

Supplementary information

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1. Variables timing, sample selection, and descriptive statistics

Table A1: Overview of variable measurement across waves

	Wave 1 9-months old (2001)	Waves 2/3/4 3/5/7 years old (2004/2006/2008)	Wave 5 11 years old (2012)	Wave 6 14 years old (2015)
Controls	Parents education Gender		Depressive symptoms Low self-esteem	PGIs poor well-being (parents) First 10 PCs
Predictors				Social media use PGI poor well-being (adolescent)
Outcomes				Depressive symptoms Low self-esteem Body dissatisfaction

Note: Predictors and outcomes are both measured at Wave 6 (age 14). The decision of focusing on this wave is driven by the fact that (i) there is a growing view that early adolescence represents a sensitive developmental period for digital exposure (Haidt, 2024) and (ii) to take advantage of Wave 6's uniquely detailed measures of adolescent mental health (e.g., depressive symptoms from the Mood and Feelings Questionnaire and body dissatisfaction) alongside more detailed measures of social media use. Earlier waves included a poorer measure of online engagement and were collected when social media was less prevalent (i.e., 2012). The collection of genetic data (i.e., PGIs and PCs) at age 14 is also not an issue for the analysis, as polygenic indices are time-invariant across the life course.

Figure A1: Sample selection procedure from the initial sample to the analytical sample

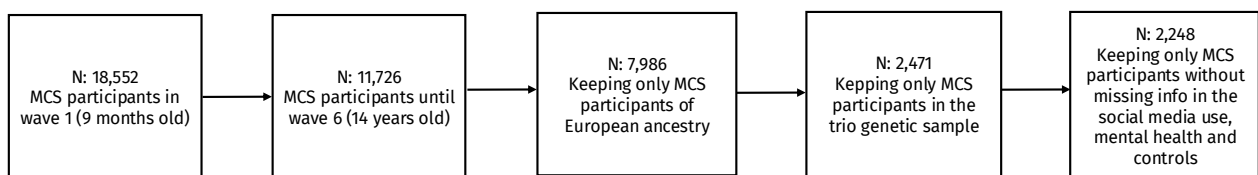
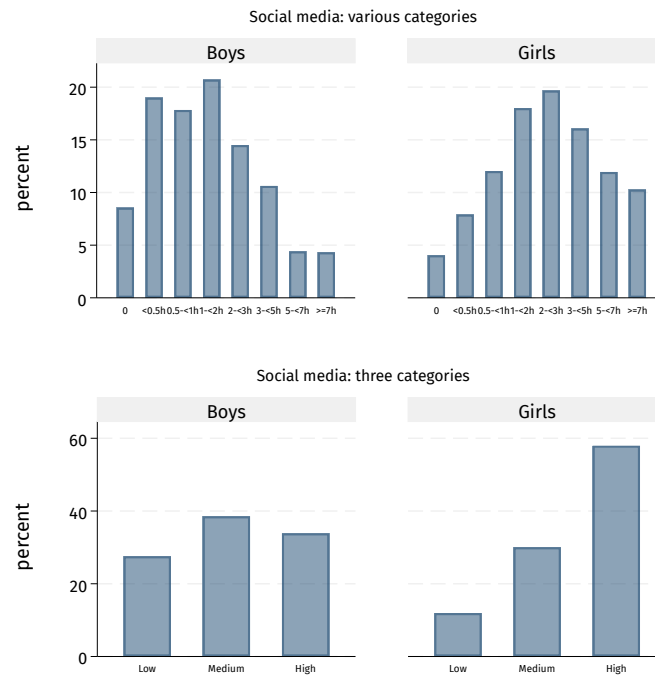


Table A2: Descriptive statistics of the variables used in the analysis

	Overall (N: 2248)				Girls (N: 1138)				Boys (N: 1110)			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Depressive symptoms	-0.05	0.98	-0.93	3.54	0.19	1.11	-0.93	3.54	-0.29	0.76	-0.93	3.54
Low self-esteem	-0.07	0.97	-1.52	3.66	0.17	0.98	-1.52	3.66	-0.32	0.89	-1.52	3.66
Body dissatisfaction	0.36	0.48	0.00	1.00	0.47	0.50	0.00	1.00	0.24	0.43	0.00	1.00
Low social media	0.22	0.41	0.00	1.00	0.14	0.35	0.00	1.00	0.30	0.46	0.00	1.00
Medium social media	0.35	0.48	0.00	1.00	0.30	0.46	0.00	1.00	0.39	0.49	0.00	1.00
High social media	0.44	0.50	0.00	1.00	0.56	0.50	0.00	1.00	0.31	0.46	0.00	1.00

Birth year	2000	0.48	2000	2002	2000	0.48	2000	2002	2000	0.49	2000	2002
PGI poor well-being (adolescent)	0.00	1.00	-2.50	2.46	-0.05	0.94	-2.46	2.43	-0.01	0.95	-2.50	2.46
Depressive symptoms pre-social media use (age 11)	-0.01	0.92	-1.51	3.87	-0.02	0.94	-1.51	3.81	-0.00	0.89	-1.51	3.87
Low self-esteem pre-social media use (age 11)	-0.05	0.97	-1.40	5.26	0.03	0.99	-1.40	5.26	-0.13	0.95	-1.40	4.68
Peers' problems pre-social media use (age 11)	1.05	1.55	0.00	10.00	1.02	1.58	0.00	10.00	1.08	1.51	0.00	9.00
Parents' education	0.53	0.50	0.00	1.00	0.53	0.50	0.00	1.00	0.53	0.50	0.00	1.00
Mother PGI poor well-being	0.00	1.00	-2.50	2.49	0.00	1.00	-2.50	2.47	0.00	1.00	-2.46	2.49
Father PGI poor well-being	0.00	1.00	-2.48	2.49	0.00	1.00	-2.39	2.49	0.00	1.00	-2.48	2.48

Figure A2: Social media use distribution by gender (N: 2,248)



2. Weights strategy

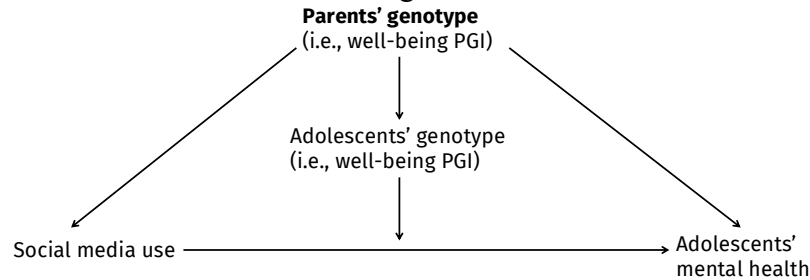
We construct and include weights to account for selection in the trio genetic sample (B. W. Domingue et al., 2017; Lin, 2020). All models are weighted using sampling weights adjusted for the inverse probability of participation in the genetic sample, given observables (Ghirardi & Bernardi, 2025; Papageorge & Thom, 2019). To construct the weights, we first run a logit model predicting participation in the genetic sample as a function of the non-genetic variables used in the analyses, including gender, parents' educational attainment, and social media use. Second, we use model estimates to compute the predicted probability of sample inclusion conditional on these observables and then normalize it. Third, we calculate the inverse of the predicted probability. Finally, we multiply this by the MCS weights to control for unequal selection probability, following the MCS guidelines.

3. Genetic nurture and the trio-design

The PGIs cannot be interpreted as a causal measure of genetic propensities. Indeed, PGIs constructed through population Genome-Wide Association Studies (GWAS) do not only measure the causal genetic effect but also capture genetic nurture from relatives (i.e., indirect genetic effects) and demographic effects (i.e., population stratification, assortative mating). Genetic nurture, population stratification, and assortative mating are three main sources of bias in the PGI estimates. In terms of GxE analysis, if one of the two elements of the interaction analysis - such as the PGI measure - is confounded, GxE results can be confounded as well.

In the sociogenomics literature, two proposed solutions partially address this limitation. First, a proposed solution to have less biased estimates of the PGI is to replace population GWASs with siblings GWAS (Howe et al., 2022) or family GWAS (Tan et al., 2024). However, these GWASs have limitations as well, including heterogeneity and potential biases in cumulative genetic estimates (Veller et al., 2024), as well as their current low predictive power for the PGIs they provide. Second, another solution is to implement the trio design, in which parental PGIs are directly controlled. By conditioning on parents' genotypes, this approach blocks the backdoor path linking adolescents' genetic propensity to the family environment, as parental genotype shapes both the child's genotype (through genetic inheritance) and the family environment (through genetic nurture). Controlling for parental PGIs removes confounding due to passive gene-environment correlation, allowing the estimated association between adolescents' PGI and mental health to more closely reflect direct genetic effects net of parental genetic influences on the environment.

Figure A3: Genetic nurture as a source of bias in gene-environment association estimates



4. Model specification

First, Eq. 1 represents the baseline models that estimate whether mental health outcomes (Y_i) are shaped by social media exposure (β_1), gender (β_2), and adolescents' poor well-being PGI (β_3). These models provide a descriptive benchmark and establish whether social media exposure and genetic propensity are independently associated with adolescent mental health.

$$Y_i = \alpha + \beta_1 \text{Social Media}_i + \beta_2 \text{Sex}_i + \beta_3 \text{PGI poor well being}_i + Z_i + \varepsilon_i \quad (\text{Eq. 1})$$

Second, we test whether the association between social media exposure and mental health differs by gender by introducing an interaction between social media exposure and sex. Therefore, β_4 in Eq.2 tells us whether there is gender heterogeneity in the association between social media use and mental health outcomes.

$$Y_i = \alpha + \beta_1 \text{Social Media}_i + \beta_2 \text{Sex}_i + \beta_3 \text{PGI poor well being}_i + \beta_4 \text{Social Media}_i \times \text{Sex}_i + Z_i + \varepsilon_i \quad (\text{Eq. 2})$$

Third, we estimate gene-environment interaction models to examine whether social media exposure moderates the association between genetic propensity for poor well-being and adolescent mental health. In these models, the coefficient on the interaction between social media exposure and the well-being PGI β_4 in Eq.3 captures whether the association between social media exposure and mental health outcomes varies systematically across levels of the poor well-being PGI.

$$Y_i = \alpha + \beta_1 \text{Social Media}_i + \beta_2 \text{Sex}_i + \beta_3 \text{PGI poor well being}_i + \beta_4 \text{Social Media}_i \times \text{PGI poor well being}_i + Z_i + \varepsilon_i \quad (\text{Eq. 3})$$

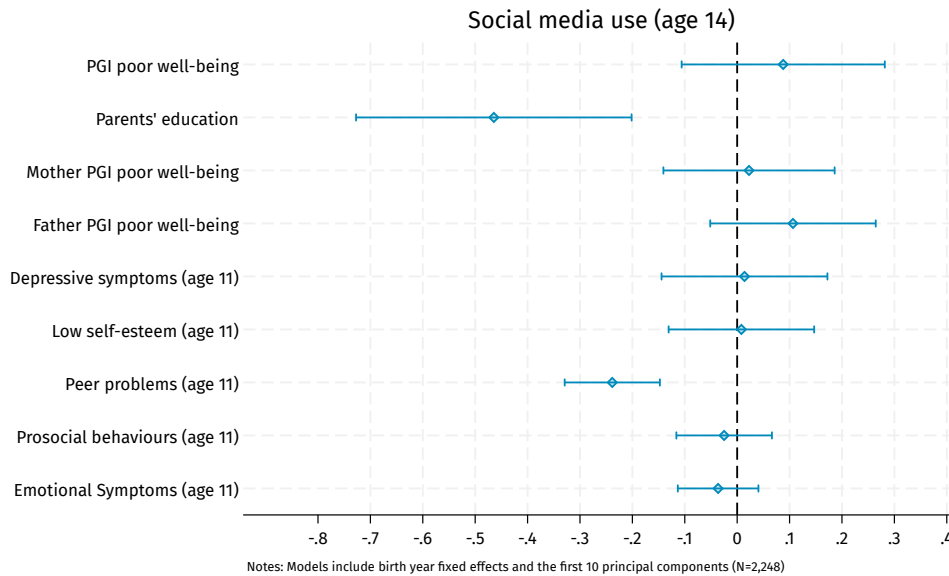
Fourth, to assess whether gene-environment interactions differ by gender, we estimate a three-way interaction between social media exposure, gender, and poor well-being PGI. The three-way interaction coefficient β_6 in Eq.4 formally tests whether gender differences in gene-environment interplay are statistically significant.

$$Y_i = \alpha + \beta_1 \text{Social Media}_i + \beta_2 \text{Sex}_i + \beta_3 \text{PGI poor well being}_i + \beta_4 \text{Social Media}_i \times \text{Sex}_i + \beta_5 \text{Social Media}_i \times \text{PGI poor well being}_i + \beta_6 \text{Social Media}_i \times \text{Sex}_i \times \text{PGI poor well being}_i + Z_i + \varepsilon_i \quad (\text{Eq. 4})$$

All equations include a vector of control variables Z_i . In the interaction models, the vector Z_i consists of our covariates but also the covariates-sex (Eq. 2), covariates-PGI (Eq. 3), and covariates-sex-PGI interaction (Eq. 4).

5. Predictors of social media use

Figure A4: Logistic regression coefficients for social media use (age 14).



6. Regression tables

Table A3: OLS regression analysis on depressive symptoms

	Model 1: No interaction	Model 2: Social media exposure x Sex	Model 3: Social media exposure x PGI poor well-being	Model 4a: Social media exposure x PGI poor well-being among boys	Model 4b: Social media exposure x PGI poor well-being among girls	Model 5: Social media exposure x PGI poor well-being x Sex
Medium exposure to social media	-0.00715 (0.057)	-0.0135 (0.058)	0.0600 (0.056)	-0.0151 (0.059)	0.208 ⁺ (0.117)	-0.00751 (0.058)
High exposure to social media	0.265*** (0.060)	0.145* (0.066)	0.330*** (0.059)	0.135* (0.066)	0.543*** (0.110)	0.155* (0.066)
Sex (ref: Boys)	0.412*** (0.047)	0.156 (0.152)	0.408*** (0.045)			0.167 (0.107)
PGI poor well-being	0.0766* (0.032)	0.0398 (0.035)	0.106 (0.065)	0.0995 (0.067)	0.240 ⁺ (0.132)	0.0981 (0.067)
Mother PGI poor well-being	0.0414 (0.029)	0.0289 (0.028)	0.0316 (0.029)	0.0296 (0.029)	0.0310 (0.050)	0.0335 (0.029)
Father PGI poor well-being	0.0311 (0.028)	0.0197 (0.028)	0.0264 (0.028)	0.0160 (0.031)	0.0287 (0.046)	0.0246 (0.028)
Medium social media exposure x Sex		0.262* (0.132)				0.195 (0.128)
High social media exposure x Sex		0.423** (0.129)				0.368** (0.125)
Depression pre-social media use (age 11)		0.191*** (0.032)	0.266*** (0.029)	0.195*** (0.033)	0.337*** (0.046)	0.270*** (0.028)
Peers' problems pre-social media use (age 11)		0.0529* (0.022)	0.0515** (0.018)	0.0544* (0.022)	0.0473 ⁺ (0.027)	0.0505** (0.017)
Medium social media exposure x PGI poor well-being			-0.0327 (0.052)	-0.0198 (0.056)	-0.143 (0.114)	-0.0276 (0.057)
High social media exposure x PGI poor well-being			0.00818 (0.056)	0.0893 (0.066)	-0.156 (0.110)	0.0870 (0.066)
Medium social media exposure x Sex x PGI poor well-being						-0.108 (0.127)
High social media exposure x Sex x PGI poor well-being						-0.223 ⁺ (0.128)
10 PCs	Yes	Yes	Yes	Yes	Yes	Yes
Birth year	Yes	Yes	Yes	Yes	Yes	Yes
Covariates-predictors interactions		Yes	Yes	Yes	Yes	Yes
N	2248	2248	2248	1110	1138	2248

Standard errors in parentheses - ⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.00$

Table A4: OLS regression analysis on low self-esteem

	Model 1: No interaction	Model 2: Social media exposure x Sex	Model 3: Social media exposure x PGI poor well- being	Model 4a: Social media exposure x PGI poor well- being among boys	Model 4b: Social media exposure x PGI poor well- being among girls	Model 5: Social media exposure x PGI poor well- being x Sex
Medium exposure to social media	0.0849 (0.065)	0.105 (0.077)	0.127* (0.061)	0.105 (0.075)	0.196+ (0.103)	0.126+ (0.075)
High exposure to social media	0.198** (0.065)	0.0344 (0.080)	0.240*** (0.061)	0.0326 (0.080)	0.445*** (0.097)	0.0441 (0.079)
Sex (ref: Boys)	0.447*** (0.047)	0.157 (0.148)	0.394*** (0.044)			0.193+ (0.107)
PGI poor well- being	0.0656+ (0.034)	0.0357 (0.041)	0.0786 (0.084)	-0.0298 (0.110)	0.308** (0.113)	-0.0538 (0.107)
Mother PGI poor well-being	0.0135 (0.029)	0.0223 (0.028)	0.0209 (0.028)	0.00458 (0.039)	0.0337 (0.040)	0.0218 (0.028)
Father PGI poor well-being	-0.0137 (0.028)	-0.0189 (0.026)	-0.0141 (0.026)	-0.0396 (0.036)	-0.0000657 (0.039)	-0.0199 (0.026)
Medium social media exposure x Sex		0.110 (0.128)				0.0675 (0.124)
High social media exposure x Sex		0.439*** (0.125)				0.400** (0.122)
Low self-esteem pre-social media use (age 11)		0.280*** (0.034)	0.311*** (0.024)	0.281*** (0.034)	0.327*** (0.034)	0.307*** (0.024)
Peers' problems pre-social media use (age 11)		0.0360+ (0.021)	0.0480*** (0.014)	0.0346 (0.021)	0.0616*** (0.018)	0.0495*** (0.014)
Medium social media exposure x PGI poor well- being			-0.0430 (0.070)	-0.0236 (0.086)	-0.167 (0.103)	-0.0175 (0.085)
High social media exposure x PGI poor well-being			-0.0711 (0.065)	-0.0150 (0.085)	-0.238* (0.095)	0.000896 (0.085)
Medium social media exposure x Sex x PGI poor well-being						-0.146 (0.134)
High social media exposure x Sex x PGI poor well- being						-0.231+ (0.128)
10 PCs	Yes	Yes	Yes	Yes	Yes	Yes
Birth year	Yes	Yes	Yes	Yes	Yes	Yes
Covariates- predictors interactions		Yes	Yes	Yes	Yes	Yes
N	2248	2248	2248	1110	1138	2248

Standard errors in parentheses - + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A5: Logit regression analysis on body dissatisfaction

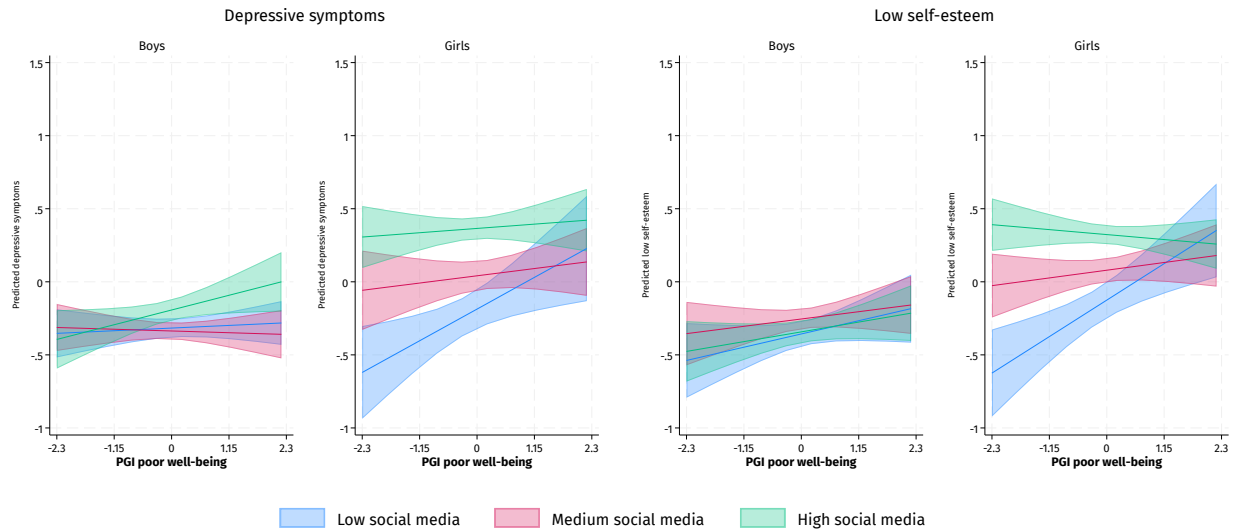
	Model 1: No interaction	Model 2: Social media exposure x Sex	Model 3: Social media exposure x PGI poor well-being	Model 4a: Social media exposure x PGI poor well-being among boys	Model 4b: Social media exposure x PGI poor well-being among girls	Model 5: Social media exposure x PGI poor well-being x Sex
Medium exposure to social media	0.135 (0.159)	0.119 (0.207)	0.214 (0.165)	0.0760 (0.210)	0.463 ⁺ (0.275)	0.0583 (0.211)
High exposure to social media	0.368* (0.151)	0.0504 (0.216)	0.445** (0.159)	0.00470 (0.224)	0.864*** (0.261)	-0.0143 (0.224)
Sex (ref: Boys)	0.981*** (0.111)	0.548 (0.378)	0.960*** (0.114)			0.322 (0.291)
PGI poor well-being	0.144 ⁺ (0.077)	0.0702 (0.103)	0.189 (0.202)	0.117 (0.261)	0.776* (0.320)	0.00127 (0.258)
Mother PGI poor well-being	0.0202 (0.066)	0.0329 (0.068)	0.0226 (0.069)	0.0175 (0.102)	0.0273 (0.095)	0.0223 (0.069)
Father PGI poor well-being	-0.0466 (0.067)	-0.0646 (0.069)	-0.0602 (0.069)	-0.233* (0.109)	0.0768 (0.095)	-0.0554 (0.071)
Medium social media exposure x Sex		0.348 (0.336)				0.410 (0.342)
High social media exposure x Sex		0.840* (0.330)				0.885** (0.338)
Low self-esteem pre-social media use (age 11)		0.298*** (0.088)	0.380*** (0.058)	0.298*** (0.088)	0.452*** (0.080)	0.380*** (0.059)
Peers' problems pre-social media use (age 11)		0.119* (0.054)	0.0906* (0.036)	0.123* (0.054)	0.0835 ⁺ (0.048)	0.0980** (0.036)
Medium social media exposure x PGI poor well-being			-0.109 (0.181)	0.128 (0.243)	-0.711* (0.294)	0.139 (0.249)
High social media exposure x PGI poor well-being			-0.0804 (0.172)	0.150 (0.251)	-0.681* (0.283)	0.195 (0.254)
Medium social media exposure x Sex x PGI poor well-being						-0.870* (0.385)
High social media exposure x Sex x PGI poor well-being						-0.850* (0.380)
10 PCs	Yes	Yes	Yes	Yes	Yes	Yes
Birth year	Yes	Yes	Yes	Yes	Yes	Yes
Covariates-predictors interactions		Yes	Yes	Yes	Yes	Yes
N	2248	2248	2248	1110	1138	2248

Standard errors in parentheses - ⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

7. Additional analyses

7.1. Alternative indices for depressive symptoms and low self-esteem

Figure A5: Poor well-being PGI association on mental health outcome by social media use and gender. OLS models for depressive symptoms and low self-esteem using indices constructed using PCA.



Note: $N = 2,248$. Higher values of the well-being PGI indicate greater genetic propensity for poor mental health. Estimates from OLS and logistic models, including a two-way interaction between social media exposure and the well-being PGI (reversed). Coefficients presented with 83% confidence intervals, because they provide a more accurate visual representation of statistical significance in the difference between groups (Payton et al., 2003). All models control for the well-being PGI, parents' well-being PGI, parents' education, birth year, the first 10 principal components of genetic ancestry, and for children's pre-exposure peer problems and mental health – depressive symptoms when the outcome is depressive symptoms, and low self-esteem otherwise. We also include interactions between our covariates and gender and the well-being PGI to obtain less biased interaction coefficients. Poor well-being PGI corresponds to the reverse-scored well-being PGI; i.e., higher values indicate a greater genetic propensity for poor mental health.

7.2. Different categorization of body dissatisfaction

Table A6: Logit regression analysis on alternative categorization of body dissatisfaction

	Model 1: No interaction	Model 2: Social media exposure x Sex	Model 3: Social media exposure x PGI poor well-being	Model 4a: Social media exposure x PGI poor well-being among boys	Model 4b: Social media exposure x PGI poor well-being among girls	Model 5: Social media exposure x PGI poor well-being x Sex
Medium exposure to social media	-0.116 (0.201)	-0.329 (0.279)	-0.0595 (0.209)	-0.391 (0.286)	0.262 (0.333)	-0.390 (0.286)
High exposure to social media	0.326 ⁺ (0.183)	0.0437 (0.280)	0.383 ⁺ (0.196)	0.0355 (0.283)	0.750 ⁺ (0.313)	0.0242 (0.275)
Sex (ref: Boys)	0.861 ^{***} (0.137)	0.417 (0.488)	0.807 ^{***} (0.139)			0.124 (0.349)
PGI poor well-being	0.151 ⁺ (0.090)	0.150 (0.126)	0.286 (0.282)	0.108 (0.360)	0.933 [*] (0.416)	-0.0287 (0.362)
Mother PGI poor well-being	0.0374 (0.081)	0.0488 (0.083)	0.0364 (0.083)	0.0193 (0.132)	0.0376 (0.110)	0.0316 (0.084)
Father PGI poor well-being	-0.116 (0.079)	-0.127 (0.081)	-0.137 ⁺ (0.082)	-0.238 ⁺ (0.139)	-0.0594 (0.110)	-0.127 (0.086)
Medium social media exposure x Sex		0.572 (0.424)				0.655 (0.430)
High social media exposure x Sex		0.671 ⁺ (0.408)				0.721 ⁺ (0.407)
Low self-esteem pre-social media use (age 11)		0.290 [*] (0.112)	0.351 ^{***} (0.067)	0.275 [*] (0.117)	0.383 ^{***} (0.085)	0.338 ^{***} (0.068)
Peers' problems pre-social media use (age 11)		0.0503 (0.078)	0.0468 (0.042)	0.0583 (0.078)	0.0567 (0.049)	0.0560 (0.041)
Medium social media exposure x PGI poor well-being			-0.230 (0.233)	0.115 (0.344)	-0.822 [*] (0.367)	0.159 (0.341)
High social media exposure x PGI poor well-being			-0.257 (0.221)	-0.219 (0.302)	-0.775 [*] (0.361)	-0.125 (0.301)
Medium social media exposure x Sex x PGI well-poor well-being						-0.967 ⁺ (0.496)
High social media exposure x Sex x PGI poor well-being						-0.606 (0.463)
10 PCs	Yes	Yes	Yes	Yes	Yes	Yes
Birth year	Yes	Yes	Yes	Yes	Yes	Yes
Covariates-predictors interactions		Yes	Yes	Yes	Yes	Yes
N	2248	2248	2248	1110	1138	2248

Standard errors in parentheses ⁺ $p < 0.10$, ^{*} $p < 0.05$, ^{**} $p < 0.01$, ^{***} $p < 0.001$

7.3. Binary outcomes for depressive symptoms and low self-esteem

Table A7: Logit regression analysis on depressive symptoms

	Model 1: No interaction	Model 2: Social media exposure x Sex	Model 3: Social media exposure x PGI poor well-being	Model 4a: Social media exposure x PGI poor well-being among boys	Model 4b: Social media exposure x PGI poor well-being among girls	Model 5: Social media exposure x PGI poor well-being x Sex
Medium exposure to social media	0.0246 (0.173)	-0.224 (0.233)	0.182 (0.181)	-0.223 (0.235)	0.711* (0.301)	-0.206 (0.235)
High exposure to social media	0.574*** (0.162)	0.294 (0.226)	0.752*** (0.169)	0.250 (0.233)	1.266*** (0.282)	0.297 (0.236)
Sex (ref: Boys)	0.793*** (0.116)	0.203 (0.415)	0.842*** (0.121)			0.0568 (0.317)
PGI poor well-being	0.171* (0.083)	0.197+ (0.119)	0.363+ (0.218)	0.397 (0.317)	0.765* (0.357)	0.365 (0.301)
Mother PGI poor well-being	0.0311 (0.070)	0.00385 (0.074)	0.00790 (0.076)	-0.0129 (0.112)	0.0185 (0.102)	0.0130 (0.075)
Father PGI poor well-being	0.0184 (0.069)	-0.00763 (0.073)	0.00445 (0.073)	-0.0499 (0.113)	0.0570 (0.100)	0.0120 (0.074)
Medium social media exposure x Sex		0.955* (0.378)				0.906* (0.375)
High social media exposure x Sex		0.963** (0.358)				0.959** (0.363)
Depression pre-social media use (age 11)		0.442*** (0.102)	0.537*** (0.068)	0.458*** (0.105)	0.622*** (0.091)	0.563*** (0.068)
Peers' problems pre-social media use (age 11)		0.0672 (0.062)	0.0668+ (0.040)	0.0887 (0.063)	0.0572 (0.052)	0.0680+ (0.040)
Medium social media exposure x PGI poor well-being			-0.0727 (0.198)	0.123 (0.266)	-0.538 (0.327)	0.132 (0.270)
High social media exposure x PGI poor well-being			-0.114 (0.186)	0.290 (0.271)	-0.638* (0.311)	0.265 (0.274)
Medium social media exposure x Sex x PGI poor well-being						-0.634 (0.419)
High social media exposure x Sex x PGI poor well-being						-0.848* (0.411)
10 PCs	Yes	Yes	Yes	Yes	Yes	Yes
Birth year	Yes	Yes	Yes	Yes	Yes	Yes
Covariates-predictors interactions		Yes	Yes	Yes	Yes	Yes
N	2248	2248	2248	1110	1138	2248

Standard errors in parentheses + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

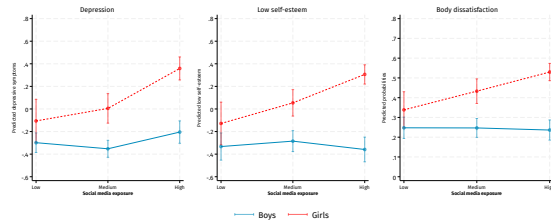
Table A8: Logit regression analysis on low self-esteem

	Model 1: No interaction	Model 2: Social media exposure x Sex	Model 3: Social media exposure x PGI poor well-being	Model 4a: Social media exposure x PGI poor well-being among boys	Model 4b: Social media exposure x PGI poor well-being among girls	Model 5: Social media exposure x PGI poor well-being x Sex
Medium exposure to social media	0.247 ⁺ (0.146)	0.323 ⁺ (0.188)	0.316* (0.155)	0.310 (0.191)	0.389 (0.255)	0.396* (0.196)
High exposure to social media	0.446** (0.143)	0.141 (0.191)	0.534*** (0.151)	0.135 (0.196)	1.011*** (0.246)	0.213 (0.200)
Sex (ref: Boys)	0.807*** (0.108)	0.168 (0.353)	0.769*** (0.111)			0.540* (0.256)
PGI poor well-being	0.177* (0.076)	0.154 (0.099)	0.334 ⁺ (0.188)	0.0979 (0.238)	0.911** (0.299)	0.104 (0.238)
Mother PGI poor well-being	-0.0578 (0.066)	-0.0421 (0.071)	-0.0426 (0.072)	-0.0307 (0.100)	-0.0967 (0.109)	-0.0469 (0.073)
Father PGI poor well-being	-0.0655 (0.065)	-0.0779 (0.069)	-0.0731 (0.068)	-0.0516 (0.094)	-0.139 (0.106)	-0.0941 (0.070)
Medium social media exposure x Sex		0.0752 (0.310)				-0.0615 (0.311)
High social media exposure x Sex		0.887** (0.302)				0.704* (0.301)
Low self-esteem pre-social media use (age 11)		0.495*** (0.090)	0.624*** (0.065)	0.505*** (0.091)	0.806*** (0.100)	0.630*** (0.066)
Peers' problems pre-social media use (age 11)		0.0151 (0.052)	0.0606 (0.037)	0.0118 (0.053)	0.126* (0.057)	0.0653 ⁺ (0.037)
Medium social media exposure x PGI poor well-being			-0.151 (0.168)	-0.121 (0.207)	-0.423 (0.270)	-0.120 (0.207)
High social media exposure x PGI poor well-being			-0.360* (0.156)	-0.283 (0.214)	-0.656* (0.259)	-0.264 (0.215)
Medium social media exposure x Sex x PGI poor well-being						-0.278 (0.337)
High social media exposure x Sex x PGI poor well-being						-0.354 (0.333)
10 PCs	Yes	Yes	Yes	Yes	Yes	Yes
Birth year	Yes	Yes	Yes	Yes	Yes	Yes
Covariates-predictors interactions		Yes	Yes	Yes	Yes	Yes
N	2248	2248	2248	1110	1138	2248

Standard errors in parentheses ⁺ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

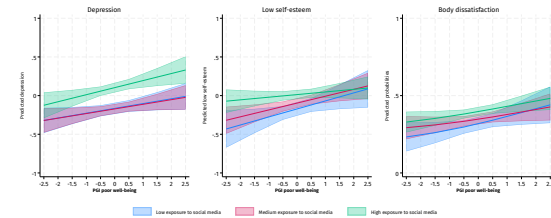
7.4. Interaction models without mental health controls pre-social media use

Figure A6: Social media use-gender interaction on mental health outcomes (OLS models for depressive symptoms and low self-esteem; logit model for body dissatisfaction) – without controlling for mental health prior social media use



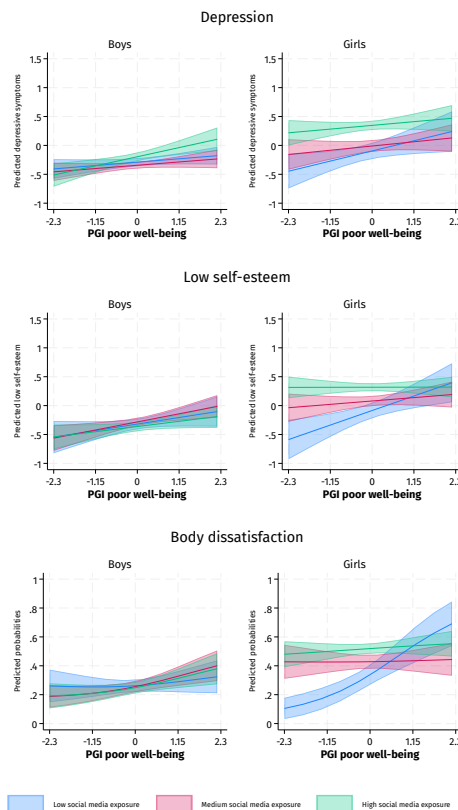
Note: N = 2,248. Estimates and 95% confidence intervals from OLS and logistic models, including a two-way interaction between social media exposure and gender. All control and interactions are included.

Figure A7: Social media use-genotype interaction on mental health outcomes (OLS models for depressive symptoms and low self-esteem; logit model for body dissatisfaction) – without controlling for mental health prior social media use



Note: N = 2,248. Estimates from OLS and logistic models, including a two-way interaction between social media exposure and well-being PGI. Coefficients presented with 83% confidence intervals, because they provide a more accurate visual representation of statistical significance in the difference between groups (Payton et al., 2003). All control and interactions are included. Poor well-being PGI corresponds to the reverse-scored well-being PGI; i.e., higher values indicate a greater genetic propensity for poor mental health.

Figure A8: Well-being PGI association on mental health outcome by social media use and gender (OLS models for depressive symptoms and low self-esteem; logit model for body dissatisfaction) – without controlling for mental health prior to social media use



Note: N = 2,248. Estimates from OLS and logistic models, including a two-way interaction between social media exposure and well-being PGI. Coefficients presented with 83% confidence intervals, because they provide a more accurate visual representation of statistical significance in the difference between groups (Payton et al., 2003). All models control for the well-being PGI, the parents' well-being PGI, parents' education, birth year, the first 10 principal components of genetic ancestry, and for children's pre-exposure peer problems and mental health – depressive symptoms when the outcome is depressive symptoms, and low self-esteem otherwise. Poor well-being PGI corresponds to the reverse-scored well-being PGI; i.e., higher values indicate a greater genetic propensity for poor mental health.