175		n=229	
Child age	-.34 (.10)	.001	-.12 (.30)	.700
Male	-.19 (.30)	.532	-.22 (.36)	.537
Pre-treatment antisocial behavior	1.15 (.35)	.001	1.30 (.42)	.002
Intervention	-3.42 (1.11)	.002	-3.05 (1.15)	.008
Sample (community sample)	-2.88 (.61)	.001	-2.02 (.87)	.025
Sample by Intervention	1.83 (.64)	.004	1.57 (.66)	.018
<u>Parent questionnaires:</u>	<u>B (SE)</u>	<u>p</u>	<u>B (SE)</u>	<u>p</u>
<u>Conduct problems</u>	n=166		n=229	
Child age	-.19 (.12)	.109	-.17 (.29)	.565
Male	.12 (.33)	.720	.17 (.38)	.654
Pre-treatment antisocial behavior	1.47 (.38)	.001	1.36 (.44)	.002
Intervention	-4.05 (1.12)	.001	-3.05 (.128)	.018
Sample (community sample)	-3.37 (.62)	.001	-2.66 (1.00)	.011
Sample by Intervention	2.21 (.64)	.001	1.57 (.73)	.034
<u>Antisocial personality</u>	<u>B (SE)</u>	<u>p</u>	<u>B (SE)</u>	<u>p</u>
	n=164		n=229	
Child age	-.18 (.37)	.621	-1.25 (.84)	.152
Male	.78 (1.10)	.475	1.00 (.84)	.415
Pre-treatment antisocial behavior	4.34 (1.30)	.001	4.02 (1.52)	.009
Intervention	-10.91 (3.49)	.002	-7.58 (3.99)	.059
Sample (community sample)	-9.95 (1.88)	.001	-10.12 (3.16)	.003
Sample by Intervention	6.42 (2.01)	.001	4.44 (2.35)	.061
<u>Standardized tests:</u>	<u>B (SE)</u>	<u>p</u>	<u>B (SE)</u>	<u>p</u>
<u>Composite Wechsler Objective Reading Dimensions</u>	n=177		n=229	
Child age	.22 (.93)	.812	-4.29 (3.37)	.216
Male	-2.54 (2.60)	.330	-3.37 (3.55)	.344
Pre-treatment antisocial behavior	-1.58 (3.25)	.628	-2.08 (4.06)	.610
Intervention	19.59 (9.60)	.041	19.73 (12.81)	.124
Sample (community sample)	15.87 (5.60)	.005	6.72 (9.33)	.474
Sample by Intervention	-9.98 (5.68)	.079	-8.78 (7.27)	.227
<b>Parenting</b>	<u>B (SE)</u>	<u>p</u>	<u>B (SE)</u>	<u>p</u>
<u>Five Minute speech sample:</u>	n=142		n=229	
Positive:Negative comments				
Child age	-.04 (.12)	.745	.88 (.54)	.116
Male	-1.07 (.64)	.092	-1.08 (.72)	.135
Pre-treatment antisocial behavior	-.34 (.52)	.511	-.46 (.85)	.594
Intervention	2.81 (1.15)	.014	3.10 (2.02)	.125
Sample (community sample)	3.02 (.76)	.001	5.10 (1.62)	.003
Sample by Intervention	-1.88 (.94)	.045	-2.28 (1.22)	.062



<u>Parent interview:</u>	<u>B (SE)</u>	<u>p</u>	<u>B (SE)</u>	<u>p</u>
<u>Poor discipline</u>	n=175		n=229	
Child age	.07 (.04)	.091	.02 (.10)	.875
Male	.04 (.08)	.593	.04 (.10)	.689
Pre-treatment antisocial behavior	.21 (.09)	.027	.19 (.13)	.142
Intervention	-.88 (.34)	.009	-.82 (.35)	.019
Sample (community sample)	-.54 (.19)	.004	-.56 (.29)	.059
Sample by Intervention	.45 (.18)	.014	.42 (.20)	.034

Note: For sample, clinic-referred is the control condition.