

The effect of social media use on adolescents' subjective well-being: Longitudinal evidence from Switzerland

Sebastian Mader^{1,2},
Damiano Costantini¹,
Annette Fahr¹ &
Marina Delgrande Jordan³

¹ FOPH, Bern, Switzerland

² University of Bern, Bern, Switzerland

³ Addiction Switzerland, Lausanne, Switzerland

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Overview

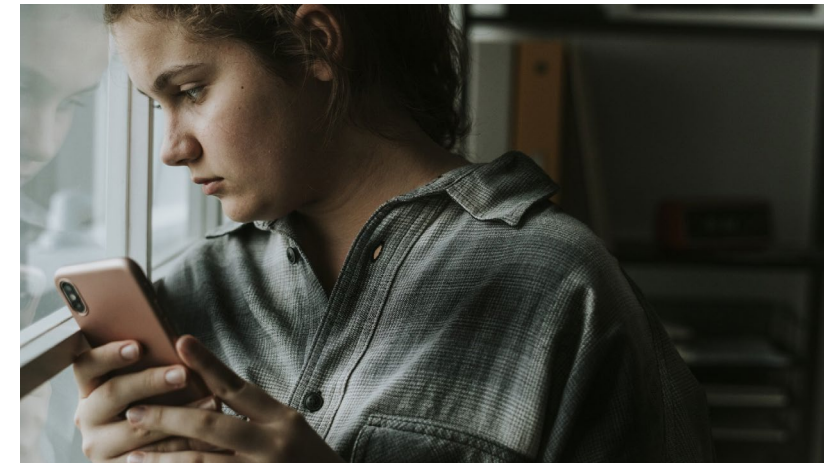
- 1. Background and relevance**
- 2. Data and methods**
- 3. Results**
- 4. Discussion and conclusion**





1. Background and relevance

- A **lively discussion** on the **causes of the recent decline** in the **mental health** and **subjective well-being (SWB)** of adolescents **has emerged** in many countries like Switzerland.
- **Tackling mental ill-health and fostering SWB at young age is of particular interest for public health and social welfare.**
- **Childhood and adolescence** represent a **“unique window [of] opportunity for intervention”** (Marquez et al. 2024: 65) to enhance well-being, health and welfare.
- Thus, it is **important to identify the most important contributing factors of adolescents’ well-being.**





1. Background and relevance

- **Many factors are important for adolescents' SWB, e.g.:**

Material deprivation



Social relationships



Bullying



Overparenting



Performance-related stressors



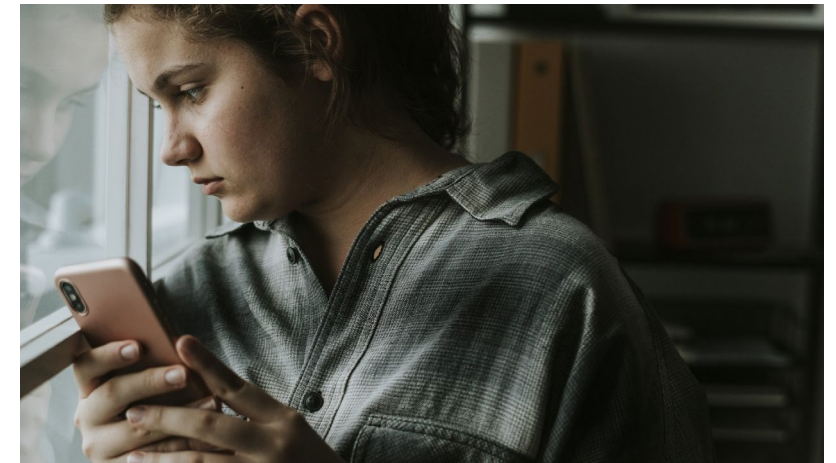
- health,
- genetic factors,
- physical activity,
- neighborhood characteristics,
- safety,
- children's rights,
- spending on families and education

(e.g., Azzopardi et al. 2019, Bradshaw 2015, Casas et al. 2018, Marquez et al. 2024, OECD 2021, Seki et al. 2023, Vigdal & Bronnick 2022)



1. Background and relevance

- **Social media have shaped communication and social interactions substantially.**
- **Social media use (SMU) and mental ill-health in adolescents coincide**, which has been **echoed by political calls to regulate social media** (e.g., Orben & Blakemore 2023; Haidt 2024).
- In recent years, a **considerable body of literature** has emerged addressing the analysis of the **link between social media use and adolescents' well-being**.
- However, the (cross-sectional, longitudinal, and experimental) **evidence is inconclusive and ambiguous** with effects depending on social context and methodological aspects (e.g., Fumagalli et al. 2024, Kross et al. 2021, Valkenburg et al. 2022).





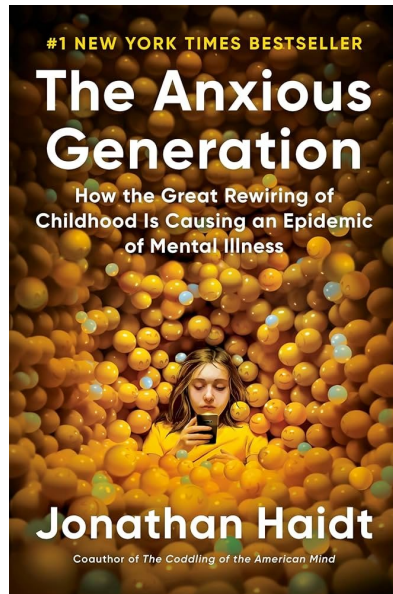
1. Background and relevance

The current academic discussion on the effects of SMU on adolescents' SWB can be described as highly publicized, polarized and ideologically loaded.

Alarmists

like

Jonathan Haidt



The great rewiring...

VS.

Skeptics

like

Candice Odgers



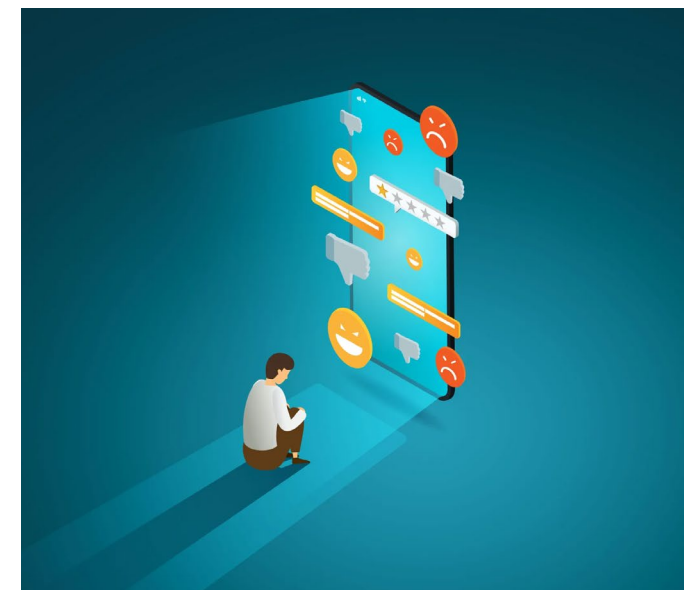
...unplugged.





1. Background and relevance

- Theoretical considerations:
 - SMU can have both negative and positive effects on SWB due to:
 - Comparison and self-esteem
 - Fear of Missing Out (FOMO)
 - Cyberbullying
 - Dependency
 - Body image
 - Sleep disruption
 - Isolation
 - Negative news exposure
 - + Connection and support
 - + Self-expression
 - + Access to information
 - + Awareness increase/ Stigma reduction
 - + Inspiration and motivation
 - Sensitive life phases within adolescence are:
 - Puberty
 - Transition from education to employment
 - Vulnerable groups are:
 - Girls and young women
 - Adolescents with a low-SES background





1. Background and relevance

- The analysis of **UK panel/cohort data** from 2011 to 2018 by **Orben et al. (2022)** demonstrates that the effect of social media use frequency on life satisfaction is moderated by age and sex, giving rise to **‘developmental windows of sensitivity to social media’**:
 - **puberty** and the
 - **transition from education to employment.**
- The initial findings of Orben et al. (2022) call for replication (Orben & Blakmore 2023) and extension (moderation by SES).

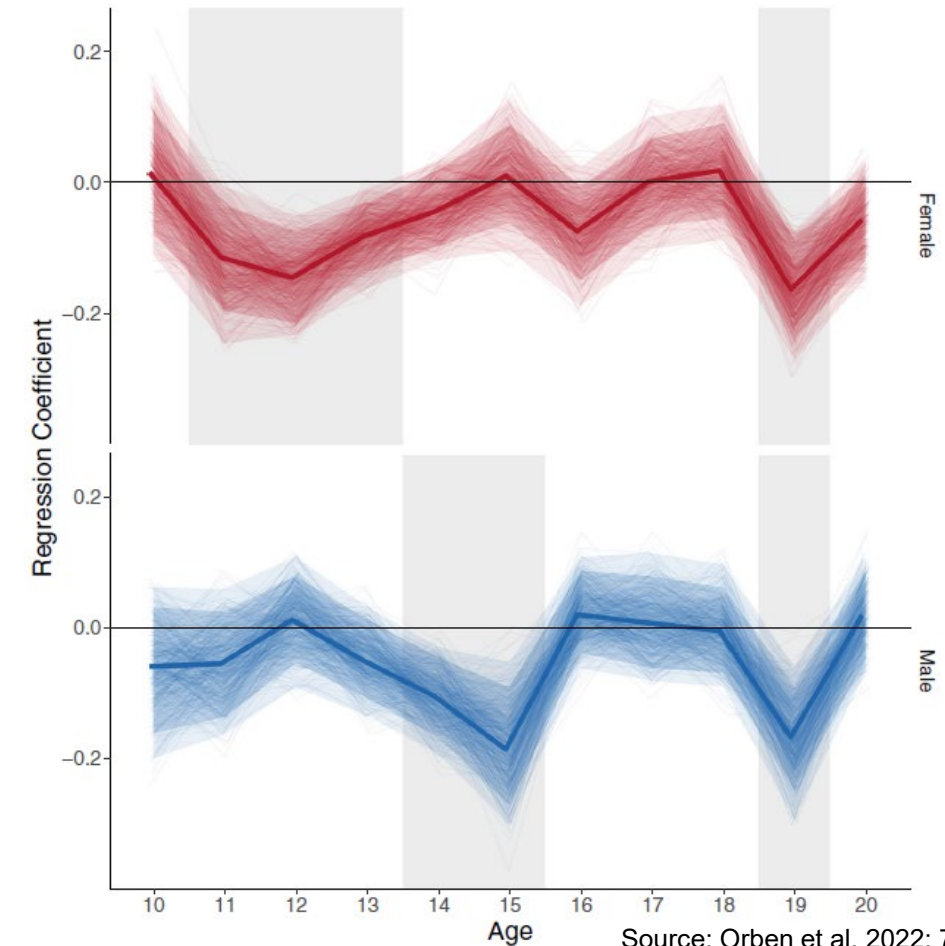


Fig. 4 How social media use predicts life satisfaction in longitudinal data (ages 10-21). Results from the cross-lagged path connecting estimated social media use to life satisfaction ratings one year later, estimated through a Random Intercept Cross-Lagged Panel Model of 17,409 participants (52,556 measurement occasions) aged 10-21. Results show how much an individual's deviation from their expected social media use at a certain age predicted a deviation from their expected life satisfaction ratings one year later (unstandardized estimates). Graph is split by sex (female = top/red, male = bottom/blue) and the grey boxes indicate those ages where the path became statistically significant ($p < 0.05$, two-sided test). The thin lines represent the coefficients extracted from 500 bootstrapped versions of the model to visualize uncertainty, dark shaded ribbons represent bootstrapped 95% CIs, light shaded ribbons represent bootstrapped 99% CIs. The other cross-lagged path linking life satisfaction ratings to estimated social media use was constrained not to vary across age/sex and is not shown here. All tests are two-sided. Source data for this figure are provided as a Source Data file.



2. Data and methods

study	country	study design	years	national representativity	survey mode	age	N	n
HBSC	CH	trend design (repeated cross-sections)	2002, 2006, 2010, 2014, 2018, 2022	yes	PAPI	11-15 years	59'662	9'944 (mean)
TREE	CH	cohort/panel data design	2016-2019, 2021, 2022	yes	CATI, CASI, PAPI	15-22 years	19'809	4'232

Note: HBSC = Health Behaviour in School-aged Children (HBSC) Switzerland (Addiction Switzerland, 2024). TREE = Transitions from Education to Employment (TREE, 2023a, b). N = number of observations. n = number of individuals. PAPI = Paper-and-Pencil Interviewing. CATI = Computer-assisted Telephone Interviewing. CASI = Computer-assisted Self-interviewing. FE = Fixed effects. FEIS = FE with individual slopes.

study	outcome	treatment	analytical strategy
	Subjective well-being (SWB)	Social media use (SMU)	
HBSC	Cantril Ladder of life satisfaction (11-point scale; Cantril 1965)	Social Media Disorder Scale (9-item scale of problematic SMU (PSMU); Van den Eijnden et al. 2016; dummy, 1 if ≥ 6 items 'yes')	Description of development, multiple OLS-regression
TREE	General life satisfaction (11-point scale)	SMU frequency ($>2\text{h/d}$)	FE, FEIS panel regression



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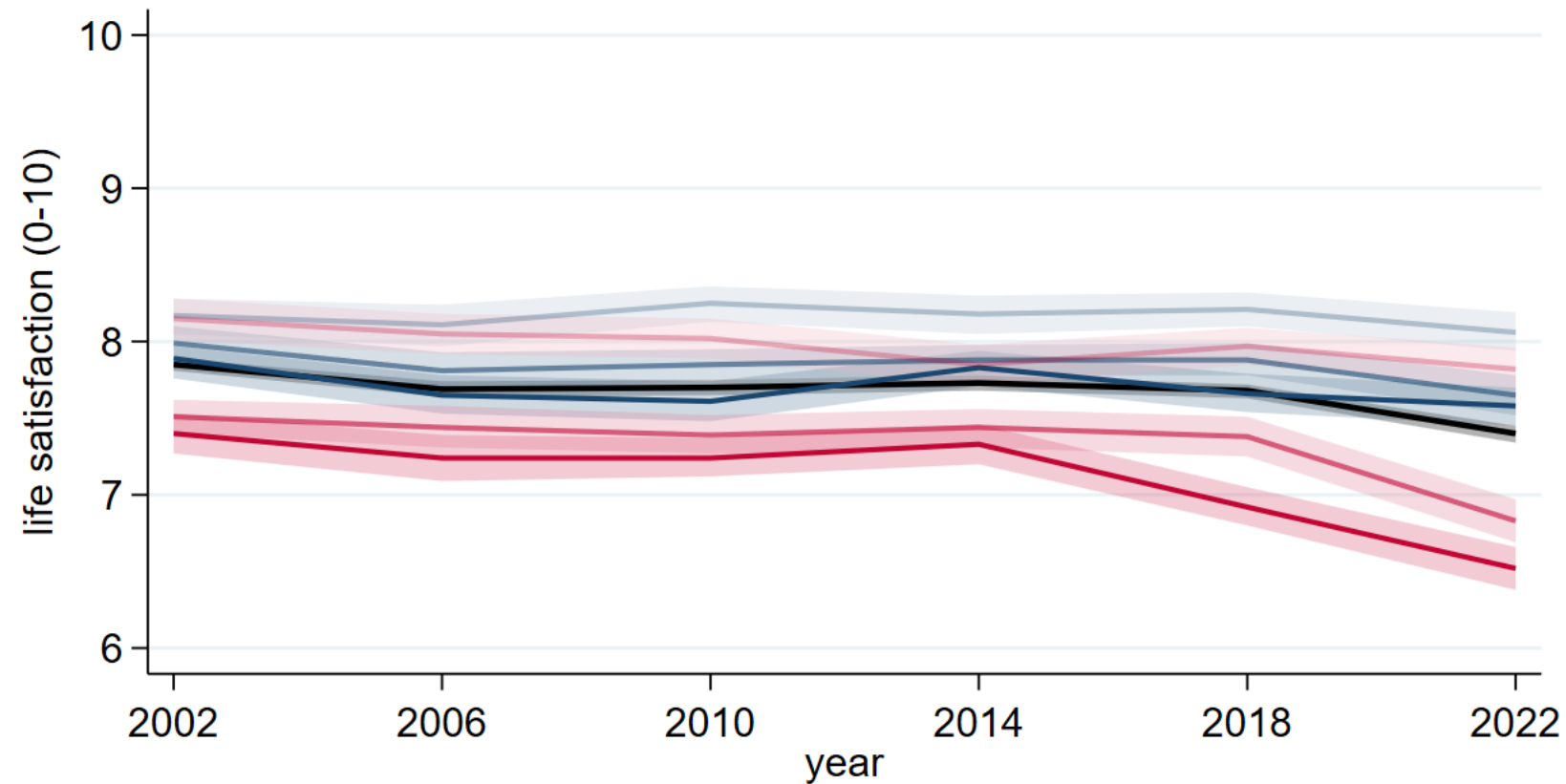
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hbsc
HEALTH BEHAVIOUR IN
SCHOOL-AGED CHILDREN
SCHWEIZ / SUISSE / SVIZZERA /
SVIZRA / SWITZERLAND



3. Results: HBSC: Description:

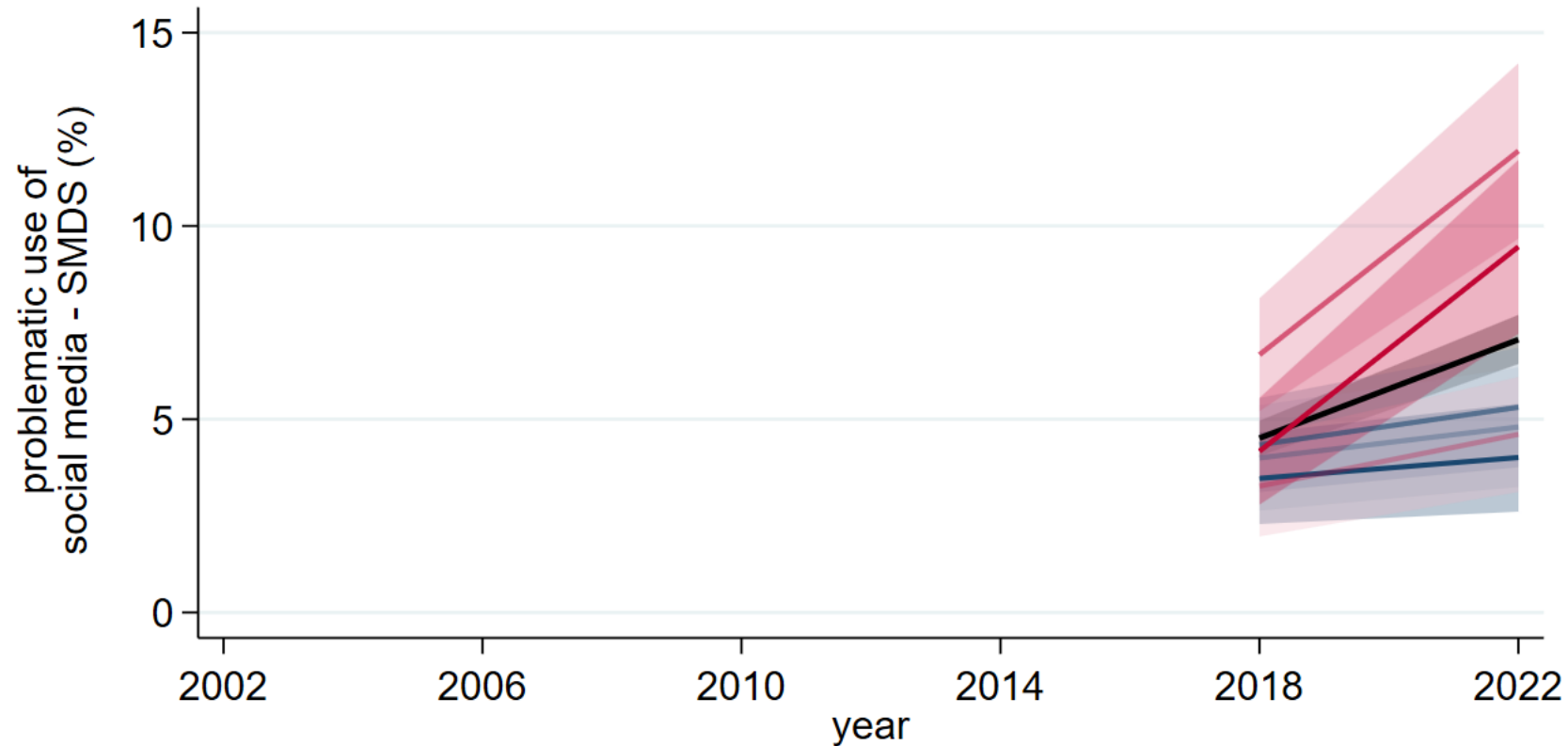


Note: Means and 95% confidence intervals (areas) are adjusted for the clustered sample design and weighted for non-response. Data source: Health Behaviour in School-aged Children (HBSC) Switzerland. N(life satisfaction)=58'256. N(SMDS)=18'017.

- overall mean
- males: 11 years
- males: 13 years
- males: 15 years
- females: 11 years
- females: 13 years
- females: 15 years



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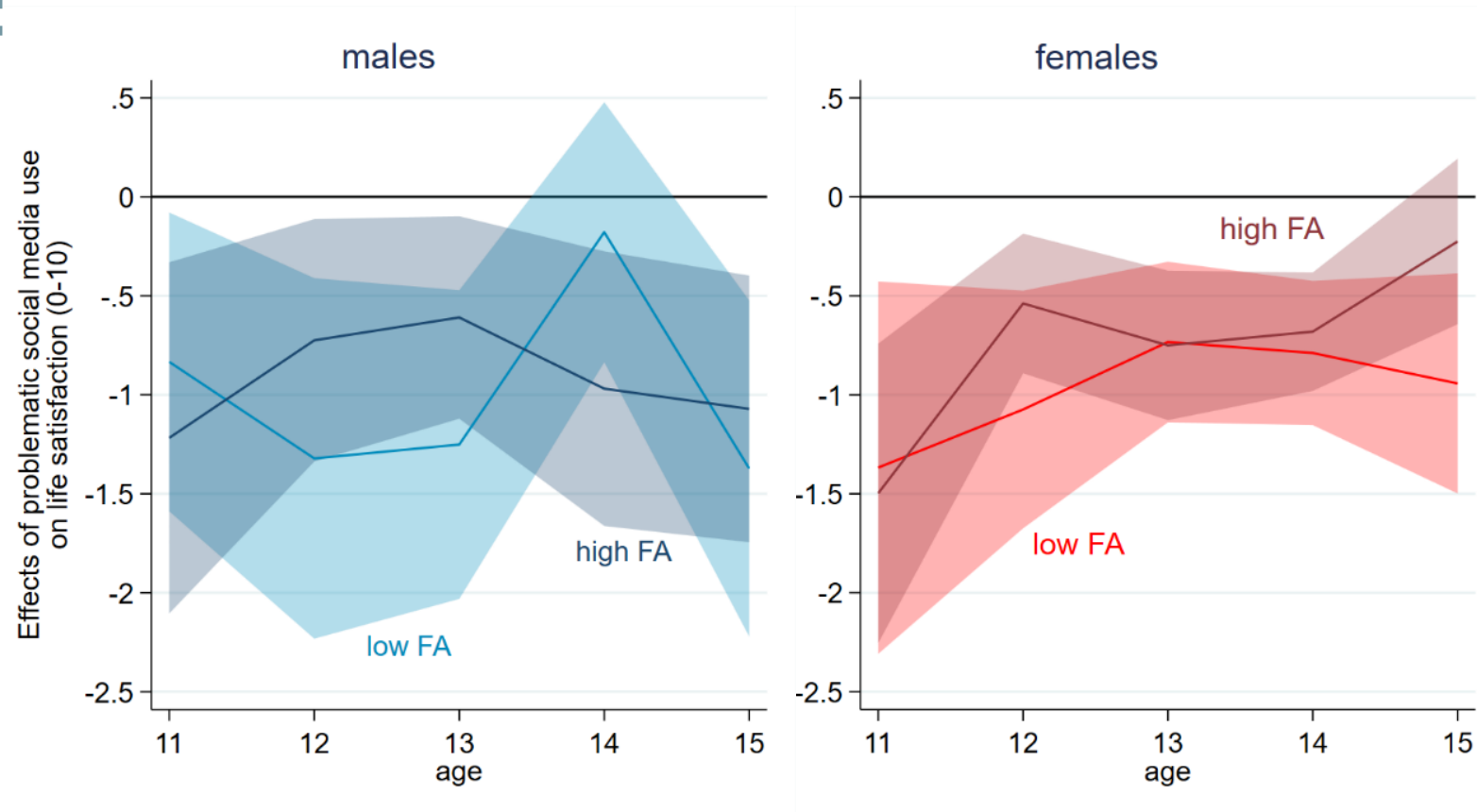
- overall mean
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- females: 15 years



3. Results:

HBSC: Trend analysis: OLS regressions by family affluence (FA):

Note: Unstandardized average marginal effects (lines) from multiple OLS regressions including 95 % confidence intervals (areas) based on standard errors clustered by school class. N=16'475. N = number of observations. The models control for gender, age, family affluence, social support of family and friends, and survey year. The models cannot control for other media use (television, gaming, information), since the instruments differ substantially between 2018 and 2022. Data source: Health Behaviour in School-aged Children (HBSC) Switzerland 2018, and 2022.

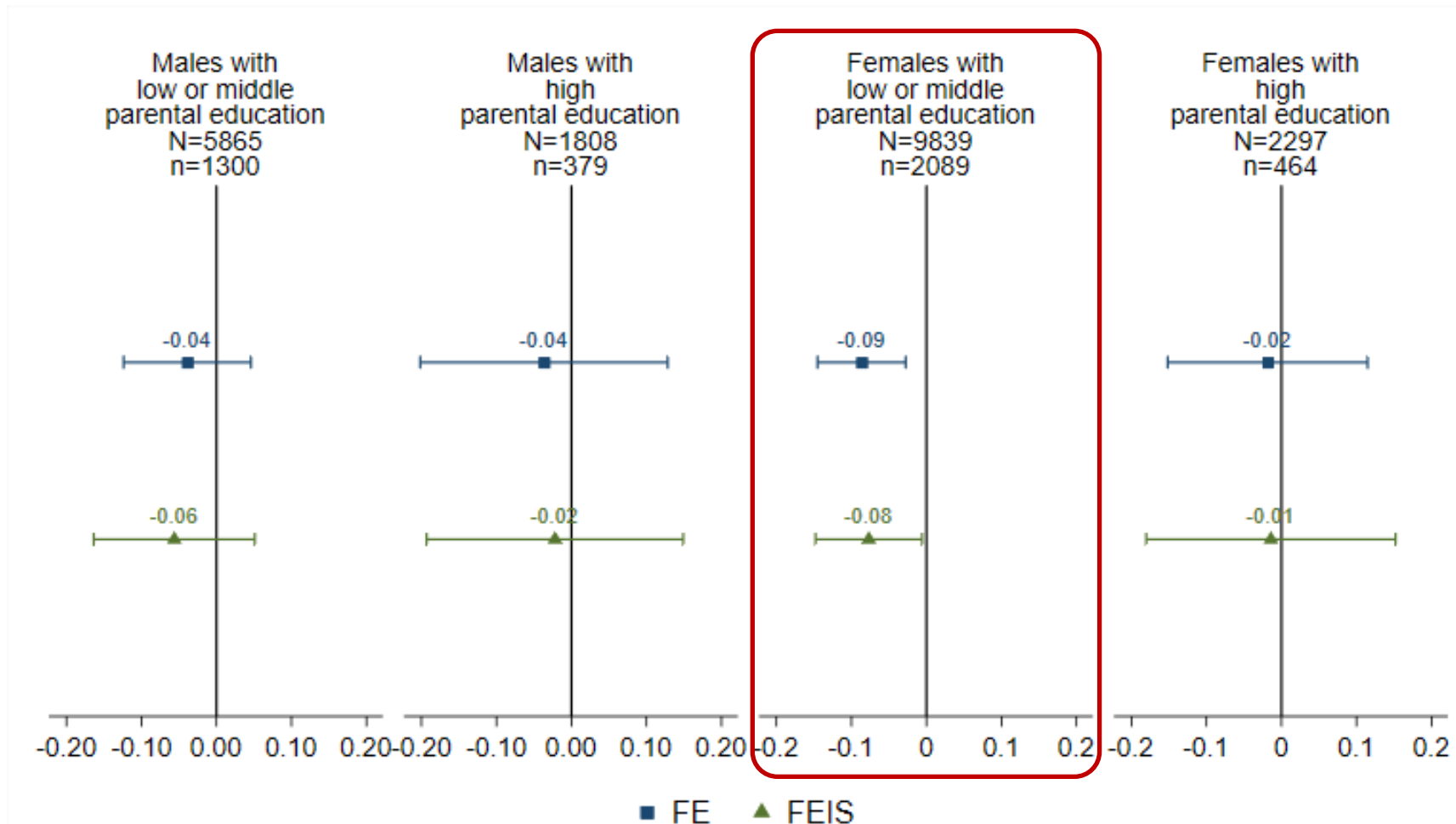




3. Results: TREE: Causal inference:

Note: Unstandardized coefficients of Fixed Effects (FE) and Fixed Effects with Individual Slopes (FEIS) Panel Regressions including 95 % confidence intervals based on individually clustered standard errors. The FE models control for other media use (television, gaming, information), residence in an agglomeration with more than 100k inhabitants, dummies for each age (15-22), dummies for the survey years (2016-2019, 2021, 2022), and dummies for the month of the interview. The models only include cases with three or more observations. Low or middle parental education stands for maximum primary or secondary education of the parents (averaged), high parental education denotes tertiary education of the parents (averaged). Data source: Transitions from

13 Education to Employment (TREE, cohort 2).





3. Results:

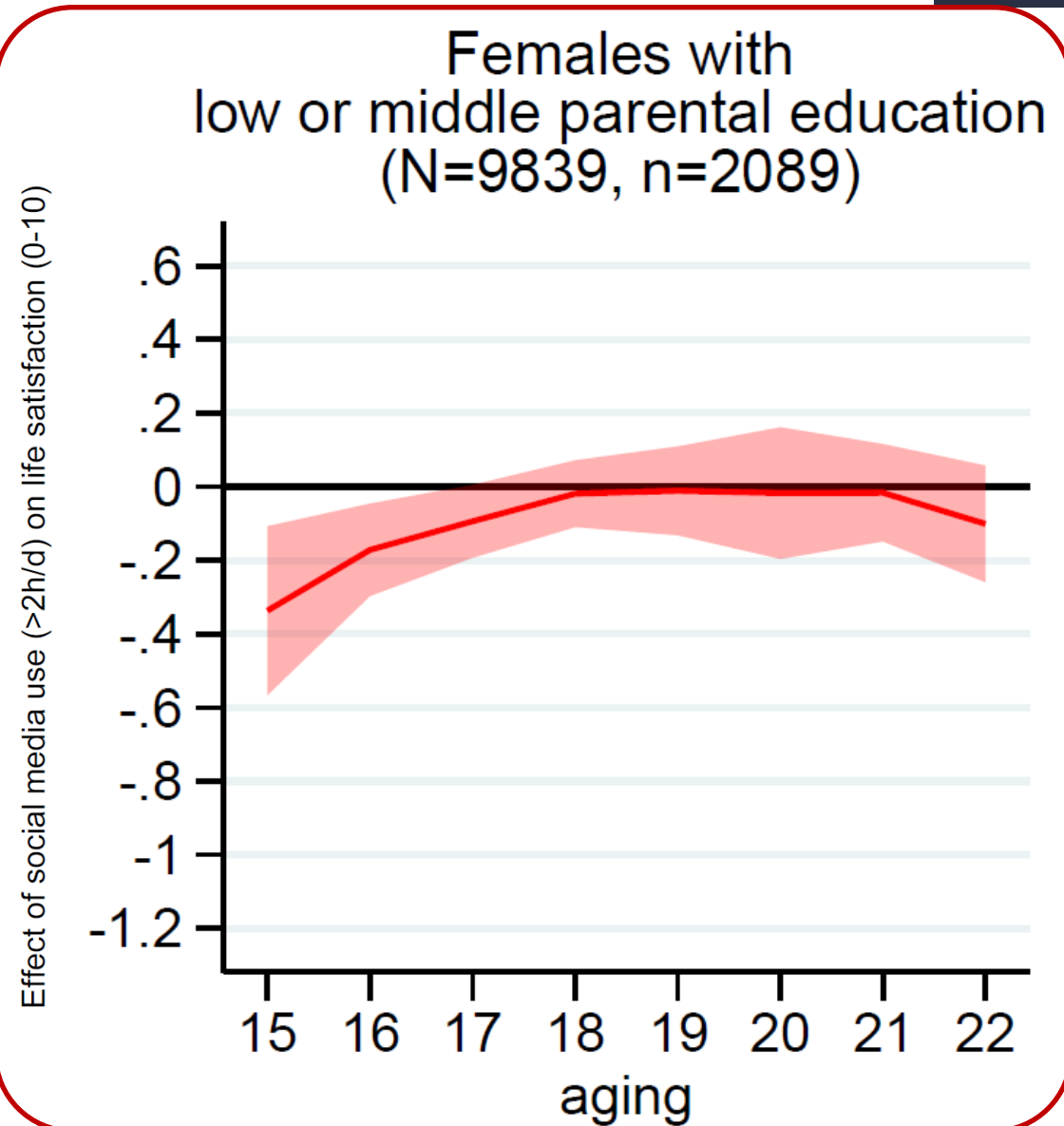
TREE:

Causal

inference:

Moderation by age:

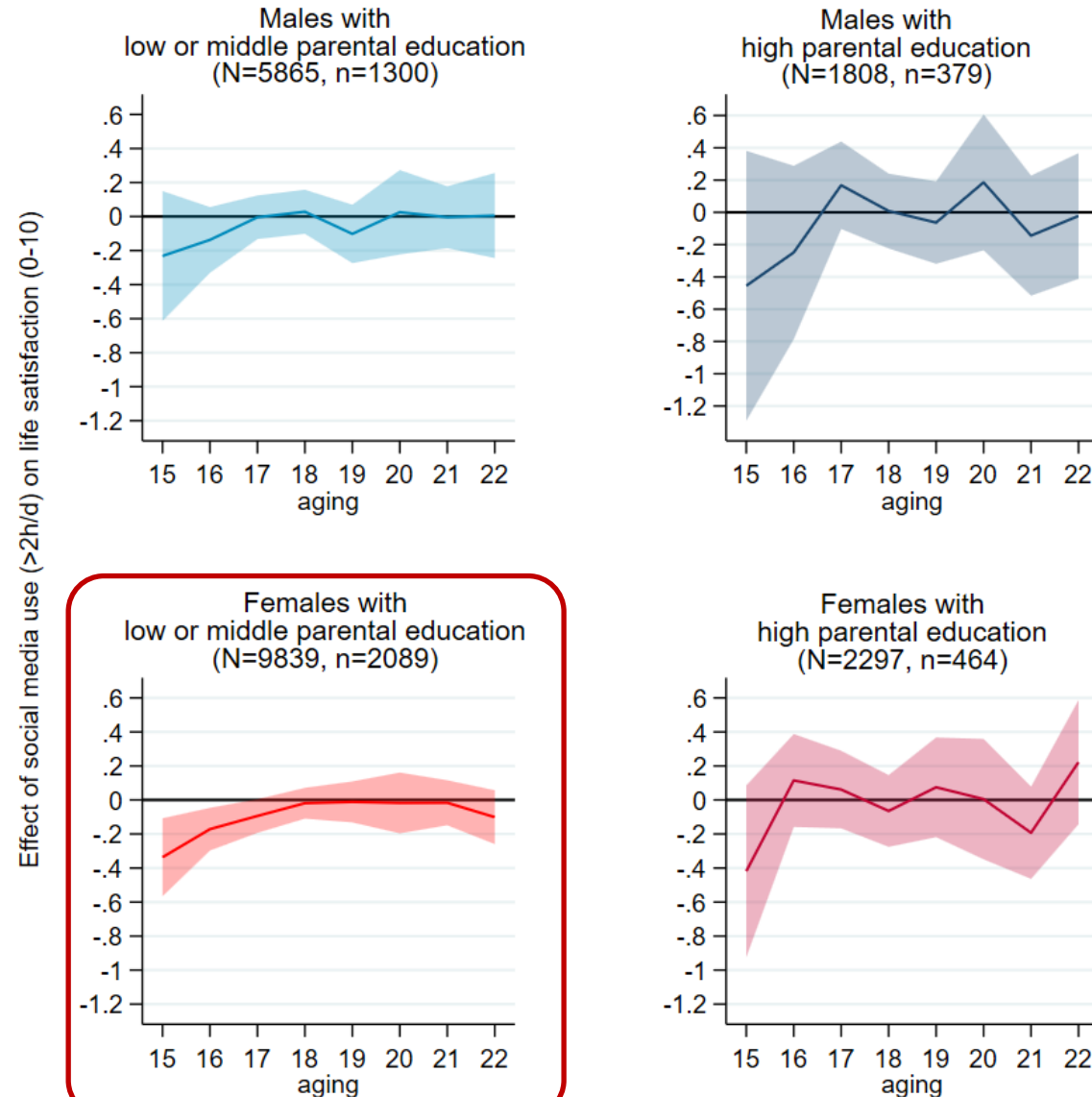
Note: Unstandardized average marginal effects (lines) from Fixed Effects (FE) Panel Regression including 95% confidence intervals (areas) based on individually clustered standard errors. The FE models control for other media use (television, gaming, information), residence in an agglomeration with more than 100k inhabitants, dummies for age, dummies for the survey years, and dummies for the months of the interview. The models only include cases with three or more observations. Data source: Transitions from Education to Employment (TREE, cohort 2).





3. Results: TREE: Causal inference: Moderation by age:

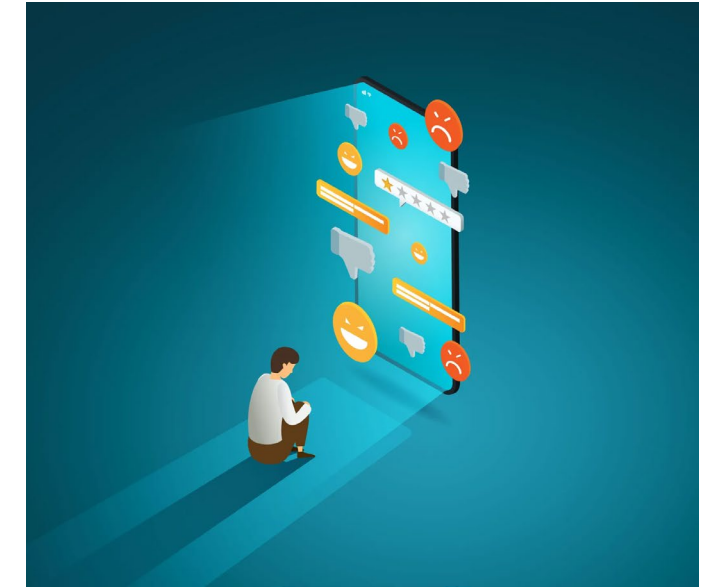
Note: Unstandardized average marginal effects (lines) from Fixed Effects (FE) Panel Regression including 95% confidence intervals (areas) based on individually clustered standard errors. The FE models control for other media use (television, gaming, information), residence in an agglomeration with more than 100k inhabitants, dummies for age, dummies for the survey years, and dummies for the months of the interview. The models only include cases with three or more observations. Data source: Transitions from Education to Employment (TREE, cohort 2).





4. Discussion and conclusion

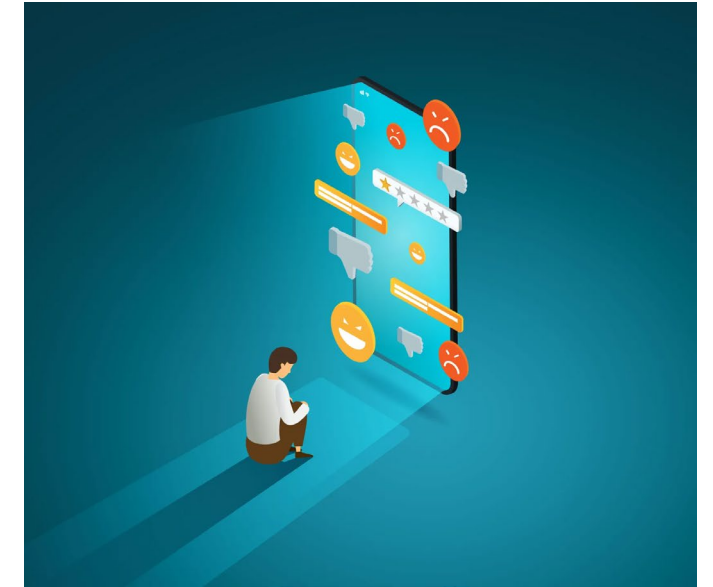
- **(Problematic) social media use is negatively linked with the subjective well-being of adolescents in Switzerland.**
- **Causal inference** on panel data (TREE cohort 2) **shows** that the **effect** of social media use on life satisfaction **only applies to girls and young women with low or middle parental educational background until majority age (~ 40 % of the population).** The **effect is substantial** and comparable with life events like entering a new partnership, separation from the partner or childbirth (e.g. Krämer et al. 2024).
- We found **no evidence of perpetuation of the effect over the life course** (up to age 22).





4. Discussion and conclusion

- Our study **confirms and enhances** the findings of Orben et al. (2022) on ‘**windows of developmental sensitivity to social media**’.
- It **reaffirms** the importance of prevention and health promotion targeted at **vulnerable groups**.
- **Education on responsible social media use** and **regulation of adverse aspects of social media platforms** may be **useful to balance pros and cons of social media use**.





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Thank you very much for your attention!





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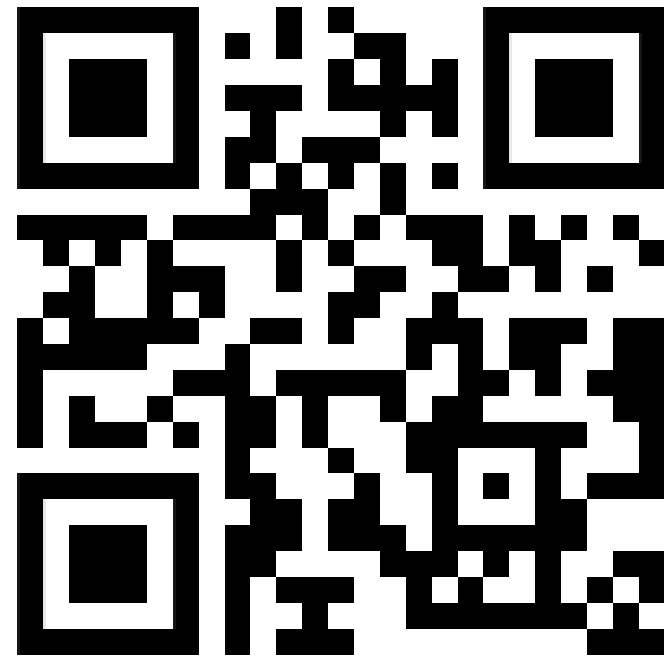
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Q&A



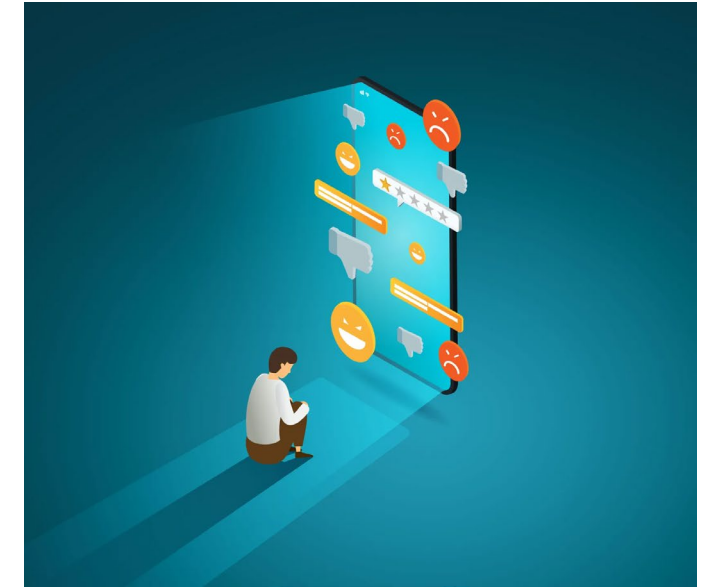
The working paper





4. Discussion and conclusion

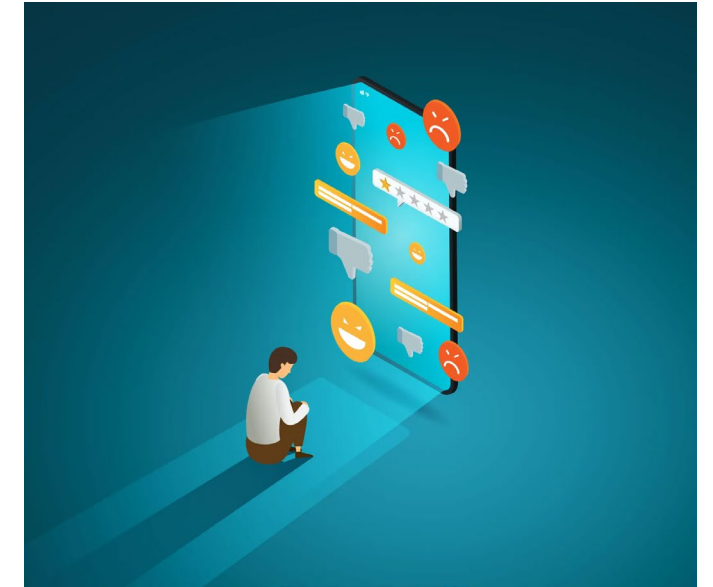
- Advantages of the study:
 - High-quality data
 - Causal inference
 - Self-reports of SWB of adolescents constitute reliable and valid evaluations of their WB (e.g., Diener et al., 2013).
 - SMDS is one of the two most recommended scales to estimate the prevalence of PSMU in population-based studies (Schlossarek et al., 2023).





4. Discussion and conclusion

- Limitations:
 - HBSC is cross-sectional.
 - Causal inference based on frequency of social media use, not on problematic social media use, which may lead to an underestimation of the effect.
 - TREE cohort 2 is limited with regard to temporal generalizability.
 - Use of self-reported social media use is reasonable, since predictive validity is comparable with objective measurements (Verbeij et al. 2022).





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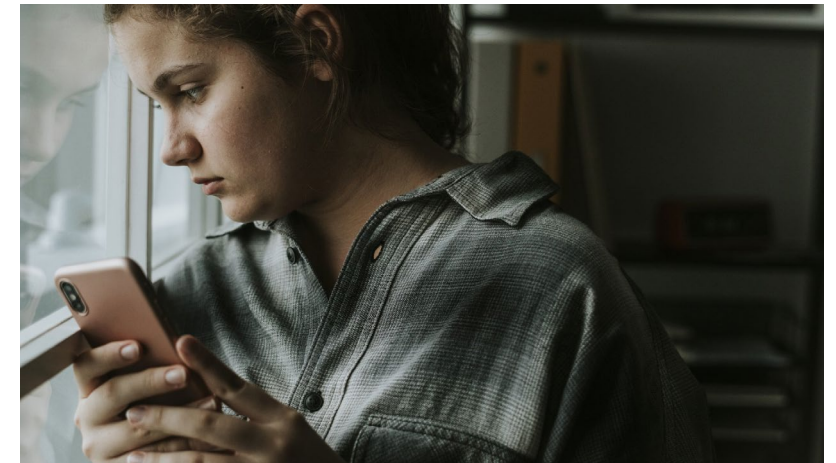
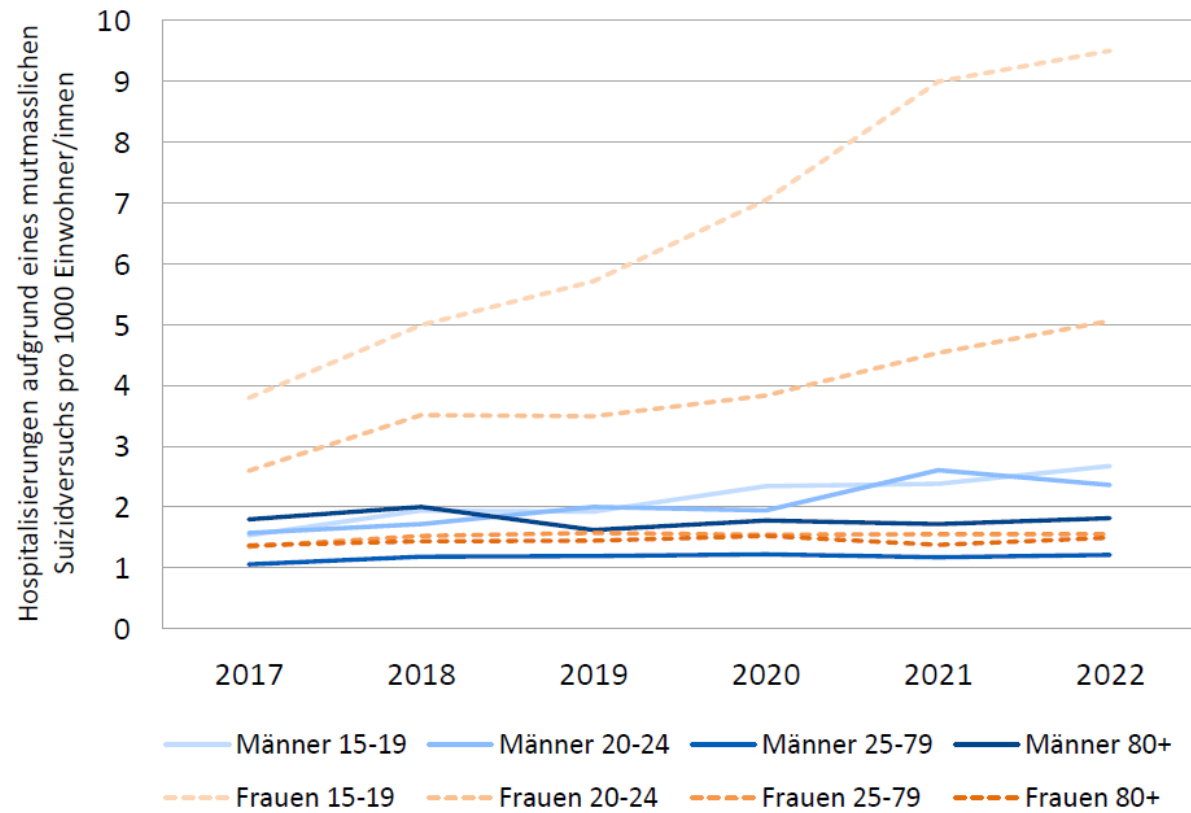


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1. Background and relevance





1. Background and relevance

Thema	Indikator (Alter)	Datenquelle	Verfügbarer Zeitraum	Veränderung in % seit 2017	Veränderung in % seit 2012
Allgemeiner psychischer Gesundheitszustand	Lebensqualität (15+)	SGB	2012-2022	+0.1	-0.1
	Lebenszufriedenheit (11-15)	HBSC	2002-2022	-3.6	-4.3
	Psychische Belastung (mittel und hoch) (15+)	SGB	2007-2022	+18.7	-1.1
	Emotionale Erschöpfung (Erwerbstätige; 16-65)	JSI	2014-2022	+11.4	
Morbidität	Depressionssymptome (mittelschwer bis schwer) (15+)	SGB	2012-2022	+12.6	+50.8
	Chronische psycho-affektive Beschwerden (mind. 1) (11-15)	HBSC	2002-2022	+14.9	+19.1
	IV-Neurenten aufgrund psychischer Krankheiten (Rate) (18-Rentalter)	IV-Stat.	1995-2022	+29.1	+20.9
	Suizidversuche (15+)	SGB	2017-2022	+14.7	
	Hospitalisierungen aufgrund mutmasslicher Suizidversuche	MS	2017-2021	+33.0	
Mortalität	Suizide (exkl. Assistierte Suizide)	TU	1998-2022	-12.7	-18.5
Prävention	Ausgaben für Gesundheitsförderung und Prävention im Bereich psychische Gesundheit nach Leistung	COU	2010-2022	-6.4	+4.5
	Kosten der obligatorischen Krankenpflegeversicherung (OKP) im Psychiatriebereich	SASIS-Datenpool	2006-2021	+9.1	+33.3
Kosten	Volkswirtschaftliche Kosten psychischer Krankheiten	Stucki et al. (2023)	2012, 2017		+5.9
	Ökonomisches Potenzial durch Reduktion des arbeitsbedingten Stresses (16-65)	JSI	2014-2022	+5.7	

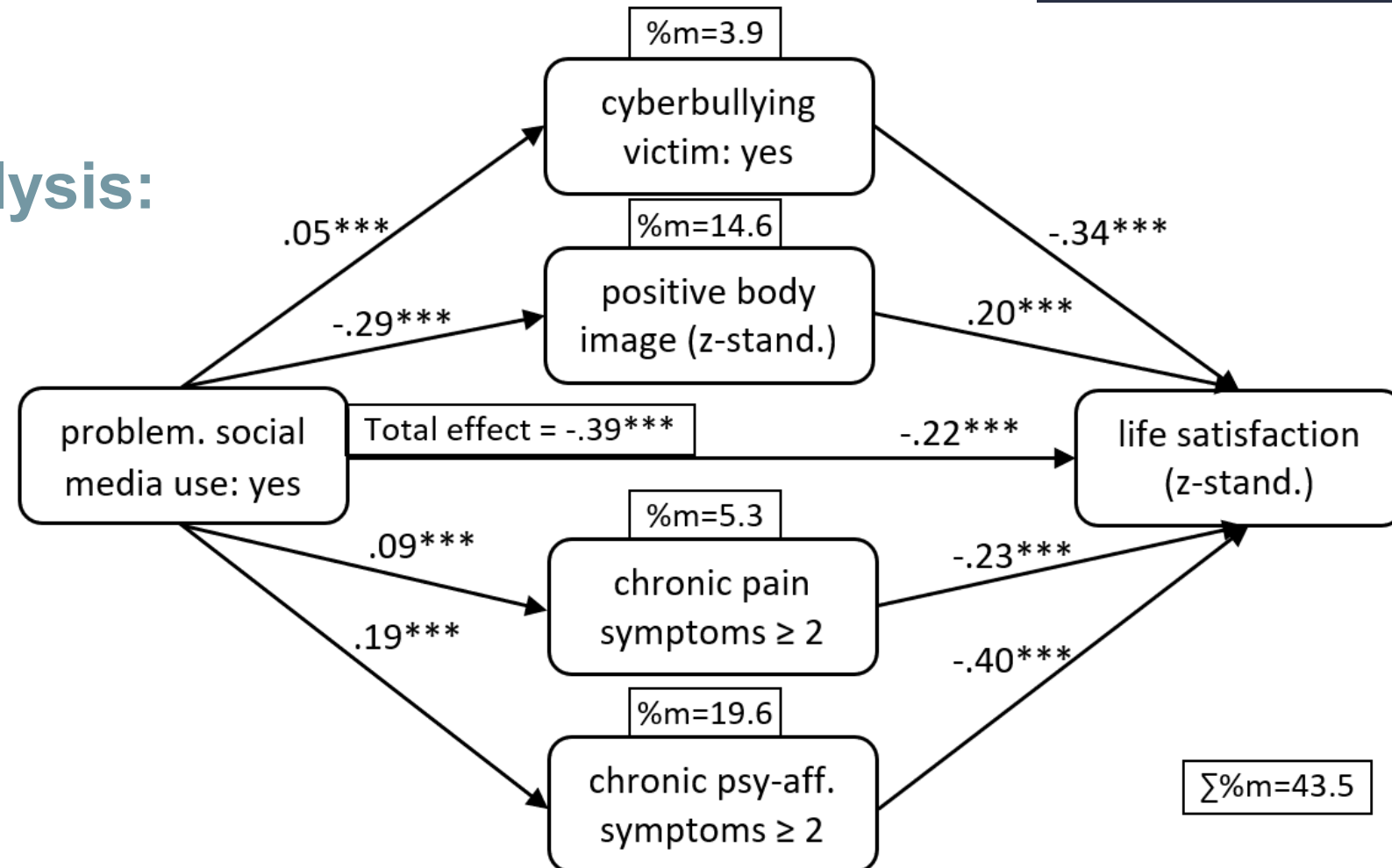


1. Background and relevance

Thema	Indikator (Alter)	Datenquelle	Verfügbarer Zeitraum	Veränderung in % seit 2017	Veränderung in % seit 2012
Inanspruchnahme	Patient/innen in ambulanten psychiatrisch-psychotherapeutischen Praxen	SASIS-Datenpool	2012-2021	+3.6	+27.0
	Hospitalisierungsrate bei psychischen Erkrankungen	MS	2002-2022	+4.2	+13.8
	Spitalaufenthalt mit Haupt- oder Nebendiagnose einer substanzbedingten Störung	MS	2012-2022	+7.5	+14.9
	Fürsorgerische Unterbringung in Psychiatrien	MS	2016-2022	+24.7	
	Konsum von Antidepressiva (15+)	SGB	2007-2022	+21.7	+75.0
	Konsum von Beruhigungs- und Schlafmitteln (15+)	SGB	2007-2022	+0	-20.0
	Abgabe von Antidepressiva	SASIS-Datenpool	2015-2022	+3.2	
	Abgabe von ADHS-Medikamenten	SASIS-Datenpool	2015-2022	+62.1	
	Abgabe von Benzodiazepinen	SASIS-Datenpool	2015-2022	-21.3	



3. Results: HBSC: Mediation analysis: OLS regression:



Note: Standardized coefficients from multiple OLS regressions. Standard errors are clustered by school class. N=5'565. *** = p<.001. %m = percent of total effect of problematic social media use on life satisfaction mediated. Since body image was only fielded for school-children aged 14 and 15, the models only include cases of this age group. All models control for sex, age, family affluence, social support of family and friends, and survey year. These confounders and their connections with the variables displayed are not shown for the sake of readability. Data source: Health Behaviour in School-aged Children (HBSC) Switzerland 2018, and 2022.