It runs in the family: parental influence on adolescents' compliance with social distancing measures during Covid-19 lockdowns

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Author contributions: OA designed the research, analysed the data, and wrote the paper

Classification: Social Sciences, Social Sciences

Keywords: Compliance; Covid-19; Public Health; Parental Influence; Quantitative Methods; Adolescents

A full replication package with data and code are available here: <https://osf.io/wucba/>. The original data used in this study are publicly available and collected after ethical approval and consent from the participants (for further details see here: <https://cls.ucl.ac.uk/covid-19-survey/>).

Abstract:

Compliance with public health measures of adolescents who are often unfairly portrayed as spreaders of the Coronavirus is essential for controlling the pandemic. But does adolescents' compliance develop independently from their parents? Using nationally representative longitudinal data and cross-lagged Structural Equation Panel Models I study compliance with social distancing measures of 6,754 triplets that comprise the adolescent child (age 19), their mother, and father during two national lockdowns in the UK. Results show that adolescents have the lowest and their mothers have the highest levels of compliance, and compliance generally drops over time. Moreover, parents, particularly mothers have significant influence on their adolescent child's compliance. The child also has, albeit smaller effects on their parents' compliance. Parental influence on adolescents' compliance documented here thus redistributes some of the responsibility off adolescents towards all generations and calls for public health policies and campaigns that consider these family dynamics.

Introduction

Young adults' and adolescents' compliance with public health measures is essential for containing the spread of 2019 coronavirus disease (COVID-19) (Nivette et al. 2021, Lun et al. 2021). Adolescents can be infectious while remaining asymptomatic or only showing mild symptoms (Chu et al. 2021). This group also has a strong need for social connection and hence can be highly effective in spreading the disease (Andrews et al. 2020). Unfortunately, adolescents and young adults are also identified as having relatively low levels of compliance with public health measures (Roy-Chowdhury et al. 2020, Zhao et al. 2021). Campaigns have thus explicitly targeted this group (e.g. [here](#) and [here](#)), and proposals have been made to utilise social media "influencers" with large adolescent following (Andrews et al. 2020).

A key factor that shapes compliance is social influence (Van Bavel et al. 2020, Andrews et al. 2020, Tuncgenc et al. 2021, Lin et al. 2020). Especially perceived behaviour of those in adolescents' close circles is shown to influence adolescents' compliance with public health restrictions (Tuncgenc et al. 2021). Social influence in general is thought to amplify both risky as well as beneficial behaviours, particularly among adolescents (Andrews et al. 2020, Van Bavel et al. 2020).

Social influence on compliance with public health restrictions can be understood from a social norm framework (Horne and Mollborn 2020). When public health authorities announce a certain restriction, they prescribe an *injunctive norm* (i.e. what is ought to be done collectively) (Bicchieri 2016). Injunctive norms are different from, and can even be in conflict with, *descriptive norms* (i.e. what is believed to be practiced in reality by most people) (Cialdini and Goldstein 2004, Bicchieri 2016). Injunctive norms will be stronger if they are in sync with descriptive norms. Indeed, research has shown that perceptions of others' compliance with and approval of restrictions are associated with respondents' own compliance (Tuncgenc et al. 2021, Lin et al. 2020, Nakayachi et al. 2020, Bicchieri et al. 2021) and that compliance with restrictions has been stronger in communities with high pre-pandemic levels of social capital and cohesion (Borgonovi & Andrieu 2020). Conversely, people who accept the injunctive self-isolation norms but do not perceive widespread compliance experience a strong loss of trust in others and reduced compliance (Lo Iacono et al. 2021, Webster et al. 2020).

There are, however, several shortcomings in the literature of social influence and compliance which motivate the current study. Firstly, in almost all existing studies, the extent of others' compliance is based on self-reported measures from the respondent. The link between compliance and expectations of others' compliance could thus simply reflect a projection of one's own compliance to others (Tuncgenc et al. 2021, Aksoy and Weesie 2012). Secondly, most studies on compliance rely on cross-sectional or prospective data (e.g. Tuncgenc et al. 2021, Lin et al. 2020, Webster et al. 2020, Clark et al. 2020). This shortcoming is particularly important in understanding social influence on compliance, for a link between compliance and compliance of others could reflect selection into similar environments rather than genuine social influence (DellaPosta, Shi, and Macy 2015). Those that utilise longitudinal data have explored a plethora of predictors of compliance but not of social influence (e.g. Nivette et al. 2021).

Finally, previous literature has been scarce as to perhaps one of the strongest forms of social influence, namely parental influence. In existing research, a generic inner circle's norm compliance is studied without a specific reference to parents (Tuncgenc et al. 2021, Lin et al. 2020, Webster et al. 2020, Clark et al. 2020). Social science research has shown that parents are highly influential in shaping adolescents' values, attitudes, beliefs, and indeed behaviour through socialisation (Acock & Bengtson 1978, Bacovsky and Fitzgerald 2021, Guo et al. 2021). Interestingly, past research has

shown a particularly strong influence of mothers and a relatively weak influence of fathers on adolescents' values and behaviours (Acock and Bengtson 1978, Guo et al. 2021). This stronger influence of mothers relative to fathers is often explained by the tendency that mothers interact more frequently with offspring than fathers do (Acock and Bengtson 1978), and that mothers are often more involved in their children's activities outside the home, such as educational and social events (Guo et al. 2021). One thus expects a strong influence of parents, particularly mothers on adolescents' compliance with pandemic restrictions. To my knowledge, however, there is not much research on parental influence on compliance during the COVID-19 pandemic.

In this study, I document the impact parents have on their adolescent child, and the impact adolescents have on their parents in complying with social distancing measures. I do so using the longitudinal UCL COVID-19 survey which collects compliance data during the two national lockdowns enacted in the UK, one in May 2020, another in February/March 2021. What makes these data unique is that the UCL COVID-19 survey is implemented as an extension of existing cohort studies, and most relevantly of the Millennium Cohort Study (MCS) (Brown et al. 2020, Centre for Longitudinal Studies 2021). Data have been collected from the main MCS respondent who were at the age of 19 during the two national lockdowns. In addition, the parents of the main respondent have also been asked to respond to the survey independently. Using the pre-pandemic MCS sweeps, I reconstructed family triplets that comprise the child, the mother, and the father. The compliance data collected independently from each member of this triplet ameliorates the shortcoming of the past research which relied on self-reported measures of others' compliance. Secondly, the longitudinal nature of the data allows to decompose the causal chain (i.e. parental influence on child versus child's influence on parents). Moreover, having repeated measures on the child, the mother, and the father allows to control for ultimately *all* observed and unobserved time-invariant household level factors (e.g. socioeconomic status, geographic region, ethnicity etc.) through the use of so-called household fixed effects. This feature of the data gives strong leverage to address omitted variable bias.

In addition to addressing important gaps in the literature, a focus on parental influence on adolescents' compliance with health measures will be beneficial from a public health policy perspective. Existing media campaigns targeting young adults (e.g. [here](#) and [here](#)) as well as policy research (Roy-Chowdhury et al. 2020) portray this group as distinct and sometimes deviant. Adolescents are often stigmatised unfairly as "spreaders of the virus" (Knight et al. 2020). Identifying parental influence on adolescents' compliance will firstly redistribute some of the responsibility across all generations. Secondly, recognising parental influence will help develop better public health campaigns, not only those that target adolescents and young adults, but also their parents.

Methods

Data

Millennium Cohort Study follows a nationally representative sample of nearly 19,000 people born in the UK in 2000-02. Since the pandemic has started, a longitudinal UCL Covid-19 survey is implemented with the MCS respondents and their parents. The UCL Covid-19 survey takes place in three waves conducted respectively in May 2020, September-October 2020, and February-March 2021. Majority of the surveys are implemented online, but a minority of wave 3 respondents are interviewed via telephone. Waves 1 and 3 correspond with national lockdowns, hence compliance with social distancing measures is asked only in wave 1 and 3. I thus use these two waves (henceforth timepoint 1 and 2).

The parents of the MCS members are invited independently to take part in the survey. No explicit links are made between the parents and the MCS cohort members during invitation or data collection. Details of the UCL Covid-19 survey can be found in Brown et al. (2020) and UCL Centre for Longitudinal Studies (2021).

Using pre-pandemic sweeps of MCS, I identify the child, their mother, and father in the COVID-19 survey. I exclude a small minority of individuals (~2 percent, 409 cases) who are a different family member than the child, mother, or father participated (e.g. a grandparent, brother, or another relative or co-residing nonrelative). The resulting dataset comprise 6,754 child, mother, father triplets (~20,000 individuals) for whom at least one instance of non-missing compliance data exists.

Compliance with social distancing guidelines for each member of the triplet in timepoint 1 and timepoint 2 is measured by the following item. “The next question is about the extent to which you are complying with the social distancing guidelines issued by the Government. On a scale from 0 to 10, where 0 means that you are 'not complying at all' and 10 means you are 'fully complying', how much would you say you are complying with the guidelines?”

Analytical strategy

The number of observations in the waves of the UCL COVID-19 survey change due to new respondents joining at the newer waves or attrition (see supplementary material Table A1 in Online Appendix). To mitigate the potential effect of missingness on statistical power and bias, I implement Full Information Maximum Likelihood (FIML) estimation in fitting all models, including the model used to estimate descriptive statistics (means, variances, and the correlations of the key variables, see Table 1). FIML results in unbiased estimates under the assumptions that data are missing at random (i.e. missingness is accounted for fully by observed data) and distributed multivariate normally. It is furthermore shown to be rather robust to violations of the latter multivariate normality assumption (Enders and Bandalos 2001). The former assumption of missing at random is also plausible in this case, for the models rely on repeated measures of the outcome variable. In addition, in some model specifications I include household fixed effects which capture all observed and unobserved household-level time invariant confounders. These models make it more plausible to assume missingness to be at random conditional on household fixed effects and earlier or later measures of compliance.

I fit two Structural Equation Models shown in Figure 1. In both versions, the mother's and the father's compliance affect the child's compliance in a given timepoint, while an individual's compliance in timepoint 1 affects their own compliance in timepoint 2. Mother's and father's compliance are allowed to correlate contemporaneously. Moreover, there are paths from the child's compliance in timepoint 1 to both mother's and father's compliance in timepoint 2. The models, hence, capture both parents' influence on child and child's influence on parents. As I report below, I test alternative specifications whereby I also include contemporaneous paths from child's compliance to both parents' compliance, as well as paths from parents' compliance in timepoint 1 to child's compliance in timepoint 2. As I will report below, none of these additional paths turn out to be important, hence not included in the main models presented in Figure 1.

The version in Figure 1B includes household fixed effects. Those household fixed effects, as in conventional multilevel regression framework, can be thought of as dummy variables—one for each household. They capture the effect of all observed and *unobserved* time invariant factors defined at the household level (e.g. family socioeconomic background, ethnicity, location of residence, educational attainment etc.). In the Structural Equation Modelling Framework, these fixed effects

can be included in models as a latent variable which affects all endogenous variables with a coefficient of 1 (Allison et al. 2017). If we expanded the model with further exogenous time-varying or time-invariant explanatory variables (which I will do in the additional analyses subsection below), those variables will be allowed to freely correlate with the latent variable FE (i.e. household fixed effects). In the model in Figure 1B, thus, every time invariant variable defined at the household level is controlled for. This provides strong leverage in addressing omitted variable bias, and hence make a causal interpretation more credible. The interpretation of the paths in Model 1B, however, is different than those in Model 1A. In Model 1B, the paths are about the effect of *within* household change in compliance on *within* household change in compliance.

Results

I first estimate through FIML the means, variances, and covariances of the six observed variables in Figure 1 for descriptive purposes. These descriptives are given in Table 1. Figure 2 shows average compliance of the child, the mother, and the father at two time points, again estimated with FIML. All *P*-values reported below are based on two-sided tests.

Among both children [$\chi^2(1) = 651.43, P < 0.001$] and the mothers [$\chi^2(1) = 8.21, P = 0.004$] compliance have been significantly lower in the subsequent lockdown than the first (see Figure 2). The fathers' mean compliance, however, does not change significantly over time [$\chi^2(1) = 0.59, P = 0.441$]. Moreover, the drop in the compliance of children has been stronger than that of the mothers [$\chi^2(1) = 342.26, P < 0.001$]. Overall, mothers have the highest compliance levels, children the lowest, fathers in between but closer to mothers' than to children's; the differences in compliance between mothers, fathers, and children in the two time points are statistically significant [$\chi^2(4) = 1253.80, P < 0.001$]. However, recall that the maximum compliance score is 10, and all means including those for children are close to the maximum. Table 1 shows that all correlations, but between fathers' compliance and their child's compliance are large and statistically significant.

Table 2 shows the estimation results for Model A and B given in Figure 1 as well as selected fit measures. Figure 3 plots the path coefficients from the same set of results. Fit measures show that both Model A and Model B fit data very well. Model B has a slightly better fit than Model A which is confirmed by a likelihood ratio test [$LR \chi^2(1) = 7.91, P = 0.005$]. Estimated path coefficients show that the mother's compliance significantly affects their child's. A unit increase in the mother's compliance score in time point 2 is associated with, depending on model specification 0.2 to 0.1 points increase in the child's compliance in time point 2. While this effect may seem small, consider that it is net of the child's own compliance in previous time point, and that even small increases in compliance can have substantial effects on containing the spread of the virus. Moreover, an effect of 0.1 in Model 1B is a *within* household effect, net of all time invariant observed and unobserved household-level factors. The path coefficient from the father to the child, however, is small and statistically insignificant in both specifications. This does not mean that fathers have no indirect influence. The father's compliance is correlated significantly with the mother's compliance, and hence indirectly with the child's compliance too.

Interestingly, the path from the child to the mother is significant too but attenuates to null once household fixed effects are controlled for. On the other hand, the path from the child to the father is statistically significant in both specifications. This means that adolescents exert some influence on their parents, particularly on their fathers, while they are influenced mainly by their mothers.

Not surprisingly, the path from one's own compliance at time point 1 to that at time point 2 is generally large and statistically significant.

Additional analyses and robustness checks

In Model A and Model B, parental influence on the child is contemporaneous while the child's influence on parents is lagged. It is, in fact, possible to add contemporaneous paths from the child to both the mother and the father (i.e. adding paths reciprocal to b_{mc} and b_{fc} in Figure 1). However, those paths are statistically highly insignificant [$LR \chi^2(2) = 3.79, P = 0.150$ in A and $LR \chi^2(2) = 0.85, P = 0.655$ in B]. In other words, there is no evidence in the data for a contemporaneous effect of child on their parents, given the rest of the model. Also, the paths from the mother's and the father's compliance at time point 1 on the child's compliance at time point 2, conditional on the rest of the model A and B are statistically insignificant [$LR \chi^2(2) = 0.43, P = 0.801$ in A and $LR \chi^2(2) = 0.96, P = 0.620$ in B].

I then fit Model 1A in a multiple group framework for boys and girls separately. Results show that the path coefficients (the path from mother to child and that from father to child, as well as that from the child to the mother and from the child to the father) do not differ significantly between boys and girls [$LR \chi^2(4) = 4.70, P = 0.320$]. Hence, there is not enough evidence in the data that parental influence on adolescents and adolescents' influence on their parents vary by gender of the adolescent. Also see Figure B1 and section B in Online Appendix.

Section C, Figure C1 and C2 in Online Appendix present the path coefficients estimated with robust standard errors, clustered at the household level as well as estimates obtained after applying survey weights. These alternative estimation methods do not alter the estimates and the conclusions in any substantial way.

Finally, Model A and B in Figure 1 control for earlier compliance in estimating effects on later compliance. Moreover, Model B includes household fixed effects that account for all time invariant covariates at the household level. Hence, Model A and B should largely address omitted variable bias. Nevertheless, I expand Model A and B by including several time-varying covariates, to mainly assess the robustness of parental influence to adjusting for key time-varying covariates. Research has identified several factors that affect compliance. These include political and interpersonal trust, perceived risks, and gender (Shao and Hao 2020, Lo Iacono et al. 2021, Nivette et al. 2021). Figure D1 in Online Appendix shows the estimated effects of the mother's and the father's compliance on the compliance of the child, alongside several covariates: trust in government and interpersonal trust, gender, whether the respondent had covid and has chronic illness, and the mode of the interview in time 2 (phone versus web). These estimates are obtained by expanding Model A and B, and in model B, the household fixed effects are allowed to freely correlate with those exogenous variables. The results show that interestingly, political trust has a positive while trust in people has a negative coefficient, females have higher compliance than males, having had covid strongly reduces compliance, having a chronic illness increases compliance, and those who were interviewed on the phone vis-à-vis web report higher compliance. Most importantly, these results show that parental influence estimates are virtually identical after controlling for these covariates.

Discussion

Here I study, using this high-quality longitudinal data and sound statistical models, compliance with social distancing measures during the two lockdowns in the UK (May 2020 and February-March 2021). I do so analysing triplets that comprise the adolescent child (age 19), their mother, and father. Results show that adolescents have significantly lower levels of compliance with social distancing measures than their mothers and fathers, while mothers have the highest levels of compliance. Compliance is lower in the subsequent lockdown than the first lockdown for the

children and their mothers, while for fathers there is no change. I should add though that compliance has been generally high for all groups, so the differences are relative.

In addition, I find that parents, particularly mothers have significant influence on their adolescent children's compliance with social distancing measures. The children, in turn, also have, albeit smaller effects on their parents' compliance. These effects survive various alternative model setups and adjusting for key covariates, including lagged measures of the outcome, household fixed effects, and several time varying covariates. Interestingly fathers seem to have smaller effects on their children's compliance, in keeping with the earlier results on parental influence (Acock and Bengtson 1978, Guo et al. 2021), while children have significant effects on their fathers' compliance.

Limitations and conclusions

A potential drawback is that I rely on self-reported measures of one's own compliance with social distancing. These self-reported measures may be optimistic or suffer from social desirability bias. However, given the difficulty of obtaining more objective measures of individual level compliance, it is inevitable to rely, at least until better measures are available, on these self-reported measures.

Here I address an important gap in the literature by focusing on parental influence on adolescents' compliance with public health measures during the Covid-19 lockdowns. Adolescents' and young adults' compliance with public health measures is essential for controlling the pandemic. While this group has lower levels of compliance, they are often unfairly portrayed as "spreaders of the virus" (Knight et al. 2020). The parental influence on adolescents' compliance I document here should redistribute some of the liability across all generations. Moreover, better public health campaigns could be developed by considering family dynamics, for example, by reminding parents of their influence on their children.

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Figures and tables

Figure 1. Longitudinal Structural Equation Models of Parental Influence; Comp = Compliance with social distancing; subscript indicate timepoint; paths with the same name are constrained to be equal. Panel A: baseline model, Panel B: extended model with household fixed effects.

Figure 2. Average compliance among the child, mother, and the father in the two time points (first lockdown and the third lockdown). 95% Confidence Interval is included. Means are estimated with Full Information Maximum Likelihood (N = 6,753).

Figure 3. Unstandardised coefficients of the models in Figure 1A and 1B (N = 6,754), e.g. the first estimate (Comp Child (t=2) on Comp Mother (t=2)) shows the path from the mother's compliance at time 2 on the child's compliance at time 2. 95% Confidence Interval is included

Table 1. Sample moments: means and variances of and correlations between compliance of the child, the mother, and the father across the two time points. Standard errors are given in parentheses. Sample moments are estimated with a model that includes these variables, their means, variances, and covariances using Full Information Maximum Likelihood. N = 6,754. ** $P < 0.005$.

	CC (1)	CC (2)	MC (1)	MC (2)	FC (1)	FC (2)
Child compliance (t = 1)	1					
Child compliance (t = 2)	.897** (.058)	1				
Mother compliance (t = 1)	.318** (.051)	.251** (.057)	1			
Mother compliance (t = 2)	.257** (.048)	.335** (.049)	.438** (.033)	1		
Father compliance (t = 1)	.099 (.090)	.152 (.087)	.113 (.076)	.199** (.062)	1	
Father compliance (t = 2)	.381** (.077)	.306** (.070)	.166** (.061)	.396** (.049)	.804** (.066)	1
Means:	9.018 (.026)	8.140 (.029)	9.367 (.023)	9.288 (.020)	9.104 (.041)	9.137 (.029)
Variances:	1.875 (.052)	3.661 (.078)	1.124 (.036)	1.372 (.033)	1.582 (.079)	1.520 (.053)

Table 2. Unstandardised SEM results for Model 1A and Model 1B shown in Figure 1. Variances of residuals and of exogenous observed variables and means/intercepts are suppressed for brevity. Fit measures are included. * $P < 0.05$, ** $P < 0.01$

	Model 1A b/se	Model 1B b/se
Compliance child (t=2) regressed on		
Compliance mother (t=2)	0.206** (0.028)	0.101* (0.042)
Compliance father (t=2)	0.044 (0.035)	-0.052 (0.045)
Compliance child (t=1)	0.442** (0.030)	0.394** (0.033)
Household fixed effect (latent)		1.000
Compliance mother (t=2) regressed on		
Compliance child (t=1)	0.073** (0.026)	0.009 (0.030)
Compliance mother (t=1)	0.371** (0.027)	0.266** (0.043)
Household fixed effect (latent)		1.000
Compliance father (t=2) regressed on		
Compliance child (t=1)	0.173** (0.037)	0.093* (0.044)
Compliance father (t=1)	0.482** (0.032)	0.408** (0.040)
Household fixed effect (latent)		1.000
Compliance child (t=1) regressed on		
Compliance mother (t=1)	0.206** (0.028)	0.101* (0.042)
Compliance father (t=1)	0.044 (0.035)	-0.052 (0.045)
Household fixed effect (latent)		1.000
cov(CompMother ₂ , ComFather ₂)	0.273** (0.045)	0.132* (0.059)
cov(CompMother ₁ , ComFather ₁)	0.178** (0.069)	-0.044 (0.094)
variance(Household FE (latent))		0.139** (0.044)
Fit measures		
Model χ^2 (df), P	12.3 (6), $P = 0.056$	4.4 (5), $P = 0.498$
RMSEA (90% CI)	0.012 (0.00-0.022)	0.00 (0.00-0.016)
CFI/TLI	0.991/0.978	1.000/1.000
AIC	51462.894	51456.988
BIC	51606.070	51606.982
N	6754	6754

Online appendix to “It runs in the family: parental influence on adolescents’ compliance with social distancing measures during Covid-19 lockdowns”

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A: Univariate descriptive statistics and N

Variable	N	Mean	Min	Max	SD
Compliance child (t = 1)	2611	9.01	0.00	10.00	1.37
Compliance child (t = 2)	4398	8.16	0.00	10.00	1.91
Compliance mother (t = 1)	1950	9.37	0.00	10.00	1.05
Compliance mother (t = 2)	3423	9.29	0.00	10.00	1.17
Compliance father (t = 1)	865	9.14	0.00	10.00	1.22
Compliance father (t = 2)	1728	9.15	0.00	10.00	1.22

Table A1: Univariate descriptive statistics and the number of cases.

Note: in the main manuscript the models including that used to estimate descriptive statistics are fitted with Full Information Maximum Likelihood which includes all cases that include at least one non-missing case for any of the member of the child, mother, father triplet for any wave.

B: Multiple group analysis to assess interaction between the child's gender and parental influence

One may argue that the effect mothers and fathers have on their child, and the child has on their mother and father may vary by the child's gender. To test this, I fit Model 1A with a multiple group setup whereby I estimate all parameters of Model 1A separately but simultaneously for boys and girls (Model 1B does not converge with the multiple group setup). Figure B1 shows the path coefficients for boys and girls within this multiple group setup. As the figure shows and a formal test confirms (see main manuscript), there is no significant difference between boys and girls regarding the effect mothers and fathers have on their child, and the child has on their mother and father.

Figure B1: Path coefficients in Model 1A (95% CI) fitted with a multiple group setup based on the gender of the child (boys versus girls). M: coefficients for male (boys), F: coefficients for female (girls).

C: Cluster robust standard errors and survey weights

Figure C1 and C2 presents the path coefficients and 95% CIs of Model 1A and Model 1B, respectively using three alternative specifications: (1) those reported in the main manuscript (2) with cluster robust standard errors (3) with survey weights applied. Survey weights is complicated in this case, hence how these are obtained require an explanation. In the original survey, weights are reported independently for each wave, and no longitudinal weight is reported. This means that it is not possible to use weights in the cross-lagged panel models I fit. Nevertheless, as a first approximation, I calculate a longitudinal weight based on the *mean* weight, i.e., average of the three weights reported for the three waves of the survey (missing values omitted in calculating this average). In the weighted estimates below in C1 and C2 this mean weight is used. This is not an ideal way of calculating longitudinal weights, but is the only one available for the moment.

Figure C1: Path coefficients in Model 1A (95% CI) reported in the main manuscript plus those obtained with cluster robust standard errors and survey weights.

Figure C2: Path coefficients in Model 1B (95% CI) reported in the main manuscript plus those obtained with cluster robust standard errors and survey weights.

D: Time varying covariates

Here I expand Model A and B in Figure 1 by including the following time-varying covariates:

- *trust in government* (“On a scale from 0-10 where 0 means you are 'not at all trusting' and 10 means you are 'extremely trusting', how trusting are you that British Governments, of any party, place the needs of the nation above the needs of their own political party”, with answers 0 = not at all trusting to 10 = extremely trusting),
- *interpersonal trust* (“On a scale from 0-10 where 0 means you are 'not at all trusting' of other people and 10 means you are 'extremely trusting' of other people, how trusting of other people would you say you are”, with answers 0 = not at all trusting to 10 = extremely trusting),
- *gender* (men or women),
- whether the respondent *had covid* (if the question “Do you think that you have or have had Coronavirus?” is answered either of the following: (1) Yes, confirmed by a positive test (2) Yes, based on strong personal suspicion or medical advice),
- *has chronic illness* (if the respondent reported to having any of the following: Cancer, Cystic fibrosis, Asthma, Chronic Obstructive Pulmonary Disease, Wheezy bronchitis, Diabetes, Recurrent backache, prolapsed disc, sciatica or other back problem, Problems with hearing, High blood pressure, Heart disease, congenital or acquired, Depression or other emotional, nervous or psychiatric problems, Obesity, Chronic obstructive airways disease, Infection, HIV / Immunodeficiency, Condition affecting the brain and nerves (e.g. Parkinson’s, Multiple Sclerosis)), and the
- *mode of the interview* in time 2 (phone versus web). In the models, I include these covariates measured in timepoint 1 and timepoint 2 as predictors of compliance in timepoint 1 and timepoint 2, respectively, for each member of the child/mother/father triplet. Figure D1 shows the path coefficients only for timepoint 2 for simplicity (estimates for timepoint 1 are similar).

Results show that (Fig. D1) trust in people has a negative coefficient, political trust has a positive coefficient on compliance, males have lower compliance than females, having had covid reduces a chronic illness increases compliance, and those who were interviewed on the phone versus web show higher compliance. Importantly, parental influence coefficients are basically identical after controlling for covariates.

Figure D1: Path coefficients in Model 1A and Model 1B (95% CI) that are expanded by including several time-varying covariates.