

Supplementary Files

Supplement to: **An instrumental analysis of the triad association between sugar-sweetened beverages, screen time, and dental caries in adolescents**

Contents:

Table S1. Associations of the number of co-occupants with dental caries and pearson residual

Table S2. Associations of the number of co-occupants with covariates

Table S3. Associations between screen time on mobile devices and dental caries

Table S4. Extended regression model to address any potential concerns about endogeneity (with mobile devices categories change to 3-level)

Table S5. Extended regression model to address any potential concerns about endogeneity (with dental caries calculation change: exclude missing and filled teeth)

Table S6. Extended regression model to address any potential concerns about endogeneity (with both screen time on mobile devices categories and dental caries calculation change)

Table S7. Associations between screen time on mobile devices and SSBs intake

Table S8. The association of the number of co-occupants with SSBs intake and pearson residual

Table S9. Associations between screen time on mobile devices and dental caries

Table S10. Joint analysis of dental caries in relation to different combinations of screen time on mobile devices and sugar-sweetened beverages consumption.

Table S11. Mediating proportion of sugar-sweetened beverages intake on the association between mobile device screen time and dental caries (with screen time on mobile devices in 3-level)

Table S12. Mediating proportion of sugar-sweetened beverages intake on the association between mobile device screen time and dental caries (with dental caries calculation change: exclude missing and filled teeth)

Table S13. Mediating proportion of sugar-sweetened beverages intake on the association between mobile device screen time and dental caries (with both screen time on mobile devices categories and dental caries calculation change)

Figure S1. Marginal effects of screen time on mobile devices in extended regression model (with screen time on mobile devices in 3-level)

Figure S2. Marginal effects of screen time on mobile devices in extended regression model (with dental caries calculation change: exclude missing and filled teeth)

Figure S3. Marginal effects of screen time on mobile devices in extended regression model (with both screen time on mobile devices categories and dental caries calculation change)

Supplementary Questionnaire Materials. Detailed questionnaire items for variables (screen time on mobile device and sugar-sweetened beverages consumption)

Supplementary STROBE Materials. STROBE Statement—Checklist of items that should be included in reports of cross-sectional studies

Table S1. The association of the number of co-occupants with dental caries and pearson residual

Variable	Dental caries	Pearson residual
	OR(95%CI)	β (95%CI)
The number of co-occupants		
Model 1 ^a	1.01(0.99-1.03)	0.00(-0.01-0.02)
Model 2 ^b	1.01(0.99-1.03)	0.00(-0.02-0.02)
Model 3 ^c	1.01(0.99-1.03)	0.00(-0.01-0.02)
Model 4 ^d	1.01(0.99-1.03)	0.00(-0.02-0.01)
Model 5 ^e	1.02(1.00-1.04)	0.02(0.00-0.03)
Model 6 ^f	1.02(1.00-1.04)	0.01(-0.01-0.03)
Model 7 ^g	1.02(1.00-1.04)	0.01(0.00-0.03)
Model 8 ^h	1.02(1.00-1.04)	0.01(-0.01-0.03)

^a Model 1 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^b Model 2 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs intake;

^c Model 3 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention (with screen time on mobile devices categories change to 3-level: <2h/d, [2,3), $\geq$ 3h/d);

^d Model 4 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs intake (with screen time on mobile devices categories change);

^e Model 5 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention (with dental caries calculation change: exclude missing and filled teeth);

^f Model 6 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs intake (with dental caries calculation change: exclude missing and filled teeth);

^g Model 7 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention (with both mobile devices categories screen time and dental caries calculation change);

^h Model 8 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs intake (with both screen time on mobile devices categories and dental caries calculation change);

*p<0.05, **p<0.01, ***p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S2. The association of the number of co-occupants with covariates

Variable	Maternal educational level	Tooth brushing habit	Obesity	Parental intervention	SSBs
	OR(95%CI)	OR(95%CI)	OR(95%CI)	OR(95%CI)	OR(95%CI)
The number of co-occupants					
Model 1 ^a	0.99(0.97-1.01)	0.99(0.97-1.01)	1.01(0.99-1.02)	1.00(0.98-1.02)	
Model 2 ^b	0.99(0.97-1.01)	0.99(0.97-1.01)	1.01(0.99-1.02)	0.99(0.97-1.01)	1.03(0.99-1.06)

^a Model 1 was ordinal logistic regression model adjusted for covariates including age, gender, geographic region and other covariates;

^b Model 2 was ordinal logistic regression model adjusted for covariates including age, gender, geographic region, other covariates and SSBs intake;

* p<0.05, ** p<0.01, *** p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S3. Associations between screen time on mobile devices and dental caries

Variable	Dental caries
	OR(95%CI)
Screen time on mobile devices (hours/day)	
Model 1 ^a	
<2	1.00
[2,3)	1.24(1.13-1.36) ^{***}
≥3	1.37(1.27-1.48) ^{***}
Model 2 ^b	
<2	1.00
[2,3)	1.20(1.10-1.32) ^{***}
≥3	1.27(1.17-1.38) ^{***}
Model 3 ^c	
<2	1.00
≥2	1.40(1.31-1.49) ^{***}
Model 4 ^d	
<2	1.00
≥2	1.30(1.21-1.39) ^{***}
Model 5 ^e	
<2	1.00
[2,3)	1.35(1.23-1.48) ^{***}
≥3	1.43(1.32-1.55) ^{***}
Model 6 ^f	
<2	1.00
[2,3)	1.29(1.17-1.42) ^{***}
≥3	1.30(1.20-1.42) ^{***}

^a Model 1 was binary logistic regression model unadjusted (with screen time on mobile devices categories change to 3-level: <2h/d, [2,3), ≥3h/d);

^b Model 2 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs intake (with screen time on mobile devices categories change);

^c Model 3 was binary logistic regression model unadjusted (with dental caries calculation change: exclude missing and filled teeth);

^d Model 4 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs intake (with dental caries calculation change: exclude missing and filled teeth);

^e Model 5 was binary logistic regression model unadjusted for covariates (with both screen time on mobile devices categories and dental caries calculation change);

^f Model 6 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs intake (with both screen time on mobile devices categories and dental caries calculation change);

*p<0.05, **p<0.01, ***p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S4. Extended regression model to address any potential concerns about endogeneity (with mobile devices categories change to 3-level)

Variable	Model 1 ^a		Model 2 ^b	
	Dental Caries	screen time on mobile devices(hour/day)	Dental Caries	screen time on mobile devices(hour/day)
	β(95%CI)	β(95%CI)	β(95%CI)	β(95%CI)
Screen time on mobile devices(hours/day)				
<2	0		0	
[2,3)	1.05(0.76-1.33) ^{***}		1.00(0.67-1.33) ^{***}	
≥3	1.52(1.12-1.92) ^{***}		1.45(0.99-1.92) ^{***}	
The number of co-occupants		0.03(0.01-0.04) ^{***}		0.03(0.01-0.04) ^{***}
corr(e.screen time on mobile devices, e.caries)		-0.70 ^{***}		-0.67 ^{***}

^a Model 1 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^b Model 2 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs;

* p<0.05, ** p<0.01, *** p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S5. Extended regression model to address any potential concerns about endogeneity (with dental caries calculation change: exclude missing and filled teeth)

Variable	Model 1 ^a		Model 2 ^b	
	Dental Caries	Screen time on mobile devices(hour/day)	Dental Caries	Screen time on mobile devices(hour/day)
	β(95%CI)	β(95%CI)	β(95%CI)	β(95%CI)
Screen time on mobile devices(hours/day)				
<2	0		0	
≥2	1.36(0.93-1.79) ^{***}		1.29(0.80-1.78) ^{***}	
The number of co-occupants		0.03(0.01-0.04) ^{***}		0.03(0.02-0.04) ^{***}
corr(e.screen time on mobile devices, e.dental caries)		-0.70 ^{***}		-0.66 ^{***}

^a Model 1 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^b Model 2 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs;

*p<0.05, ** p<0.01, *** p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S6. Extended regression model to address any potential concerns about endogeneity (with both screen time on mobile devices categories and dental caries calculation change)

Variable	Model 1 ^a		Model 2 ^b	
	Dental Caries	Screen time on mobile devices(hour/day)	Dental Caries	Screen time on mobile devices(hour/day)
	β (95%CI)	β (95%CI)	β (95%CI)	β (95%CI)
Screen time on mobile devices(hours/day)				
<2	0		0	
[2,3)	1.09(0.77-1.41) ^{***}		1.05(0.70-1.40) ^{***}	
≥ 3	1.53(1.09-1.97) ^{***}		1.47(0.99-1.95) ^{***}	
The number of co-occupants		0.03(0.02-0.04) ^{***}		0.03(0.02-0.04) ^{***}
corr(e.screen time on mobile devices, e.dental caries)		-0.68 ^{***}		-0.66 ^{***}

^a Model 1 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^b Model 2 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention and SSBs;

*p<0.05, **p<0.01, ***p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S7. Associations between screen time on mobile devices and SSBs intake

Variable	SSBs intake
	OR(95%CI)
Screen time on mobile devices (hours/day)	
Model 1 ^a	
<2	1.00
≥2	2.14(1.95-2.34) ^{***}
Model 2 ^b	
<2	1.00
≥2	1.93(1.75-2.12) ^{***}
Model 3 ^c	
<2	1.00
[2,3)	1.61(1.40-1.86) ^{***}
≥3	2.52(2.27-2.80) ^{***}
Model 4 ^d	
<2	1.00
[2,3)	1.54(1.33-1.78) ^{***}
≥3	2.21(1.97-2.47) ^{***}

^a Model 1 was binary logistic regression model was unadjusted for covariates (with screen time on mobile devices in 2-level);

^b Model 2 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention (with screen time on mobile devices in 2-level);

^c Model 3 was binary logistic regression model was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention (with screen time on mobile devices in 3-level);

^d Model 4 was binary logistic regression model adjusted for covariates including was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention (with screen time on mobile devices in 3-level);

*p<0.05, **p<0.01, ***p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S8. The association of the number of co-occupants with SSBs intake and pearson residual

Variable	SSBs intake	Pearson residual
	$\beta(95\%CI)$	$\beta(95\%CI)$
The number of co-occupants		
Model 1 ^a	0.03(-0.01-0.06)	0.01(-0.00-0.02)
Model 2 ^b	0.03(-0.01-0.06)	0.01(-0.00-0.02)

^a Model 1 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^b Model 2 was binary logistic regression model adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity, parental intervention (with screen time on mobile devices categories change to 3-level: <2h/d, [2,3), ≥ 3 h/d);

*p<0.05, **p<0.01, ***p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S9. Associations between screen time on mobile devices and dental caries

Variable	Dental caries
	β (95%CI)
Screen time on mobile devices (hours/day)	
Model 1 ^a	
<2	0.00
[2,3)	0.63(-0.09-1.33)
Model 2 ^b	
<2	0.00
[2,3)	0.45(-0.19-1.09)
≥ 3	0.65(0.02-1.27)*

^a Model 1 was extended regression model treated by instrumental variables and adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention (with mobile devices categories change to 2-level: <2h/d, ≥ 2 h/d);

^b Model 2 was extended regression model treated by instrumental variables and adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention (with mobile devices categories in 3-level: <2h/d, [2,3), ≥ 3 h/d);

*p<0.05, **p<0.01, ***p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S10. Joint analysis of dental caries in relation to different combinations of screen time on mobile devices and sugar-sweetened

Screen time on mobile devices (hours/day)	Sugar-sweetened beverages consumption	OR (95% CI) ^a	RERI (95% CI) ^b	AP (95% CI) ^c	Multiplicative scale	P-value ^e
<2	Not everyday	Reference				
≥2	Not everyday	1.10 (0.93, 1.29)				0.1807
<2	Everyday	1.05 (0.85, 1.31)				
≥2	Everyday	1.31 (1.07, 1.59)	0.15 (0.00, 0.31)	0.12 (-0.02, 0.25)	1.13(0.94,1.35)	

beverages consumption.

^a Model was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention

^b RERI: relative excess risk due to interaction (additive)

^c AP: Attributable Proportion due to Interaction

^d Likelihood tests was applied to test the significance of interaction term by comparing the model with and without the interaction term

^e P-value for interaction

Table S11. Mediating proportion of sugar-sweetened beverages intake on the association between mobile device screen time and dental caries (with screen time on mobile devices in 3-level)

Variables	Model 1 ^a		Model 2 ^b		Model 2 ^b	
	Dental caries	Mediating effect ^c	Dental caries	Mediating effect ^c	Dental caries	Mediating effect ^c
	Marginal effect(95%CI)	(% of association explained by sugar-sweetened beverages)	Marginal effect(95%CI)	(% of association explained by sugar-sweetened beverages)	Marginal effect(95%CI)	(% of association explained by sugar-sweetened beverages)
Mobile device screen time (hours/day) ^d						
<2	0.370(0.364-0.377)***	<2:≤0	0.374(0.367-0.380)***	<2:≤0	0.374(0.354-0.393)***	<2:≤0
[2,3)	0.420(0.399-0.442)***	[2,3):0.5	0.414(0.393-0.435)***	[2,3):0.5	0.413(0.270-0.555)***	[2,3):0.2
≥3	0.441(0.423-0.459)***	≥3:0.9	0.424(0.406-0.442)***	≥3:1.2	0.422(0.220-0.624)***	≥3:0.9
SSBs intake						
Not everyday	0.378(0.372-0.384)***		0.378(0.372-0.384)***		0.377(0.353-0.402)***	
Everyday	0.432(0.412-0.452)***		0.432(0.412-0.452)***		0.437(0.414-0.461)***	

^a Model 1 was unadjusted for covariates;^b Model 2 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;^c Model 3 was extended regression model treated by instrumental variables and adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;^d The proportion of association explained by sweets was computed using marginal effects;

*p<0.05, **p<0.01, ***p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S12. Mediating proportion of sugar-sweetened beverages intake on the association between mobile device screen time and dental caries (with dental caries calculation change: exclude missing and filled teeth)

Variables	Model 1 ^a		Model 2 ^b		Model 2 ^b	
	Dental caries	Mediating effect ^c	Dental caries	Mediating effect ^c	Dental caries	Mediating effect ^c
	Marginal effect(95%CI)	(% of association explained by sugar-sweetened beverages)	Marginal effect(95%CI)	(% of association explained by sugar-sweetened beverages)	Marginal effect(95%CI)	(% of association explained by sugar-sweetened beverages)
Mobile device screen time (hours/day) ^d						
<2	0.310(0.303-0.316)***		0.313(0.307-0.320)***		0.313(0.296-0.330)***	
≥2	0.380(0.367-0.394)***	<2:≤0 ≥2:1.0	0.366(0.352-0.379)***	<2:≤0 ≥2:0.8	0.364(0.161-0.566)***	<2:≤0 ≥2:0.8
SSBs intake						
Not everyday	0.319(0.312-0.325)***		0.318(0.312-0.324)***		0.318(0.287-0.350)***	
Everyday	0.375(0.356-0.395)***		0.381(0.361-0.400)***		0.379(0.351-0.408)***	

^a Model 1 was unadjusted for covariates;

^b Model 2 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^c Model 3 was extended regression model treated by instrumental variables and adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^d The proportion of association explained by sweets was computed using marginal effects;

*p<0.05, **p<0.01, ***p<0.001

Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Table S13. Mediating proportion of sugar-sweetened beverages intake on the association between mobile device screen time and dental caries (with both screen time on mobile devices categories and dental caries calculation change)

Variables	Model 1 ^a		Model 2 ^b		Model 2 ^b	
	Dental caries Marginal effect(95%CI)	Mediating effect ^c (% of association explained by sugar- sweetened beverages)	Dental caries Marginal effect(95%CI)	Mediating effect ^c (% of association explained by sugar- sweetened beverages)	Dental caries Marginal effect(95%CI)	Mediating effect ^c (% of association explained by sugar-sweetened beverages)
Mobile device screen time (hours/day) ^d						
<2	0.310(0.303-0.316) ^{***}		0.313(0.307-0.320) ^{***}		0.313(0.298-0.328) ^{***}	
[2,3)	0.374(0.353-0.395) ^{***}	<2:0.0	0.366(0.346-0.386) ^{***}	<2:0.0	0.364(0.214-0.513) ^{***}	<2:0.0
≥3	0.384(0.367-0.402) ^{***}	[2,3):0.5	0.366(0.348-0.383) ^{***}	[2,3):0.5	0.363(0.158-0.569) ^{***}	[2,3):0.2
		≥3:1.3		≥3:1.1		≥3:1.4
SSBs intake						
Not everyday	0.319(0.313-0.325) ^{***}		0.318(0.312-0.324) ^{***}		0.318(0.289-0.347) ^{***}	
Everyday	0.375(0.355-0.394) ^{***}		0.381(0.361-0.400) ^{***}		0.379(0.352-0.407) ^{***}	

^a Model 1 was unadjusted for covariates;

^b Model 2 was adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

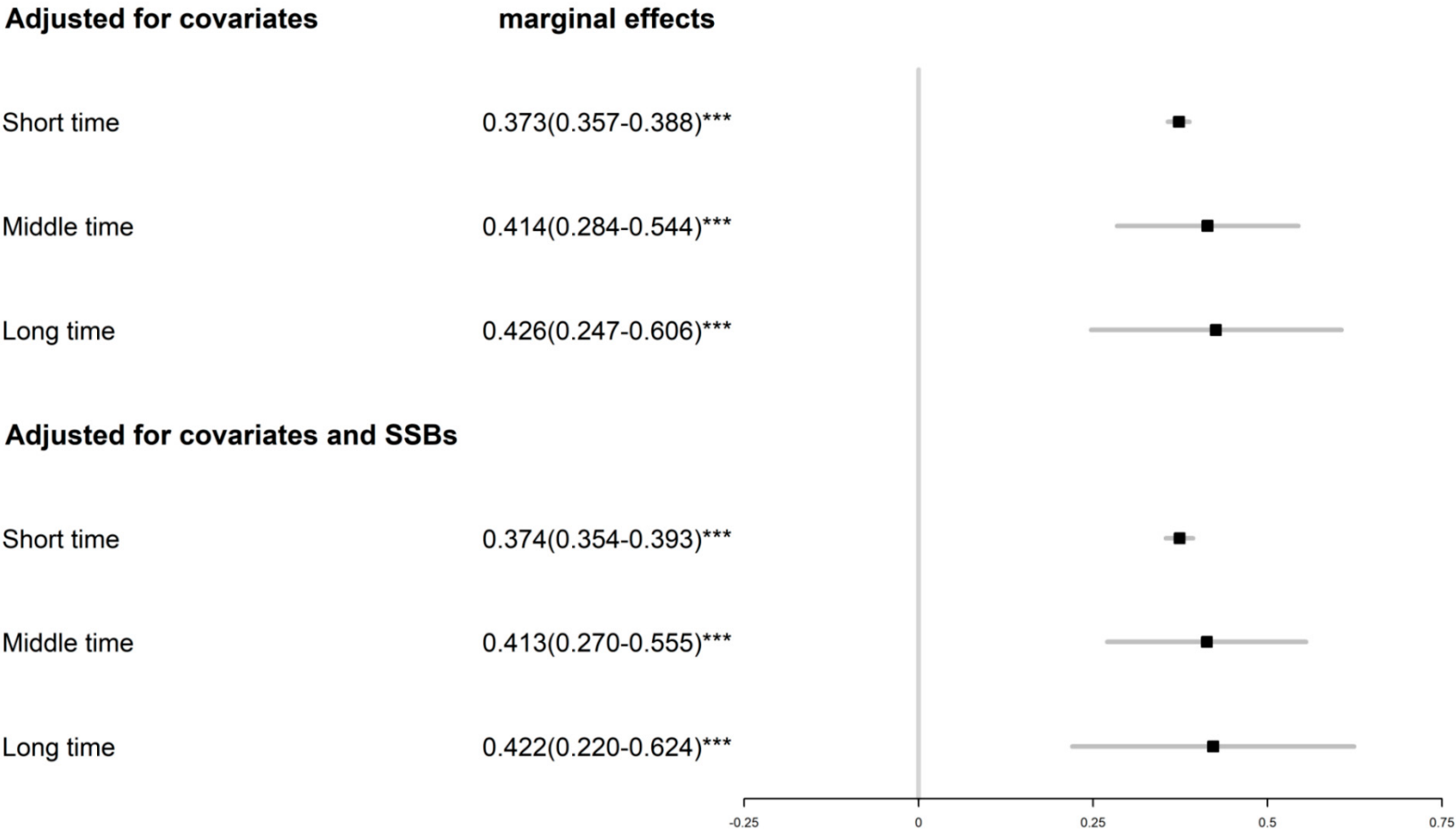
^c Model 3 was extended regression model treated by instrumental variables and adjusted for covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^d The proportion of association explained by sweets was computed using marginal effects;

*p<0.05, **p<0.01, ***p<0.001

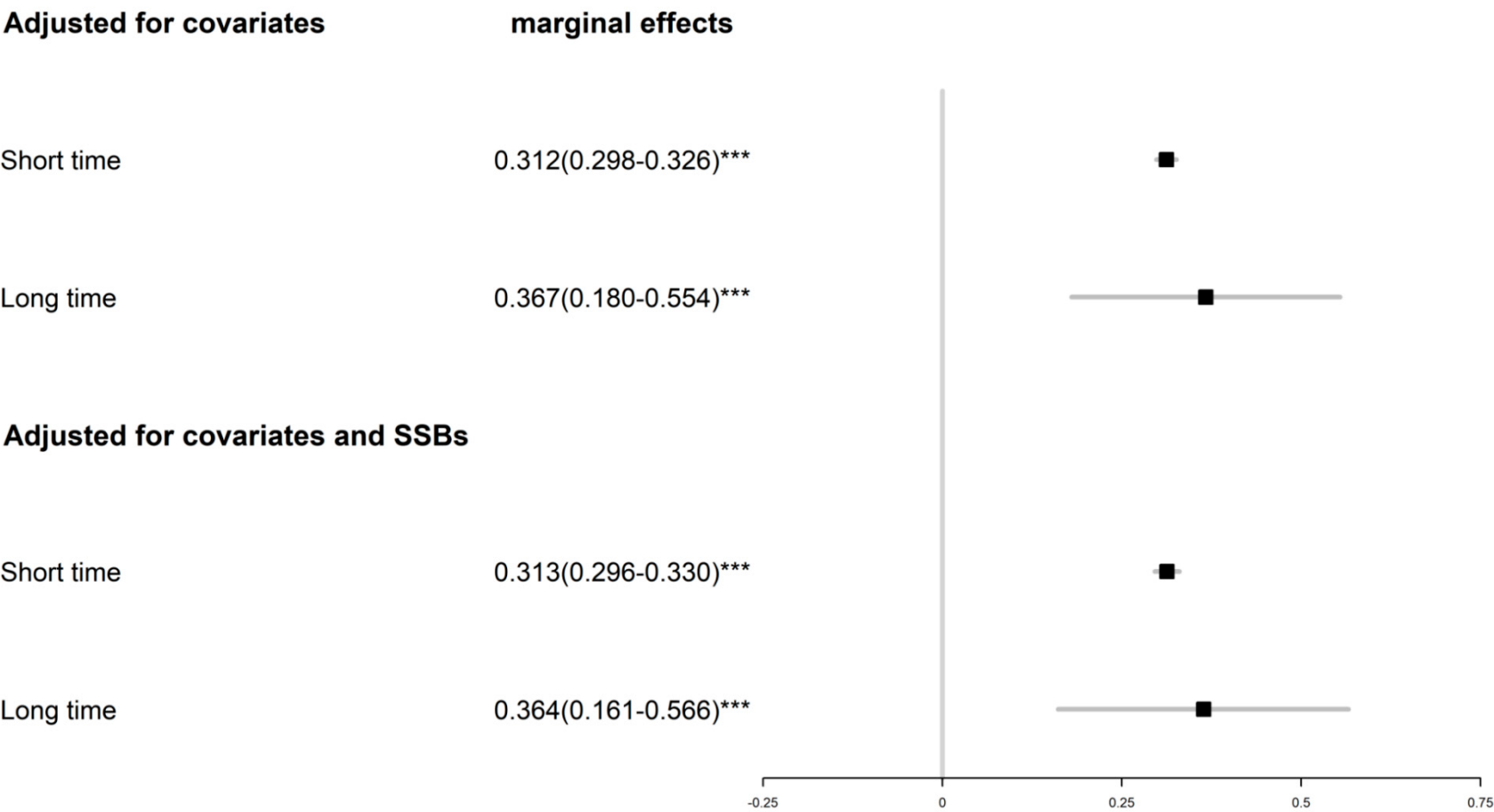
Abbreviations: CI, confidence interval; SSBs, sugar-sweetened beverages

Figure S1. Marginal effects of screen time on mobile devices in extended regression model (with screen time on mobile devices in 3-level)



^a Covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;
^b short time is screen time on mobile devices <2h/d, middle time is screen time on mobile devices <3h/d but ≥2h/d, long time is screen time on mobile devices ≥3h/d.
*p<0.05, **p<0.01, ***p<0.001

Figure S2. Marginal effects of screen time on mobile devices in extended regression model (with dental caries calculation change: exclude missing and filled teeth)

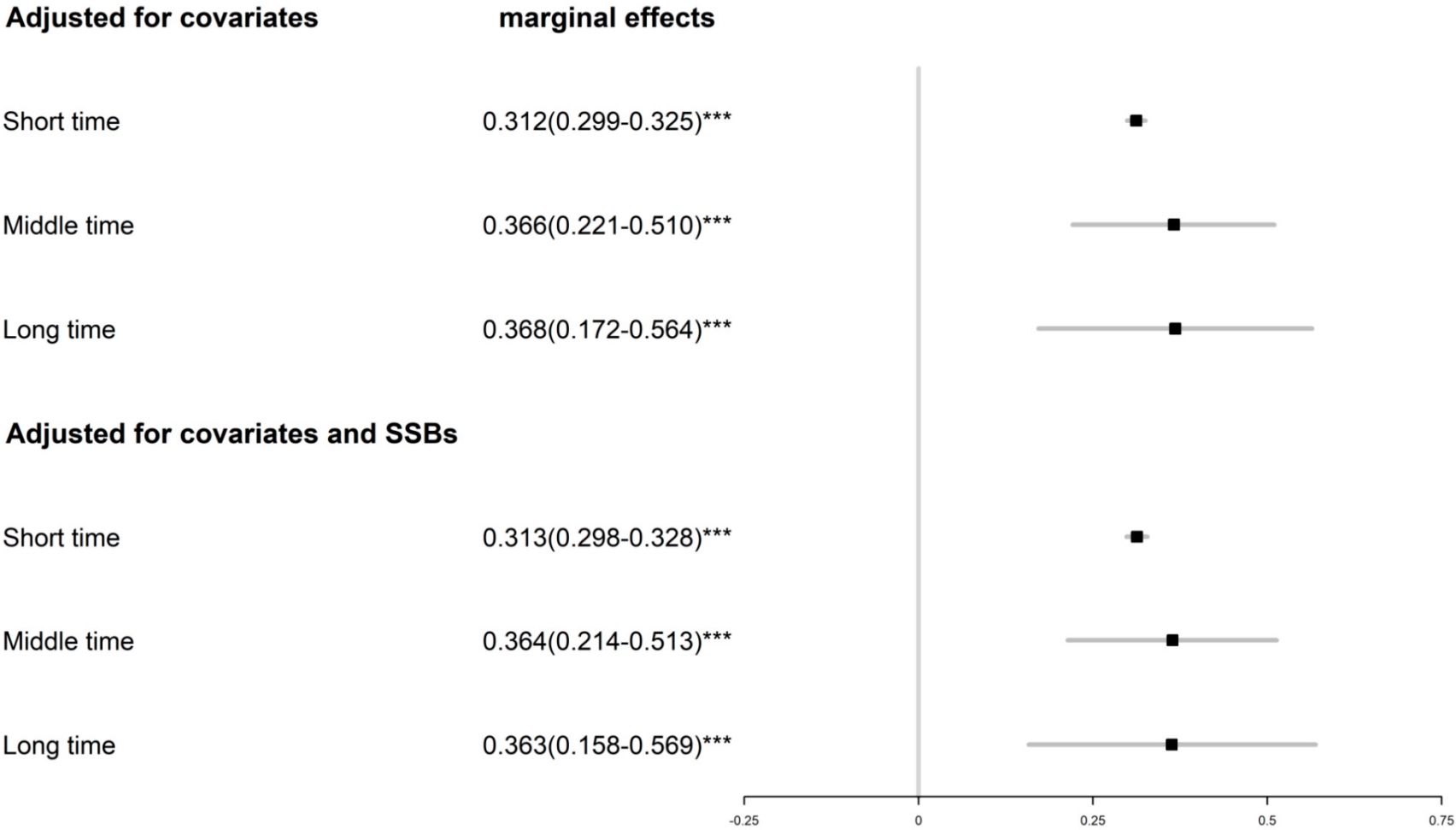


^a Covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;

^b short time is screen time on mobile devices <2h/d, long time is screen time on mobile devices ≥2h/d.

*p<0.05, **p<0.01, ***p<0.001

Figure S3. Marginal effects of screen time on mobile devices in extended regression model (with both screen time on mobile devices categories and dental caries calculation change)



^a Covariates including age, gender, geographic region, maternal educational level, tooth brushing habit, obesity and parental intervention;
^b short time is screen time on mobile devices <2h/d, middle time is screen time on mobile devices <3h/d but ≥2h/d, long time is screen time on mobile devices ≥3h/d.
*p<0.05, **p<0.01, ***p<0.001

Supplementary Material. Detailed questionnaire items for variables (screen time on mobile device and sugar-sweetened beverages consumption)

screen time on mobile device

What is the average daily duration of your mobile electronic device usage (including smartphones, handheld game consoles, tablets, etc.) over the past week?

1. I have not watched (or played) any.

2. I have used them, with an average duration of ___ hours and ___ minutes per day (Please fill in the blanks with the specific numbers for hours and minutes).

Sugar-sweetened beverages consumption

Over the past week, have you consumed sugar-sweetened beverages every day? (Such as fruit juice, formulated milk, etc.)

Yes

No

STROBE Statement. Checklist of items that should be included in reports of cross-sectional studies

	Item No	Recommendation	Page
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	1
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1-2
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	2-3
Objectives	3	State specific objectives, including any prespecified hypotheses	3
Methods			
Study design	4	Present key elements of study design early in the paper	3
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	3
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants	3
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	3-4
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	3-4
Bias	9	Describe any efforts to address potential sources of bias	3-4
Study size	10	Explain how the study size was arrived at	3
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	3
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	4-5
		(b) Describe any methods used to examine subgroups and interactions	4-5
		(c) Explain how missing data were addressed	3
		(d) If applicable, describe analytical methods taking account of sampling strategy	4-5
		(e) Describe any sensitivity analyses	5
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	6
		(b) Give reasons for non-participation at each stage	NA
		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	6
		(b) Indicate number of participants with missing data for each variable of interest	6
Outcome data	15*	Report numbers of outcome events or summary measures	6
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	8-10

		(b) Report category boundaries when continuous variables were categorized	6-12
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	6-12
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	12
Discussion			
Key results	18	Summarise key results with reference to study objectives	14
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	15-16
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	14-16
Generalisability	21	Discuss the generalisability (external validity) of the study results	15-16
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	16

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at www.strobe-statement.org.