

DISCUSSION PAPER SERIES

IZA DP No. 12206

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## ABSTRACT

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# The Impact of Bullying Victimization on Mental Wellbeing\*

We investigate the impact of nine types of adolescent (verbal, physical, indirect) school/ domestic bullying on life satisfaction, and two mental health outcomes (emotional symptoms and hyperactivity/inattention) using the Understanding Society dataset during 2009-13. Bullying significantly increases hyperactive, inattentive and emotional symptoms and reduces life satisfaction. Non-domestic bullying has a stronger adverse impact on all three mental wellbeing outcomes. Domestic sibling victimisation does not affect life satisfaction. Lower levels of family income increase adolescent hyperactive/inattentive symptoms and reduce life satisfaction. Females are more vulnerable to emotional symptoms while males report higher levels of life satisfaction. Initial conditions precondition hyperactive and inattentive symptoms.

**JEL Classification:** C25, C35, J12, J13, I31, I10

**Keywords:** bullying, mental health, life satisfaction, unobserved heterogeneity

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# 1 Introduction

Understanding the determinants of happiness and promoting wellbeing received great interest among economists and policymakers. Earlier research studied the effects of adverse life and labour market events on unhappiness (e.g. Clark and Oswald, 1994; Clark et al., 2008). Several recent studies investigate the impact of early-life mental health and socioeconomic factors on adult wellbeing (e.g. Layard et al., 2014; Clark and Lee, 2018; Fenske et al., 2018). Recognising that human capital formation is a dynamic process with early inputs affecting lifetime labour and health outcomes (see Cunha et al., 2010) part of the recent focus shifted towards the future impact of adverse childhood experiences and the developmental origins of health (Heckman, 2012; Fletcher and Schurer, 2017; Harmon et al., 2018; Schurer and Trajkovski, 2018). Early life interventions can arguably produce lasting health, wellbeing and productivity enhancing effects, as well as, reduce treatment costs (Heckman, 2012). Effective policy design, however, requires answering a fundamental question that remains poorly researched. What are the effects of bullying victimisation on mental health and life satisfaction during the course of adolescence?

This paper investigates the impact of bullying victimisation on adolescent life satisfaction and two mental health outcomes namely, hyperactivity/inattention and emotional symptoms (collectively referred to as mental wellbeing). Employing data from the youth self-completion questionnaire (preadolescents/adolescents aged 10-15 years) from the Understanding Society (UK Household Longitudinal Study, UKHLS) during 2009-2013, we study the effects of nine types of verbal, physical and indirect abuse at the school and domestic levels.<sup>1,2</sup>

Using dynamic ordered correlated random effects (CRE) models controlling for initial conditions, our analysis provides evidence that bullying increases adolescent hyperactive/inattentive and emotional symptoms and reduces life satisfaction. In general, non-domestic bullying victimisation has a greater adverse effect on emotional, hyperactive/inattentive symptoms and life satisfaction. Domestic victimisation by siblings has no statistically significant impact on life satisfaction. Male adolescents are *ceteris paribus* more likely to report higher life satisfaction and lower emotional symptoms. Healthier family interaction increases adolescent life satisfaction and reduces mental health symptoms. House-

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<sup>1</sup>Bullying is a widespread antisocial behaviour during adolescence encompassing direct and indirect aggression including name calling, gossiping, exclusion and hitting or pushing (Olweus, 1993).

<sup>2</sup>The first half of the age range studied corresponds to preadolescence and the other half to adolescence noting that this is solely an approximate outline of young developmental periods that varies across individuals. Slightly abusing the terminology, for brevity we henceforth refer to our analysis as an adolescent victimisation study.

hold income per capita is generally positively related to adolescent life satisfaction and has a strong effect on the likelihood to report complete life satisfaction. On the other hand, living in the wealthiest English regions of "London, S.East, S.West, East of England" (in terms of GVA per capita) reduces adolescent life satisfaction.

Robustness checks are undertaken using conditional maximum likelihood (CML) fixed-effects (FE) estimation incorporating threshold specific time-invariant heterogeneity. The CML-FE estimates corroborate our key dynamic CRE conclusions: bullying victimisation increases the probability of presenting hyperactive, inattentive and emotional symptoms and non-domestic victimisation reduces life satisfaction. Unlike the baseline dynamic CRE results, FE estimation generally indicates that family-level poverty (in terms of income per capita) increases the occurrence of hyperactive/inattentive symptoms.

Our study relates to an interdisciplinary literature. Firstly, it contributes to the economic literature on wellbeing and mental health. The majority of the literature discusses adult happiness, economic performance, labour market outcomes (Clark and Oswald, 1994 ; Clark et al., 2008; Layard et al., 2014; Oswald et al., 2015) and the intergenerational transmission of parental distress to child life satisfaction (e.g. Powdthavee and Vignoles, 2008). Secondly, it relates to labour economic studies concluding that victimisation impairs cognitive abilities leading to future reductions in productivity and wages (e.g. Brown and Taylor, 2008). Thirdly, it connects to the domestic violence literature focusing on adult, as opposed to sibling, domestic abuse and labour market/health outcomes (Aizer, 2010; Anderberg et al., 2016; Papageorge et al., 2016).

Finally our paper relates to the psychiatric/psychological literature indicating that victims are at increased risk of future poor physical health, low self-esteem and psychiatric problems such as anxiety disorders, depression, psychotic experiences (e.g. paranoia) and criminality (Vaillancourt et al., 2011; Reijntjes et al., 2011; Currie and Tekin, 2012; for a comprehensive literature review see McDougall and Vaillancourt, 2015). In particular, adolescent victimisation affects internalising mental health disorders conducting to symptoms of loneliness, withdrawal, anxiety, somatisation (somatic complaints, poor appetite, headaches), emotional problems, depression (Vaillancourt et al., 2011; McDougall and Vaillancourt, 2015) and externalising disorders such as aggression, delinquency, misconduct, inattention (e.g. Reijntjes et al., 2011 which is meta-analysis of ten longitudinal studies). Despite their longitudinal design, these studies use cross-sectional or descriptive analysis ignoring persistence in individual health outcomes and, fail to account for unobservables.

The rest of the paper is organised as follows. Section 2 discusses data and variable related issues, Section 3 introduces the estimation methodologies, Section 4 presents and discusses the estimation results and Section 5 concludes.

## 2 Data and Variables

We use the first five waves of Understanding Society, the UK Household Longitudinal Study (UKHLS) spanning the period 2009-2013. Understanding Society is a longitudinal survey addressed to the members of approximately 40,000 households (at the first wave) in the United Kingdom on a yearly basis. Household members aged 10-15 years are asked to complete a short self-completion youth questionnaire. To study the impact of bullying victimisation on life satisfaction, hyperactive/inattentive and emotional symptoms, we consider youth respondents aged 10-15 years from the UKHLS general population samples for Great Britain present in 2009 (to facilitate initial conditions estimation) that have no missing values (to allow for lagged outcome variables) in any of the covariates included in the estimations. The two mental health outcome variables (emotional and hyperactive/inattentive symptoms), as well as, bullying and the remaining victimisation measures (described in Subsection 2.1) are only reported biennially starting in 2009 (i.e. in waves 1, 3 and 5). Only life satisfaction is reported annually. We, therefore, construct balanced panels of adolescents that consecutively participate in the survey in 2009, 2011 and 2013 to obtain a total of three biennial period observations (permitting inclusion of both dynamics and initial conditions). Matching individual youth respondents to the household level data files, we obtain the total household net income (without deductions), current household size and the number of children in household variables.<sup>3</sup>

Matching youth respondent files to their corresponding parental interview files is prohibitive in terms of sample attrition if one wishes to undertake a longitudinal analysis. Nevertheless, our set of explanatory variables controls for the family environment by including region of residence, real house-

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<sup>3</sup>The number of children in household denotes the total number of children aged 15 or under in the household. The domestic victimisation questions regard bullying inflicted by siblings and provided that these were not asked to those without siblings, the sample sizes in the models including domestic bullying are reduced.

hold net monthly income, parental school interest and, parental conversation/arguing frequency.<sup>4,5,6</sup>

## 2.1 Measuring Bullying Incidence

This study uses nine distinct measures of adolescent bullying victimisation at the household and school levels. We use the seven self-reported victimisation questions available in the UKHLS and construct two additional victimisation measures by combining all forms of household (physical, verbal, fun and teasing, stealing by siblings) and school bullying (physical and other types).<sup>7</sup>

The general measure of self-reported bullying by other children/young people (GenBull) available as a three-point scale categorical variable in the UKHLS takes values increasing in bullying intensity (not true=1, somewhat true=2, certainly true=3) and was collapsed into a binary variable [not true=0, (somewhat true/certainly true)=1]. The remaining victimisation questions correspond to household physical bullying by siblings (PhysHome), school physical bullying (PhysSchool), household verbal abuse by siblings (VerbalHome), household fun and teasing by siblings (FunTeaseHome), household stealing by siblings (StealHome) and, other ways of school bullying victimisation (OthSchool). The six aforementioned self-reported bullying victimisation questions are four-point scale categorical variables increasing in bullying intensity, taking the values (never, sometimes: 1-3 times in the last 6 months, quite a lot: more than 4 times in the last 6 months, a lot: a few times every week) and were collapsed into binary variables [never=0, (sometimes/quite a lot/a lot)=1].

The aggregate home (GenHome=PhysHome+VerbalHome+FunTeaseHome+StealHome) and school (GenSchool=PhysSchool+OthSchool) maltreatment measures were accordingly binarised [GenHome=0 if GenHome≤ 6, GenHome=1 if GenHome>6; GenSchool=0 if GenSchool=2, GenSchool=1 if GenSchool>2].

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<sup>4</sup>We use the Great Britain (England, Scotland and Wales) general population sample which excludes Northern Ireland and the Ethnic Minority Boost sample since they were obtained employing different sample selection mechanisms. Ethnic group membership (white UK/Ireland origin versus all other groups) does not have statistically significant effects in any of our estimations regarding life satisfaction and the two mental health outcomes and has therefore been omitted due to the relatively high number of missing values.

<sup>5</sup>To obtain the log of real household net monthly income variable, we divide total household income by household size and use the CPI (all items index) deflator, from the Office of National Statistics (Consumer Price Indices - CPI indices: 1988 to 2015: 2005=100).

<sup>6</sup>"Parental school interest" is a binary variable using the question "My parents are interested in how I do at school" and takes the value of one if the individual answered "always/nearly always" and zero otherwise (sometimes, hardly ever, never). "Not talking to Mum/Dad" use questions "How often do you talk to your mother/father, about things that matter to you?" and "Not arguing with Mum/Dad" use questions "How often do you quarrel with your mother/father?". The last four variables take the value of one if the response was "hardly ever, don't have a mother/father" and zero otherwise (most days, more than once a week, less than once a week).

<sup>7</sup>To test the internal consistency of the aggregated school and household measures we use Cronbach's reliability coefficient which is over the widely used 0.7 threshold. We do not report estimations employing the aggregation of physical bullying at school and home as the respective reliability coefficient was approximately 0.22.

Physical bullying at home/school, verbal home abuse and general bullying are labelled direct types of aggression, whereas, fun and teasing/stealing at home and other forms of school bullying are considered indirect aggression forms (see Bijttebier and Vertommen, 1998; Naylor et al., 2001; Carbone-Lopez et al., 2010). Concerning all nine measures, domestic bullying incidence is notably the highest and school victimisation is generally higher than general bullying.<sup>8,9,10</sup>

## **2.2 Measuring Life Satisfaction, Hyperactivity/Inattention and Emotional Symptoms**

To investigate the impact of victimisation on adolescent wellbeing, we construct a life satisfaction variable using the question "How do you feel about your life as a whole?" from the youth self-completion questionnaire. Responses to the aforementioned question take values 1 to 7 with 1 corresponding to completely happy and 7 to not at all happy. We collapse responses into a four-point scale variable by grouping together the less commonly reported values 4-7 of lower levels of satisfaction to facilitate identification. We then reverse code the response values to become increasing in life satisfaction such that 1 corresponds to "dissatisfied", 2 to "satisfied", 3 to "very satisfied", and to 4 "completely satisfied".

Adolescence is a period of transformation and maturation during which emotional and behavioural difficulties may be frequent (Irwin, Burg and Cart, 2002; Heckman, 2006; Van den Berg et al., 2014). It is hard to establish globally accepted definitions of disorder/severity thresholds. The high comorbidity across disorders questions the pertinence of developmentally-suitable diagnostic criteria for adolescent mental disorders (see Merikangas et al., 2010). The Strengths and Difficulties Questionnaire (SDQ) is widely employed for the assessment of emotional and behavioural problems related to mental health in children and adolescents -see Goodman (1997). Following Goodman et al. (2010) we use an internalising (emotional symptoms) and an externalising (hyperactivity/inattention) SDQ subscale since an overall low-risk sample is analysed and we are not explicitly screening for disorders (in which case all five SDQ subscales would be a better predictor).<sup>11</sup>

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<sup>8</sup>Refer to the mean values of the nine bullying measures in the Descriptive Statistics Tables (17-19) in the Supplementary Appendix.

<sup>9</sup>While the proportion of non-victimised adolescents generally increases across time (revealing that self-reported victimisation decreases with age) this pattern is less clear concerning aggregate domestic bullying. Finally, there is persistence of initial and successive period responses- see Chrysanthou and Vasilakis, 2018.

<sup>10</sup>The wording of the seven self-reported bullying victimisation questions and the constituent components of the two additional aggregate home and school variables (as appearing in the Youth Self-completion Questionnaires) is given at the bottom of Table 1.

<sup>11</sup>Studies such as Smith et al. (2004) conclude that adolescent victims of school bullying scored high on SDQ problem scales



To construct the two mental health outcome variables (hyperactive/inattentive and emotional symptoms) we use the two corresponding SDQ subscales available in the UKHLS. Both SDQ subscales consist of 5 items measuring positive and negative behaviours in children and are reported biennially since 2009. Items are rescaled by the data depositors and positive behaviours reverse coded such that the two SDQ subscales take values 0-10.

The hyperactivity/inattention subscale uses self-reported replies to the statements: "I am restless, I cannot stay still for long", "I am constantly fidgeting or squirming", "I am easily distracted, I find it difficult to concentrate", "I think before I do things" and, "I finish the work I am doing".

Finally, the emotional symptoms subscale uses self-reported answers to the statements: "I get a lot of headaches, stomach-aches or sickness", "I worry a lot", "I am often unhappy, down-hearted or tearful", "I am nervous in new situations. I easily lose confidence" and, "I have many fears, I am easily scared".

We recode both SDQ subscales into three-point scale categorical variables such that values (<2, 3-5, 6-10) in the original 10-point subscales correspond to (1, 2, 3) in the 3-point subscales. We refer to values (1,2,3) of the 3-point SDQ subscales as "normal", "intermediate" and "abnormal", respectively. Note that this classification differs from the usual emotional symptoms/hyperactivity bandings (0-5: normal, 6: borderline, 7-10: abnormal) used by psychologists to identify caseness (cases with mental health disorders). Our choice is motivated by having sufficient observations in the three categories so that we can investigate the gradient of victimisation impact across distinct levels. In all respects, the fixed effects estimations consider all possible dichotomisations of the outcome variables such that the at least borderline SDQ symptom regressions (>2 dichotomisations in Tables 9 and 10) are closely related to the psychological caseness criterion.<sup>12</sup>

An important distinction can be made between hyperactivity/inattention, life dissatisfaction and emotional symptoms. Continuous low levels of life satisfaction could be suggestive of depression while a high score in the hyperactivity/inattention SDQ subscale could be indicative of Attention Deficit Hyperactivity Disorder (ADHD). Depression and ADHD are psychiatric/mental health disorders whereas

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noting that they employ descriptive statistical analysis. O'Brennan et al. (2000) using cross-sectional data find that preadolescents and adolescents bullied at school were more likely to display internalising symptoms (emotional distress).

<sup>12</sup>Our analysis excludes the remaining three SDQ subscales of conduct problems, prosocial behaviour and peer relationship problems. Primarily, the latter is excluded as the generic bullying measure is a constituent component of the peer relationship problems subscale. In addition, these three subscales contain mostly behavioural screening questions related to bullies/bully-victims (victims turning into bullies). For conciseness we leave the study of the remaining subscales to future work dedicated to bullies/bully-victims.

emotional symptoms can be considered as symptoms of mental health problems.<sup>13,14</sup>

### 3 Dynamic Correlated Random Effects (CRE) Estimation

We initially model self-reported life satisfaction, hyperactive/inattentive and emotional symptoms by estimating dynamic CRE ordered probit models on balanced samples of adolescents aged between 10-15. The dynamic latent variable specification is given by

$$y_{it}^* = \mathbf{x}_{it}\boldsymbol{\beta} + \gamma y_{it-1} + \varepsilon_i + \eta_{it}; \quad i = 1, \dots, N; t = 2, \dots, T \quad (1)$$

where  $y_{it}^*$  is a latent ordered response variable capturing individual life satisfaction/mental health status propensity,  $\mathbf{x}_{it}$  is a vector of contemporaneous explanatory variables (including bullying victimisation) for the  $i$ th individual in the  $t$ th time period and the vector  $\boldsymbol{\delta} = (\boldsymbol{\beta}, \gamma)$  represents the set of the unknown parameters to be estimated. The composite error term  $v_{it} = \varepsilon_i + \eta_{it}$  captures the unobserved heterogeneity underlying individual life satisfaction/mental health status propensities and is decomposed into an individual-specific time-invariant component  $\{\varepsilon_i\}_{i=1,2,\dots,N}$  and an individual time-specific effect  $\eta_{it}$  assumed to be distributed as standard normal  $\eta_{it} \sim N(0, \sigma_\eta^2)$ , independently of  $\varepsilon_i$ .

Including  $y_{it-1}$  in equation (1) raises the question of how we treat  $y_{i1}$  *i.e.* the initial conditions problem (Heckman 1981a,b) which is subsequently addressed in Subsection 3.1. Reported outcome variable status  $y_{it} = j$  for  $j \in \{1, \dots, J\}$  is observed if latent life satisfaction/mental health outcome falls in an interval between  $\mu_{j-1}$  and  $\mu_j$  :

$$y_{it} = j \quad \text{if} \quad \mu_{j-1} < y_{it}^* \leq \mu_j \quad (2)$$

where  $\mu_0 = -\infty$ ,  $\mu_j \leq \mu_{j+1}$  and  $\mu_J = \infty$ . Under the normality assumption of  $\eta_{it}$ , the probability  $p_{itj}$  of observing outcome  $j$  for response  $y_{it}$ , conditional on the set of cutpoints  $\boldsymbol{\mu} = \{\mu_1, \mu_2, \dots, \mu_{J-1}\}$ ,  $\mathbf{x}_{it}$  and

<sup>13</sup>ADHD is a behavioural disorder including symptoms of inattentiveness, hyperactivity and impulsiveness (see <https://www.nhs.uk/conditions/attention-deficit-hyperactivity-disorder-adhd/symptoms/>).

<sup>14</sup>SDQs administered to multiple informants (parents, teachers, children) can identify around two-thirds of child/adolescent psychiatric disorders particularly hyperactivity and depressive disorders despite the fact that only the emotional symptoms subscale has a question on misery "I am often unhappy, down-hearted or tearful". Note that comorbidity is a well-known feature of child psychopathology (see Goodman et al., 2000, p.537). Three-quarters of children with pervasive developmental disorders (language, learning, developmental dyspraxia, autism spectrum disorders) are recognised due to associated conduct, emotional and hyperactivity problems- see Goodman et al. (2000).

$\varepsilon_i$  is

$$Pr(y_{it} = j \mid \boldsymbol{\mu}, \mathbf{x}_{it}, \varepsilon_i) = \Phi(\mu_j - \mathbf{x}_{it}\boldsymbol{\beta} - \mathbf{y}_{it-1}\boldsymbol{\gamma} - \varepsilon_i) - \Phi(\mu_{j-1} - \mathbf{x}_{it}\boldsymbol{\beta} - \mathbf{y}_{it-1}\boldsymbol{\gamma} - \varepsilon_i) \quad (3)$$

where  $\Phi$  is the standard normal *cdf* and  $\mathbf{y}_{it-1}$  is a vector of  $J - 1$  lagged indicators,  $\mathbf{1}[\mathbf{y}_{it-1} = j]$ ,  $j = 2, \dots, J$ .

Note that  $\mathbf{x}_{it}$  is not inclusive of a constant term which is absorbed into the cutpoints since we cannot separately identify a global intercept and the cutpoints  $\boldsymbol{\mu}$ , *i.e.* only  $(\mu_j - \varepsilon_i)$  is identified. Further, within a random-effects framework we cannot disentangle the individual-specific effects  $\varepsilon_i$  from individual-specific cutpoint shifts (see Contoyannis et al., 2004). The sample log likelihood function for the random effects ordered choice model is obtained by integrating out the fixed effect,  $\varepsilon_i \sim N(0, \sigma_\varepsilon^2)$ , and corresponds to

$$\ln L(\boldsymbol{\beta}, \boldsymbol{\mu}, \sigma_\varepsilon^2) = \sum_{i=1}^N \ln \int_{-\infty}^{+\infty} \frac{\exp(-\frac{\varepsilon_i^2}{2\sigma_\varepsilon^2})}{\sqrt{2\pi}\sigma_\varepsilon} \left\{ \prod_{t=1}^T Pr(y_{it} = j \mid \boldsymbol{\mu}, \mathbf{x}_{it}, \varepsilon_i) \right\} d\varepsilon_i. \quad (4)$$

### 3.1 Initial Conditions in Dynamic CRE models of Adolescent Life Satisfaction and Mental Health Outcomes

The presence of  $\varepsilon_i$  in (3) invalidates the assumption of exogeneity of the three outcome variables in 2009 ( $y_{i1}$ ) since the beginning of the sample is unlikely to coincide with the initiation of the stochastic processes determining life satisfaction and mental health outcomes propensities. State dependence and individual heterogeneity offer "diametrically opposite" explanations of persistence in self-reported wellbeing and mental health outcomes (see Hsiao, 2003, p.216; Contoyannis et al., 2004). Considering otherwise identical adolescents, it is possible that those who have experienced an event in the past will amend their evaluations of distinct life satisfaction levels and the importance of emotional/hyperactive subscale components: this is an entirely behavioural effect. On the other hand, adolescents may differ in specific unobservables preconditioning their self-reported life satisfaction/mental health outcomes but are not influenced by experiencing a particular event in the past. These latent characteristics could be for instance individual and personality/behavioural traits such as genetic factors, attractiveness, sensitivity, dominance, self-reliance and social boldness.<sup>15</sup> If such unobservables are correlated over time,

<sup>15</sup>Weight and height could be used to construct of a body mass index and proxy attractiveness but are only reported in 2010 and 2012 while we need measurements in 2009, 2011 and 2013. We are therefore unable to include BMI given the high variability of these measurements during the developmental adolescent period noting that weight can vary endogenously with mental health/wellbeing outcomes.

and are not appropriately controlled for, past mental health/wellbeing outcomes may turn out to be the overriding determinants of future outcomes since they act as proxies for the temporally persistent unobservables. This is what Heckman (1981a, 1981b) terms as "spurious state dependence" as opposed to "true (structural) state dependence". Wooldridge (2005) proposes specifying the distribution of  $\varepsilon_i$  conditional on the initial condition (and the exogenous variables), as opposed to Heckman's (1981b) proposal to obtain the joint distribution of the observed sequence of the outcome variable.

We use Wooldridge's (2005) solution to the initial conditions problem as it is less computationally intensive. Adopting the Mundlak (1978)-Chamberlain (1984) specification we induce a correlation between  $\varepsilon_i$  and the time means of the nonredundant (time-varying) covariates taking the form of  $\varepsilon_i = \bar{\mathbf{x}}_i \mathbf{a} + \xi_i$ , where  $\xi_i \sim iidN(0, \sigma_\xi^2)$  and is independent of  $(\mathbf{x}_{it}, \eta_{it})$  for all  $(i, t)$  in equation (1).<sup>16</sup> The model for the unobserved individual effect,  $\xi_i$ , in its simplest form is

$$\xi_i = \vartheta_0 + \vartheta_1 y_{i1} + \zeta_i \quad (5)$$

where  $\zeta_i$  is  $N(0, \sigma_\zeta^2)$  and independent of the initial condition, the covariates and  $\eta_{it}$ . As we cannot separately identify  $\vartheta_0$  from the cutpoints ( $\boldsymbol{\mu}$ ), we adopt the usual normalisation setting  $\vartheta_0 = 0$ .

The ordered choice log likelihood function in (4) is modified accordingly such that the explanatory variables at time  $t$  are  $\mathbf{q}_{it} \equiv (\mathbf{x}_{it}, \mathbf{y}_{it-1}, \mathbf{y}_{i1}, \bar{\mathbf{x}}_i)$  where  $\mathbf{y}_{it-1}$  and  $\mathbf{y}_{i1}$  denote respectively the vectors of the  $J - 1$  lagged,  $\mathbf{1}[\mathbf{y}_{it-1} = j]$ , and initial conditions set of indicators,  $\mathbf{1}[\mathbf{y}_{i1} = j]$ ,  $j = 2, \dots, J$ . Finally,  $\bar{\mathbf{x}}_i = (T - 1)^{-1} \sum_{t=2}^T \mathbf{x}_{it}$  as suggested by Rabe-Hesketh and Skrondal (2013).<sup>17</sup> Adding time-constant covariates in  $\mathbf{x}_{it}$  only increases the explanatory power since it is not possible to separately identify their partial effects from their partial correlation with the unobserved effect. Due to minimal within variation, we cannot include individual time means of the regional control for London/South East/South West/East of England. Household monthly income, number of children in the household and parental school interest are outcomes of parental socioeconomic attributes and choices. Accordingly, our estimations do not include within means of the aforementioned time-varying covariates.

<sup>16</sup>Arulampalam and Stewart (2009) show that, none of the Heckman (1981b) and Wooldridge (2005) solutions dominates the other and, given the Mundlak (1978)-Chamberlain (1984) CRE device is used the estimators provide similar results.

<sup>17</sup>In terms of relative bias and RMSE, this version performs similarly to the specification of the conditional distribution of the unobserved effect used in Wooldridge (2005) except in the case of an AR(1) process assumed for  $\mathbf{x}_{it}$  with short panels (see Rabe-Hesketh and Skrondal, 2013).

### 3.2 Heterogeneous Thresholds Fixed Effects, Conditional Maximum Likelihood Estimation (CMLE)

Consistency of the correlated random effects estimator relies on the orthogonality assumption between the unobserved individual heterogeneity ( $\varepsilon_i$ ) and the set of covariates. Fixed effects (FE) estimation permits an arbitrary correlation between  $\varepsilon_i$  and the observed explanatory variables but, given fixed-T asymptotics, we cannot obtain consistent ML estimates of  $\delta$  due to the presence of  $\varepsilon_i$  in (3) i.e. the incidental parameters problem, Heckman (1981b).<sup>18</sup> In the particular case of the logistic model, consistent parameter estimates can be obtained by collapsing  $y_{it}$  into a binary variable and using conditional maximum likelihood (CML) (Andersen, 1970; Chamberlain, 1980). CML-FE logit employs a set of sufficient statistics,  $\sum_{t=1}^T y_{itj}$ , to eliminate the individual-specific effect from the likelihood function. This approach discards observations violating  $0 < \sum_{t=1}^T y_{itj} < T$  and precludes the inclusion of time-invariant (or near time-invariant) covariates.<sup>19,20</sup>

We estimate CML-FE logit models for each of the  $J - 1$  thresholds into which the three ordered categorical dependent variables can be dichotomised. Following Jones and Schurer (2011), we implement this approach while accounting for threshold-specific time-invariant heterogeneity by allowing individual cutpoints to differ across individual-specific, but time-invariant attributes such that  $\mu_{ij} = \mu_{ij-1} + \tilde{\mu}_{ij}$  where  $\tilde{\mu}_{ij}$  is an individual threshold-specific effect and  $\tilde{\mu}_{ij} > 0, \forall i$ . The individual threshold-specific effects,  $\tilde{\mu}_{ij}$ , denote differences in reporting behaviour that are a function of latent personality characteristics influencing self-assessments of life satisfaction/mental health outcomes. In other words, while all adolescents share the same ordering of the three outcome variables, individual-specific thresholds vary by  $\tilde{\mu}_{ij}$ . For example, for a given level of life satisfaction, pessimists might be more prone to report lower

<sup>18</sup>Carro (2007) and Carro and Traferri (2012) offer a modified FE MLE for dynamic binary and ordered-choice models respectively though effective bias reduction requires  $T \geq 8$ . Honore and Kyriazidou (2000) propose a fixed-T consistent (though not  $\sqrt{N}$ -consistent) estimator for dynamic discrete choice with continuous exogenous covariates requiring further restrictive assumptions.

<sup>19</sup>Ferrer-i-Carbonell and Frijters (2004) suggest the use of a single but distinct, cutoff point per individual. In practice this estimator is implemented by selecting the individual mean (or median) of  $y_{it}$  as dichotomising cutoff point. However, this determines the dichotomising cutoff point endogenously, since it depends on the dependent variable, producing inconsistent parameter estimates (see Baetschmann et al., 2015).

<sup>20</sup>Mukherjee et al. (2008) offer a CMLE replacing each observation by  $J - 1$  copies of itself, dichotomising each of the  $J - 1$  copies at a different cutoff (referred to as the blow-up and cluster (BUC) estimator in Baetschmann et al., 2015). Muris (2017) extends BUC by using  $(J - 1)^T$  binary dichotomisations and applying the CMLE to each binary response model. The respective CMLEs are computed via composite likelihood (CLE) using the sum of the likelihood functions of  $(J - 1)^T$  CMLEs. The disadvantage of CLE is that it does not estimate distinct parameter estimates per threshold. The composite likelihood (CLE-Muris, 2017) FE Logit estimates lead to similar conclusions to the heterogeneous threshold (J-1) CMLE-FE and CRE estimations, see (Tables 14-16, Supplementary Appendix).

frequencies (see Jones and Schurer, 2011).

Defining  $\alpha_{ij} = \mu_{ij} - \varepsilon_i$  where  $\mu_{ij}$  is an individual specific threshold assumed to be increasing in categories ( $\mu_{i,j-1} < \mu_{ij} \forall i, j$ ) reported life satisfaction/mental health outcomes are determined by

$$y_{it} = j \quad \text{if} \quad \mu_{i,j-1} < y_{it}^* \leq \mu_{ij} \quad (6)$$

where  $\mu_{i0} = -\infty$ ,  $\mu_{ij} \leq \mu_{i,j+1}$  and  $\mu_{iJ} = \infty$  for  $j \in \{1, \dots, J\}$ . The corresponding probability that an adolescent reports outcome  $y_{it} = j$  becomes

$$Pr(y_{it} = j \mid \mathbf{x}_{it}, \alpha_{ij}) = \Lambda(\alpha_{ij} - \mathbf{x}_{it}\boldsymbol{\beta}) - \Lambda(\alpha_{i,j-1} - \mathbf{x}_{it}\boldsymbol{\beta}), \quad \alpha_{ij} = \mu_{ij} - \varepsilon_i \quad (7)$$

where it is assumed that the idiosyncratic error component is distributed as standard logistic  $\eta_{it} \sim \Lambda(0, \frac{\pi^2}{3})$  and  $\Lambda$  is the logistic *cdf*. This estimator conditions out the threshold-specific individual unobserved heterogeneity.<sup>21,22</sup>

### 3.3 Average Partial Effects (APEs)

Given the nonlinear nature of the models, the estimated parameters are only informative regarding the direction and relative impact of the covariates. To obtain a clear quantitative interpretation we estimate APEs. In the case of CRE ordered probit models we estimate the expected value of expression (8) with respect to the distribution of  $(\mathbf{y}_{i1}, \bar{\mathbf{x}}_i)$ . We calculate either first differences of the expected value of (8) for discrete variables in  $(\mathbf{x}_{it}, \mathbf{y}_{it-1})$  or derivatives for continuous variables in  $\mathbf{x}_{it}$ . The CRE partial effects are averaged over the distribution of unobserved heterogeneity and calculated using the population averaged parameters  $\mathbf{b}_\xi = \mathbf{b} / \sqrt{(1 + \sigma_\xi^2)}$ , where  $\mathbf{b}$  denotes the vector of estimated parameters (see Wooldridge, 2005).

$$\Phi(\mu_j - \mathbf{x}_{it}\boldsymbol{\beta} - \mathbf{y}_{it-1}\boldsymbol{\gamma} - \mathbf{y}_{i1}\boldsymbol{\vartheta}_1 - \bar{\mathbf{x}}_i\mathbf{a}) - \Phi(\mu_{j-1} - \mathbf{x}_{it}\boldsymbol{\beta} - \mathbf{y}_{it-1}\boldsymbol{\gamma} - \mathbf{y}_{i1}\boldsymbol{\vartheta}_1 - \bar{\mathbf{x}}_i\mathbf{a}) \quad (8)$$

<sup>21</sup>Alternatively, one can estimate  $J - 1$  random effects specifications under the assumption that the threshold-specific individual unobserved heterogeneity,  $\alpha_{ij}$ , is independent of  $\mathbf{x}_{it}$ .

<sup>22</sup>It is plausible that the unobserved determinants of the three outcome variables tend to occur with the latent factors underlying individual bullying victimisation propensity. To investigate potential simultaneous determination of life satisfaction/mental health outcomes and bullying victimisation we undertake joint maximum likelihood estimation (MLE). Joint MLE provides similar results to the baseline single equation CRE models. Simultaneity is restricted to some forms of domestic victimisation. However, structural identification in the joint MLE is weak. The respective models and results are presented in Sections A-B of the Supplementary Appendix.

To test the robustness of the CRE results in the presence of individual-specific time-invariant endogeneity, we estimate  $J - 1$  CML-FE Logit models accounting for individual threshold-specific effects (heterogeneous threshold FE, henceforth). We report the directly comparable APEs. The CML-FE Logit APEs of discrete and continuous variables in  $\mathbf{x}_{it}$  are obtained by taking either first differences of (9) or derivatives, correspondingly. In this case, we have to introduce an assumption concerning the distribution of the unobserved effect  $\alpha_{ij}$ . As Jones and Schurer (2011) we approximate  $\hat{\alpha}_{ij}$  by

$$\Lambda \left( \hat{\alpha}_{ij} + \mathbf{x}_{it} \hat{\beta}_j \right), \hat{\alpha}_{ij} \simeq \Lambda^{-1} \left( \bar{y}_{ij} \right) - \bar{\mathbf{x}}_i \hat{\beta}_j. \quad (9)$$

Since the APEs are functions of the estimated parameters, they are subject to sampling variability. Accordingly, we provide bootstrapped standard errors using 1,500 bootstrap replications by resampling with replacement accounting for individual-level clustering.

## 4 Estimation Results

This Section analyses the dynamic ordered CRE (in Tables 1-3) and the FE CML heterogeneous threshold estimates (in Tables 8-10). We discuss state dependence and the CRE and FE APEs in Tables (4-7 and 8-10), correspondingly.

### 4.1 State Dependence in the Outcome Variables

The baseline dynamic CRE ordered models estimates for life satisfaction, hyperactive/inattentive and emotional symptoms are provided in Tables 1-3, respectively. To formally test for state dependence, we estimate dynamic models including dummy variables representing one-period lags of the categories of each dependent variable. There is a gradient across the estimated coefficients of previous outcome variables' statuses (see Tables 1-3) with the highest category (completely satisfied(t-1), abnormal(t-1) for life satisfaction and the two mental outcomes, correspondingly) entering with the largest magnitudes (the base category for life satisfaction is "dissatisfied" and, "normal symptoms" for the mental health outcomes). This gradient pattern is reflected in the corresponding estimated APEs noting that the lagged variables' impact is highest at the upper and lower extreme values of the ordered categorical outcome

variables (see Tables 4-7).<sup>23</sup>

The same holds concerning the estimated coefficients for the initial period observations (see Tables 1-3). There is generally a positive gradient in the estimated effects as we move from the lowest to the highest (completely satisfied(2009), abnormal(2009) for life satisfaction and the mental outcomes, respectively) levels of the outcome variables. This indicates a positive correlation among initial period observations and the unobserved heterogeneity.

The CRE life satisfaction and emotional symptom estimates clearly highlight that even after controlling for the unobserved effect, the most important predictors (in terms of statistical significance and coefficient magnitude) are previous period complete life satisfaction and abnormal emotional symptoms, respectively (see Tables 1 and 3). In general, intermediate previous period levels of life satisfaction (very satisfied(t-1)) and emotional symptoms (intermediate(t-1)) are also significant determinants.

However, hyperactive and inattentive symptoms are strongly preconditioned by initial period outcomes with abnormal initial symptoms (abnormal 2009) entering all estimations in columns (1-9) of Table 2 with the largest coefficient magnitudes and followed by significant intermediate level initial symptoms. This shows strong predetermination of hyperactive and inattentive symptoms possibly by genetic predisposition and other individual-specific unobservables. With the exception of general school and physical school bullying, hyperactivity and inattention appear to be statistically unaffected by previous period symptomatic status in the CRE models of Table 2.<sup>24</sup>

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<sup>23</sup>While the joint MLE emotional symptoms models (in Table 13 -Supplementary Appendix) include the full set of variables, we are unable to include lagged values of emotional symptoms in the domestic maltreatment CRE estimates in Table 3 due to convergence problems. The transition probability matrices (available upon request) indicate markedly stronger persistence in initial period domestic bullying. This produces high collinearity between lagged emotional symptoms and domestic victimisation, via their joint dependence with the unobserved effect, which is reduced by the inclusion of the shared random effect in the joint MLE in Table 13 -Supplementary Appendix.

<sup>24</sup>In Waves 2 and 3, a range of bio-medical measures were collected from adult participants of the UKHLS but are unavailable for the youth samples. Therefore, we cannot identify specific gene-environment interactions preconditioning hyperactivity/inattentive symptoms.



Table 1: Adolescent Life Satisfaction, 2009-2013, CRE Ordered Probits, Balanced Panels

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
Completely Satisfied(t-1)	0.9577** (0.3799)	0.9700** (0.4375)	0.7504** (0.3684)	0.8407* (0.4374)	0.6379* (0.3648)	0.9688** (0.4299)	0.8815** (0.4326)	1.0407** (0.4359)	0.6570* (0.3639)
Very Satisfied(t-1)	0.5028* (0.2832)	0.6711** (0.3317)	0.4091 (0.2873)	0.5484* (0.3263)	0.3080 (0.2824)	0.6653** (0.3204)	0.6046* (0.3247)	0.7199** (0.3317)	0.3654 (0.2829)
Satisfied(t-1)	0.2485 (0.2325)	0.3614 (0.2653)	0.1574 (0.2404)	0.2736 (0.2621)	0.1350 (0.2369)	0.3449 (0.2534)	0.3645 (0.2622)	0.4061 (0.2642)	0.1033 (0.2420)
Completely Satisfied(2009)	0.3466 (0.3432)	0.6556 (0.4359)	0.5895* (0.3542)	0.7602* (0.4137)	0.6834** (0.3456)	0.6672 (0.4201)	0.7610* (0.4264)	0.6531 (0.4352)	0.6490* (0.3402)
Very Satisfied(2009)	0.2182 (0.2519)	0.4476 (0.3483)	0.3427 (0.2762)	0.5383* (0.3194)	0.4236 (0.2705)	0.4382 (0.3237)	0.5033 (0.3339)	0.4634 (0.3452)	0.3320 (0.2655)
Satisfied(2009)	0.2261 (0.2368)	0.4992 (0.3319)	0.3613 (0.2655)	0.4821 (0.3029)	0.3335 (0.2658)	0.4142 (0.3082)	0.4604 (0.3197)	0.4931 (0.3295)	0.4228 (0.2625)
Bullied	-0.6815*** (0.1266)	-0.2254* (0.1238)	-0.6512*** (0.1155)	-0.0698 (0.1122)	-0.6466*** (0.1533)	-0.0749 (0.1106)	-0.1900 (0.1184)	-0.0887 (0.1152)	-0.7542*** (0.1220)
Male	0.2987*** (0.0933)	0.2277* (0.1240)	0.3308*** (0.1092)	0.2625** (0.1182)	0.3561*** (0.1129)	0.2349* (0.1224)	0.2515** (0.1241)	0.2342* (0.1198)	0.3492*** (0.1112)
Ln(Real House Net Monthly Income p.capita)	0.0819 (0.0950)	0.2259* (0.1280)	0.1877* (0.1062)	0.1753 (0.1163)	0.1671 (0.1065)	0.1737 (0.1240)	0.2044 (0.1273)	0.2149* (0.1235)	0.1800* (0.1061)
Close Friends Number	-0.0114 (0.0135)	-0.0147 (0.0158)	-0.0065 (0.0141)	-0.0116 (0.0146)	-0.0074 (0.0139)	-0.0124 (0.0155)	-0.0123 (0.0154)	-0.0091 (0.0153)	-0.0052 (0.0141)
Number of Children in Household	0.0072 (0.0542)	0.0496 (0.0776)	0.0297 (0.0603)	0.0561 (0.0731)	0.0098 (0.0634)	0.0523 (0.0749)	0.0454 (0.0776)	0.0600 (0.0742)	0.0339 (0.0599)
Not Arguing with Mum	0.3421* (0.1796)	0.4641** (0.2043)	0.2693 (0.1863)	0.4559** (0.1889)	0.3040* (0.1837)	0.4562** (0.1984)	0.4192** (0.1981)	0.4277** (0.1976)	0.2839 (0.1861)
Not Arguing with Dad	0.1295 (0.2031)	0.3890* (0.2207)	0.1853 (0.1950)	0.2775 (0.2326)	0.1609 (0.1924)	0.3649* (0.2188)	0.2616 (0.2261)	0.3059 (0.2201)	0.1178 (0.2017)
Not Talking to Mum	-0.0320 (0.2103)	-0.0864 (0.2476)	-0.1169 (0.2042)	-0.0736 (0.2422)	-0.0598 (0.2049)	-0.1813 (0.2483)	-0.1469 (0.2439)	-0.1450 (0.2378)	-0.0666 (0.2049)
Not Talking to Dad	-0.3237* (0.1888)	-0.5206** (0.2240)	-0.3492* (0.1887)	-0.3609* (0.2165)	-0.3936** (0.1812)	-0.3259 (0.2172)	-0.4451** (0.2251)	-0.4921** (0.2158)	-0.3358* (0.1890)
London, S.East, S.West, East England	-0.2961*** (0.0909)	-0.2172* (0.1210)	-0.3045*** (0.1026)	-0.2160* (0.1134)	-0.2922*** (0.1062)	-0.1844 (0.1180)	-0.2063* (0.1204)	-0.2197* (0.1154)	-0.3329*** (0.1040)
Parental School Interest	0.4680*** (0.1212)	0.5094*** (0.1451)	0.4461*** (0.1295)	0.5258*** (0.1389)	0.4759*** (0.1332)	0.5146*** (0.1430)	0.5054*** (0.1432)	0.4885*** (0.1389)	0.4545*** (0.1298)
$\mu_1$	-0.1469 (0.3641)	0.5366 (0.4530)	-0.0993 (0.4028)	0.5690 (0.4266)	-0.0003 (0.4198)	0.5482 (0.4428)	0.5312 (0.4552)	0.7040 (0.4303)	-0.2115 (0.4065)
$\mu_2$	0.8274** (0.3732)	1.6523*** (0.4645)	0.9781** (0.4124)	1.6299*** (0.4415)	1.0745** (0.4253)	1.6594*** (0.4583)	1.6439*** (0.4649)	1.7936*** (0.4449)	0.8698** (0.4140)
$\mu_3$	2.1079*** (0.3992)	3.0675*** (0.4921)	2.3577*** (0.4393)	3.0428*** (0.4750)	2.4687*** (0.4458)	3.0744*** (0.4916)	3.0942*** (0.4908)	3.1927*** (0.4794)	2.2777*** (0.4361)
Log-Likelihood	-864.038	-680.045	-847.349	-743.278	-865.841	-708.099	-716.981	-701.240	-854.759
Sample Size	778	610	770	662	776	632	640	628	780
Wald (Global Significance)	240.071	154.740	202.458	158.762	188.024	159.062	151.835	159.033	206.231
Intra-Class Correlation	0.091	0.286	0.230	0.265	0.276	0.287	0.310	0.255	0.249
Intra-Class Correlation (p-value)	0.253	0.023	0.030	0.029	0.010	0.024	0.014	0.038	0.017

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Standard errors (in parentheses) are adjusted for individual level (within person) clustering. CRE: Correlated Random Effects. All estimations include individual specific (within) means, for T>2009, of (Close Friends, Not Arguing with Mum/Dad, Not Talking to Mum/Dad) and a time dummy for 2013.

**GenBull:** Other children or young people pick on me or bully me. **GenHome:** Brothers/sisters hit, kick or push you. Brothers/sisters call you nasty names. Brothers/sisters make fun of you. Brothers/sisters take your belongings. **GenSchool:** How often do you get physically bullied at school? How often do you get bullied in other ways at school? **PhysHome:** Brothers/sisters hit, kick or push you. **PhysSchool:** How often do you get physically bullied at school? **VerbalHome:** Brothers/sisters call you nasty names. **FunTeaseHome:** Brothers/sisters make fun of you. **StealHome:** Brothers/sisters take your belongings. **OthSchool:** How often do you get bullied in other ways at school?

Table 2: Adolescent Hyperactivity/Inattention, 2009-2013, CRE Ordered Probits, Balanced Panels

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
Abnormal(t-1)	0.2668 (0.2925)	0.0465 (0.3331)	0.5093* (0.3057)	0.1490 (0.3245)	0.5240* (0.3061)	0.0954 (0.3234)	0.1407 (0.3214)	0.1638 (0.3293)	0.4593 (0.3047)
Intermediate(t-1)	0.0857 (0.1848)	-0.0428 (0.2122)	0.1870 (0.1988)	0.0524 (0.2054)	0.2065 (0.1948)	-0.0083 (0.2095)	-0.0047 (0.2051)	0.0495 (0.2105)	0.1819 (0.1952)
Abnormal(2009)	1.1974*** (0.3336)	1.4641*** (0.3756)	0.9452*** (0.3418)	1.3142*** (0.3552)	0.9240*** (0.3308)	1.4576*** (0.3743)	1.3427*** (0.3588)	1.3395*** (0.3703)	1.0163*** (0.3444)
Intermediate(2009)	0.7175*** (0.2152)	0.7888*** (0.2482)	0.5897*** (0.2200)	0.6675*** (0.2284)	0.5725*** (0.2136)	0.7884*** (0.2489)	0.7240*** (0.2326)	0.7042*** (0.2385)	0.6213*** (0.2190)
Bullied	0.7322*** (0.1792)	0.4070*** (0.1285)	0.5679*** (0.1236)	0.3993*** (0.1174)	0.6562*** (0.1558)	0.4516*** (0.1269)	0.3178** (0.1295)	0.2897** (0.1229)	0.5344*** (0.1252)
Male	0.1223 (0.1288)	0.1315 (0.1505)	0.1003 (0.1180)	0.0951 (0.1357)	0.0674 (0.1167)	0.0680 (0.1470)	0.0912 (0.1374)	0.1437 (0.1384)	0.1219 (0.1190)
Ln(Real House Net Monthly Income p.capita)	-0.0332 (0.1284)	-0.1007 (0.1515)	-0.0867 (0.1196)	-0.1003 (0.1392)	-0.0649 (0.1176)	-0.0840 (0.1493)	-0.0994 (0.1441)	-0.1030 (0.1430)	-0.0941 (0.1206)
Close Friends Number	0.0168 (0.0144)	0.0135 (0.0158)	0.0140 (0.0140)	0.0110 (0.0157)	0.0143 (0.0140)	0.0169 (0.0159)	0.0161 (0.0158)	0.0089 (0.0157)	0.0136 (0.0139)
Number of Children in Household	0.0707 (0.0727)	0.1569* (0.0828)	0.0500 (0.0682)	0.1189 (0.0743)	0.0556 (0.0666)	0.1533* (0.0810)	0.1724** (0.0783)	0.1355* (0.0787)	0.0607 (0.0681)
Not Arguing with Mum	-0.4858** (0.1954)	-0.4971** (0.2117)	-0.4552** (0.1899)	-0.4384** (0.2086)	-0.4972*** (0.1880)	-0.5039** (0.2098)	-0.4857** (0.2067)	-0.4237** (0.2128)	-0.4586** (0.1899)
Not Arguing with Dad	0.0411 (0.1970)	-0.0425 (0.2240)	0.0081 (0.1888)	-0.0811 (0.2110)	0.0317 (0.1881)	-0.0645 (0.2140)	-0.0576 (0.2083)	-0.0458 (0.2210)	0.0139 (0.1879)
Not Talking to Mum	0.1864 (0.2429)	0.0808 (0.2705)	0.2090 (0.2383)	0.1450 (0.2626)	0.1775 (0.2353)	0.0892 (0.2640)	0.2171 (0.2692)	0.1803 (0.2685)	0.2001 (0.2399)
Not Talking to Dad	0.0378 (0.2064)	0.0936 (0.2529)	0.0447 (0.2049)	0.0978 (0.2405)	0.0397 (0.1993)	0.1043 (0.2340)	0.0392 (0.2364)	0.0608 (0.2490)	0.0567 (0.2018)
London, S.East, S.West, East England	0.1377 (0.1253)	0.0192 (0.1436)	0.0827 (0.1136)	0.0036 (0.1315)	0.0882 (0.1110)	0.0507 (0.1414)	0.0437 (0.1335)	0.0242 (0.1332)	0.0748 (0.1154)
Parental School Interest	-0.3446** (0.1470)	-0.2814* (0.1630)	-0.3137** (0.1439)	-0.3923** (0.1599)	-0.3259** (0.1423)	-0.2780* (0.1595)	-0.3479** (0.1576)	-0.3165** (0.1554)	-0.3271** (0.1437)
$\mu_1$	-0.1887 (0.4278)	-0.1032 (0.5165)	-0.2167 (0.4154)	-0.2468 (0.4566)	-0.2896 (0.4073)	-0.0064 (0.5068)	-0.1740 (0.4876)	-0.1817 (0.4792)	-0.2490 (0.4148)
$\mu_2$	1.7460*** (0.4404)	1.8413*** (0.5228)	1.5782*** (0.4090)	1.6667*** (0.4606)	1.4969*** (0.3972)	1.9656*** (0.5161)	1.7241*** (0.4892)	1.6750*** (0.4862)	1.5741*** (0.4077)
Log-Likelihood	-704.168	-558.623	-690.875	-604.005	-697.651	-574.499	-589.060	-576.916	-699.964
Sample Size	792	618	776	670	782	640	650	634	786
Wald (Global Significance)	150.073	97.242	171.079	117.630	172.036	105.257	107.122	104.480	171.123
Intra-Class Correlation	0.410	0.433	0.314	0.386	0.302	0.437	0.388	0.379	0.334
Intra-Class Correlation (p-value)	0.000	0.001	0.009	0.002	0.012	0.001	0.002	0.003	0.005

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Standard errors (in parentheses) are adjusted for individual level (within person) clustering. CRE: Correlated Random Effects. All estimations include individual specific (within) means, for T>2009, of (Close Friends, Not Arguing with Mum/Dad, Not Talking to Mum/Dad) and a time dummy for 2013.

Table 3: Adolescent Emotional Symptoms, 2009-2013, CRE Ordered Probits, Balanced Panels

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
Abnormal(t-1)	1.0071*** (0.3306)		1.1852*** (0.3481)		1.0431*** (0.3626)				1.1978*** (0.3461)
Intermediate(t-1)	0.4990** (0.1939)		0.5533*** (0.2137)		0.4814** (0.2257)				0.5626*** (0.2102)
Abnormal(2009)	0.2741 (0.3166)	1.4792*** (0.2456)	0.1636 (0.3388)	1.3519*** (0.2296)	0.2864 (0.3597)	1.3567*** (0.2400)	1.3840*** (0.2395)	1.4325*** (0.2442)	0.1438 (0.3350)
Intermediate(2009)	0.1995 (0.1711)	0.6264*** (0.1646)	0.1176 (0.1806)	0.5854*** (0.1541)	0.1954 (0.1927)	0.6207*** (0.1602)	0.6477*** (0.1614)	0.6589*** (0.1625)	0.1016 (0.1779)
Bullied	0.8896*** (0.1715)	0.2908** (0.1370)	0.4983*** (0.1038)	0.1064 (0.1336)	0.5422*** (0.1441)	0.1698 (0.1270)	0.3893*** (0.1405)	0.3391*** (0.1228)	0.4986*** (0.1048)
Male	-0.6814*** (0.1130)	-0.9068*** (0.1655)	-0.6754*** (0.1154)	-0.8331*** (0.1534)	-0.7340*** (0.1307)	-0.8547*** (0.1592)	-0.8731*** (0.1592)	-0.8493*** (0.1599)	-0.6474*** (0.1131)
Ln(Real House Net Monthly Income p.capita)	0.1397 (0.1075)	0.0155 (0.1564)	0.0951 (0.1053)	-0.0014 (0.1490)	0.1044 (0.1100)	0.0244 (0.1548)	-0.0093 (0.1532)	-0.0026 (0.1531)	0.0786 (0.1036)
Close Friends Number	-0.0026 (0.0132)	-0.0096 (0.0184)	-0.0025 (0.0138)	-0.0115 (0.0175)	-0.0024 (0.0139)	-0.0075 (0.0179)	-0.0018 (0.0169)	-0.0111 (0.0187)	-0.0036 (0.0139)
Number of Children in Household	0.0535 (0.0503)	0.0081 (0.0759)	0.0210 (0.0476)	0.0489 (0.0747)	0.0328 (0.0503)	0.0430 (0.0713)	0.0402 (0.0736)	0.0009 (0.0745)	0.0399 (0.0493)
Not Arguing with Mum	-0.3355* (0.1852)	-0.2311 (0.2210)	-0.3563* (0.1916)	-0.2554 (0.2085)	-0.3879** (0.1924)	-0.2678 (0.2148)	-0.2803 (0.2097)	-0.2055 (0.2184)	-0.3531* (0.1892)
Not Arguing with Dad	0.1166 (0.2074)	-0.1997 (0.2727)	0.0734 (0.1935)	-0.1342 (0.2433)	0.0915 (0.1975)	-0.1397 (0.2559)	-0.1164 (0.2538)	-0.2063 (0.2704)	0.0826 (0.1905)
Not Talking to Mum	0.0801 (0.1943)	0.1983 (0.2482)	0.1024 (0.1914)	0.1625 (0.2399)	0.0771 (0.1961)	0.2206 (0.2412)	0.2636 (0.2403)	0.2023 (0.2411)	0.0998 (0.1905)
Not Talking to Dad	0.0117 (0.1765)	0.0052 (0.2235)	0.0169 (0.1814)	-0.0488 (0.2074)	0.0187 (0.1773)	-0.0359 (0.2090)	-0.0678 (0.2101)	0.0290 (0.2160)	0.0192 (0.1804)
London, S.East, S.West, East England	0.1662* (0.0957)	-0.0309 (0.1487)	0.1254 (0.0909)	-0.0371 (0.1400)	0.1295 (0.0976)	0.0060 (0.1447)	-0.0249 (0.1466)	-0.0364 (0.1473)	0.1175 (0.0893)
Parental School Interest	-0.2218* (0.1340)	-0.3335* (0.1788)	-0.1987 (0.1295)	-0.3669** (0.1724)	-0.2192 (0.1344)	-0.3229* (0.1752)	-0.3352* (0.1734)	-0.3265* (0.1750)	-0.2103 (0.1298)
$\mu_1$	0.3924 (0.3203)	-0.4205 (0.4812)	0.2230 (0.3119)	-0.5682 (0.4577)	0.1034 (0.3317)	-0.4497 (0.4667)	-0.3498 (0.4734)	-0.4045 (0.4699)	0.1723 (0.3075)
$\mu_2$	1.8664*** (0.3341)	1.3123*** (0.4848)	1.6455*** (0.3159)	1.1487** (0.4555)	1.5862*** (0.3353)	1.2774*** (0.4705)	1.3874*** (0.4766)	1.3188*** (0.4724)	1.5830*** (0.3064)
Log-Likelihood	-642.313	-514.211	-632.792	-566.254	-641.426	-538.976	-543.587	-528.074	-644.958
Sample Size	792	618	776	670	782	640	650	634	786
Wald (Global Significance)	219.053	98.498	217.575	105.077	190.376	100.677	103.944	98.107	226.589
Intra-Class Correlation	0.074	0.417	0.023	0.410	0.108	0.414	0.424	0.417	0.020
Intra-Class Correlation (p-value)	0.304	0.000	0.445	0.000	0.255	0.000	0.000	0.000	0.451

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Standard errors (in parentheses) are adjusted for individual level (within person) clustering. CRE: Correlated Random Effects. All estimations include individual specific (within) means, for T>2009, of (Close Friends, Not Arguing with Mum/Dad, Not Talking to Mum/Dad) and a time dummy for 2013.

## 4.2 Observed Heterogeneity and CRE APEs

The baseline CRE ordered probit estimates (in Tables 1-3) point out three important features regarding the impact of bullying victimisation on the outcome variables. Primarily, bullying increases adolescent emotional and hyperactive/inattentive symptoms and reduces life satisfaction. This is in line with the existing literature (see O'Brennan et al. 2000; Smith et al., 2004 and reviewed studies in McDougall and Vaillancourt, 2015). Regarding the corresponding CRE APEs (in Tables 4-7) a clear pattern is evident: the impact of victimisation is highest at the upper and lower extreme values of the ordered categorical outcome variables. The same pattern generally holds concerning the remaining covariates' CRE estimated APEs.

Secondly, the adverse impact of non-domestic bullying on emotional, hyperactive/inattentive symptoms and life satisfaction is markedly higher compared to the corresponding domestic bullying impact. This becomes evident comparing the general bullying and aggregate school bullying coefficient magnitudes to the aggregate home magnitudes, physical domestic bullying to physical school bullying coefficients and other forms of school bullying to the remaining domestic bullying victimisation coefficients (verbal, fun/tease and stealing). Clearer quantitative comparisons in probabilistic terms can be made using the estimated APEs in Tables 4-7.

Thirdly, unilaterally all domestic victimisation forms have a statistically insignificant impact on life satisfaction, whereas, aggregate domestic victimisation enters with a weakly significant effect which is just over a third of the respective aggregate school impact (see Table 1). In fact, the estimated APEs (in Tables 4,5) indicate that general bullying and aggregate school victimisation generally lead to around threefold increases/reductions in the respective probabilities of reporting the lowest two/highest two levels of life satisfaction compared to aggregate domestic victimisation. Likewise, physical and verbal domestic victimisation do not have a statistically significant effect on emotional symptoms (see Tables 3 and 7).

Gender differential effects in adolescent life satisfaction and emotional symptoms are prominent. Male adolescents are *ceteris paribus* more likely to report higher life satisfaction and less likely to report emotional symptoms (see Tables 1 and 3). While being male is positively associated with hyperactive/inattentive symptoms, its impact is statistically insignificant (see Table 2). The estimated gender APEs are higher regarding emotional symptoms, indicating that male adolescents are around 21-24 per

cent more likely not to suffer any emotional symptoms and around 10-12 per cent less likely to have intermediate/high emotional symptoms (as opposed to 2.5-4.9 per cent less likely /5.2-8.6 per cent more likely to report dissatisfaction and more satisfaction/complete life satisfaction, correspondingly)- see Tables (7, 4 and 5). These gender effects align with the psychological literature- see Altemus et al. (2014) for a review on gender differences in anxiety, depression, affective disorders and mental health.<sup>25,26</sup>

Turning to the family environment variables it is evident that healthier family interaction increases adolescent life satisfaction and reduces mental health symptoms. More precisely, adolescents not arguing with their mum are generally more likely to be satisfied with their lives excluding the aggregate/other school bullying estimates (see Table 1). Further, low paternal talking frequency (about the things that matter) significantly decreases adolescent life satisfaction across all models except in the verbal domestic abuse estimates. On the other hand, the absence of arguments with mum significantly reduces hyperactive/inattentive and emotional symptoms noting that in the latter case its effects are insignificant across all domestic victimisation estimates (see Tables 2 and 3). Concerning all three outcomes, the absence of maternal arguments generally produces notable APEs (see Tables 4-7). Positive family relationships have been identified as an important protective/moderating factor against internalising/externalising problems in the literature (see McDougall and Vaillancourt, 2015; Ttofi et al. 2014).

Parental school interest significantly raises the probability of reporting higher life satisfaction levels and decreases hyperactive/inattentive and emotional symptoms (see Tables 1-3) translating into notable corresponding APEs (in Tables 4-7). Parental school interest, however, enters with statistically insignificant effects on emotional symptoms across all school-level victimisation estimates in Table 3. Household income enters with positive statistically significant effects in the CRE life satisfaction models controlling for aggregate home/school bullying, domestic stealing and other forms of school bullying (see Table 1). The respective APEs are the highest at the upper extreme indicating that higher household income per head raises the probability of reporting complete life satisfaction by 4.3 to 5.2 per cent in the aforemen-

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<sup>25</sup>The onset of anxiety and depressive disorders peaks during adolescence and early adulthood, with girls facing significantly higher risks (Altemus et al., 2014, p.320). Due to numerous discrepancies in brain structure, stress responsivity, hormonal/genetic sexual dimorphisms and social influences, identifying the causes of gender differences relevant to affective illness and mental health is challenging (Altemus et al. 2014, p.320; Rainville et al., 2018, p.79).

<sup>26</sup>In further estimations (available upon request) an added interaction between bullying and gender is globally statistically insignificant and does not change the results. Some studies provide evidence that victimisation experiences relate to different gender outcomes e.g. self-perception problems for boys and difficulties with anxiety and depression for girls. For example, Rigby (1999) concludes that high levels of peer victimisation predict poor physical health for both sexes and poor mental health in girls. Fletcher (2009), finds that sexual and physical abuse by adults has strongest depressive effects on adolescent females. However, in line with the insignificance of the bullying-gender interaction variable, several studies indicate same adjustment patterns across gender (see McDougall and Vaillancourt, 2015, p.303).

tioned cases (see Table 5).

On the contrary, residing in the wealthiest (in terms of GVA per capita) English regions of "London, S.East, S.West, East of England" significantly reduces adolescent life satisfaction across all estimates excluding domestic verbal abuse (see Table 1). Further, residing in the wealthiest English regions significantly increases emotional symptoms in the general bullying estimates (see column 1, Table 3). The regional control APEs are greatest at the two extreme categories of life satisfaction raising the probability of reporting dissatisfaction by around 3.2-4.7 per cent and reducing the probability of complete satisfaction by 4.6-7.9 per cent (see Tables 7,8).<sup>27</sup> Longer working hours and higher parental stress levels (possibly associated with higher regional income per capita) could increase exposure to poor parenting skills producing the negative life satisfaction association.<sup>28</sup>

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<sup>27</sup>We use the first-level Classification of Territorial Units for Statistics (NUTS) to aggregate the wealthiest regions in terms of GVA per capita. London and the South East are above the national GVA per head average while the East of England and South West follow and deviate by a maximum of 9.5 percent below the average during the period analysed. Scotland deviates by a maximum of 6 percent below the national average but we opted to aggregate the most affluent English regions instead due to geographical proximity- see <https://www.ons.gov.uk/economy/grossvalueaddedgva/bulletins/regionalgrossvalueaddedincomeapproach/previousReleases>. The regional control has a statistically significant impact in the life satisfaction models (Tables 1, 4 and 5). The estimations using "London, S.East, S.West, East of England and Scotland" give similar estimates.

<sup>28</sup>As noted, matching youth respondents to their corresponding parental interview files (inclusive of employment details) is prohibitive in terms of sample attrition given the longitudinal nature of our investigation.

Table 4: Adolescent Life Satisfaction, 2009-2013, APE, CRE Ordered Probits, first two cutoffs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>Dissatisfied, Life Satisfaction=1</b>									
Completely Satisfied (t-1)	-0.1307*** (0.0473)	-0.1246** (0.0611)	-0.0949* (0.0491)	-0.1119* (0.0611)	-0.0812 (0.0497)	-0.1240** (0.0609)	-0.1142* (0.0601)	-0.1356** (0.0623)	-0.0837* (0.0476)
Very Satisfied (t-1)	-0.0768* (0.0424)	-0.0957* (0.0553)	-0.0566 (0.0433)	-0.0803 (0.0534)	-0.0422 (0.0432)	-0.0949* (0.0544)	-0.0863 (0.0541)	-0.1053* (0.0574)	-0.0501 (0.0426)
Satisfied (t-1)	-0.0356 (0.0316)	-0.0477 (0.0339)	-0.0211 (0.0326)	-0.0377 (0.0353)	-0.0180 (0.0324)	-0.0458 (0.0331)	-0.0482 (0.0336)	-0.0541 (0.0353)	-0.0140 (0.0334)
Bullied	0.1271*** (0.0281)	0.0320* (0.0174)	0.0981*** (0.0185)	0.0103 (0.0165)	0.1064*** (0.0286)	0.0108 (0.0159)	0.0270 (0.0173)	0.0131 (0.0175)	0.1158*** (0.0200)
Male	-0.0458*** (0.0141)	-0.0326* (0.0176)	-0.0462*** (0.0160)	-0.0386** (0.0172)	-0.0491*** (0.0161)	-0.0337* (0.0176)	-0.0360** (0.0184)	-0.0342* (0.0175)	-0.0485*** (0.0152)
Ln(Real House Net Monthly Income p.capita)	-0.0126 (0.0145)	-0.0325 (0.0198)	-0.0263* (0.0148)	-0.0259 (0.0181)	-0.0232 (0.0152)	-0.0251 (0.0186)	-0.0295 (0.0196)	-0.0316* (0.0191)	-0.0250* (0.0147)
Close Friends Number	0.0017 (0.0022)	0.0021 (0.0025)	0.0009 (0.0020)	0.0017 (0.0023)	0.0010 (0.0019)	0.0018 (0.0024)	0.0018 (0.0024)	0.0013 (0.0024)	0.0007 (0.0020)
Number of Children in Household	-0.0011 (0.0084)	-0.0071 (0.0114)	-0.0042 (0.0085)	-0.0083 (0.0111)	-0.0014 (0.0090)	-0.0075 (0.0109)	-0.0066 (0.0117)	-0.0088 (0.0112)	-0.0047 (0.0085)
Not Arguing with Mum	-0.0513* (0.0265)	-0.0649** (0.0292)	-0.0369 (0.0256)	-0.0654** (0.0265)	-0.0412 (0.0251)	-0.0640** (0.0271)	-0.0589** (0.0274)	-0.0611** (0.0280)	-0.0386 (0.0245)
Not Arguing with Dad	-0.0201 (0.0316)	-0.0576* (0.0348)	-0.0263 (0.0286)	-0.0418 (0.0377)	-0.0225 (0.0287)	-0.0541 (0.0352)	-0.0384 (0.0350)	-0.0460 (0.0359)	-0.0165 (0.0285)
Not Talking to Mum	0.0049 (0.0338)	0.0127 (0.0402)	0.0168 (0.0310)	0.0111 (0.0389)	0.0084 (0.0304)	0.0272 (0.0417)	0.0219 (0.0400)	0.0220 (0.0398)	0.0094 (0.0297)
Not Talking to Dad	0.0506* (0.0292)	0.0773** (0.0348)	0.0496* (0.0281)	0.0546 (0.0334)	0.0556** (0.0259)	0.0479 (0.0345)	0.0660* (0.0358)	0.0746** (0.0346)	0.0474* (0.0276)
London, S.East, S.West, East England	0.0462*** (0.0146)	0.0316* (0.0183)	0.0433*** (0.0151)	0.0322* (0.0178)	0.0410*** (0.0154)	0.0268 (0.0175)	0.0301 (0.0184)	0.0327* (0.0179)	0.0471*** (0.0151)
Parental School Interest	-0.0816*** (0.0230)	-0.0828*** (0.0269)	-0.0698*** (0.0233)	-0.0885*** (0.0270)	-0.0743*** (0.0232)	-0.0841*** (0.0259)	-0.0821*** (0.0262)	-0.0809*** (0.0262)	-0.0706*** (0.0230)
<b>Satisfied, Life Satisfaction ∈ (1,2]</b>									
Completely Satisfied (t-1)	-0.1298*** (0.0478)	-0.1162** (0.0539)	-0.0953* (0.0524)	-0.1019* (0.0552)	-0.0793 (0.0511)	-0.1187** (0.0560)	-0.1045* (0.0550)	-0.1264** (0.0543)	-0.0799 (0.0496)
Very Satisfied (t-1)	-0.0552** (0.0263)	-0.0690** (0.0301)	-0.0442 (0.0298)	-0.0579* (0.0314)	-0.0336 (0.0303)	-0.0697** (0.0306)	-0.0621** (0.0311)	-0.0740** (0.0301)	-0.0384 (0.0294)
Satisfied (t-1)	-0.0283 (0.0251)	-0.0381 (0.0263)	-0.0174 (0.0265)	-0.0293 (0.0268)	-0.0149 (0.0262)	-0.0370 (0.0265)	-0.0381 (0.0261)	-0.0430 (0.0269)	-0.0111 (0.0259)
Bullied	0.0755*** (0.0143)	0.0251* (0.0140)	0.0769*** (0.0143)	0.0076 (0.0122)	0.0678*** (0.0152)	0.0083 (0.0123)	0.0208 (0.0135)	0.0098 (0.0130)	0.0855*** (0.0146)
Male	-0.0352*** (0.0114)	-0.0249* (0.0140)	-0.0370*** (0.0126)	-0.0290** (0.0130)	-0.0397*** (0.0130)	-0.0262* (0.0136)	-0.0272* (0.0140)	-0.0261* (0.0136)	-0.0378*** (0.0122)
Ln(Real House Net Monthly Income p.capita)	-0.0096 (0.0113)	-0.0243* (0.0145)	-0.0208* (0.0118)	-0.0191 (0.0134)	-0.0186 (0.0122)	-0.0191 (0.0140)	-0.0218 (0.0144)	-0.0235* (0.0139)	-0.0193* (0.0113)
Close Friends Number	0.0013 (0.0017)	0.0016 (0.0019)	0.0007 (0.0016)	0.0013 (0.0017)	0.0008 (0.0015)	0.0014 (0.0018)	0.0013 (0.0018)	0.0010 (0.0017)	0.0006 (0.0016)
Number of Children in Household	-0.0008 (0.0065)	-0.0053 (0.0085)	-0.0033 (0.0067)	-0.0061 (0.0082)	-0.0011 (0.0072)	-0.0057 (0.0082)	-0.0048 (0.0087)	-0.0066 (0.0083)	-0.0036 (0.0065)
Not Arguing with Mum	-0.0425* (0.0232)	-0.0541** (0.0258)	-0.0314 (0.0227)	-0.0532** (0.0232)	-0.0355 (0.0223)	-0.0539** (0.0250)	-0.0478** (0.0240)	-0.0504** (0.0242)	-0.0321 (0.0214)
Not Arguing with Dad	-0.0153 (0.0237)	-0.0420* (0.0232)	-0.0208 (0.0219)	-0.0304 (0.0259)	-0.0180 (0.0216)	-0.0403 (0.0246)	-0.0281 (0.0246)	-0.0337 (0.0245)	-0.0127 (0.0218)
Not Talking to Mum	0.0037 (0.0246)	0.0093 (0.0278)	0.0130 (0.0227)	0.0080 (0.0263)	0.0066 (0.0228)	0.0198 (0.0274)	0.0156 (0.0266)	0.0159 (0.0264)	0.0072 (0.0219)
Not Talking to Dad	0.0397* (0.0230)	0.0598** (0.0262)	0.0407* (0.0229)	0.0412* (0.0247)	0.0458** (0.0206)	0.0375 (0.0266)	0.0499* (0.0259)	0.0574** (0.0256)	0.0377* (0.0219)
London, S.East, S.West, East England	0.0345*** (0.0105)	0.0234* (0.0131)	0.0338*** (0.0113)	0.0236* (0.0129)	0.0324*** (0.0121)	0.0203 (0.0128)	0.0220* (0.0131)	0.0240* (0.0129)	0.0357*** (0.0112)
Parental School Interest	-0.0541*** (0.0137)	-0.0532*** (0.0152)	-0.0491*** (0.0148)	-0.0552*** (0.0143)	-0.0521*** (0.0145)	-0.0546*** (0.0146)	-0.0520*** (0.0145)	-0.0519*** (0.0147)	-0.0485*** (0.0138)

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. Bootstrapped standard errors (in parentheses) accounting for individual-level clustering (1,500 replications).

Table 5: Adolescent Life Satisfaction, 2009-2013, APE, CRE Ordered Probits, last two cutoffs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>Very Satisfied, Life Satisfaction ∈ (2,3]</b>									
Completely Satisfied (t-1)	-0.0089 (0.0139)	0.0040 (0.0151)	-0.0035 (0.0121)	0.0043 (0.0136)	-0.0018 (0.0113)	0.0040 (0.0158)	0.0070 (0.0143)	0.0032 (0.0167)	-0.0021 (0.0115)
Very Satisfied (t-1)	0.0036 (0.0069)	0.0141 (0.0122)	0.0030 (0.0062)	0.0118 (0.0109)	0.0022 (0.0056)	0.0146 (0.0124)	0.0143 (0.0117)	0.0161 (0.0133)	0.0025 (0.0057)
Satisfied (t-1)	-0.0027 (0.0095)	0.0003 (0.0115)	-0.0001 (0.0068)	0.0013 (0.0095)	0.0000 (0.0069)	0.0010 (0.0111)	0.0013 (0.0111)	-0.0010 (0.0131)	0.0003 (0.0063)
Bullied	-0.0422*** (0.0157)	-0.0048 (0.0040)	-0.0207** (0.0095)	-0.0016 (0.0028)	-0.0319** (0.0147)	-0.0018 (0.0030)	-0.0045 (0.0039)	-0.0022 (0.0035)	-0.0285** (0.0114)
Male	0.0025 (0.0042)	0.0051 (0.0040)	0.0030 (0.0042)	0.0060 (0.0044)	0.0028 (0.0046)	0.0057 (0.0046)	0.0063 (0.0045)	0.0054 (0.0045)	0.0034 (0.0046)
Ln(Real House Net Monthly Income p.capita)	0.0007 (0.0018)	0.0052 (0.0048)	0.0017 (0.0027)	0.0040 (0.0040)	0.0015 (0.0028)	0.0042 (0.0044)	0.0053 (0.0048)	0.0051 (0.0048)	0.0016 (0.0027)
Close Friends Number	-0.0001 (0.0003)	-0.0003 (0.0004)	-0.0001 (0.0002)	-0.0003 (0.0004)	-0.0001 (0.0002)	-0.0003 (0.0005)	-0.0003 (0.0005)	-0.0002 (0.0004)	-0.0000 (0.0002)
Number of Children in Household	0.0001 (0.0008)	0.0011 (0.0020)	0.0003 (0.0009)	0.0013 (0.0021)	0.0001 (0.0009)	0.0013 (0.0022)	0.0012 (0.0023)	0.0014 (0.0022)	0.0003 (0.0010)
Not Arguing with Mum	0.0018 (0.0054)	0.0092 (0.0078)	0.0017 (0.0042)	0.0087 (0.0071)	0.0019 (0.0046)	0.0096 (0.0079)	0.0097 (0.0077)	0.0087 (0.0079)	0.0017 (0.0044)
Not Arguing with Dad	0.0014 (0.0041)	0.0113 (0.0091)	0.0022 (0.0045)	0.0077 (0.0087)	0.0018 (0.0044)	0.0111 (0.0097)	0.0079 (0.0085)	0.0088 (0.0090)	0.0012 (0.0036)
Not Talking to Mum	-0.0003 (0.0059)	-0.0024 (0.0103)	-0.0018 (0.0063)	-0.0020 (0.0093)	-0.0007 (0.0055)	-0.0062 (0.0130)	-0.0050 (0.0120)	-0.0047 (0.0118)	-0.0008 (0.0053)
Not Talking to Dad	-0.0051 (0.0065)	-0.0183 (0.0122)	-0.0054 (0.0061)	-0.0116 (0.0095)	-0.0064 (0.0065)	-0.0106 (0.0101)	-0.0163 (0.0120)	-0.0179 (0.0120)	-0.0050 (0.0059)
London, S.East, S.West, East England	-0.0033 (0.0044)	-0.0055 (0.0048)	-0.0037 (0.0042)	-0.0055 (0.0044)	-0.0033 (0.0041)	-0.0049 (0.0045)	-0.0058 (0.0048)	-0.0058 (0.0047)	-0.0041 (0.0045)
Parental School Interest	0.0202* (0.0111)	0.0267** (0.0131)	0.0162* (0.0098)	0.0295** (0.0141)	0.0181* (0.0105)	0.0283** (0.0134)	0.0280** (0.0128)	0.0263** (0.0132)	0.0163* (0.0098)
<b>Completely Satisfied, Life Satisfaction &gt;3</b>									
Completely Satisfied (t-1)	0.2694*** (0.1002)	0.2368** (0.1200)	0.1938* (0.1070)	0.2095* (0.1206)	0.1624 (0.1057)	0.2386* (0.1227)	0.2116* (0.1194)	0.2588** (0.1225)	0.1657 (0.1026)
Very Satisfied (t-1)	0.1284* (0.0659)	0.1506** (0.0758)	0.0977 (0.0704)	0.1264* (0.0763)	0.0736 (0.0709)	0.1500** (0.0757)	0.1341* (0.0757)	0.1632** (0.0771)	0.0860 (0.0696)
Satisfied (t-1)	0.0666 (0.0627)	0.0854 (0.0663)	0.0386 (0.0619)	0.0658 (0.0661)	0.0329 (0.0610)	0.0818 (0.0652)	0.0849 (0.0649)	0.0981 (0.0698)	0.0248 (0.0602)
Bullied	-0.1605*** (0.0268)	-0.0523* (0.0289)	-0.1543*** (0.0252)	-0.0164 (0.0264)	-0.1424*** (0.0293)	-0.0173 (0.0257)	-0.0433 (0.0281)	-0.0207 (0.0275)	-0.1728*** (0.0249)
Male	0.0786*** (0.0241)	0.0524* (0.0290)	0.0802*** (0.0274)	0.0617** (0.0273)	0.0860*** (0.0275)	0.0543* (0.0282)	0.0569* (0.0294)	0.0549* (0.0287)	0.0830*** (0.0258)
Ln(Real House Net Monthly Income p.capita)	0.0215 (0.0250)	0.0517* (0.0307)	0.0454* (0.0253)	0.0410 (0.0283)	0.0402 (0.0260)	0.0399 (0.0290)	0.0460 (0.0301)	0.0500* (0.0296)	0.0428* (0.0248)
Close Friends Number	-0.0030 (0.0037)	-0.0034 (0.0040)	-0.0016 (0.0034)	-0.0027 (0.0036)	-0.0018 (0.0033)	-0.0029 (0.0038)	-0.0028 (0.0038)	-0.0021 (0.0037)	-0.0012 (0.0035)
Number of Children in Household	0.0019 (0.0144)	0.0114 (0.0182)	0.0072 (0.0147)	0.0131 (0.0175)	0.0024 (0.0157)	0.0120 (0.0172)	0.0102 (0.0184)	0.0140 (0.0178)	0.0081 (0.0146)
Not Arguing with Mum	0.0921* (0.0488)	0.1097** (0.0509)	0.0666 (0.0476)	0.1100** (0.0468)	0.0748 (0.0466)	0.1083** (0.0483)	0.0971** (0.0471)	0.1028** (0.0486)	0.0690 (0.0451)
Not Arguing with Dad	0.0340 (0.0528)	0.0883* (0.0506)	0.0449 (0.0475)	0.0646 (0.0561)	0.0387 (0.0471)	0.0833 (0.0518)	0.0586 (0.0523)	0.0708 (0.0530)	0.0280 (0.0481)
Not Talking to Mum	-0.0084 (0.0553)	-0.0196 (0.0597)	-0.0280 (0.0490)	-0.0171 (0.0576)	-0.0143 (0.0499)	-0.0408 (0.0577)	-0.0325 (0.0564)	-0.0332 (0.0563)	-0.0158 (0.0484)
Not Talking to Dad	-0.0851* (0.0479)	-0.1188** (0.0506)	-0.0849* (0.0468)	-0.0841* (0.0497)	-0.0950** (0.0422)	-0.0749 (0.0524)	-0.0996* (0.0513)	-0.1141** (0.0501)	-0.0801* (0.0457)
London, S.East, S.West, East England	-0.0774*** (0.0231)	-0.0495* (0.0276)	-0.0734*** (0.0242)	-0.0503* (0.0271)	-0.0701*** (0.0254)	-0.0422 (0.0267)	-0.0462* (0.0275)	-0.0509* (0.0273)	-0.0787*** (0.0241)
Parental School Interest	0.1155*** (0.0266)	0.1092*** (0.0297)	0.1027*** (0.0292)	0.1142*** (0.0277)	0.1084*** (0.0279)	0.1103*** (0.0277)	0.1061*** (0.0284)	0.1065*** (0.0286)	0.1027*** (0.0278)
Sample Size	778	610	770	662	776	632	640	628	780

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. Bootstrapped standard errors (in parentheses) accounting for individual-level clustering (1,500 replications).



Table 6: Adolescent Hyperactivity/Inattention, 2009-2013, APE, CRE Ordered Probits

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>No Hyperactivity/Inattention, (Hyperactivity/Inattention)=1</b>									
Abnormal (t-1)	-0.0580 (0.0676)	-0.0103 (0.0773)	-0.1162 (0.0746)	-0.0338 (0.0782)	-0.1209 (0.0746)	-0.0208 (0.0752)	-0.0320 (0.0751)	-0.0379 (0.0792)	-0.1033 (0.0759)
Intermediate (t-1)	-0.0190 (0.0442)	0.0095 (0.0490)	-0.0444 (0.0507)	-0.0120 (0.0512)	-0.0498 (0.0518)	0.0018 (0.0487)	0.0011 (0.0478)	-0.0115 (0.0516)	-0.0424 (0.0511)
Bullied	-0.1472*** (0.0296)	-0.0921*** (0.0296)	-0.1320*** (0.0279)	-0.0936*** (0.0279)	-0.1439*** (0.0319)	-0.1019*** (0.0297)	-0.0742** (0.0314)	-0.0678** (0.0288)	-0.1211*** (0.0269)
Male	-0.0270 (0.0279)	-0.0291 (0.0342)	-0.0237 (0.0280)	-0.0217 (0.0313)	-0.0161 (0.0283)	-0.0149 (0.0330)	-0.0209 (0.0320)	-0.0334 (0.0330)	-0.0283 (0.0272)
Ln(Real House Net Monthly Income p.capita)	0.0073 (0.0285)	0.0223 (0.0345)	0.0204 (0.0291)	0.0229 (0.0334)	0.0155 (0.0296)	0.0184 (0.0335)	0.0228 (0.0347)	0.0240 (0.0347)	0.0218 (0.0281)
Close Friends Number	-0.0037 (0.0033)	-0.0030 (0.0037)	-0.0033 (0.0034)	-0.0025 (0.0037)	-0.0034 (0.0034)	-0.0037 (0.0037)	-0.0037 (0.0037)	-0.0021 (0.0038)	-0.0032 (0.0033)
Number of Children in Household	-0.0156 (0.0161)	-0.0347* (0.0185)	-0.0118 (0.0163)	-0.0272 (0.0170)	-0.0133 (0.0157)	-0.0336* (0.0180)	-0.0395** (0.0179)	-0.0316* (0.0178)	-0.0141 (0.0160)
Not Arguing with Mum	0.1102** (0.0450)	0.1133** (0.0499)	0.1103** (0.0471)	0.1029** (0.0485)	0.1223*** (0.0470)	0.1136** (0.0499)	0.1145** (0.0481)	0.1015** (0.0505)	0.1093** (0.0447)
Not Arguing with Dad	-0.0091 (0.0446)	0.0094 (0.0504)	-0.0019 (0.0457)	0.0185 (0.0483)	-0.0076 (0.0461)	0.0141 (0.0488)	0.0132 (0.0490)	0.0107 (0.0539)	-0.0032 (0.0434)
Not Talking to Mum	-0.0405 (0.0533)	-0.0178 (0.0613)	-0.0483 (0.0537)	-0.0327 (0.0605)	-0.0418 (0.0546)	-0.0194 (0.0609)	-0.0487 (0.0607)	-0.0414 (0.0632)	-0.0455 (0.0555)
Not Talking to Dad	-0.0083 (0.0448)	-0.0207 (0.0592)	-0.0106 (0.0483)	-0.0224 (0.0581)	-0.0095 (0.0483)	-0.0229 (0.0547)	-0.0090 (0.0547)	-0.0142 (0.0600)	-0.0131 (0.0475)
London, S.East, S.West, East England	-0.0303 (0.0274)	-0.0043 (0.0321)	-0.0195 (0.0273)	-0.0008 (0.0307)	-0.0211 (0.0267)	-0.0111 (0.0321)	-0.0100 (0.0313)	-0.0056 (0.0309)	-0.0173 (0.0267)
Parental School Interest	0.0735** (0.0305)	0.0607* (0.0354)	0.0717** (0.0315)	0.0859** (0.0340)	0.0753** (0.0308)	0.0594* (0.0335)	0.0769** (0.0340)	0.0716** (0.0347)	0.0733** (0.0310)
<b>Intermediate Hyperactivity/Inattention, Hyperactivity/Inattention ∈ (1,2]</b>									
Abnormal (t-1)	0.0019 (0.0100)	0.0009 (0.0105)	-0.0032 (0.0181)	0.0023 (0.0108)	-0.0032 (0.0178)	0.0017 (0.0097)	0.0021 (0.0106)	0.0027 (0.0104)	-0.0027 (0.0176)
Intermediate (t-1)	0.0018 (0.0059)	-0.0009 (0.0059)	0.0045 (0.0087)	0.0012 (0.0079)	0.0056 (0.0095)	-0.0002 (0.0065)	-0.0001 (0.0066)	0.0013 (0.0079)	0.0039 (0.0081)
Bullied	-0.0193 (0.0149)	0.0113 (0.0079)	0.0020 (0.0088)	0.0126* (0.0075)	-0.0158 (0.0150)	0.0140 (0.0085)	0.0092 (0.0072)	0.0070 (0.0059)	-0.0004 (0.0085)
Male	0.0024 (0.0033)	0.0027 (0.0045)	0.0021 (0.0033)	0.0022 (0.0040)	0.0015 (0.0032)	0.0014 (0.0041)	0.0020 (0.0039)	0.0034 (0.0043)	0.0022 (0.0032)
Ln(Real House Net Monthly Income p.capita)	-0.0006 (0.0030)	-0.0021 (0.0045)	-0.0017 (0.0034)	-0.0023 (0.0044)	-0.0015 (0.0035)	-0.0018 (0.0042)	-0.0022 (0.0045)	-0.0025 (0.0048)	-0.0016 (0.0029)
Close Friends Number	0.0003 (0.0004)	0.0003 (0.0005)	0.0003 (0.0004)	0.0003 (0.0005)	0.0003 (0.0004)	0.0004 (0.0005)	0.0004 (0.0005)	0.0002 (0.0005)	0.0002 (0.0004)
Number of Children in Household	0.0014 (0.0019)	0.0033 (0.0033)	0.0010 (0.0019)	0.0027 (0.0027)	0.0013 (0.0019)	0.0033 (0.0030)	0.0038 (0.0033)	0.0033 (0.0029)	0.0011 (0.0018)
Not Arguing with Mum	-0.0124 (0.0094)	-0.0144 (0.0117)	-0.0123 (0.0100)	-0.0133 (0.0106)	-0.0150 (0.0105)	-0.0148 (0.0111)	-0.0147 (0.0108)	-0.0137 (0.0107)	-0.0114 (0.0093)
Not Arguing with Dad	0.0008 (0.0049)	-0.0009 (0.0059)	0.0002 (0.0051)	-0.0018 (0.0055)	0.0007 (0.0054)	-0.0013 (0.0057)	-0.0012 (0.0056)	-0.0011 (0.0067)	0.0002 (0.0043)
Not Talking to Mum	0.0019 (0.0058)	0.0014 (0.0080)	0.0018 (0.0061)	0.0023 (0.0073)	0.0022 (0.0064)	0.0015 (0.0077)	0.0022 (0.0082)	0.0027 (0.0083)	0.0013 (0.0065)
Not Talking to Dad	0.0007 (0.0046)	0.0019 (0.0067)	0.0009 (0.0051)	0.0021 (0.0070)	0.0009 (0.0053)	0.0021 (0.0064)	0.0008 (0.0064)	0.0015 (0.0074)	0.0009 (0.0045)
London, S.East, S.West, East England	0.0025 (0.0033)	0.0004 (0.0038)	0.0016 (0.0031)	0.0001 (0.0037)	0.0019 (0.0033)	0.0011 (0.0039)	0.0009 (0.0038)	0.0006 (0.0039)	0.0012 (0.0027)
Parental School Interest	-0.0004 (0.0066)	-0.0019 (0.0055)	-0.0005 (0.0063)	-0.0001 (0.0083)	-0.0007 (0.0062)	-0.0021 (0.0055)	-0.0008 (0.0072)	-0.0021 (0.0065)	0.0006 (0.0064)
<b>High Hyperactivity/Inattention, (Hyperactivity/Inattention)&gt;2</b>									
Abnormal (t-1)	0.0561 (0.0721)	0.0094 (0.0743)	0.1194 (0.0884)	0.0314 (0.0798)	0.1241 (0.0879)	0.0192 (0.0740)	0.0299 (0.0765)	0.0351 (0.0802)	0.1060 (0.0892)
Intermediate (t-1)	0.0172 (0.0392)	-0.0086 (0.0442)	0.0399 (0.0434)	0.0107 (0.0446)	0.0441 (0.0437)	-0.0016 (0.0432)	-0.0010 (0.0422)	0.0103 (0.0447)	0.0385 (0.0443)
Bullied	0.1665*** (0.0400)	0.0808*** (0.0252)	0.1300*** (0.0298)	0.0810*** (0.0239)	0.1597*** (0.0429)	0.0879*** (0.0249)	0.0650** (0.0256)	0.0608** (0.0256)	0.1215*** (0.0295)
Male	0.0246 (0.0257)	0.0264 (0.0312)	0.0216 (0.0256)	0.0196 (0.0282)	0.0146 (0.0258)	0.0135 (0.0299)	0.0189 (0.0290)	0.0300 (0.0301)	0.0261 (0.0250)
Ln(Real House Net Monthly Income p.capita)	-0.0067 (0.0261)	-0.0202 (0.0311)	-0.0187 (0.0266)	-0.0206 (0.0300)	-0.0141 (0.0268)	-0.0166 (0.0303)	-0.0290 (0.0314)	-0.0215 (0.0309)	-0.0202 (0.0261)
Close Friends Number	0.0034 (0.0030)	0.0027 (0.0033)	0.0030 (0.0031)	0.0023 (0.0033)	0.0031 (0.0031)	0.0033 (0.0033)	0.0033 (0.0033)	0.0018 (0.0033)	0.0029 (0.0031)
Number of Children in Household	0.0142 (0.0148)	0.0314* (0.0168)	0.0108 (0.0149)	0.0244 (0.0152)	0.0120 (0.0142)	0.0303* (0.0164)	0.0357** (0.0164)	0.0282* (0.0160)	0.0130 (0.0148)
Not Arguing with Mum	-0.0977** (0.0392)	-0.0989** (0.0420)	-0.0979** (0.0406)	-0.0896** (0.0412)	-0.1073*** (0.0403)	-0.0988** (0.0424)	-0.0998** (0.0411)	-0.0878** (0.0429)	-0.0979** (0.0389)
Not Arguing with Dad	0.0082 (0.0405)	-0.0085 (0.0458)	0.0017 (0.0416)	-0.0168 (0.0442)	0.0069 (0.0415)	-0.0128 (0.0445)	-0.0120 (0.0447)	-0.0096 (0.0485)	0.0030 (0.0400)
Not Talking to Mum	0.0385 (0.0529)	0.0164 (0.0575)	0.0465 (0.0545)	0.0305 (0.0583)	0.0395 (0.0546)	0.0179 (0.0577)	0.0465 (0.0617)	0.0387 (0.0624)	0.0441 (0.0565)
Not Talking to Dad	0.0076 (0.0413)	0.0189 (0.0541)	0.0097 (0.0443)	0.0202 (0.0526)	0.0086 (0.0440)	0.0208 (0.0498)	0.0081 (0.0496)	0.0127 (0.0540)	0.0122 (0.0442)
London, S.East, S.West, East England	0.0278 (0.0252)	0.0039 (0.0290)	0.0179 (0.0250)	0.0007 (0.0275)	0.0192 (0.0242)	0.0100 (0.0290)	0.0091 (0.0283)	0.0050 (0.0276)	0.0161 (0.0248)
Parental School Interest	-0.0731** (0.0338)	-0.0588 (0.0367)	-0.0712** (0.0343)	-0.0858** (0.0383)	-0.0746** (0.0337)	-0.0573 (0.0350)	-0.0761** (0.0374)	-0.0694* (0.0369)	-0.0738** (0.0344)
Sample Size	792	618	776	670	782	640	650	634	786

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. Bootstrapped standard errors (in parentheses) accounting for individual-level clustering (1,500 replications).

Table 7: Adolescent Emotional Symptoms, 2009-2013, APE, CRE Ordered Probits

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>No Emotional Symptoms, Emotional Symptoms=1</b>									
Abnormal (t-1)	-0.2970*** (0.0845)		-0.3527*** (0.0757)		-0.3073*** (0.0910)				-0.3554*** (0.0713)
Intermediate (t-1)	-0.1568*** (0.0564)		-0.1800*** (0.0543)		-0.1512** (0.0650)				-0.1833*** (0.0513)
Bullied	-0.2707*** (0.0394)	-0.0739** (0.0346)	-0.1610*** (0.0307)	-0.0275 (0.0364)	-0.1666*** (0.0374)	-0.0437 (0.0326)	-0.0991*** (0.0355)	-0.0864*** (0.0315)	-0.1613*** (0.0303)
Male	0.2152*** (0.0302)	0.2389*** (0.0410)	0.2208*** (0.0306)	0.2239*** (0.0401)	0.2336*** (0.0323)	0.2284*** (0.0401)	0.2292*** (0.0387)	0.2239*** (0.0401)	0.2115*** (0.0303)
Ln(Real House Net Monthly Income p.capita)	-0.0427 (0.0335)	-0.0039 (0.0401)	-0.0300 (0.0349)	0.0004 (0.0390)	-0.0320 (0.0346)	-0.0063 (0.0411)	0.0023 (0.0405)	0.0006 (0.0400)	-0.0249 (0.0344)
Close Friends Number	0.0008 (0.0040)	0.0024 (0.0050)	0.0008 (0.0044)	0.0030 (0.0048)	0.0007 (0.0046)	0.0019 (0.0048)	0.0005 (0.0046)	0.0028 (0.0050)	0.0011 (0.0044)
Number of Children in Household	-0.0164 (0.0157)	-0.0020 (0.0195)	-0.0066 (0.0155)	-0.0126 (0.0204)	-0.0101 (0.0153)	-0.0110 (0.0193)	-0.0101 (0.0192)	-0.0002 (0.0191)	-0.0126 (0.0156)
Not Arguing with Mum	0.1042* (0.0562)	0.0590 (0.0582)	0.1142* (0.0620)	0.0669 (0.0552)	0.1208** (0.0602)	0.0696 (0.0563)	0.0716 (0.0546)	0.0524 (0.0570)	0.1136* (0.0591)
Not Arguing with Dad	-0.0353 (0.0615)	0.0508 (0.0704)	-0.0231 (0.0599)	0.0349 (0.0652)	-0.0279 (0.0609)	0.0360 (0.0664)	0.0294 (0.0651)	0.0524 (0.0693)	-0.0260 (0.0581)
Not Talking to Mum	-0.0245 (0.0584)	-0.0501 (0.0628)	-0.0324 (0.0598)	-0.0420 (0.0633)	-0.0236 (0.0603)	-0.0566 (0.0630)	-0.0663 (0.0593)	-0.0510 (0.0631)	-0.0316 (0.0611)
Not Talking to Dad	-0.0036 (0.0529)	-0.0013 (0.0574)	-0.0053 (0.0567)	0.0126 (0.0532)	-0.0057 (0.0564)	0.0092 (0.0554)	0.0170 (0.0553)	-0.0073 (0.0537)	-0.0061 (0.0579)
London, S.East, S.West, East England	-0.0509* (0.0305)	0.0078 (0.0376)	-0.0396 (0.0302)	0.0096 (0.0373)	-0.0398 (0.0306)	-0.0015 (0.0376)	0.0092 (0.0371)	0.0092 (0.0373)	-0.0372 (0.0295)
Parental School Interest	0.0682* (0.0412)	0.0845* (0.0468)	0.0632 (0.0411)	0.0951** (0.0448)	0.0676 (0.0413)	0.0831* (0.0461)	0.0847* (0.0453)	0.0827* (0.0451)	0.0669 (0.0428)
<b>Intermediate Emotional Symptoms, Emotional Symptoms ∈ {1,2}</b>									
Abnormal (t-1)	0.0732*** (0.0187)		0.0684*** (0.0201)		0.0752*** (0.0200)				0.0632*** (0.0222)
Intermediate (t-1)	0.0752*** (0.0277)		0.0867*** (0.0269)		0.0730** (0.0318)				0.0865*** (0.0252)
Bullied	0.0848*** (0.0139)	0.0333** (0.0167)	0.0722*** (0.0143)	0.0122 (0.0165)	0.0656*** (0.0137)	0.0195 (0.0151)	0.0451** (0.0177)	0.0378** (0.0149)	0.0695*** (0.0138)
Male	-0.1076*** (0.0177)	-0.1153*** (0.0240)	-0.1113*** (0.0186)	-0.1062*** (0.0221)	-0.1201*** (0.0199)	-0.1092*** (0.0226)	-0.1085*** (0.0217)	-0.1071*** (0.0227)	-0.1037*** (0.0177)
Ln(Real House Net Monthly Income p.capita)	0.0202 (0.0160)	0.0017 (0.0178)	0.0143 (0.0167)	-0.0002 (0.00172)	0.0153 (0.0167)	0.0027 (0.0181)	-0.0010 (0.0178)	-0.0003 (0.0174)	0.0115 (0.0162)
Close Friends Number	-0.0004 (0.0019)	-0.0011 (0.0022)	-0.0004 (0.0021)	-0.0013 (0.0021)	-0.0003 (0.0022)	-0.0008 (0.0021)	-0.0002 (0.0020)	-0.0012 (0.0021)	-0.0005 (0.0021)
Number of Children in Household	0.0077 (0.0075)	0.0009 (0.0087)	0.0031 (0.0075)	0.0055 (0.0090)	0.0048 (0.0074)	0.0048 (0.0086)	0.0044 (0.0084)	0.0001 (0.0083)	0.0059 (0.0074)
Not Arguing with Mum	-0.0511* (0.0284)	-0.0266 (0.0272)	-0.0563* (0.0318)	-0.03041 (0.0265)	-0.0601* (0.0312)	-0.0316 (0.0268)	-0.0322 (0.0258)	-0.0233 (0.0260)	-0.0550* (0.0300)
Not Arguing with Dad	0.0167 (0.0287)	-0.0221 (0.0300)	0.0110 (0.0284)	-0.0152 (0.0283)	0.0133 (0.0289)	-0.0157 (0.0289)	-0.0127 (0.0277)	-0.0225 (0.0295)	0.0121 (0.0270)
Not Talking to Mum	0.0114 (0.0266)	0.0208 (0.0247)	0.0150 (0.0267)	0.0176 (0.0256)	0.0111 (0.0276)	0.0233 (0.0248)	0.0266 (0.0223)	0.0209 (0.0247)	0.0143 (0.0266)
Not Talking to Dad	0.0017 (0.0250)	0.0006 (0.0251)	0.0025 (0.0268)	-0.0055 (0.0231)	0.0027 (0.0245)	-0.0040 (0.0222)	-0.0073 (0.0230)	0.0032 (0.0233)	0.0028 (0.0270)
London, S.East, S.West, East England	0.0238 (0.0146)	-0.0034 (0.0167)	0.0187 (0.0145)	-0.0042 (0.0165)	0.0189 (0.0148)	0.0007 (0.0166)	-0.0027 (0.0162)	-0.0040 (0.0163)	0.0172 (0.0140)
Parental School Interest	-0.0304* (0.0174)	-0.0340* (0.0177)	-0.0284 (0.0179)	-0.0377** (0.0165)	-0.0304* (0.0178)	-0.0335* (0.0175)	-0.0355** (0.0169)	-0.0329* (0.0170)	-0.0293 (0.0180)
<b>High Emotional Symptoms, Emotional Symptoms&gt;2</b>									
Abnormal (t-1)	0.2237*** (0.0844)		0.2843*** (0.0819)		0.2321** (0.0931)				0.2922*** (0.0810)
Intermediate (t-1)	0.0816*** (0.0299)		0.0932*** (0.0289)		0.0782** (0.0343)				0.0968*** (0.0277)
Bullied	0.1859*** (0.0356)	0.0406** (0.0187)	0.0888*** (0.0191)	0.0153 (0.0201)	0.1010*** (0.0269)	0.0242 (0.0178)	0.0540*** (0.0177)	0.0485*** (0.0177)	0.0918*** (0.0193)
Male	-0.1076*** (0.0163)	-0.1236*** (0.0216)	-0.1095*** (0.0165)	-0.1176*** (0.0223)	-0.1135*** (0.0169)	-0.1192*** (0.0222)	-0.1207*** (0.0217)	-0.1167*** (0.0217)	-0.1078*** (0.0165)
Ln(Real House Net Monthly Income p.capita)	0.0225 (0.0177)	0.0022 (0.0224)	0.0157 (0.0183)	-0.0002 (0.0220)	0.0167 (0.0180)	0.0035 (0.0231)	-0.0013 (0.0229)	-0.0004 (0.0227)	0.0133 (0.0183)
Close Friends Number	-0.0004 (0.0021)	-0.0014 (0.0028)	-0.0004 (0.0023)	-0.0017 (0.0027)	-0.0004 (0.0024)	-0.0011 (0.0027)	-0.0003 (0.0026)	-0.0016 (0.0028)	-0.0006 (0.0024)
Number of Children in Household	0.0086 (0.0083)	0.0011 (0.0110)	0.0035 (0.0081)	0.0071 (0.0115)	0.0052 (0.0079)	0.0062 (0.0108)	0.0058 (0.0109)	0.0001 (0.0109)	0.0068 (0.0084)
Not Arguing with Mum	-0.0531* (0.0284)	-0.0324 (0.0314)	-0.0579* (0.0309)	-0.0365 (0.0293)	-0.0607** (0.0298)	-0.0380 (0.0300)	-0.0395 (0.0294)	-0.0290 (0.0313)	-0.0586** (0.0298)
Not Arguing with Dad	0.0186 (0.0330)	-0.0287 (0.0408)	0.0121 (0.0317)	-0.0196 (0.0373)	0.0145 (0.0322)	-0.0203 (0.0379)	-0.0168 (0.0378)	-0.0299 (0.0402)	0.0139 (0.0313)
Not Talking to Mum	0.0132 (0.0321)	0.0292 (0.0388)	0.0174 (0.0336)	0.0243 (0.0384)	0.0126 (0.0331)	0.0332 (0.0390)	0.0397 (0.0378)	0.0397 (0.0391)	0.0173 (0.0350)
Not Talking to Dad	0.0019 (0.0280)	0.0007 (0.0325)	0.0028 (0.0300)	-0.0071 (0.0302)	0.0030 (0.0298)	-0.0052 (0.0312)	-0.0096 (0.0305)	0.0042 (0.0306)	0.0033 (0.0312)
London, S.East, S.West, East England	0.0270* (0.0163)	-0.0044 (0.0211)	0.0209 (0.0160)	-0.0054 (0.0210)	0.0208 (0.0161)	0.0009 (0.0211)	-0.0036 (0.0210)	-0.0052 (0.0212)	0.0200 (0.0158)
Parental School Interest	-0.0378 (0.0245)	-0.0505* (0.0300)	-0.0347 (0.0237)	-0.0574* (0.0297)	-0.0371 (0.0241)	-0.0496* (0.0295)	-0.0512* (0.0294)	-0.0498* (0.0291)	-0.0377 (0.0254)
Sample Size	792	618	776	670	782	640	650	634	786

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. Bootstrapped standard errors (in parentheses) accounting for individual-level clustering (1,500 replications).

### 4.3 Fixed Effects (FE): CML APEs with Heterogeneous Thresholds

The FE APEs (in Tables 8-10) incorporating threshold specific time-invariant heterogeneity corroborate the main dynamic CRE estimation outcome: bullying victimisation raises significantly the probability of suffering hyperactive, inattentive and emotional symptoms and non-domestic victimisation reduces the likelihood to be satisfied with life.

Domestic victimisation by siblings does not have an impact on life satisfaction. Unlike the CRE models (Tables 1,4 and 5) aggregate domestic victimisation does no longer have a significant effect in the FE estimates. Non-domestic victimisation only has a significant impact at the two extreme dichotomisations of life satisfaction: it increases considerably the likelihood to report life dissatisfaction and has a weaker negative effect on the likelihood to report complete life satisfaction. The probability to report being satisfied with life is reduced by over 20 per cent having the most adverse impact of approximately 26 per cent in the general bullying estimates (see Table 8). On the other hand, the likelihood to report complete life satisfaction is only significantly reduced regarding aggregate/other school victimisation. The strong link between non-domestic victimisation and life dissatisfaction is an alarming outcome considering that persistent dissatisfaction might correspond to depression.

Unlike general bullying and domestic victimisation (except physical), school-level bullying does not have a significant impact on the probability of presenting at least intermediate hyperactive and inattentive symptoms (see Table 9). However, all bullying forms significantly augment the likelihood to present abnormal hyperactive and inattentive symptoms by approximately 12 per cent in the case of general bullying to 22.6 per cent in the case of physical domestic victimisation.

Regarding emotional symptoms bullying victimisation, except physical domestic abuse, significantly increases the probability to present intermediate and abnormal symptoms noting that the abnormal partial effects are generally much higher (see Table 10). Domestic verbal abuse has no statistically significant impact on abnormal emotional symptoms. The impact of non-domestic victimisation on the likelihood to present abnormal symptoms is remarkable and notably higher compared to the significant strong adverse effects of domestic abuse, with estimated APEs ranging from approximately 26-38 per cent.

In line with the baseline CRE estimates (Tables 1-3), parental school interest generally raises the likelihood to be satisfied with life and reduces the probability of developing hyperactive/inattentive and emotional symptoms (see Tables 8-10). Similarly, family environment variables (talk/argument

frequencies) generally behave in the same manner as in the CRE estimates reinforcing the argument that a healthier domestic interaction raises life satisfaction and protects adolescent mental health (see Tables 1-3, 8-10).

Two notable discrepancies arise among the CRE and FE life satisfaction estimates. Firstly, the number of children in the household raise significantly the probability of reporting complete life satisfaction by around 10.2-14 per cent in the FE estimates, only (see Tables 1, 5 and 8). Secondly, family income per head does not have a statistically significant impact in the FE estimates of Table 8 (unlike the CRE estimates in Table 1).

Contrary to the CRE estimates, higher levels of family income per capita significantly reduce the probability of presenting at least intermediate-level hyperactive and inattentive symptoms (see Tables 2, 6 and 9). *Ceteris paribus*, family-level poverty increases the probability of developing hyperactive and inattentive symptoms significantly in the models accounting for general bullying, aggregate school victimisation, domestic and school physical abuse and, other school-level forms of bullying (the p-value for general bullying is 0.102 and the associated probabilities range from 11.3-13.7 per cent, see Table 9).<sup>29</sup>

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<sup>29</sup>Contoyannis and Dooley (2010) using linear probability modelling find that family income is negatively related to conduct or emotional disorders of children (aged 4-16) but, not to hyperactivity. Contoyannis and Li (2011) using CRE find that children (aged 0-15) in households with higher income tend to have better physical health outcomes (self-assessed health).

Table 8: Adolescent Life Satisfaction, 2009-2013, CMLE, APE, FE Logit (Heterogeneous Thresholds)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>Adolescent Life Satisfaction&gt;1</b>									
Bullied	-0.2587*** (0.0793)	-0.0343 (0.1047)	-0.2505*** (0.0782)	0.0049 (0.0767)	-0.2010*** (0.0728)	-0.0322 (0.0853)	-0.0381 (0.0925)	-0.0403 (0.0668)	-0.2527*** (0.0762)
Ln(Real House Net Monthly Income p.capita)	-0.0363 (0.1393)	0.0702 (0.1441)	0.0272 (0.1397)	0.0517 (0.1452)	0.0318 (0.1320)	0.0918 (0.1440)	0.1025 (0.1433)	0.0725 (0.1474)	0.0220 (0.1389)
Close Friends Number	-0.0045 (0.0064)	-0.0037 (0.0059)	-0.0040 (0.0072)	-0.0022 (0.0057)	-0.0025 (0.0065)	-0.0035 (0.0059)	-0.0032 (0.0058)	-0.0033 (0.0061)	-0.0024 (0.0070)
Number of Children in Household	-0.0943 (0.0752)	-0.1028 (0.0760)	-0.0790 (0.0803)	-0.0967 (0.0696)	-0.1031 (0.0778)	-0.1051 (0.0702)	-0.1107 (0.0716)	-0.1050 (0.0796)	-0.0701 (0.0757)
Not Arguing with Mum	0.1697** (0.0771)	0.2182** (0.0853)	0.1504* (0.0814)	0.1545* (0.0897)	0.1787** (0.0805)	0.1549* (0.0911)	0.1622* (0.0923)	0.2250** (0.0882)	0.1393* (0.0796)
Not Arguing with Dad	-0.0468 (0.0828)	-0.0059 (0.1012)	-0.0082 (0.0946)	0.0115 (0.0844)	-0.0283 (0.0867)	0.0172 (0.0925)	0.0019 (0.0943)	-0.0124 (0.0948)	-0.0118 (0.0851)
Not Talking to Mum	-0.1815* (0.0991)	-0.2681** (0.1155)	-0.2491** (0.1019)	-0.2612** (0.1098)	-0.2637*** (0.0932)	-0.2932*** (0.1042)	-0.3042*** (0.0992)	-0.2746** (0.1114)	-0.2158** (0.0962)
Not Talking to Dad	0.0168 (0.0838)	0.0279 (0.0991)	0.0092 (0.0803)	0.0816 (0.0835)	0.0126 (0.0789)	0.0812 (0.0812)	0.0708 (0.0818)	0.0293 (0.0948)	0.0104 (0.0813)
Parental School Interest	0.1258 (0.0872)	0.1653* (0.0981)	0.1137 (0.0839)	0.1540 (0.1011)	0.1210 (0.0948)	0.1604 (0.0980)	0.1421 (0.0998)	0.1589 (0.1043)	0.1336 (0.0819)
Sample Size	285	225	273	246	276	237	237	228	279
<b>Adolescent Life Satisfaction&gt;2</b>									
Bullied	-0.0701 (0.0621)	-0.0041 (0.0654)	-0.0587 (0.0530)	-0.0246 (0.0603)	-0.0675 (0.0649)	-0.0400 (0.0625)	-0.0734 (0.0650)	-0.0323 (0.0590)	-0.0805 (0.0523)
Ln(Real House Net Monthly Income p.capita)	0.0734 (0.0713)	0.1339 (0.0908)	0.1032 (0.0775)	0.1119 (0.0862)	0.0995 (0.0776)	0.1350 (0.0943)	0.1300 (0.0956)	0.1244 (0.0938)	0.1066 (0.0792)
Close Friends Number	0.0071 (0.0050)	0.0055 (0.0054)	0.0070 (0.0054)	0.0066 (0.0056)	0.0072 (0.0051)	0.0052 (0.0051)	0.0050 (0.0052)	0.0068 (0.0055)	0.0082 (0.0054)
Number of Children in Household	-0.0489 (0.0512)	-0.0539 (0.0537)	-0.0288 (0.0484)	-0.0475 (0.0527)	-0.0361 (0.0507)	-0.0731 (0.0557)	-0.0731 (0.0547)	-0.0491 (0.0539)	-0.0386 (0.0530)
Not Arguing with Mum	0.1146* (0.0609)	0.1162 (0.0759)	0.1188* (0.0632)	0.0828 (0.0696)	0.1208* (0.0625)	0.0804 (0.0745)	0.0789 (0.0773)	0.1079 (0.0737)	0.1025* (0.0620)
Not Arguing with Dad	0.0490 (0.0645)	0.0815 (0.0766)	0.0346 (0.0621)	0.0756 (0.0713)	0.0332 (0.0647)	0.1018 (0.0742)	0.0828 (0.0757)	0.0713 (0.0753)	0.0339 (0.0645)
Not Talking to Mum	-0.1503** (0.0703)	-0.1271 (0.0826)	-0.1631** (0.0684)	-0.1403* (0.0765)	-0.1598** (0.0722)	-0.1568* (0.0814)	-0.1628** (0.0773)	-0.1472* (0.0821)	-0.1554** (0.0701)
Not Talking to Dad	0.0127 (0.0575)	-0.0677 (0.0658)	-0.0006 (0.0589)	-0.0205 (0.0651)	-0.0008 (0.0587)	-0.0101 (0.0674)	-0.0279 (0.0646)	-0.0641 (0.0666)	0.0043 (0.0582)
Parental School Interest	0.1453** (0.0625)	0.1575** (0.0762)	0.1618** (0.0660)	0.1583** (0.0723)	0.1656** (0.0661)	0.1677** (0.0707)	0.1504** (0.0715)	0.1438* (0.0754)	0.1582** (0.0636)
Sample Size	543	426	531	459	534	444	447	438	543
<b>Adolescent Life Satisfaction&gt;3</b>									
Bullied	0.0102 (0.0786)	-0.0804 (0.0539)	-0.1197** (0.0562)	-0.0383 (0.0541)	-0.0017 (0.0681)	-0.0426 (0.0528)	-0.0555 (0.0541)	-0.0276 (0.0612)	-0.1742*** (0.0559)
Ln(Real House Net Monthly Income p.capita)	-0.0089 (0.0699)	0.0659 (0.0808)	0.0343 (0.0730)	0.0399 (0.0762)	0.0190 (0.0695)	0.0545 (0.0797)	0.0556 (0.0801)	0.0547 (0.0807)	0.0208 (0.0720)
Close Friends Number	0.0011 (0.0040)	0.0001 (0.0047)	0.0004 (0.0039)	-0.0007 (0.0047)	0.0006 (0.0041)	0.0006 (0.0047)	0.0005 (0.0046)	0.0004 (0.0047)	0.0004 (0.0040)
Number of Children in Household	0.1185** (0.0542)	0.1265** (0.0572)	0.1019* (0.0556)	0.1394** (0.0556)	0.1040* (0.0552)	0.1197** (0.0582)	0.1200** (0.0575)	0.1176** (0.0559)	0.1154** (0.0551)
Not Arguing with Mum	0.1961*** (0.0563)	0.2354*** (0.0661)	0.2002*** (0.0564)	0.2485*** (0.0629)	0.1948*** (0.0550)	0.2454*** (0.0654)	0.2508*** (0.0640)	0.2387*** (0.0646)	0.1926*** (0.0558)
Not Arguing with Dad	0.0597 (0.0641)	0.0549 (0.0764)	0.0379 (0.0666)	0.0402 (0.0745)	0.0456 (0.0681)	0.0488 (0.0738)	0.0403 (0.0738)	0.0616 (0.0738)	0.0423 (0.0670)
Not Talking to Mum	0.0142 (0.0724)	0.0016 (0.0873)	0.0010 (0.0771)	0.0380 (0.0801)	0.0137 (0.0733)	0.0100 (0.0883)	0.0171 (0.0813)	0.0068 (0.0874)	0.0149 (0.0724)
Not Talking to Dad	-0.1685*** (0.0622)	-0.1651** (0.0767)	-0.1608** (0.0634)	-0.1561** (0.0707)	-0.1800*** (0.0608)	-0.1531** (0.0760)	-0.1617** (0.0733)	-0.1626** (0.0739)	-0.1544** (0.0633)
Parental School Interest	0.1383** (0.0692)	0.1138 (0.0814)	0.1317* (0.0704)	0.1293 (0.0833)	0.1390* (0.0717)	0.1150 (0.0806)	0.1128 (0.0841)	0.1188 (0.0810)	0.1335* (0.0687)
Sample Size	582	462	576	492	582	468	477	474	582

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Bootstrapped standard errors (in parentheses) accounting for individual-level clustering (1,500 replications).

Table 9: Adolescent Hyperactivity/Inattention, 2009-2013, CMLE, APE, FE Logit (Heterogeneous Thresholds)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>(Adolescent Hyperactivity/Inattention)&gt;1</b>									
Bullied	0.2057*** (0.0755)	0.2327*** (0.0611)	0.0864 (0.0650)	0.0932 (0.0663)	0.0330 (0.0757)	0.1689*** (0.0623)	0.1325** (0.0598)	0.2311*** (0.0633)	0.0893 (0.0642)
Ln(Real House Net Monthly Income p.capita)	-0.1132 (0.0691)	-0.0673 (0.0842)	-0.1370* (0.0712)	-0.1336* (0.0748)	-0.1195* (0.0695)	-0.0863 (0.0827)	-0.0633 (0.0795)	-0.0954 (0.0796)	-0.1357** (0.0690)
Close Friends Number	0.0065 (0.0050)	0.0059 (0.0052)	0.0062 (0.0052)	0.0049 (0.0054)	0.0057 (0.0052)	0.0053 (0.0054)	0.0055 (0.0054)	0.0061 (0.0053)	0.0063 (0.0051)
Number of Children in Household	0.0822 (0.0579)	0.0615 (0.0607)	0.0883 (0.0589)	0.0615 (0.0588)	0.0924 (0.0566)	0.0636 (0.0598)	0.0578 (0.0586)	0.0522 (0.0613)	0.0951* (0.0543)
Not Arguing with Mum	-0.1152* (0.0636)	-0.0694 (0.0711)	-0.1197* (0.0638)	-0.1044 (0.0707)	-0.1325** (0.0634)	-0.0659 (0.0707)	-0.0830 (0.0707)	-0.0716 (0.0691)	-0.1244* (0.0640)
Not Arguing with Dad	0.0007 (0.0711)	-0.0191 (0.0791)	0.0104 (0.0734)	-0.0199 (0.0778)	0.0140 (0.0716)	-0.0137 (0.0781)	-0.0143 (0.0778)	-0.0070 (0.0789)	0.0096 (0.0709)
Not Talking to Mum	0.0227 (0.0852)	0.0434 (0.0878)	0.0326 (0.0890)	-0.0230 (0.0895)	0.0297 (0.0862)	0.0199 (0.0914)	0.0113 (0.0896)	0.0517 (0.0916)	0.0336 (0.0885)
Not Talking to Dad	0.0335 (0.0686)	0.0131 (0.0742)	0.0331 (0.0721)	0.0532 (0.0764)	0.0354 (0.0707)	0.0203 (0.0771)	0.0228 (0.0733)	0.0115 (0.0819)	0.0316 (0.0712)
Parental School Interest	-0.1352** (0.0677)	-0.1336* (0.0691)	-0.1432** (0.0669)	-0.1377** (0.0692)	-0.1449** (0.0637)	-0.1097 (0.0720)	-0.1348** (0.0679)	-0.1251* (0.0677)	-0.1407** (0.0664)
Sample Size	471	381	465	414	468	390	402	393	468
<b>(Adolescent Hyperactivity/Inattention)&gt;2</b>									
Bullied	0.1198* (0.0673)	0.1347* (0.0720)	0.1458** (0.0599)	0.2257*** (0.0639)	0.1309* (0.0694)	0.1920*** (0.0710)	0.1921*** (0.0609)	0.1234** (0.0619)	0.1392** (0.0585)
Ln(Real House Net Monthly Income p.capita)	0.0955 (0.1093)	0.1853 (0.1130)	0.0857 (0.1127)	0.0611 (0.1097)	0.0928 (0.1162)	0.1322 (0.1138)	0.1545 (0.1125)	0.1797* (0.1062)	0.0660 (0.1040)
Close Friends Number	-0.0023 (0.0047)	0.0014 (0.0053)	-0.0022 (0.0047)	0.0002 (0.0054)	-0.0018 (0.0046)	0.0026 (0.0054)	0.0027 (0.0053)	0.0009 (0.0053)	-0.0020 (0.0045)
Number of Children in Household	0.0177 (0.0497)	-0.0112 (0.0596)	0.0093 (0.0529)	-0.0026 (0.0523)	0.0052 (0.0504)	0.0032 (0.0531)	-0.0009 (0.0525)	-0.0114 (0.0520)	0.0217 (0.0477)
Not Arguing with Mum	-0.1175* (0.0605)	-0.1420** (0.0713)	-0.1341** (0.0619)	-0.1100 (0.0688)	-0.1455** (0.0601)	-0.1324* (0.0681)	-0.1202* (0.0691)	-0.1485** (0.0706)	-0.1240** (0.0615)
Not Arguing with Dad	0.0071 (0.0613)	-0.0565 (0.0771)	-0.0170 (0.0624)	-0.0343 (0.0708)	0.0011 (0.0621)	-0.0549 (0.0752)	-0.0355 (0.0777)	-0.0311 (0.0752)	-0.0190 (0.0612)
Not Talking to Mum	-0.0550 (0.0699)	-0.0708 (0.0745)	-0.0516 (0.0727)	-0.0416 (0.0777)	-0.0563 (0.0728)	-0.0717 (0.0723)	-0.0663 (0.0707)	-0.0595 (0.0729)	-0.0549 (0.0722)
Not Talking to Dad	0.0250 (0.0577)	0.0234 (0.0699)	0.0332 (0.0598)	0.0386 (0.0660)	0.0330 (0.0579)	0.0079 (0.0673)	0.0398 (0.0678)	0.0347 (0.0707)	0.0362 (0.0585)
Parental School Interest	-0.0851 (0.0672)	-0.0855 (0.0743)	-0.0857 (0.0700)	-0.1116 (0.0740)	-0.0923 (0.0627)	-0.0987 (0.0708)	-0.0872 (0.0720)	-0.0810 (0.0716)	-0.0846 (0.0667)
Sample Size	465	363	456	390	459	375	381	372	462

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Bootstrapped standard errors (in parentheses) accounting for individual-level clustering (1,500 replications).

Table 10: Adolescent Emotional Symptoms, 2009-2013, CMLE, APE, FE Logit (Heterogeneous Thresholds)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>Adolescent Emotional Symptoms&gt;1</b>									
Bullied	0.2453*** (0.0599)	0.1772*** (0.0539)	0.1316*** (0.0510)	0.0794 (0.0577)	0.2342*** (0.0633)	0.1361** (0.0556)	0.1684*** (0.0465)	0.1846*** (0.0546)	0.0882* (0.0474)
Ln(Real House Net Monthly Income p.capita)	-0.0356 (0.0651)	0.0057 (0.0854)	-0.0588 (0.0649)	-0.0590 (0.0730)	-0.0570 (0.0652)	-0.0049 (0.0845)	0.0008 (0.0785)	-0.0020 (0.0843)	-0.0580 (0.0634)
Close Friends Number	-0.0027 (0.0044)	-0.0020 (0.0051)	-0.0037 (0.0046)	-0.0026 (0.0048)	-0.0028 (0.0048)	-0.0016 (0.0050)	-0.0004 (0.0045)	-0.0024 (0.0051)	-0.0038 (0.0046)
Number of Children in Household	0.0316 (0.0499)	-0.0131 (0.0561)	0.0290 (0.0510)	0.0064 (0.0514)	0.0142 (0.0508)	0.0009 (0.0539)	-0.0004 (0.0517)	0.0051 (0.0570)	0.0391 (0.0488)
Not Arguing with Mum	-0.0716 (0.0535)	-0.0153 (0.0670)	-0.0641 (0.0558)	-0.0450 (0.0648)	-0.0805 (0.0543)	-0.0115 (0.0658)	-0.0370 (0.0633)	-0.0251 (0.0644)	-0.0651 (0.0539)
Not Arguing with Dad	-0.0533 (0.0625)	-0.0925 (0.0769)	-0.0630 (0.0611)	-0.1088 (0.0693)	-0.0457 (0.0639)	-0.1244* (0.0722)	-0.1001 (0.0725)	-0.1049 (0.0723)	-0.0741 (0.0604)
Not Talking to Mum	0.0004 (0.0637)	0.0716 (0.0792)	-0.0078 (0.0658)	0.0335 (0.0741)	-0.0040 (0.0659)	0.0532 (0.0777)	0.0565 (0.0765)	0.0612 (0.0814)	-0.0072 (0.0625)
Not Talking to Dad	0.0486 (0.0520)	0.0129 (0.0671)	0.0610 (0.0517)	0.0292 (0.0598)	0.0711 (0.0525)	0.0191 (0.0631)	0.0324 (0.0616)	0.0105 (0.0649)	0.0550 (0.0511)
Parental School Interest	-0.1025* (0.0599)	-0.0863 (0.0681)	-0.0900 (0.0624)	-0.0962 (0.0674)	-0.1010* (0.0583)	-0.0903 (0.0689)	-0.0965 (0.0673)	-0.0919 (0.0689)	-0.0964 (0.0615)
Sample Size	636	489	624	537	627	510	519	504	630
<b>Adolescent Emotional Symptoms&gt;2</b>									
Bullied	0.3801*** (0.0690)	0.1676** (0.0835)	0.3578*** (0.0632)	-0.0452 (0.0824)	0.2625*** (0.0765)	0.1117 (0.0771)	0.2385*** (0.0719)	0.2469*** (0.0743)	0.3720*** (0.0582)
Ln(Real House Net Monthly Income p.capita)	-0.0972 (0.1166)	-0.1339 (0.1370)	-0.0836 (0.1387)	-0.1167 (0.1315)	-0.0543 (0.1317)	-0.1299 (0.1259)	-0.1300 (0.1350)	-0.2076 (0.1386)	-0.1193 (0.1414)
Close Friends Number	-0.0042 (0.0058)	-0.0043 (0.0064)	-0.0058 (0.0069)	-0.0032 (0.0061)	-0.0037 (0.0055)	-0.0034 (0.0065)	-0.0011 (0.0061)	-0.0075 (0.0061)	-0.0078 (0.0068)
Number of Children in Household	0.0259 (0.0709)	-0.0389 (0.0971)	-0.0350 (0.0870)	-0.0167 (0.0765)	0.0058 (0.0789)	-0.0473 (0.0788)	-0.0396 (0.0751)	-0.0033 (0.0867)	-0.0076 (0.0738)
Not Arguing with Mum	-0.0655 (0.0814)	-0.0636 (0.1029)	-0.0562 (0.0884)	-0.0720 (0.0850)	-0.0611 (0.0850)	-0.0503 (0.0958)	-0.0711 (0.0910)	-0.0807 (0.0992)	-0.0635 (0.0803)
Not Arguing with Dad	-0.1146 (0.0763)	-0.1558* (0.0945)	-0.1259 (0.0869)	-0.1284* (0.0775)	-0.0975 (0.0834)	-0.1322 (0.0887)	-0.1390 (0.0869)	-0.1270 (0.0899)	-0.1448* (0.0821)
Not Talking to Mum	-0.0252 (0.0892)	0.0165 (0.1071)	0.0450 (0.0845)	0.0396 (0.0953)	0.0319 (0.0882)	0.0343 (0.1019)	0.0597 (0.1010)	0.0155 (0.1085)	0.0473 (0.0840)
Not Talking to Dad	-0.0364 (0.0751)	0.0180 (0.0948)	0.0134 (0.0805)	-0.0375 (0.0859)	0.0140 (0.0782)	-0.0343 (0.0886)	-0.0212 (0.0903)	-0.0063 (0.0948)	-0.0050 (0.0735)
Parental School Interest	-0.1814** (0.0835)	-0.1885** (0.0916)	-0.0765 (0.0911)	-0.1775** (0.0900)	-0.1214 (0.0906)	-0.1868** (0.0950)	-0.1681* (0.0962)	-0.1511 (0.0962)	-0.1005 (0.0881)
Sample Size	306	243	291	270	291	255	261	252	303

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Bootstrapped standard errors (in parentheses) accounting for individual-level clustering (1,500 replications).

## 5 Conclusions

We study the impact of adolescent bullying victimisation on life satisfaction, hyperactivity/inattention and emotional symptoms using the UKHLS. We analyse the effects of nine distinct types of verbal, physical and indirect abuse at the school and domestic levels during 2009-2013. We employ dynamic ordered CRE models accounting for initial conditions and, fixed effects CML models incorporating threshold-

specific individual unobserved heterogeneity.

We find robust evidence that bullying increases adolescent hyperactive/inattentive and emotional symptoms and reduces life satisfaction. Our conclusions are in accordance with the existing literature (e.g. O'Brennan et al. 2000; Smith et al., 2004; studies reviewed by McDougall and Vaillancourt, 2015). The adverse impact of non-domestic bullying on emotional, hyperactive/inattentive symptoms and life satisfaction is generally higher compared to the corresponding domestic bullying impact. Domestic victimisation by siblings does not significantly affect life satisfaction. Even after controlling for the unobserved effect, the most important predictors of life satisfaction and emotional symptoms are previous period complete life satisfaction and abnormal emotional symptoms. Hyperactive and inattentive symptoms are strongly preconditioned by initial period outcomes. This suggests strong predetermination of hyperactive and inattentive symptoms plausibly by genetic predisposition and other individual-specific unobservables.

Ceteris paribus male adolescents, are more likely to report higher life satisfaction and less likely to report emotional symptoms. Healthier family interaction increases adolescent life satisfaction and reduces mental health symptoms. Household income per capita is generally positively associated with adolescent life satisfaction and has a significant impact on the probability of reporting complete life satisfaction. On the contrary, residing in the wealthiest English regions of "London, S.East, S.West, East of England" (in terms of GVA per capita) significantly reduces adolescent life satisfaction and, in the general bullying estimates, increases emotional symptoms. These outcomes could be due to longer working hours (potentially related to higher GVA per capita) and higher parental stress levels increasing exposure to poor parenting skills.

As a robustness check CML-FE estimation incorporating threshold specific time-invariant heterogeneity is performed and corroborates the key dynamic CRE findings: bullying victimisation increases the likelihood of suffering hyperactive/inattentive and emotional symptoms and non-domestic victimisation reduces the likelihood to be satisfied with life. The strong link between non-domestic victimisation and life dissatisfaction is an alarming outcome considering that persistent dissatisfaction might correspond to depression. All bullying victimisation forms increase the likelihood of presenting abnormal hyperactive and inattentive symptoms. FE estimation reveals that victimisation generally increases emotional symptoms, with the impact of non-domestic victimisation on abnormal symptoms being markedly greater compared to the significant strong adverse effects of domestic abuse. Contrary



to dynamic CRE, FE estimation indicates that higher household income per capita relates negatively to the probability of presenting hyperactive/inattentive symptoms. Hence, other things being equal, family-level poverty increases the occurrence of hyperactive/inattentive symptoms.

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## A Supplementary Appendix

### A.1 Joint Maximum Likelihood Estimation to Test Simultaneous Determination of Bullying and Adolescent Life Satisfaction/Mental Health Outcomes

To investigate potential simultaneous determination of life satisfaction/mental health outcomes and bullying victimisation, we employ joint maximum likelihood estimation (MLE). The model is formed as a binary system of latent responses

$$y_{it}^* = \mathbf{x}_{it}\boldsymbol{\beta} + \mathbf{y}_{it-1}\boldsymbol{\gamma} + \tau s_{it} + \mathbf{y}_{i1}\boldsymbol{\vartheta}_1 + \bar{\mathbf{x}}_i\boldsymbol{\alpha} + \lambda\zeta_i + \eta_{it}; t = 2, \dots, T; i = 1, \dots, N \quad (10)$$

$$y_{it} = j \quad \text{if} \quad \mu_{j-1} < y_{it}^* \leq \mu_j, \mu_0 = -\infty, \mu_j \leq \mu_{j+1}, \mu_J = \infty$$

$$s_{it}^* = \mathbf{z}_{it}\boldsymbol{\pi} + cs_{it-1} + \bar{\mathbf{z}}_i\boldsymbol{\psi} + \theta_0 + \theta_1 s_{i1} + \zeta_i + \omega_{it}; i = 1, \dots, N; t = 2, \dots, T \quad (11)$$

$$s_{it} = \mathbf{1} [s_{it}^* > 0]; i = 1, \dots, N; t = 2, \dots, T,$$

where  $y_{it}^*$  is a latent ordered response variable for the corresponding outcome (life satisfaction, hyperactive/emotional symptoms) and  $s_{it}^*$  is a latent binary response variable for bullying victimisation. Equations (10,11) employ Wooldridge's (2005) auxiliary model incorporating the Mundlak (1978)-Chamberlain (1984) specification,  $(\mathbf{x}_{it}, \mathbf{z}_{it})$  denote vectors of contemporaneous covariates,  $\zeta_i$  is a shared random effect inducing dependence between  $u_{1it} = \lambda\zeta_i + \eta_{it}$ ,  $u_{2it} = \zeta_i + \omega_{it}$  and  $\lambda$  is a factor loading (free parameter)- see Miranda and Rabe-Hesketh (2006). The reported reduced forms do not incorporate dynamics and only include the initial condition since including dynamics produces convergence problems (owing to collinearity due to the presence of  $\zeta_i$ ) and less efficient estimates (wider confidence intervals) of  $\lambda$  (see Puhani, 2000; Wooldridge, 2014). Assuming a bivariate normal distribution for  $(u_{1it}, u_{2it})$  and that  $(\zeta_i, \eta_{it}, \omega_{it})$  are  $iidN(0, 1)$ , the respective residual covariance matrix  $\Omega$  corresponds to

$$\Omega \equiv Cov [(u_{1it}, u_{2it})'] = \begin{pmatrix} \lambda^2 + 1 & \lambda \\ \lambda & 2 \end{pmatrix} \quad (12)$$

giving a correlation coefficient

$$\rho = \frac{\lambda}{\sqrt{2(\lambda^2 + 1)}}. \quad (13)$$

If  $\zeta_i$  had been observed, the joint log-likelihood function to be maximised would have simply been

$$\begin{aligned} \ln L = & \sum_{i=1}^N \sum_{t=2}^T \ln [Pr(y_{it} = j \mid \boldsymbol{\mu}, \mathbf{x}_{it}, \mathbf{y}_{it-1}, s_{it}, \mathbf{y}_{i1}, \bar{\mathbf{x}}_i, \zeta_i)] \\ & + \sum_{i=1}^N \sum_{t=2}^T \ln [\Phi \{(2s_{it} - 1)(\mathbf{z}_{it}\boldsymbol{\pi} + \bar{\mathbf{z}}_i\boldsymbol{\psi} + \theta_0 + \theta_1 s_{i1} + \zeta_i)\}] \quad (14) \end{aligned}$$

where  $Pr(y_{it} = j \mid \boldsymbol{\mu}, \mathbf{x}_{it}, \mathbf{y}_{it-1}, s_{it}, \bar{\mathbf{x}}_i, \mathbf{y}_{i1}, \zeta_i)$  denotes the probability of observing outcome  $j$  for response  $y_{it}$ , conditional on  $\boldsymbol{\mu} = \{\mu_1, \mu_2, \dots, \mu_{J-1}\}$ ,  $(\mathbf{x}_{it}, \mathbf{y}_{it-1}, s_{it}, \bar{\mathbf{x}}_i, \mathbf{y}_{i1})$  and  $\zeta_i$ . Calculating the log-likelihood requires integrating out the unobserved  $\zeta_i$  and the resulting integrals are evaluated using the mean-variance adaptive quadrature method (see Rabe-Hesketh et al., 2005).<sup>30</sup> After estimation, a simple t-test can be used to test the null hypothesis that  $\rho = 0$ .<sup>31</sup> Bullying victimisation,  $s_{it}$ , is exogenous if  $\rho = 0$  in which case consistent parameter estimates can be obtained by fitting a single equation model for equation (10) using the log likelihood function given in equation (4) in the main manuscript.

## B Results

### B.1 State Dependence in the Outcome Variables

The joint ML estimations for life satisfaction, hyperactive/inattentive and emotional symptoms are provided in Tables 1, 2 and 3, respectively. Inclusion of the shared random effect in the joint MLE hyperactivity/inattention estimates (Table 2) reduces the magnitude of the effects of initial conditions and increases the impact and statistical significance of lagged symptoms compared to the baseline estimates (in Table 2, main manuscript). Similarly, the weakly significant initial period life satisfaction outcomes (in Table 1, main manuscript) become insignificant in the joint ML estimates (in Table 1) and the lagged

<sup>30</sup>The joint likelihood models were estimated using the `gsem` command, and the single equation CRE ordered probits using the `xtoprobit` command in Stata. In both cases, we performed quadrature checks to ensure parameter invariance to quadrature point variation.

<sup>31</sup>We use the `nlcom` command in Stata providing standard errors, test statistics and significance levels for nonlinear combinations of parameter estimates (employing the delta method).



outcomes' statistical significance is enhanced.

## **B.2 Testing the Joint Determination of Bullying and the Three Outcome Variables**

Life satisfaction and the two mental health outcomes studied could be simultaneously determined with victimisation. To give a structural interpretation of the joint ML estimates, and not solely achieve functional form identification, the reduced form models for bullying victimisation additionally include perceived family support.

The underlying identification assumption is that perceived family support is a direct determinant of bullying victimisation and does not directly affect the three structural equation outcome variables (which are in turn affected by the family interaction environment determinants of family support). Chrysanthou and Vasilakis (2018) show that the family interaction environment (talk/argument frequencies) variables are significant determinants of perceived family support while they generally do not directly affect victimisation, an outcome that is corroborated by the present study reduced form estimates in Tables 1, 2 and 3.<sup>32</sup>

Tables 1, 2 and 3 illustrate the joint MLE results for life satisfaction, hyperactive/inattentive and emotional symptoms, respectively. Concerning life satisfaction, Table 1 indicates that there is no evidence of joint determination with bullying victimisation since the error correlation is statistically insignificant across all forms of victimisation. The negative bullying impact remains statistically significant regarding school victimisation, only.

However, Tables 2 and 3 indicate simultaneous determination of the structural equation outcome variables and domestic victimisation. The estimated error correlations (among the composite error terms of the structural and reduced forms) are statistically significant concerning three domestic victimisation measures (physical, fun/teasing, stealing) in the hyperactivity/inattention models and, two in the emotional symptoms models (aggregate domestic, verbal home)- see bottom of Tables 2 and 3. Nevertheless, structural identification is questionable as it relies exclusively on the statistical significance of perceived family support (noting the corresponding insignificance regarding domestic physical bullying in the

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<sup>32</sup>Perceived family support is derived from the question "Do you feel supported by your family, that is the people who live with you?". The constructed binary variable takes the value of one if the individual responded: "I feel supported by my family in most or all the things I do" (as opposed to "I feel supported in some of the things I do"/"I do not feel supported"). Approximately 0.77-0.79 per cent of adolescents in the estimation samples feel supported in most/all things by their families. We grouped answers reporting feeling supported in some things and not feeling supported together since the proportion not feeling supported is very low.

hyperactivity/inattention models- see the bottom of column 4, Table 2).

While victimisation continues to significantly augment emotional symptoms concerning all bullying forms except physical domestic aggression (see Table 3), its impact on hyperactive/inattentive symptoms remains statistically significant only regarding general bullying and other forms of school bullying (see Table 2).

The statistically significant error component correlations have the expected positive sign in the hyperactivity/inattention estimates in Table 2 indicating that the latent factors augmenting victimisation tend to occur with the latent determinants of hyperactive/inattentive symptoms. On the contrary, the respective significant error component correlations among the unobserved determinants of emotional symptoms and domestic victimisation appear to be negative.

Hyperactive/inattentive symptoms ("restless; cannot stay still for long", "constantly fidgeting or squirming", "easily distracted; difficult to concentrate", "think before doing things", "finish the work I am doing") are more prominent than the arguably more severe emotional symptoms ("headaches, stomachaches or sickness", "worrying a lot", "unhappy, down-hearted or tearful", "nervous in new situations, easily lose confidence", "fears; easily scared")- refer to the descriptive statistics Tables (7,8 and 9) where the mean of hyperactive/inattentive symptoms is greater than the corresponding emotional symptoms mean across all bullying forms.

As bullying is self-reported it could be that adolescents over-report domestic victimisation (due to potentially lower stigmatisation and retaliation risk) while this does not substantially increase the incidence of the more severe emotional symptoms thus, generating the negative error correlation. Whether this assertion or any alternative explanation is tenable, is difficult to establish given the existing data restrictions.

Table 11: Adolescent Life Satisfaction, 2009-2013, Joint Maximum Likelihood

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>Life Satisfaction: CRE Oederd Probit</b>									
Completely Satisfied(t-1)	1.0755*** (0.3080)	1.5214*** (0.2696)	1.2371*** (0.2465)	1.2957*** (0.2981)	1.2029*** (0.2543)	1.5309*** (0.2554)	1.4898*** (0.2644)	1.5252*** (0.2667)	1.1406*** (0.2628)
Very Satisfied(t-1)	0.5882** (0.2525)	1.0416*** (0.2362)	0.7284*** (0.2203)	0.8508*** (0.2414)	0.6766*** (0.2228)	1.0374*** (0.2196)	1.0048*** (0.2278)	1.0528*** (0.2392)	0.6754*** (0.2266)
Satisfied(t-1)	0.3225 (0.2259)	0.5093** (0.2273)	0.3221 (0.2153)	0.4030* (0.2237)	0.3070 (0.2143)	0.4852** (0.2150)	0.5219** (0.2230)	0.5381** (0.2260)	0.2590 (0.2173)
Completely Satisfied(2009)	0.2697 (0.2988)	0.1069 (0.2403)	0.1306 (0.2124)	0.3063 (0.2530)	0.1616 (0.2200)	0.1074 (0.2196)	0.1471 (0.2245)	0.1539 (0.2392)	0.1864 (0.2191)
Very Satisfied(2009)	0.1833 (0.2499)	0.0845 (0.2272)	0.0537 (0.1940)	0.2166 (0.2069)	0.0962 (0.1935)	0.0641 (0.1958)	0.1067 (0.2068)	0.1145 (0.2129)	0.0505 (0.1954)
Satisfied(2009)	0.1793 (0.2320)	0.2615 (0.2276)	0.1782 (0.2090)	0.3141 (0.2222)	0.1583 (0.2087)	0.2002 (0.2124)	0.2219 (0.2222)	0.2755 (0.2103)	0.2275 (0.2078)
Bullied	-0.3988 (0.3114)	-0.2481 (0.2478)	-0.5912*** (0.1890)	0.1967 (0.2203)	-0.6479*** (0.2442)	-0.0016 (0.2186)	-0.2349 (0.2153)	-0.0138 (0.2691)	-0.8206*** (0.1891)
Male	0.2885*** (0.0901)	0.1904* (0.0977)	0.2856*** (0.0890)	0.2106** (0.0975)	0.3079*** (0.0937)	0.1921** (0.0956)	0.2020** (0.0947)	0.2043** (0.1033)	0.3094*** (0.0911)
Ln(Real House Net Monthly Income p.capita)	0.1050 (0.0995)	0.1890* (0.1062)	0.1576* (0.0895)	0.1731* (0.1033)	0.1385 (0.0881)	0.1446 (0.1021)	0.1685 (0.1051)	0.1826* (0.1041)	0.1579* (0.0899)
Close Friends Number	-0.0099 (0.0131)	-0.0138 (0.0154)	-0.0063 (0.0136)	-0.0106 (0.0142)	-0.0077 (0.0135)	-0.0109 (0.0151)	-0.0122 (0.0152)	-0.0093 (0.0150)	-0.0051 (0.0136)
m(Close Friends)	0.0312* (0.0166)	0.0420** (0.0186)	0.0233 (0.0163)	0.0373** (0.0178)	0.0256 (0.0166)	0.0363** (0.0179)	0.0386** (0.0184)	0.0365** (0.0181)	0.0201 (0.0161)
Number of Children in Household	0.0055 (0.0533)	0.0491 (0.0618)	0.0318 (0.0508)	0.0363 (0.0626)	0.0181 (0.0510)	0.0491 (0.0597)	0.0408 (0.0617)	0.0539 (0.0619)	0.0406 (0.0502)
Not Arguing with Mum	0.2918* (0.1741)	0.4141** (0.1922)	0.1883 (0.1760)	0.4378** (0.1761)	0.2146 (0.1704)	0.4119** (0.1865)	0.3543* (0.1868)	0.3944** (0.1875)	0.1971 (0.1761)
m(Not Arguing with Mum)	0.2146 (0.2192)	0.1328 (0.2364)	0.2510 (0.2143)	0.1715 (0.2338)	0.2890 (0.2093)	0.1646 (0.2301)	0.1760 (0.2302)	0.1819 (0.2299)	0.2025 (0.2150)
Not Arguing with Dad	0.2092 (0.1985)	0.3763* (0.2094)	0.2459 (0.1822)	0.2811 (0.2200)	0.2164 (0.1784)	0.3543* (0.2074)	0.2619 (0.2128)	0.3087 (0.2088)	0.1865 (0.1901)
m(Not Arguing with Dad)	-0.0663 (0.2360)	-0.3657 (0.2538)	-0.0818 (0.2208)	-0.1872 (0.2657)	-0.1017 (0.2174)	-0.3037 (0.2513)	-0.2046 (0.2545)	-0.2731 (0.2540)	-0.0082 (0.2291)
Not Talking to Mum	-0.0081 (0.2103)	-0.0758 (0.2374)	-0.1235 (0.2023)	-0.0782 (0.2355)	-0.0644 (0.1997)	-0.1663 (0.2388)	-0.1311 (0.2328)	-0.1131 (0.2331)	-0.0853 (0.2012)
m(Not Talking to Mum)	-0.2276 (0.2482)	-0.0623 (0.2856)	-0.0354 (0.2410)	-0.0312 (0.2796)	-0.0727 (0.2395)	0.1001 (0.2808)	0.0057 (0.2823)	-0.0353 (0.2776)	-0.0973 (0.2420)
Not Talking to Dad	-0.3170* (0.1809)	-0.4584** (0.2174)	-0.2983* (0.1782)	-0.2876 (0.2026)	-0.3297* (0.1708)	-0.2711 (0.2077)	-0.3708* (0.2141)	-0.4332** (0.2064)	-0.2836 (0.1801)
m(Not Talking to Dad)	0.0213 (0.2188)	0.1087 (0.2654)	-0.0175 (0.2144)	-0.0940 (0.2492)	0.0343 (0.2112)	-0.1162 (0.2530)	0.0319 (0.2550)	0.0681 (0.2484)	-0.0499 (0.2166)
London, S.East, S.West, East England	-0.2586*** (0.0910)	-0.1767* (0.0958)	-0.2668*** (0.0870)	-0.1813* (0.0954)	-0.2475*** (0.0876)	-0.1473 (0.0929)	-0.1636* (0.0936)	-0.1846* (0.0944)	-0.2983*** (0.0887)
Parental School Interest	0.4686*** (0.1190)	0.4428*** (0.1217)	0.3886*** (0.1165)	0.4526*** (0.1200)	0.4121*** (0.1144)	0.4581*** (0.1261)	0.4322*** (0.1204)	0.4512*** (0.1265)	0.3841*** (0.1172)
λ	-0.2202 (0.2580)	0.1234 (0.3702)	0.0354 (0.2225)	-0.2671 (0.2239)	0.0916 (0.1518)	-0.0872 (0.3624)	0.1034 (0.2124)	-0.1265 (0.5149)	0.2137 (0.1860)
var(ε <sub>i</sub> )	1.1889** (0.5005)	0.4673** (0.2049)	0.5751*** (0.2134)	0.8980*** (0.3023)	1.2603*** (0.4730)	0.4143** (0.1869)	0.8235*** (0.2823)	0.3576** (0.1721)	0.6593*** (0.2376)
<b>Bullied: CRE Binary Probit</b>									
Bullied(2009)	1.3073*** (0.3305)	0.7548*** (0.1644)	1.1608*** (0.1598)	0.8399*** (0.1949)	1.4244*** (0.2535)	0.9183*** (0.1500)	0.9418*** (0.1811)	0.6482** (0.1518)	1.0601*** (0.1592)
Male	0.1359 (0.2128)	0.0503 (0.1479)	0.1873 (0.1456)	0.1456 (0.1684)	0.5631*** (0.2107)	0.1194 (0.1449)	-0.0090 (0.1678)	-0.2623* (0.1378)	0.1775 (0.1480)
Ln(Real House Net Monthly Income p.capita)	-0.6015** (0.2424)	0.1854 (0.1494)	0.0693 (0.1458)	-0.0524 (0.1610)	-0.2444 (0.2148)	0.0510 (0.1465)	0.2480 (0.1761)	0.4124*** (0.1410)	0.1083 (0.1485)
Close Friends Number	-0.0402 (0.0260)	-0.0159 (0.0141)	-0.0169 (0.0149)	-0.0069 (0.0158)	-0.0427* (0.0236)	-0.0110 (0.0141)	-0.0432*** (0.0167)	0.0035 (0.0149)	-0.0084 (0.0141)
m(Close Friends)	-0.0503 (0.0377)	0.0240 (0.0214)	-0.0217 (0.0203)	0.0198 (0.0238)	-0.0185 (0.0332)	-0.0026 (0.0196)	0.0321 (0.0260)	0.0248 (0.0223)	-0.0307 (0.0203)
Number of Children in Household	0.0236 (0.1090)	0.1334* (0.0740)	0.1302* (0.0771)	0.3628*** (0.0967)	0.1237 (0.1048)	0.0639 (0.0766)	0.0070 (0.0870)	0.2234*** (0.0759)	0.1276 (0.0784)
Not Arguing with Mum	-0.1563 (0.3091)	-0.4259* (0.2370)	-0.2849 (0.2317)	-0.3358 (0.2483)	-0.0295 (0.3059)	-0.2574 (0.2275)	-0.5208** (0.2405)	-0.2064 (0.2278)	-0.2783 (0.2286)
m(Not Arguing with Mum)	-0.4756 (0.4401)	0.1646 (0.3058)	-0.1832 (0.3052)	-0.2138 (0.3406)	-0.1879 (0.4268)	0.1717 (0.2987)	0.0030 (0.3217)	-0.0867 (0.2900)	-0.1772 (0.3105)
Not Arguing with Dad	-0.7172** (0.3020)	-0.1776 (0.2535)	0.0531 (0.2491)	-0.1177 (0.2719)	-0.1935 (0.3058)	-0.2458 (0.2356)	-0.0380 (0.2753)	-0.2334 (0.2418)	0.0717 (0.2498)
m(Not Arguing with Dad)	0.4619 (0.4223)	-0.1765 (0.3182)	0.0216 (0.3185)	-0.2991 (0.3565)	0.0890 (0.4110)	-0.2767 (0.2982)	-0.0172 (0.3485)	-0.0983 (0.2956)	0.0202 (0.3275)
Not Talking to Mum	0.0830 (0.3394)	0.1426 (0.3065)	-0.4179 (0.2801)	0.2798 (0.3012)	-0.0852 (0.3766)	0.0239 (0.2823)	-0.1393 (0.2983)	-0.0977 (0.2740)	-0.4193 (0.2893)
m(Not Talking to Mum)	-0.4971 (0.5015)	-0.5538 (0.3951)	0.2478 (0.3846)	-0.3487 (0.4169)	0.1443 (0.5223)	-0.4773 (0.3719)	-0.4653 (0.4260)	-0.1920 (0.3688)	0.2764 (0.3886)
Not Talking to Dad	-0.0909 (0.3360)	-0.4124 (0.3131)	0.0046 (0.2561)	-0.4359 (0.2808)	0.1684 (0.3103)	-0.1868 (0.2753)	0.0884 (0.2883)	-0.2717 (0.3114)	-0.0894 (0.2566)
m(Not Talking to Dad)	0.6240 (0.4416)	0.7108* (0.3706)	0.0370 (0.3197)	0.5234 (0.3603)	-0.2102 (0.4157)	0.4573 (0.3332)	0.0951 (0.3656)	0.4902 (0.3578)	0.1029 (0.3265)
London, S.East, S.West, East England	-0.5129** (0.2189)	-0.0056 (0.1448)	-0.2282 (0.1404)	0.0034 (0.1658)	-0.3286 (0.2063)	-0.1204 (0.1367)	0.0234 (0.1624)	0.0826 (0.1338)	-0.2297 (0.1444)
Parental School Interest	-0.0651 (0.2496)	-0.1002 (0.1860)	-0.2506 (0.1844)	0.0088 (0.2021)	-0.3695 (0.2399)	-0.2313 (0.1889)	-0.1073 (0.2079)	-0.2084 (0.1822)	-0.2241 (0.1875)
Perceived Family Support	-0.4321 (0.3395)	-0.5415** (0.2472)	-0.4761** (0.2270)	0.0015 (0.2616)	-0.3451 (0.2817)	-0.5638** (0.2298)	-0.6095** (0.2583)	-0.4191* (0.2500)	-0.5893*** (0.2104)
Log-Likelihood	-1103.636	-1040.060	-1246.334	-1121.227	-1126.343	-1072.617	-1080.395	-1070.022	-1255.572
Sample Size	768	604	762	656	768	626	634	620	772
Error Correlation	-0.152	0.087	0.025	-0.182	0.065	-0.061	0.073	-0.089	0.148

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. Standard errors (in parentheses) are adjusted for individual level (within person) clustering. GSEM: Generalised Structural Equation Modeling. m(Close Friends), m(Not Arguing with Mum/Dad), m(Not Talking to Mum/Dad) denote within means for T>2009. All models include a time dummy for 2013. Ordered Probit cut-points, Binary Probit global constant and normalised (to unity) factor loading are not displayed.

Table 12: Adolescent Hyperactivity/Inattention, 2009-2013, Joint Maximum Likelihood

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>Hyperactivity/Inattention: CRE Ordered Probit</b>									
Abnormal(t-1)	1.0772*** (0.1613)	0.8734*** (0.2654)	0.9905*** (0.2233)	0.8019*** (0.1996)	0.8321*** (0.2961)	0.9968*** (0.1802)	0.7575*** (0.2361)	0.2046 (0.4817)	1.0564*** (0.1767)
Intermediate(t-1)	0.5313*** (0.1217)	0.4243** (0.1736)	0.4720*** (0.1503)	0.4124*** (0.1452)	0.4089** (0.1835)	0.4979*** (0.1389)	0.3526** (0.1614)	0.0710 (0.2889)	0.5164*** (0.1300)
Abnormal(2009)	0.3508** (0.1715)	0.5996** (0.2973)	0.4222* (0.2212)	0.6475*** (0.2146)	0.5562** (0.2833)	0.4852** (0.1948)	0.7244*** (0.2619)	1.3159** (0.5159)	0.3817** (0.1807)
Intermediate(2009)	0.2592** (0.1293)	0.3498* (0.2003)	0.2976* (0.1571)	0.3198** (0.1607)	0.3690** (0.1857)	0.2886* (0.1509)	0.3867** (0.1778)	0.7131** (0.3033)	0.2714** (0.1362)
Bullied	0.6128** (0.2402)	0.1385 (0.2372)	0.2868 (0.1798)	-0.0666 (0.1515)	0.1058 (0.2871)	0.3553 (0.2637)	-0.1206 (0.1750)	0.0221 (0.2471)	0.3247* (0.1733)
Male	0.0940 (0.0908)	0.1049 (0.1058)	0.1094 (0.0993)	0.1010 (0.1075)	0.1122 (0.1117)	0.0590 (0.1001)	0.0725 (0.1097)	0.1137 (0.1430)	0.1126 (0.0935)
Ln(Real House Net Monthly Income p.capita)	-0.0182 (0.1006)	-0.0783 (0.1157)	-0.0576 (0.1020)	-0.1003 (0.1146)	-0.0653 (0.1103)	-0.0565 (0.1109)	-0.0919 (0.1186)	-0.0944 (0.1420)	-0.0601 (0.0983)
Close Friends Number	0.0110 (0.0126)	0.0070 (0.0141)	0.0091 (0.0129)	0.0078 (0.0141)	0.0090 (0.0132)	0.0101 (0.0136)	0.0071 (0.0145)	0.0085 (0.0159)	0.0088 (0.0126)
m(Close Friends)	-0.0100 (0.0152)	-0.0214 (0.0177)	-0.0143 (0.0161)	-0.0200 (0.0181)	-0.0161 (0.0173)	-0.0226 (0.0173)	-0.0216 (0.0186)	-0.0258 (0.0236)	-0.0128 (0.0156)
Number of Children in Household	0.0395 (0.0520)	0.1138* (0.0605)	0.0397 (0.0566)	0.1169* (0.0612)	0.0555 (0.0624)	0.1041* (0.0564)	0.1197* (0.0625)	0.1444* (0.0773)	0.0418 (0.0533)
Not Arguing with Mum	-0.3678** (0.1701)	-0.4163** (0.1911)	-0.3948** (0.1758)	-0.4018** (0.1894)	-0.4321** (0.1742)	-0.3843** (0.1821)	-0.4649** (0.1866)	-0.4250** (0.2147)	-0.3842** (0.1728)
m(Not Arguing with Mum)	0.0843 (0.2102)	0.1038 (0.2318)	0.1074 (0.2185)	0.0180 (0.2362)	0.0649 (0.2264)	0.0952 (0.2229)	0.1113 (0.2351)	0.0010 (0.2727)	0.1107 (0.2129)
Not Arguing with Dad	-0.0176 (0.1791)	-0.0859 (0.2047)	-0.0265 (0.1778)	-0.1219 (0.1965)	-0.0145 (0.1791)	-0.0893 (0.1946)	-0.0875 (0.1963)	-0.0705 (0.2185)	-0.0311 (0.1747)
m(Not Arguing with Dad)	-0.1842 (0.2193)	-0.0765 (0.2473)	-0.2200 (0.2245)	-0.0691 (0.2451)	-0.2369 (0.2309)	-0.0420 (0.2357)	-0.1016 (0.2456)	-0.1306 (0.2846)	-0.2117 (0.2181)
Not Talking to Mum	0.2151 (0.2183)	0.1402 (0.2431)	0.2263 (0.2235)	0.1992 (0.2452)	0.1991 (0.2259)	0.1374 (0.2354)	0.2386 (0.2517)	0.2102 (0.2689)	0.2304 (0.2207)
m(Not Talking to Mum)	-0.1607 (0.2709)	-0.0225 (0.3044)	-0.1731 (0.2824)	-0.1566 (0.3105)	-0.1391 (0.2992)	-0.0205 (0.2933)	-0.1373 (0.3196)	-0.0398 (0.3776)	-0.1874 (0.2745)
Not Talking to Dad	0.0018 (0.1821)	0.0260 (0.2286)	0.0158 (0.1886)	0.0281 (0.2220)	0.0260 (0.1848)	0.0513 (0.2092)	0.0268 (0.2180)	0.0242 (0.2419)	0.0218 (0.1840)
m(Not Talking to Dad)	0.2491 (0.2162)	0.2224 (0.2724)	0.3184 (0.2218)	0.2677 (0.2628)	0.3430 (0.2283)	0.1651 (0.2448)	0.2362 (0.2597)	0.3184 (0.2958)	0.2928 (0.2175)
London, S.East, S.West, East England	0.1109 (0.0908)	0.0181 (0.1026)	0.0649 (0.0939)	-0.0009 (0.1044)	0.0567 (0.1013)	0.0431 (0.0975)	0.0388 (0.1063)	0.0184 (0.1319)	0.0608 (0.0904)
Parental School Interest	-0.2976*** (0.1145)	-0.2507** (0.1299)	-0.2859** (0.1222)	-0.3117** (0.1324)	-0.2865** (0.1247)	-0.2469** (0.1254)	-0.3436** (0.1343)	-0.3348** (0.1548)	-0.2849** (0.1185)
λ	-0.0472 (0.1466)	0.3152 (0.5220)	0.3598 (0.3329)	0.4041** (0.1734)	0.4126 (0.3058)	-0.0631 (0.4803)	0.4330* (0.2316)	2.8913 (3.8836)	0.1968 (0.2147)
var(ε <sub>i</sub> )	1.3987*** (0.5205)	0.4577* (0.2477)	0.5792** (0.2606)	0.9444*** (0.3219)	1.2049** (0.5576)	0.4130** (0.1886)	0.8566*** (0.3137)	0.0670 (0.1373)	0.6857*** (0.2516)
<b>Bullied: CRE Binary Probit</b>									
Bullied (2009)	1.4597*** (0.2556)	0.7869*** (0.1592)	1.1412*** (0.1695)	0.9031*** (0.1944)	1.1908*** (0.2695)	0.9117*** (0.1722)	0.9864*** (0.1805)	0.5753*** (0.1344)	1.0719*** (0.1647)
Male	0.1041 (0.2193)	0.0367 (0.1467)	0.1965 (0.1455)	0.1517 (0.1700)	0.5381*** (0.2056)	0.1036 (0.1422)	-0.0331 (0.1692)	-0.2496** (0.1223)	0.1883 (0.1493)
Ln(Real House Net Monthly Income p.capita)	-0.6253** (0.2442)	0.1983 (0.1493)	0.1185 (0.1482)	-0.0178 (0.1627)	-0.1812 (0.2094)	0.0480 (0.1462)	0.2945* (0.1764)	0.4107*** (0.1276)	0.1159 (0.1519)
Close Friends Number	-0.0391 (0.0270)	-0.0178 (0.0144)	-0.0168 (0.0149)	-0.0071 (0.0158)	-0.0446* (0.0233)	-0.0105 (0.0139)	-0.0475*** (0.0170)	0.0023 (0.0129)	-0.0085 (0.0148)
m(Close Friends)	-0.0535 (0.0394)	0.0255 (0.0215)	-0.0183 (0.0206)	0.0213 (0.0237)	-0.0162 (0.0334)	-0.0012 (0.0192)	0.0327 (0.0262)	0.0226 (0.0191)	-0.0338 (0.0213)
Number of Children in Household	0.0604 (0.1130)	0.1580** (0.0747)	0.1373* (0.0781)	0.3910*** (0.0981)	0.1070 (0.0985)	0.0819 (0.0759)	0.0190 (0.0867)	0.2224*** (0.0673)	0.1293 (0.0799)
Not Arguing with Mum	-0.2001 (0.3150)	-0.3965* (0.2341)	-0.2302 (0.2303)	-0.3315 (0.2427)	0.0451 (0.2918)	-0.2327 (0.2255)	-0.4761** (0.2021)	-0.1519 (0.2021)	-0.2601 (0.2305)
m(Not Arguing with Mum)	-0.3703 (0.4541)	0.1269 (0.3034)	-0.2371 (0.3034)	-0.2598 (0.3370)	-0.2310 (0.4015)	0.1509 (0.2951)	-0.0390 (0.3158)	-0.0883 (0.2586)	-0.1960 (0.3126)
Not Arguing with Dad	-0.7161** (0.3110)	-0.1234 (0.2510)	-0.0063 (0.2504)	-0.1372 (0.2733)	-0.2871 (0.2964)	-0.1965 (0.2367)	-0.0635 (0.2636)	-0.1739 (0.2169)	-0.0170 (0.2515)
m(Not Arguing with Dad)	0.4402 (0.4411)	-0.2309 (0.3159)	0.0939 (0.3193)	-0.3145 (0.3578)	0.1539 (0.3984)	-0.3239 (0.2974)	-0.0015 (0.3390)	-0.1288 (0.2622)	0.1469 (0.3294)
Not Talking to Mum	-0.0088 (0.3459)	0.1207 (0.3017)	-0.4021 (0.2766)	0.2713 (0.3027)	-0.0537 (0.3522)	-0.0679 (0.2808)	-0.1278 (0.2965)	-0.1199 (0.2423)	-0.4050 (0.2897)
m(Not Talking to Mum)	-0.4222 (0.5160)	-0.5151 (0.3861)	0.2729 (0.3842)	-0.3342 (0.4241)	0.2002 (0.5000)	-0.3260 (0.3695)	-0.5394 (0.4249)	-0.1236 (0.3236)	0.1856 (0.3866)
Not Talking to Dad	-0.0932 (0.3362)	-0.3269 (0.3089)	0.0065 (0.2507)	-0.4544 (0.2823)	0.1765 (0.2881)	-0.1420 (0.2682)	0.1614 (0.2870)	-0.1905 (0.2806)	-0.0908 (0.2587)
m(Not Talking to Dad)	0.5763 (0.4532)	0.6271* (0.3675)	-0.0071 (0.3162)	0.5634 (0.3637)	-0.1791 (0.3915)	0.3718 (0.3279)	0.1311 (0.3640)	0.3886 (0.3204)	0.0787 (0.3298)
London, S.East, S.West, East England	-0.5687** (0.2294)	-0.0133 (0.1430)	-0.2231 (0.1403)	-0.0580 (0.1676)	-0.3386* (0.2024)	-0.1152 (0.1353)	0.0144 (0.1624)	0.0561 (0.1173)	-0.2160 (0.1453)
Parental School Interest	-0.0762 (0.2491)	-0.1304 (0.1812)	-0.2042 (0.1805)	-0.0002 (0.2047)	-0.3018 (0.2278)	-0.2098 (0.1827)	-0.1397 (0.2039)	-0.1834 (0.1573)	-0.2237 (0.1856)
Perceived Family Support	-0.5986** (0.2341)	-0.4401** (0.1925)	-0.4640** (0.1957)	-0.0364 (0.2086)	-0.2043 (0.2378)	-0.5703*** (0.1886)	-0.4298** (0.1972)	-0.3758** (0.1583)	-0.5324*** (0.1934)
Log-Likelihood	-960.793	-926.807	-1096.514	-984.226	-970.946	-949.550	-957.816	-952.013	-1106.129
Sample Size	782	612	768	664	774	634	644	626	778
Error Correlation	-0.033	0.213	0.239	0.265***	0.270	-0.045	0.281**	0.668***	0.137

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. Standard errors (in parentheses) are adjusted for individual level (within person) clustering. GSEM: Generalised Structural Equation Modeling. m(Close Friends), m(Not Arguing with Mum/Dad), m(Not Talking to Mum/Dad) denote within means for T>2009. All models include a time dummy for 2013. Ordered Probit cut-points, Binary Probit global constant and normalised (to unity) factor loading are not displayed.

Table 13: Adolescent Emotional Symptoms, 2009-2013, Joint Maximum Likelihood

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
<b>Adolescent Emotional Symptoms: CRE Ordered Probit Abnormal(t-1)</b>	1.1853*** (0.1201)	1.2950*** (0.2480)	1.3034*** (0.2099)	1.3189*** (0.2146)	1.2811*** (0.2125)	1.2609*** (0.2388)	1.3334*** (0.2264)	1.3258*** (0.2289)	1.3029*** (0.2054)
Intermediate(t-1)	0.5794*** (0.1182)	0.5440*** (0.1452)	0.6053*** (0.1197)	0.5727*** (0.1282)	0.6085*** (0.1196)	0.5360*** (0.1426)	0.5541*** (0.1315)	0.5456*** (0.1315)	0.6103*** (0.1189)
Abnormal(2009)	0.1133 (0.2185)	0.2621 (0.2427)	0.0642 (0.2105)	0.1468 (0.2135)	0.0741 (0.2137)	0.2096 (0.2372)	0.1405 (0.2221)	0.1936 (0.2232)	0.0511 (0.2063)
Intermediate(2009)	0.1169 (0.1120)	0.1445 (0.1373)	0.0720 (0.1139)	0.0991 (0.1243)	0.0905 (0.1143)	0.1371 (0.1363)	0.1399 (0.1248)	0.1575 (0.1305)	0.0617 (0.1138)
Bullied	0.7681*** (0.2160)	0.4243** (0.1690)	0.5223*** (0.1529)	-0.0363 (0.1537)	0.5719** (0.2241)	0.3002* (0.1548)	0.4171** (0.1960)	0.3760** (0.1663)	0.5819*** (0.1524)
Male	-0.6591*** (0.0923)	-0.6881*** (0.1088)	-0.6705*** (0.0936)	-0.6094*** (0.0986)	-0.6937*** (0.0979)	-0.6620*** (0.1062)	-0.6450*** (0.1015)	-0.6182*** (0.1035)	-0.6510*** (0.0935)
Ln Real House Net Monthly Income p.capita	0.1153 (0.1037)	0.0444 (0.1196)	0.0773 (0.1036)	0.0249 (0.1080)	0.0873 (0.1026)	0.0563 (0.1182)	0.0348 (0.1142)	0.0221 (0.1149)	0.0585 (0.1028)
Close Friends Number	-0.0024 (0.0132)	-0.0036 (0.0167)	-0.0027 (0.0139)	-0.0055 (0.0159)	-0.0017 (0.0137)	-0.0013 (0.0163)	0.0042 (0.0153)	-0.0065 (0.0170)	-0.0039 (0.0139)
m(Close Friends)	-0.0060 (0.0131)	-0.0218 (0.0145)	-0.0114 (0.0133)	-0.0167 (0.0145)	-0.0133 (0.0131)	-0.0236 (0.0151)	-0.0254* (0.0146)	-0.0198 (0.0145)	-0.0090 (0.0134)
Number of Children in Household	0.0531 (0.0470)	0.0003 (0.0551)	0.0162 (0.0456)	0.0390 (0.0543)	0.0244 (0.0458)	0.0286 (0.0521)	0.0324 (0.0519)	-0.0124 (0.0531)	0.0328 (0.0468)
Not Arguing with Mum	-0.2638 (0.1753)	-0.1877 (0.2060)	-0.2814 (0.1848)	-0.2129 (0.1922)	-0.3077* (0.1808)	-0.2144 (0.2001)	-0.2425 (0.1943)	-0.1764 (0.2014)	-0.2787 (0.1831)
m(Not Arguing with Mum)	0.0482 (0.2065)	-0.0559 (0.2412)	0.0909 (0.2180)	-0.1539 (0.2289)	0.0497 (0.2152)	-0.0872 (0.2369)	-0.0317 (0.2291)	-0.1151 (0.2366)	0.0749 (0.2167)
Not Arguing with Dad	0.0213 (0.1939)	-0.1755 (0.2401)	-0.0076 (0.1833)	-0.1629 (0.2083)	0.0158 (0.1820)	-0.1237 (0.2246)	-0.0801 (0.2195)	-0.1553 (0.2342)	0.0017 (0.1808)
m(Not Arguing with Dad)	-0.2826 (0.2266)	-0.0311 (0.2740)	-0.2580 (0.2203)	-0.0703 (0.2448)	-0.2434 (0.2190)	-0.1121 (0.2609)	-0.1458 (0.2541)	0.0001 (0.2677)	-0.2917 (0.2182)
Not Talking to Mum	0.1044 (0.1932)	0.1966 (0.2282)	0.1510 (0.1883)	0.1687 (0.2163)	0.1106 (0.1899)	0.2215 (0.2215)	0.2312 (0.2119)	0.2153 (0.2153)	0.1524 (0.1880)
m(Not Talking to Mum)	0.2029 (0.2587)	0.2550 (0.2951)	0.0797 (0.2512)	0.1344 (0.2820)	0.1019 (0.2511)	0.1448 (0.2882)	0.1567 (0.2777)	0.2061 (0.2853)	0.1106 (0.2513)
Not Talking to Dad	-0.0080 (0.1758)	-0.0245 (0.2191)	-0.0059 (0.1830)	-0.0830 (0.2017)	-0.0030 (0.1751)	-0.0590 (0.2055)	-0.0767 (0.2011)	-0.0127 (0.2086)	-0.0024 (0.1832)
m(Not Talking to Dad)	0.0557 (0.2210)	-0.0017 (0.2655)	0.1016 (0.2256)	0.1637 (0.2466)	0.0912 (0.2185)	0.0646 (0.2520)	0.0845 (0.2447)	0.0485 (0.2544)	0.0786 (0.2258)
London, S.East, S.West, East England	0.1468 (0.0928)	-0.0044 (0.1057)	0.1263 (0.0904)	-0.0070 (0.0961)	0.1244 (0.0905)	0.0292 (0.1035)	-0.0034 (0.1006)	-0.0176 (0.1022)	0.1227 (0.0893)
Parental School Interest	-0.2113* (0.1267)	-0.2280 (0.1443)	-0.1723 (0.1261)	-0.2361* (0.1358)	-0.1882 (0.1250)	-0.2047 (0.1424)	-0.2070 (0.1368)	-0.1874 (0.1397)	-0.1804 (0.1259)
λ	0.0621 (0.1151)	-0.3700 (0.2336)	-0.0164 (0.1492)	0.1085 (0.1200)	-0.0488 (0.1264)	-0.4054* (0.2398)	-0.1540 (0.1575)	-0.2827 (0.2932)	-0.0896 (0.1353)
var(ε <sub>i</sub> )	1.4022*** (0.5222)	0.4738** (0.1950)	0.6185*** (0.2224)	0.9692*** (0.3057)	1.3320*** (0.4842)	0.4161** (0.1801)	0.8810*** (0.2899)	0.3531** (0.1665)	0.6988*** (0.2408)
<b>Bullied: CRE Binary Probit Bullied (2009)</b>	1.4719*** (0.2570)	0.7118*** (0.1590)	1.1619*** (0.1599)	0.8567*** (0.1989)	1.3156*** (0.2450)	0.8831*** (0.1474)	0.8686*** (0.1848)	0.5788*** (0.1504)	1.0798*** (0.1619)
Male	0.1048 (0.2221)	0.0307 (0.1466)	0.1997 (0.1471)	0.1565 (0.1709)	0.5570*** (0.2086)	0.1027 (0.1417)	-0.0401 (0.1695)	-0.2808** (0.1367)	0.1874 (0.1499)
Ln Real House Net Monthly Income p.capita	-0.6280** (0.2452)	0.1884 (0.1498)	0.0961 (0.1479)	-0.0558 (0.1622)	-0.1799 (0.2144)	0.0529 (0.1468)	0.2638 (0.1776)	0.4170*** (0.1410)	0.1022 (0.1511)
Close Friends Number	-0.0398 (0.0272)	-0.0179 (0.0147)	-0.0168 (0.0148)	-0.0064 (0.0153)	-0.0414* (0.0228)	-0.0107 (0.0143)	-0.0463*** (0.0171)	0.0024 (0.0148)	-0.0082 (0.0147)
m(Close Friends)	-0.0534 (0.0399)	0.0266 (0.0220)	-0.0189 (0.0205)	0.0213 (0.0234)	-0.0183 (0.0327)	-0.0009 (0.0197)	0.0328 (0.0266)	0.0259 (0.0223)	-0.0347 (0.0213)
Number of Children in Household	0.0631 (0.1121)	0.1504** (0.0743)	0.1415* (0.0776)	0.3747*** (0.0951)	0.1339 (0.1037)	0.0787 (0.0756)	0.0007 (0.0872)	0.2397*** (0.0795)	0.1321* (0.0795)
Not Arguing with Mum	-0.2050 (0.3146)	-0.3978* (0.2376)	-0.2325 (0.2343)	-0.3426 (0.2469)	0.0440 (0.3009)	-0.2295 (0.2263)	-0.5043** (0.2378)	-0.1862 (0.2269)	-0.2589 (0.2327)
m(Not Arguing with Mum)	-0.3692 (0.4536)	0.1455 (0.3059)	-0.2239 (0.3078)	-0.2254 (0.3428)	-0.2406 (0.4190)	0.1651 (0.2965)	-0.0021 (0.3199)	-0.0857 (0.2892)	-0.1856 (0.3140)
Not Arguing with Dad	-0.7152** (0.3106)	-0.1130 (0.2586)	-0.0077 (0.2521)	-0.1331 (0.2765)	-0.2835 (0.3036)	-0.1965 (0.2388)	-0.0348 (0.2679)	-0.1922 (0.2444)	-0.0180 (0.2516)
m(Not Arguing with Dad)	0.4390 (0.4409)	-0.2528 (0.3204)	0.0799 (0.3223)	-0.3273 (0.3622)	0.1115 (0.4081)	-0.3227 (0.2981)	-0.0383 (0.3426)	-0.1542 (0.2967)	0.1428 (0.3305)
Not Talking to Mum	0.0092 (0.3486)	0.0841 (0.3018)	-0.4299 (0.2784)	0.2596 (0.3049)	-0.0978 (0.3616)	-0.0855 (0.2835)	-0.1692 (0.2967)	-0.1610 (0.2666)	-0.4293 (0.2902)
m(Not Talking to Mum)	-0.4408 (0.5170)	-0.4881 (0.3862)	0.3001 (0.3869)	-0.3359 (0.4230)	0.3175 (0.5125)	-0.3203 (0.3708)	-0.4717 (0.4215)	-0.1187 (0.3589)	0.2107 (0.3870)
Not Talking to Dad	-0.0895 (0.3346)	-0.3392 (0.3092)	0.0037 (0.2533)	-0.4451 (0.2822)	0.1697 (0.3019)	-0.1496 (0.2696)	0.1473 (0.1638)	-0.2179 (0.3065)	-0.0919 (0.2592)
m(Not Talking to Dad)	0.5840 (0.4525)	0.6413* (0.3672)	-0.0128 (0.3183)	0.5560 (0.3652)	-0.2544 (0.4013)	0.3764 (0.3291)	0.1053 (0.3649)	0.4263 (0.3522)	0.0708 (0.3290)
London, S.East, S.West, East England	-0.5634** (0.2291)	-0.0139 (0.1438)	-0.2284 (0.1419)	-0.0335 (0.1689)	-0.3632* (0.2070)	-0.1165 (0.1355)	0.0086 (0.1638)	0.0597 (0.1328)	-0.2193 (0.1459)
Parental School Interest	-0.0930 (0.2520)	-0.0906 (0.1808)	-0.1976 (0.1842)	0.0262 (0.2043)	-0.2994 (0.2406)	-0.1920 (0.1806)	-0.1006 (0.2028)	-0.2001 (0.1760)	-0.2145 (0.1875)
Perceived Family Support	-0.5472** (0.2573)	-0.5740*** (0.1905)	-0.5351*** (0.1905)	-0.0978 (0.2254)	-0.3596 (0.2585)	-0.6492*** (0.1822)	-0.5880*** (0.2096)	-0.5064*** (0.1862)	-0.5974*** (0.1916)
Log-Likelihood	-889.936	-871.499	-1034.471	-941.432	-913.119	-901.917	-907.538	-894.890	-1045.531
Sample Size	782	612	768	664	774	634	644	626	778
Error Correlation	0.044	-0.245*	-0.012	0.076	-0.034	-0.266**	-0.108	-0.192	-0.063

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. Standard errors (in parentheses) are adjusted for individual level (within person) clustering. GSEM: Generalised Structural Equation Modeling. m(Close Friends), m(Not Arguing with Mum/Dad), m(Not Talking to Mum/Dad) denote within means for T>2009. All models include a time dummy for 2013. Ordered Probit cut-points, Binary Probit global constant and normalised (to unity) factor loading are not displayed.

## C Composite Likelihood (CLE) FE Logits

Table 14: Adolescent Life Satisfaction, 2009-2013, Composite Likelihood (CLE) FE Logits

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
Bullied	-0.7671*** (0.2466)	-0.2056 (0.2498)	-0.6882*** (0.2120)	0.3791* (0.2254)	-0.4093 (0.2535)	0.0119 (0.2350)	-0.2285 (0.2290)	-0.0371 (0.2263)	-0.7412*** (0.2220)
Ln Real House Net Monthly Income p.capita	0.0356 (0.2360)	-0.0077 (0.2742)	0.3708 (0.2415)	0.1088 (0.2648)	0.1360 (0.2274)	0.1070 (0.2773)	0.3126 (0.2891)	0.2315 (0.2518)	-0.0548 (0.2331)
Close Friends Number	0.0110 (0.0193)	0.0010 (0.0176)	-0.0098 (0.0161)	0.0234 (0.0220)	-0.0123 (0.0150)	-0.0112 (0.0182)	0.0071 (0.0187)	-0.0027 (0.0198)	-0.0001 (0.0162)
Number of Children in Household	-0.0925 (0.1284)	-0.0305 (0.1478)	0.1752 (0.1353)	-0.0309 (0.1362)	0.2947** (0.1499)	0.0848 (0.1638)	0.3380** (0.1520)	-0.1886 (0.1568)	0.1953 (0.1421)
Not Arguing with Mum	0.5606** (0.2367)	0.9536*** (0.2848)	0.2546 (0.2363)	0.4773* (0.2641)	0.3940 (0.2508)	0.5167* (0.2676)	0.5779** (0.2813)	0.6765** (0.2766)	0.5257** (0.2336)
Not Arguing with Dad	0.2689 (0.2590)	0.1776 (0.3012)	0.5926** (0.2368)	0.6670** (0.2959)	0.1438 (0.2535)	0.2030 (0.2807)	0.3353 (0.2990)	0.2010 (0.2716)	-0.0516 (0.2630)
Not Talking to Mum	-0.6309** (0.2871)	0.0257 (0.3553)	-0.2923 (0.2641)	-0.2330 (0.3226)	0.0729 (0.2713)	-0.1900 (0.3051)	-0.2476 (0.3295)	-0.1811 (0.3047)	-0.0963 (0.2953)
Not Talking to Dad	-0.2171 (0.2251)	-0.7445*** (0.2823)	-0.4835** (0.2426)	-0.6591*** (0.2553)	-0.6512*** (0.2318)	-0.4493* (0.2326)	-0.5019* (0.2648)	-0.9688*** (0.2533)	-0.4171* (0.2414)
Parental School Interest	0.7896*** (0.2682)	0.6732** (0.3127)	0.6699** (0.2728)	0.6377** (0.2892)	0.9493*** (0.2782)	0.9535*** (0.2691)	0.6166** (0.3112)	1.1291*** (0.3176)	1.1517*** (0.2452)
$\mu_2$	1.4035*** (0.1154)	1.6040*** (0.1515)	1.5646*** (0.1302)	1.4322*** (0.1316)	1.5436*** (0.1227)	1.4655*** (0.1257)	1.5224*** (0.1400)	1.5759*** (0.1399)	1.5514*** (0.1213)
$\mu_3$	3.5041*** (0.1881)	3.7891*** (0.2533)	3.7292*** (0.1941)	3.5622*** (0.2142)	3.6844*** (0.1775)	3.5920*** (0.1937)	3.6163*** (0.2183)	3.9296*** (0.2263)	3.7012*** (0.1838)
Sample Size	12654	9822	12162	10944	12384	10386	10368	10182	12480

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Standard errors (in parentheses) account for individual-level clustering.

Table 15: Adolescent Hyperactivity/Inattention, 2009-2013, Composite Likelihood (CLE) FE Logits

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
Bullied	0.4985* (0.2765)	0.4498** (0.2166)	0.4386** (0.2180)	0.5135** (0.2255)	0.5678** (0.2766)	0.5631** (0.2334)	0.5588** (0.2241)	0.3157 (0.2526)	0.8335*** (0.2117)
Ln Real House Net Monthly Income p.capita	0.1065 (0.2647)	0.0347 (0.2891)	-0.1043 (0.2604)	0.0207 (0.2725)	-0.0712 (0.2575)	0.0957 (0.3142)	-0.1482 (0.3143)	0.0937 (0.3091)	-0.1526 (0.2964)
Close Friends Number	0.0123 (0.0175)	0.0105 (0.0219)	0.0056 (0.0189)	0.0113 (0.0207)	-0.0104 (0.0190)	0.0242 (0.0191)	0.0210 (0.0211)	0.0206 (0.0193)	0.0199 (0.0183)
Number of Children in Household	0.1018 (0.1524)	0.0682 (0.1552)	0.1416 (0.1498)	0.1537 (0.1597)	0.1379 (0.1449)	0.1351 (0.1605)	0.3115** (0.1525)	-0.1733 (0.1571)	0.1637 (0.1503)
Not Arguing with Mum	-0.5539** (0.2323)	-0.4343 (0.2657)	-0.7057*** (0.2255)	-0.6370** (0.2673)	-0.7040*** (0.2341)	-0.5731** (0.2704)	-0.5025* (0.2656)	-0.3988 (0.2589)	-0.5106** (0.2397)
Not Arguing with Dad	0.0591 (0.2395)	-0.1657 (0.2812)	-0.4508** (0.2291)	-0.2643 (0.2649)	-0.2219 (0.2370)	-0.0663 (0.2617)	-0.2883 (0.2697)	0.0154 (0.2552)	-0.0292 (0.2469)
Not Talking to Mum	-0.2749 (0.2807)	-0.1336 (0.2904)	-0.1763 (0.2810)	-0.4725 (0.3211)	-0.1573 (0.2842)	-0.4610 (0.3120)	-0.2735 (0.3492)	-0.1285 (0.3242)	0.1639 (0.2858)
Not Talking to Dad	0.7301*** (0.2633)	0.6669** (0.2721)	0.4764** (0.2413)	0.6597** (0.2792)	0.3288 (0.2511)	0.1490 (0.2871)	0.4178 (0.2661)	0.5388* (0.2817)	0.2763 (0.2615)
Parental School Interest	-0.5953** (0.2912)	-0.4967* (0.2772)	-0.3961 (0.2474)	-0.8049*** (0.2982)	-0.6793*** (0.2578)	-0.4377 (0.2984)	-0.8137*** (0.2994)	-0.6594** (0.3326)	-0.8019*** (0.2978)
$\mu_2 - \mu_1$	2.7549*** (0.1549)	2.9086*** (0.1825)	2.7436*** (0.1532)	3.0272*** (0.1999)	2.7092*** (0.1566)	2.7316*** (0.1800)	2.8188*** (0.1781)	2.8345*** (0.1821)	2.7590*** (0.1628)
Sample Size	3944	3072	3896	3320	3896	3240	3264	3112	3832

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Standard errors (in parentheses) account for individual-level clustering.

Table 16: Adolescent Emotional Symptoms, 2009-2013, Composite Likelihood (CLE) FE Logits

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	GenBull	GenHome	GenSchool	PhysHome	PhysSchool	VerbalHome	FunTeaseHome	StealHome	OthSchool
Bullied	1.2180*** (0.2738)	0.2559 (0.2343)	0.8074*** (0.2226)	-0.1132 (0.2074)	0.8130*** (0.2589)	0.4090 (0.2631)	0.5863** (0.2399)	0.3958 (0.2472)	1.1213*** (0.2256)
Ln Real House Net Monthly income p.capita	-0.2153 (0.2924)	-0.3205 (0.2915)	-0.4563* (0.2693)	-0.2278 (0.2878)	-0.0536 (0.2871)	0.0612 (0.3234)	-0.2224 (0.3221)	-0.0195 (0.2881)	-0.0981 (0.3033)
Close Friends Number	-0.0275 (0.0170)	-0.0255 (0.0199)	-0.0242 (0.0173)	-0.0132 (0.0163)	-0.0221 (0.0166)	-0.0159 (0.0161)	-0.0257 (0.0199)	-0.0287 (0.0208)	-0.0275 (0.0184)
Number of children in household	-0.1075 (0.1542)	-0.1346 (0.1724)	0.1392 (0.1372)	0.1026 (0.1658)	0.1786 (0.1424)	-0.0674 (0.1851)	0.1239 (0.1651)	-0.1636 (0.1858)	-0.1037 (0.1511)
Not Arguing with Mum	-0.0031 (0.2399)	-0.2004 (0.2911)	-0.3600 (0.2459)	0.0540 (0.2684)	-0.3040 (0.2681)	-0.1081 (0.3226)	0.1268 (0.2771)	-0.1915 (0.2843)	-0.1280 (0.2722)
Not Arguing with Dad	-0.4058 (0.2471)	-0.4201 (0.3393)	-0.1888 (0.2567)	-0.7397** (0.3228)	-0.2854 (0.2762)	-0.5960* (0.3169)	-0.6699** (0.3275)	-0.3657 (0.3443)	-0.2465 (0.2589)
Not Talking to Mum	0.1170 (0.2693)	-0.0318 (0.3284)	0.0652 (0.2920)	0.1431 (0.2887)	0.1052 (0.2785)	0.1097 (0.2808)	0.4548 (0.2806)	0.1143 (0.3449)	0.4909* (0.2675)
Parental School Interest	-0.2037 (0.2881)	-0.0640 (0.3015)	-0.2280 (0.2636)	-0.1811 (0.2796)	-0.2230 (0.2547)	-0.6537** (0.3031)	-0.0423 (0.3057)	-0.2106 (0.3113)	-0.1312 (0.2755)
$\mu_2 - \mu_1$	2.6785*** (0.1598)	2.4715*** (0.1722)	2.6969*** (0.1602)	2.7210*** (0.1842)	2.5215*** (0.1559)	2.6006*** (0.1845)	2.6231*** (0.1787)	2.5906*** (0.1867)	2.4925*** (0.1459)
Sample Size	3416	2728	3344	2888	3472	2800	2848	2704	3520

Notes: \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels respectively. Source: University of Essex, ISER, Understanding Society: Waves 1-5. Standard errors (in parentheses) account for individual-level clustering.

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## D Descriptive Statistics

Table 17: Descriptive Statistics , Life Satisfaction

	GenBull mean	se	GenHome mean	se	GenSchool mean	se
Completely Satisfied(t-1)	0.378	(0.380)	0.348	(0.437)	0.381	(0.368)
Very Satisfied(t-1)	0.375	(0.283)	0.390	(0.332)	0.378	(0.287)
Satisfied(t-1)	0.144	(0.232)	0.156	(0.265)	0.144	(0.240)
Completely Satisfied(1)	0.406	(0.343)	0.370	(0.436)	0.408	(0.354)
Very Satisfied(1)	0.380	(0.252)	0.416	(0.348)	0.384	(0.276)
Satisfied(1)	0.108	(0.237)	0.108	(0.332)	0.106	(0.265)
Bullied	0.163	(0.127)	0.574	(0.124)	0.338	(0.116)
Male	0.478	(0.093)	0.466	(0.124)	0.478	(0.109)
Ln(Real House Net Monthly Income p.capita)	1.832	(0.095)	1.802	(0.128)	1.840	(0.106)
Close Friends Number	7.071	(0.013)	7.249	(0.016)	7.066	(0.014)
Number of Children in Household	1.988	(0.054)	2.102	(0.078)	1.968	(0.060)
Not Arguing with Mum	0.455	(0.180)	0.452	(0.204)	0.457	(0.186)
Not Arguing with Dad	0.617	(0.203)	0.621	(0.221)	0.626	(0.195)
Not Talking to Mum	0.203	(0.210)	0.202	(0.248)	0.199	(0.204)
Not Talking to Dad	0.420	(0.189)	0.416	(0.224)	0.416	(0.189)
London, S.East, S.West, East England	0.440	(0.091)	0.439	(0.121)	0.436	(0.103)
Parental School Interest	0.810	(0.121)	0.797	(0.145)	0.812	(0.130)
Mean Life Satisfaction	2.819		2.772		2.832	
NT	778		610		770	
	PhysHome mean	se	PhysSchool mean	se	VerbalHome mean	se
Completely Satisfied(t-1)	0.349	(0.437)	0.379	(0.365)	0.347	(0.430)
Very Satisfied(t-1)	0.393	(0.326)	0.380	(0.282)	0.388	(0.320)
Satisfied(t-1)	0.150	(0.262)	0.143	(0.237)	0.157	(0.253)
Completely Satisfied(1)	0.369	(0.414)	0.407	(0.346)	0.370	(0.420)
Very Satisfied(1)	0.414	(0.319)	0.387	(0.271)	0.408	(0.324)
Satisfied(1)	0.106	(0.303)	0.106	(0.266)	0.111	(0.308)
Bullied	0.586	(0.112)	0.159	(0.153)	0.595	(0.111)
Male	0.477	(0.118)	0.477	(0.113)	0.475	(0.122)
Ln(Real House Net Monthly Income p.capita)	1.798	(0.116)	1.840	(0.106)	1.800	(0.124)
Close Friends Number	7.156	(0.015)	7.071	(0.014)	7.210	(0.016)
Number of Children in Household	2.116	(0.073)	1.972	(0.063)	2.111	(0.075)
Not Arguing with Mum	0.450	(0.189)	0.457	(0.184)	0.454	(0.198)
Not Arguing with Dad	0.616	(0.233)	0.624	(0.192)	0.619	(0.219)
Not Talking to Mum	0.202	(0.242)	0.197	(0.205)	0.198	(0.248)
Not Talking to Dad	0.409	(0.216)	0.415	(0.181)	0.415	(0.217)
London, S.East, S.West, East England	0.444	(0.113)	0.441	(0.106)	0.446	(0.118)
Parental School Interest	0.805	(0.139)	0.813	(0.133)	0.801	(0.143)
Mean Life Satisfaction	2.778		2.834		2.774	
NT	662		776		632	
	FunTeaseHome mean	se	StealHome mean	se	OthSchool mean	se
Completely Satisfied(t-1)	0.344	(0.433)	0.347	(0.436)	0.379	(0.364)
Very Satisfied(t-1)	0.392	(0.325)	0.393	(0.332)	0.377	(0.283)
Satisfied(t-1)	0.155	(0.262)	0.153	(0.264)	0.145	(0.242)
Completely Satisfied(1)	0.369	(0.426)	0.373	(0.435)	0.405	(0.340)
Very Satisfied(1)	0.409	(0.334)	0.417	(0.345)	0.382	(0.265)
Satisfied(1)	0.113	(0.320)	0.105	(0.329)	0.110	(0.263)
Bullied	0.603	(0.118)	0.478	(0.115)	0.315	(0.122)
Male	0.466	(0.124)	0.465	(0.120)	0.482	(0.111)
Ln(Real House Net Monthly Income p.capita)	1.803	(0.127)	1.799	(0.124)	1.837	(0.106)
Close Friends Number	7.225	(0.015)	7.194	(0.015)	7.053	(0.014)
Number of Children in Household	2.097	(0.078)	2.102	(0.074)	1.974	(0.060)
Not Arguing with Mum	0.452	(0.198)	0.451	(0.198)	0.451	(0.186)
Not Arguing with Dad	0.616	(0.226)	0.618	(0.220)	0.619	(0.202)
Not Talking to Mum	0.198	(0.244)	0.201	(0.238)	0.200	(0.205)
Not Talking to Dad	0.411	(0.225)	0.411	(0.216)	0.414	(0.189)
London, S.East, S.West, East England	0.441	(0.120)	0.439	(0.115)	0.436	(0.104)
Parental School Interest	0.802	(0.143)	0.799	(0.139)	0.810	(0.130)
Mean Life Satisfaction	2.766		2.769		2.829	
NT	640		628		780	

Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. GenBull: Other children or young people pick on me or bully me. GenHome: Brothers/sisters hit, kick or push you. Brothers/sisters call you nasty names. Brothers/sisters make fun of you. Brothers/sisters take your belongings. GenSchool: How often do you get physically bullied at school? How often do you get bullied in other ways at school? PhysHome: Brothers/sisters hit, kick or push you. PhysSchool: How often do you get physically bullied at school? VerbalHome: Brothers/sisters call you nasty names. FunTeaseHome: Brothers/sisters make fun of you. StealHome: Brothers/sisters take your belongings. OthSchool: How often do you get bullied in other ways at school?

Table 18: Descriptive Statistics , Hyperactivity/Inattention

	GenBull mean	se	GenHome mean	se	GenSchool mean	se
Abnormal(t-1)	0.254	(0.292)	0.241	(0.333)	0.253	(0.306)
Intermediate(t-1)	0.477	(0.185)	0.495	(0.212)	0.476	(0.199)
Abnormal(1)	0.278	(0.334)	0.262	(0.376)	0.273	(0.342)
Intermediate(1)	0.470	(0.215)	0.498	(0.248)	0.474	(0.220)
Bullied	0.165	(0.179)	0.574	(0.128)	0.341	(0.124)
Male	0.480	(0.129)	0.469	(0.151)	0.477	(0.118)
Ln(Real House Net Monthly Income p.capita)	1.832	(0.128)	1.803	(0.152)	1.840	(0.120)
Close Friends Number	7.064	(0.014)	7.256	(0.016)	7.102	(0.014)
Number of Children in Household	1.990	(0.073)	2.102	(0.083)	1.970	(0.068)
Not Arguing with Mum	0.455	(0.195)	0.451	(0.212)	0.456	(0.190)
Not Arguing with Dad	0.614	(0.197)	0.618	(0.224)	0.624	(0.189)
Not Talking to Mum	0.203	(0.243)	0.204	(0.271)	0.198	(0.238)
Not Talking to Dad	0.419	(0.206)	0.419	(0.253)	0.416	(0.205)
London, S.East, S.West, East England	0.434	(0.125)	0.434	(0.144)	0.433	(0.114)
Parental School Interest	0.809	(0.147)	0.796	(0.163)	0.811	(0.144)
Mean Hyperactivity/Inattention	1.955		1.942		1.948	
NT	792		618		776	
	PhysHome mean	se	PhysSchool mean	se	VerbalHome mean	se
Abnormal(t-1)	0.245	(0.324)	0.252	(0.306)	0.245	(0.323)
Intermediate(t-1)	0.494	(0.205)	0.477	(0.195)	0.491	(0.209)
Abnormal(1)	0.272	(0.355)	0.274	(0.331)	0.269	(0.374)
Intermediate(1)	0.490	(0.228)	0.473	(0.214)	0.491	(0.249)
Bullied	0.590	(0.117)	0.166	(0.156)	0.595	(0.127)
Male	0.481	(0.136)	0.476	(0.117)	0.478	(0.147)
Ln(Real House Net Monthly Income p.capita)	1.799	(0.139)	1.839	(0.118)	1.801	(0.149)
Close Friends Number	7.163	(0.016)	7.106	(0.014)	7.217	(0.016)
Number of Children in Household	2.116	(0.074)	1.974	(0.067)	2.111	(0.081)
Not Arguing with Mum	0.449	(0.209)	0.457	(0.188)	0.453	(0.210)
Not Arguing with Dad	0.613	(0.211)	0.621	(0.188)	0.616	(0.214)
Not Talking to Mum	0.204	(0.263)	0.197	(0.235)	0.200	(0.264)
Not Talking to Dad	0.412	(0.240)	0.416	(0.199)	0.417	(0.234)
London, S.East, S.West, East England	0.439	(0.132)	0.437	(0.111)	0.441	(0.141)
Parental School Interest	0.804	(0.160)	0.812	(0.142)	0.800	(0.160)
Mean Hyperactivity/Inattention	1.940		1.949		1.939	
NT	670		782		640	
	FunTeaseHome mean	se	StealHome mean	se	OthSchool mean	se
Abnormal(t-1)	0.245	(0.321)	0.243	(0.329)	0.256	(0.305)
Intermediate(t-1)	0.497	(0.205)	0.491	(0.210)	0.475	(0.195)
Abnormal(1)	0.268	(0.359)	0.265	(0.370)	0.277	(0.344)
Intermediate(1)	0.495	(0.233)	0.495	(0.239)	0.471	(0.219)
Bullied	0.605	(0.130)	0.478	(0.123)	0.318	(0.125)
Male	0.471	(0.137)	0.467	(0.138)	0.481	(0.119)
Ln(Real House Net Monthly Income p.capita)	1.802	(0.144)	1.801	(0.143)	1.837	(0.121)
Close Friends Number	7.235	(0.016)	7.208	(0.016)	7.088	(0.014)
Number of Children in Household	2.100	(0.078)	2.099	(0.079)	1.977	(0.068)
Not Arguing with Mum	0.451	(0.207)	0.450	(0.213)	0.450	(0.190)
Not Arguing with Dad	0.612	(0.208)	0.615	(0.221)	0.617	(0.188)
Not Talking to Mum	0.200	(0.269)	0.203	(0.269)	0.200	(0.240)
Not Talking to Dad	0.412	(0.236)	0.415	(0.249)	0.415	(0.202)
London, S.East, S.West, East England	0.434	(0.133)	0.432	(0.133)	0.433	(0.115)
Parental School Interest	0.800	(0.158)	0.798	(0.155)	0.809	(0.144)
Mean Hyperactivity/Inattention	1.945		1.937		1.954	
NT	650		634		786	

Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. GenBull: Other children or young people pick on me or bully me. GenHome: Brothers/sisters hit, kick or push you. Brothers/sisters call you nasty names. Brothers/sisters make fun of you. Brothers/sisters take your belongings. GenSchool: How often do you get physically bullied at school? How often do you get bullied in other ways at school? PhysHome: Brothers/sisters hit, kick or push you. PhysSchool: How often do you get physically bullied at school? VerbalHome: Brothers/sisters call you nasty names. FunTeaseHome: Brothers/sisters make fun of you. StealHome: Brothers/sisters take your belongings. OthSchool: How often do you get bullied in other ways at school?

Table 19: Descriptive Statistics: Emotional Symptoms

	GenBull mean	se	GenHome mean	se	GenSchool mean	se
Abnormal(t-1)	0.105	(0.331)			0.103	(0.348)
Intermediate(t-1)	0.383	(0.194)			0.379	(0.214)
Abnormal(1)	0.109	(0.317)	0.120	(0.246)	0.111	(0.339)
Intermediate(1)	0.396	(0.171)	0.414	(0.165)	0.389	(0.181)
Bullied	0.165	(0.172)	0.574	(0.137)	0.341	(0.104)
Male	0.480	(0.113)	0.469	(0.166)	0.477	(0.115)
Ln(Real House Net Monthly Income p.capita)	1.832	(0.108)	1.803	(0.156)	1.840	(0.105)
Close Friends Number	7.064	(0.013)	7.256	(0.018)	7.102	(0.014)
Number of Children in Household	1.990	(0.050)	2.102	(0.076)	1.970	(0.048)
Not Arguing with Mum	0.455	(0.185)	0.451	(0.221)	0.456	(0.192)
Not Arguing with Dad	0.614	(0.207)	0.618	(0.273)	0.624	(0.193)
Not Talking to Mum	0.203	(0.194)	0.204	(0.248)	0.198	(0.191)
Not Talking to Dad	0.419	(0.176)	0.419	(0.223)	0.416	(0.181)
London, S.East, S.West, East England	0.434	(0.096)	0.434	(0.149)	0.433	(0.091)
Parental School Interest	0.809	(0.134)	0.796	(0.179)	0.811	(0.129)
Mean Emotional Symptoms	1.641		1.647		1.629	
NT	792		618		776	
	PhysHome mean	se	PhysSchool mean	se	VerbalHome mean	se
Abnormal(t-1)			0.102	(0.363)		
Intermediate(t-1)			0.382	(0.226)		
Abnormal(1)	0.125	(0.230)	0.110	(0.360)	0.119	(0.240)
Intermediate(1)	0.406	(0.154)	0.394	(0.193)	0.412	(0.160)
Bullied	0.590	(0.134)	0.166	(0.144)	0.595	(0.127)
Male	0.481	(0.153)	0.476	(0.131)	0.478	(0.159)
Ln(Real House Net Monthly Income p.capita)	1.799	(0.149)	1.839	(0.110)	1.801	(0.155)
Close Friends Number	7.163	(0.017)	7.106	(0.014)	7.217	(0.018)
Number of Children in Household	2.116	(0.075)	1.974	(0.050)	2.111	(0.071)
Not Arguing with Mum	0.449	(0.208)	0.457	(0.192)	0.453	(0.215)
Not Arguing with Dad	0.613	(0.243)	0.621	(0.197)	0.616	(0.256)
Not Talking to Mum	0.204	(0.240)	0.197	(0.196)	0.200	(0.241)
Not Talking to Dad	0.412	(0.207)	0.416	(0.177)	0.417	(0.209)
London, S.East, S.West, East England	0.439	(0.140)	0.437	(0.098)	0.441	(0.145)
Parental School Interest	0.804	(0.172)	0.812	(0.134)	0.800	(0.175)
Mean Emotional Symptoms	1.654		1.629		1.652	
NT	670		782		640	
	FunTeaseHome mean	se	StealHome mean	se	OthSchool mean	se
Abnormal(t-1)					0.107	(0.346)
Intermediate(t-1)					0.379	(0.210)
Abnormal(1)	0.123	(0.240)	0.126	(0.244)	0.112	(0.335)
Intermediate(1)	0.409	(0.161)	0.410	(0.163)	0.389	(0.178)
Bullied	0.605	(0.141)	0.478	(0.123)	0.318	(0.105)
Male	0.471	(0.159)	0.467	(0.160)	0.481	(0.113)
Ln(Real House Net Monthly Income p.capita)	1.802	(0.153)	1.801	(0.153)	1.837	(0.104)
Close Friends Number	7.235	(0.017)	7.208	(0.019)	7.088	(0.014)
Number of Children in Household	2.100	(0.074)	2.099	(0.075)	1.977	(0.049)
Not Arguing with Mum	0.451	(0.210)	0.450	(0.218)	0.450	(0.189)
Not Arguing with Dad	0.612	(0.254)	0.615	(0.270)	0.617	(0.190)
Not Talking to Mum	0.200	(0.240)	0.203	(0.241)	0.200	(0.191)
Not Talking to Dad	0.412	(0.210)	0.415	(0.216)	0.415	(0.180)
London, S.East, S.West, East England	0.434	(0.147)	0.432	(0.147)	0.433	(0.089)
Parental School Interest	0.800	(0.173)	0.798	(0.175)	0.809	(0.130)
Mean Emotional Symptoms	1.652		1.648		1.639	
NT	650		634		786	

Source: University of Essex, ISER, Understanding Society: Waves 1-5. Balanced Panels. GenBull: Other children or young people pick on me or bully me. GenHome: Brothers/sisters hit, kick or push you. Brothers/sisters call you nasty names. Brothers/sisters make fun of you. Brothers/sisters take your belongings. GenSchool: How often do you get physically bullied at school? How often do you get bullied in other ways at school? PhysHome: Brothers/sisters hit, kick or push you. PhysSchool: How often do you get physically bullied at school? VerbalHome: Brothers/sisters call you nasty names. FunTeaseHome: Brothers/sisters make fun of you. StealHome: Brothers/sisters take your belongings. OthSchool: How often do you get bullied in other ways at school?