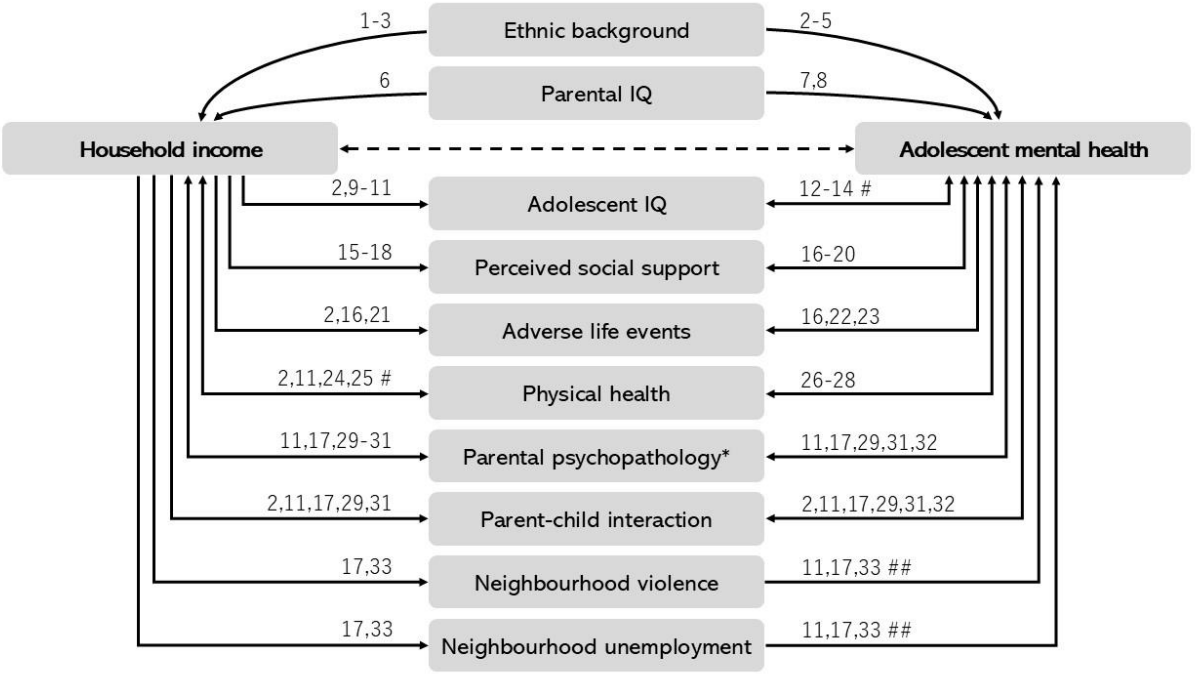
References supporting Figure 1



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Previous studies cannot rule out a potential bidirectional relation.

Previous studies have primarily concentrated on a unidirectional relation, as a bidirectional relation is highly unlikely.

Supplementary Table S1 Sociodemographic characteristics of adolescents from the iBerry Study who were included in or excluded from the study sample

	Included in study sample (*n* = 872)	**Excluded from study sample (*n* = 150)**	**Difference between included and excluded participants**
Sex female, *n* (%)	442 (50.7%)	80 (53.3%)	χ^2 (1, *N* = 1022) = 0.36, *p* =.549
Age in years, *M* (*SD*)	14.93 (0.88)	15.53 (1.04)	***t* (187.24) = 6.70, *p* <.001**
Ethnic background[1], *n* (%)			χ^2 (1, *N* = 915) = 3.78, *p* =.052
Dutch	678 (78.1%)	31 (66.0%)	
Non-Dutch	190 (21.9%)	16 (34.0%)	
Education level[1], *n* (%)			χ^2 (4, *N* = 960) = 7.85, *p* =.097
Special needs secondary education	30 (3.5%)	6 (5.3%)	
Pre-vocational secondary education	374 (44.2%)	57 (50.0%)	
Higher general secondary education	197 (23.3%)	22 (19.3%)	
Pre-university education	172 (20.3%)	14 (12.3%)	
Combined educational level	73 (8.6%)	15 (13.2%)	
Degree of urbanicity of home address, *n* (%)			**χ^2 (2, *N* = 1022) = 10.23, *p* =.006**
Urban	501 (57.5%)	107 (71.3%)	
Suburban	184 (21.1%)	22 (14.7%)	
Rural	187 (21.4%)	21 (14.0%)	
Psychopathology scores			
Internalizing problems self-report, *M* (*SD*)	12.24 (8.60)	12.83 (9.07)	*t* (962) = 0.69, *p* =.489
Internalizing problems parent-report, *M* (*SD*)	9.00 (7.69)	8.47 (8.02)	*t* (899) = -0.39, *p* =.696
Externalizing problems self-report, *M* (*SD*)	9.74 (6.35)	10.17 (6.12)	*t* (967) = 0.70, *p* =.485
Externalizing problems parent-report, *M* (*SD*)	6.75 (6.59)	6.13 (7.09)	*t* (898) = -0.53, *p* =.597

[1] Ethnic background was missing for 107 adolescents, education level was missing for 62 adolescents, self-reports were missing for 53 adolescents, parent-reports were missing for 121 adolescents.

Supplementary Table S2 Correlations between adolescent individual, parental, and neighbourhood factors (*n* = 872)

	2	3	4	5	6	7	8	9	10	11	12
1. Ethnic background	-.060	-.114	.056	.037	.103	.103	-.234	-.084	-.058	.168	-.227
2. Adolescent IQ score		.020	-.194	-.053	-.038	-.024	.336	.018	.014	-.050	.078
3. Perceived social support			-.070	.024	-.085	-.061	.007	.366	.257	-.046	.082
4. Adverse life events				.158	.336	.174	-.142	-.119	-.110	.124	-.145
5. Physical health concerns					.122	.064	-.075	.032	-.011	.046	-.029
6. Maternal psychopathology						.215	-.160	-.101	-.031	.100	-.115
7. Paternal psychopathology							-.113	-.056	-.024	.068	-.076
8. Parental IQ score								.016	.056	-.139	.167
9. Mother-child interaction									.424	-.029	.074
10. Father-child interaction										-.105	.044
11. Neighbourhood violent and sexual crimes											-.333
12. Neighbourhood % outside labour force											

Note. Pearson correlations are noted except for the dichotomous variables 1 and 5, for which point-biserial correlations or a Phi coefficient are noted.

Supplementary Table S3 Linear regression coefficients on the relationship between low household income using the 12th and 28th percentile as cut-off, and adolescent internalizing problems (*n* = 847 for self-report and *n* = 868 for parent-report)

		12th percentile low income cut-off				**28th percentile low income cut-off**			
		Self-reported internalizing problems[1]		**Parent-reported internalizing problems[1]**		**Self-reported internalizing problems[1]**		**Parent-reported internalizing problems[1]**	
Model		*B* (95% CI)	*p*-value	*B* (95% CI)	*p*-value	*B* (95% CI)	*p*-value	*B* (95% CI)	*p*-value
1	Household income (low=0)	**-0.33 (-0.58;-0.08)**	**.011**	**-0.29 (-0.56;-0.03)**	**.032**	**-0.36 (-0.54;-0.18)**	**<.001**	**-0.41 (-0.60;-0.22)**	**<.001**
	Sex (male=0)	**0.84 (0.68;1.01)**	**<.001**	**0.46 (0.29;0.63)**	**<.001**	**0.83 (0.67;1.00)**	**<.001**	**0.45 (0.28;0.62)**	**<.001**
	Age	**0.12 (0.03;0.21)**	**.011**	0.02 (-0.08;0.12)	.654	**0.12 (0.02;0.21)**	**.013**	0.01 (-0.08;0.11)	.769
2	Household income (low=0)	-0.15 (-0.40;0.10)	.252	-0.04 (-0.31;0.23)	.775	**-0.25 (-0.42;-0.07)**	**.007 ***	**-0.25 (-0.44;-0.06)**	**.011 ***
	Sex (male=0)	**0.94 (0.78;1.09)**	**<.001**	**0.47 (0.31;0.64)**	**<.001**	**0.93 (0.77;1.09)**	**<.001**	**0.46 (0.30;0.63)**	**<.001**
	Age	0.09 (0.00;0.19)	.053	-0.08 (-0.19;0.02)	.105	**0.10 (0.00;0.19)**	**.048** *	-0.08 (-0.19;0.02)	.103
	Ethnic background	0.05 (-0.15;0.25)	.623	0.00 (-0.21;0.21)	.989	0.04 (-0.16;0.23)	.721	-0.03 (-0.24;0.17)	.745
	Adolescent IQ score	0.01 (0.00;0.01)	.069	0.00 (-0.01;0.01)	.908	**0.01 (0.00;0.01)**	**.039** *	0.00 (-0.01;0.01)	.859
	Perceived social support	**-0.08 (-0.10;-0.06)**	**<.001**	**-0.03 (-0.05;-0.01)**	**.001**	**-0.08 (-0.10;-0.06)**	**<.001**	**-0.03 (-0.05;-0.01)**	**.001**
	Adverse life events	**0.09 (0.05;0.14)**	**<.001**	**0.18 (0.13;0.23)**	**<.001**	**0.09 (0.04;0.13)**	**<.001**	**0.17 (0.12;0.22)**	**<.001**
	Physical health concerns	**0.38 (0.13;0.62)**	**.002**	**0.44 (0.18;0.71)**	**.001**	**0.38 (0.14;0.62)**	**.002**	**0.44 (0.18;0.70)**	**.001**
3	Household income (low=0)	-0.16 (-0.42;0.10)	.228	-0.02 (-0.28;0.24)	.881	**-0.19 (-0.38;0.00)**	**.044** *	-0.11 (-0.30;0.08)	.264
	Sex (male=0)	**0.80 (0.64;0.96)**	**<.001**	**0.37 (0.21;0.53)**	**<.001**	**0.80 (0.64;0.96)**	**<.001**	**0.37 (0.21;0.53)**	**<.001**
	Age	**0.10 (0.01;0.20)**	**.034**	-0.03 (-0.13;0.06)	.482	**0.10 (0.01;0.20)**	**.032**	-0.03 (-0.13;0.06)	.473
	Maternal psychopathology	**0.02 (0.01;0.03)**	**<.001**	**0.04 (0.04;0.05)**	**<.001**	**0.02 (0.01;0.03)**	**<.001**	**0.04 (0.04;0.05)**	**<.001**
	Paternal psychopathology	0.00 (-0.01;0.02)	.430	**0.02 (0.00;0.03)**	**.019**	0.00 (-0.01;0.02)	.434	**0.02 (0.00;0.03)**	**.019**
	Parental IQ score	0.00 (0.00;0.01)	.511	0.00 (-0.01;0.01)	.961	0.00 (0.00;0.01)	.387	0.00 (-0.01;0.01)	.764
	Mother-child interaction	**-0.02 (-0.03;-0.01)**	**.002**	0.00 (-0.01;0.01)	.786	**-0.02 (-0.03;-0.01)**	**.002**	0.00 (-0.01;0.01)	.784
	Father-child interaction	**-0.02 (-0.03;-0.01)**	**.005**	**-0.02 (-0.03;-0.01)**	**.004**	**-0.02 (-0.03;0.00)**	**.007**	**-0.02 (-0.03;-0.01)**	**.004**
4	Household income (low=0)	**-0.27 (-0.54;-0.01)**	**.040**	-0.23 (-0.51;0.05)	.101 ****	**-0.33 (-0.52;-0.15)**	**.001**	**-0.39 (-0.59;-0.19)**	**<.001**
	Sex (male=0)	**0.84 (0.68;1.01)**	**<.001**	**0.46 (0.29;0.63)**	**<.001**	**0.83 (0.67;1.00)**	**<.001**	**0.45 (0.28;0.62)**	**<.001**
	Age	**0.12 (0.03;0.21)**	**.012**	0.02 (-0.08;0.12)	.675	**0.12 (0.02;0.21)**	**.013**	0.01 (-0.08;0.11)	.785
	Neighbourhood violent and sexual crimes	-0.01 (-0.03;0.01)	.478	0.01 (-0.01;0.03)	.452	-0.01 (-0.03;0.01)	.383	0.01 (-0.02;0.03)	.600
	Neighbourhood % outside labour force	-0.01 (-0.02;0.00)	.107	-0.01 (-0.02;0.01)	.322	-0.01 (-0.02;0.00)	.171	0.00 (-0.02;0.01)	.569

Full	Household income (low=0)	-0.09 (-0.35;0.18)	.510	0.05 (-0.22;0.32)	.696	-0.17 (-0.36;0.01)	.070	-0.07 (-0.27;0.12)	.453
	Sex (male=0)	**0.89 (0.73;1.04)**	**<.001**	**0.39 (0.22;0.55)**	**<.001**	**0.88 (0.73;1.04)**	**<.001**	**0.38 (0.22;0.55)**	**<.001**
	Age					**0.10 (0.00;0.19)**	**.045** *		
	Perceived social support	**-0.06 (-0.08;-0.04)**	**<.001**			**-0.06 (-0.08;-0.04)**	**<.001**		
	Adverse life events	**0.05 (0.01;0.10)**	**.026**	**0.09 (0.04;0.14)**	**.001**	**0.05 (0.00;0.10)**	**.032**	**0.08 (0.03;0.13)**	**.001**
	Physical health concerns	**0.35 (0.11;0.59)**	**.004**	**0.35 (0.09;0.60)**	**.007**	**0.35 (0.11;0.59)**	**.004**	**0.34 (0.09;0.59)**	**.007**
	Maternal psychopathology	**0.02 (0.01;0.02)**	**<.001**	**0.04 (0.03;0.05)**	**<.001**	**0.02 (0.01;0.02)**	**<.001**	**0.04 (0.03;0.05)**	**<.001**
	Paternal psychopathology			**0.01 (0.00;0.03)**	**.045**			**0.01 (0.00;0.03)**	**.045**
	Father-child interaction	**-0.01 (-0.02;0.00)**	**.033**	**-0.02 (-0.03;0.00)**	**.008**	**-0.01 (-0.02;0.00)**	**.042**	**-0.02 (-0.03;0.00)**	**.010**

Note. In the full model, only covariates that were significantly related to self- or parent-reported internalizing problems are reported. Significant associations are printed in bold.
* Significance changed compared to the main analyses using the 20th percentile cut-off for low income. Direction of the association did not change.
[1] Square root transformation

Supplementary Table S4 Linear regression coefficients on the relationship between low household income using the 12th and 28th percentile as cut-off, and adolescent externalizing problems (n = 852 for self-report and n = 867 for parent-report)

		12th percentile low income cut-off				**28th percentile low income cut-off**			
		Self-reported externalizing problems[1]		**Parent-reported externalizing problems[1]**		**Self-reported externalizing problems[1]**		**Parent-reported externalizing problems[1]**	
Model		*B* (95% CI)	*p*-value	*B* (95% CI)	*p*-value	*B* (95% CI)	*p*-value	*B* (95% CI)	*p*-value
1	Household income (low=0)	-0.06 (-0.27;0.15)	.556 *****	**-0.45 (-0.72;-0.17)**	**.002**	-0.12 (-0.27;0.04)	.136 *****	**-0.54 (-0.74;-0.34)**	**<.001**
	Sex (male=0)	-0.05 (-0.19;0.09)	.453	0.05 (-0.12;0.23)	.555	-0.06 (-0.19; 0.08)	.420	0.03 (-0.14;0.21)	.704
	Age	**0.08 (0.01;0.16)**	**.035**	0.01 (-0.09;0.12)	.813	**0.08 (0.00;0.16)**	**.041**	0.00 (-0.10;0.11)	.940
2	Household income (low=0)	0.11 (-0.11;0.32)	.340	-0.19 (-0.48;0.09)	.176 *	0.00 (-0.16;0.15)	.960	**-0.36 (-0.56;-0.16)**	**<.001**
	Sex (male=0)	0.01 (-0.13;0.14)	.948	0.07 (-0.10;0.25)	.402	0.00 (-0.13;0.14)	.960	0.06 (-0.11;0.23)	.496
	Age	0.04 (-0.04;0.12)	.286	-0.10 (-0.20;0.01)	.070	0.04 (-0.04;0.12)	.294	-0.10 (-0.20;0.01)	.068
	Ethnic background	0.07 (-0.10;0.24)	.396	-0.03 (-0.25;0.19)	.800	0.05 (-0.11;0.22)	.540	-0.05 (-0.27;0.16)	.613
	Adolescent IQ score	0.00 (-0.01;0.01)	.961	**-0.01 (-0.02;0.00)**	**.018**	0.00 (-0.01;0.01)	.961	**-0.01 (-0.01;0.00)**	**.039**
	Perceived social support	**-0.05 (-0.07;-0.03)**	**<.001**	**-0.03 (-0.05;-0.01)**	**.003**	**-0.05 (-0.07;-0.03)**	**<.001**	**-0.03 (-0.05;-0.01)**	**.003**
	Adverse life events	**0.08 (0.05;0.12)**	**<.001**	**0.17 (0.12;0.22)**	**<.001**	**0.08 (0.04;0.12)**	**<.001**	**0.16 (0.11;0.21)**	**<.001**
	Physical health concerns	0.14 (-0.08;0.36)	.207	0.14 (-0.14;0.41)	.336	0.13 (-0.08;0.35)	.225	0.13 (-0.14;0.41)	.335
3	Household income (low=0)	0.09 (-0.13;0.31)	.415	-0.14 (-0.42;0.13)	.308	0.01 (-0.15;0.17)	.887	**-0.25 (-0.46;-0.05)**	**.014 ***
	Sex (male=0)	-0.07 (-0.2;0.06)	.291	0.00 (-0.17;0.16)	.969	-0.07 (-0.2;0.06)	.293	-0.01 (-0.18;0.16)	.922
	Age	0.08 (0.00;0.16)	.060	-0.03 (-0.14;0.07)	.548	0.08 (0.00;0.16)	.064	-0.03 (-0.14;0.07)	.538
	Maternal psychopathology	**0.01 (0.01;0.02)**	**<.001**	**0.03 (0.03;0.04)**	**<.001**	**0.01 (0.01;0.02)**	**<.001**	**0.03 (0.02;0.04)**	**<.001**
	Paternal psychopathology	0.00 (-0.01;0.01)	.986	0.01 (0.00;0.02)	.202	0.00 (-0.01;0.01)	.971	0.01 (0.00;0.02)	.197
	Parental IQ score	0.00 (0.00;0.01)	.306	0.00 (-0.01;0.00)	.357	0.00 (0.00;0.01)	.234	0.00 (-0.01;0.00)	.586
	Mother-child interaction	**-0.04 (-0.06;-0.03)**	**<.001**	**-0.04 (-0.05;-0.03)**	**<.001**	**-0.04 (-0.06;-0.03)**	**<.001**	**-0.04 (-0.05;-0.03)**	**<.001**
	Father-child interaction	**-0.02 (-0.03;-0.01)**	**.005**	-0.01 (-0.02;0.00)	.073	**-0.02 (-0.03;-0.01)**	**.005**	-0.01 (-0.02;0.00)	.094
4	Household income (low=0)	-0.01 (-0.23;0.22)	.957	**-0.41 (-0.7;-0.12)**	**.005**	-0.08 (-0.24;0.08)	.300	**-0.53 (-0.74;-0.33)**	**<.001**
	Sex (male=0)	-0.05 (-0.19;0.08)	.441	0.05 (-0.13;0.23)	.559	-0.06 (-0.19;0.08)	.416	0.03 (-0.14;0.21)	.704
	Age	**0.08 (0.00;0.16)**	**.038** *	0.01 (-0.09;0.12)	.817	**0.08 (0.00;0.16)**	**.045** *	0.00 (-0.10;0.11)	.942
	Neighbourhood violent and sexual crimes	0.00 (-0.02;0.02)	.916	0.00 (-0.02;0.02)	.952	0.00 (-0.02;0.02)	.982	0.00 (-0.03;0.02)	.743
	Neighbourhood % outside labour force	-0.01 (-0.02;0.00)	.113	-0.01 (-0.02;0.01)	.426	-0.01 (-0.02;0.00)	.169	0.00 (-0.02;0.01)	.702

Full	Household income (low=0)	0.18 (-0.05;0.41)	.119	-0.09 (-0.37;0.19)	.537	0.06 (-0.11;0.22)	.500	**-0.22 (-0.42;-0.01)**	**.036 ***
	Adolescent IQ score			**-0.01 (-0.02;0.00)**	**.007**			**-0.01 (-0.02;0.00)**	**.010**
	Adverse life events	**0.05 (0.01;0.09)**	**.016**	**0.09 (0.04;0.14)**	**<.001**	**0.05 (0.01;0.09)**	**.021**	**0.09 (0.04;0.14)**	**.001**
	Maternal psychopathology	**0.01 (0.00;0.01)**	**.008**	**0.03 (0.02;0.04)**	**<.001**	**0.01 (0.00;0.01)**	**.007**	**0.03 (0.02;0.04)**	**<.001**
	Mother-child interaction	**-0.04 (-0.05;-0.03)**	**<.001**	**-0.04 (-0.06;-0.02)**	**<.001**	**-0.04 (-0.05;-0.03)**	**<.001**	**-0.04 (-0.06;-0.02)**	**.001**
	Father-child interaction	**-0.02 (-0.03;0.00)**	**.010**			**-0.02 (-0.03;0.00)**	**.010**		

Note. In the full model, only covariates that were significantly related to self- or parent-reported externalizing problems are reported. Significant associations are printed in bold.

* Significance changed compared to the main analyses using the 20th percentile cut-off for low income. Direction of the association did not change.

1 Square root transformation

Supplementary Table S5 Outcome of mediation analyses testing indirect effects between low household income (20th percentile) and internalizing and externalizing problems

	Self-reported internalizing problems[1]	**Parent-reported internalizing problems[1]**	**Self-reported externalizing problems[1]**	**Parent-reported externalizing problems[1]**
Indirect effect through	*B* (95% CI)	*B* (95% CI)	*B* (95% CI)	*B* (95% CI)
Adolescent IQ score	NA	NA	NA	**-0.05 (-0.09, -0.02)**
Perceived social support	**-0.07 (-0.15, 0.00)**	**-0.04 (-0.08, 0.00)**	**-0.05 (-0.10, 0.00)**	**-0.03 (-0.08, 0.00)**
Adverse life events	**-0.10 (-0.17, -0.05)**	**-0.17 (-0.23, -0.10)**	**-0.09 (-0.14, -0.04)**	**-0.17 (-0.26, -0.09)**
Physical health condition	**-0.06 (-0.12, -0.02)**	**-0.14 (-0.24, -0.04)**	NA	NA
Maternal psychopathology	**-0.11 (-0.18, -0.05)**	**-0.23 (-0.36, -0.12)**	**-0.06 (-0.10, -0,02)**	**-0.18 (-0.28, -0.09)**
Paternal psychopathology	NA	**-0.11 (-0.19, -0.03)**	NA	NA
Mother-child interaction	-0.05 (-0.12, 0.01)	NA	-0.08 (-0.14, 0.02)	-0.07 (-0.17, 0.02)
Father-child interaction	**-0.07 (-0.15, 0.00)**	**-0.05 (-0.13, 0.00)**	**-0.09 (-0.18, 0.00)**	NA

Note. All mediation analyses were adjusted for adolescent sex and age. Significant outcomes are printed in bold.
NA = not applicable, mediation analysis was not performed as covariate was not significant in main analyses.

[1] Square root transformation