

SUPPLEMENTARY MATERIALS

STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No.	Recommendation	Page No.	Relevant text from manuscript
Title and abstract	1	(a) Indicate the study’s design with a commonly used term in the title or the abstract	3	abstract
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	3	abstract
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	4-5	Introduction
Objectives	3	State specific objectives, including any prespecified hypotheses	5-6	Introduction
Methods				
Study design	4	Present key elements of study design early in the paper	7	Methods
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	7, 9-10	Methods
Participants	6	(a) Cohort study—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	7-10	Methods
		Case-control study—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls		
		Cross-sectional study—Give the eligibility criteria, and the sources and methods of selection of participants		
Variables	7	(b) Cohort study—For matched studies, give matching criteria and number of exposed and unexposed	8-10 (diagnostic criteria) 11-12 (variables)	Not applicable
		Case-control study—For matched studies, give matching criteria and the number of controls per case		
		Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable		
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	9-10	Methods (Data collection)
Bias	9	Describe any efforts to address potential sources of bias	11-12	Methods (Statistical and data analyses)

			26	Limitations Discussion (Strengths of the study)
Study size	10	Explain how the study size was arrived at		N.A.
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	8-9 11–12	Methods (including Data collection and Statistical and data analyses)
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	11–12	Methods (Statistical and data analyses)
		(b) Describe any methods used to examine subgroups and interactions	11–12	Methods (Statistical and data analyses)
			16-19	Results (LMM)
		(c) Explain how missing data were addressed	11-12	Methods (Statistical and data analyses)
		(d) Cohort study—If applicable, explain how loss to follow-up was addressed Case-control study—If applicable, explain how matching of cases and controls was addressed Cross-sectional study—If applicable, describe analytical methods taking account of sampling strategy	11-12	Methods (Statistical and data analyses)
		(e) Describe any sensitivity analyses		N.A.
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	13	Results Figure 2; Appendix children; Appendix Parents
		(b) Give reasons for non-participation at each stage	7	Methods
		(c) Consider use of a flow diagram		Results (Figure 2)
Descriptive data	14	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	13	Results Table 1 and 2
		(b) Indicate number of participants with missing data for each variable of interest		Results Appendix Parent Appendix Children
		(c) Cohort study—Summarise follow-up time (eg, average and total amount)	9	Methods (Data collection)
Outcome data	15	Cohort study—Report numbers of outcome events or summary measures over time	13-19	Results

		<i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure		Not applicable
		<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures		Not applicable
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		Results (Table 4 and 5) Appendix Children Appendix Parents
		(b) Report category boundaries when continuous variables were categorized	9, 10	Methods (Data collection)
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		N.A.
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	16-24	Results Appendix children; appendix parents, supplementary materials
Discussion				
Key results	18	Summarise key results with reference to study objectives	20-24 27	Discussion Conclusion
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	26	Limitations
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	26 41	Limitation Conclusions
Generalisability	21	Discuss the generalisability (external validity) of the study results	20-24 26	Discussion Limitation
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		Not applicable

FACTOR ANALYSIS

Complete list of items retained in each factor, both for the parent and child versions.

Items were assigned to factors based on:

- primary loading > 0.40,
- minimal cross-loadings (< 0.30),
- theoretical coherence with the factor's construct.

Items with low loadings (< 0.30), high cross-loadings, or weak contribution to internal consistency were excluded from the final model.

Parent Factor Analysis

The Kaiser–Meyer–Olkin (KMO) test confirmed the adequacy of the sample for factor analysis (KMO = .876, was 'very good' according to Field with individual KMO values exceeding the acceptable threshold of .5 (range: .77-.92). Bartlett's test of sphericity $\chi^2(190) = 2212.313$, $p < .001$, indicated that correlations between items were sufficiently large to support the application of EFA.

Figure 1 – EFA Scree plot and simulated data in parallel analysis – parents subsample

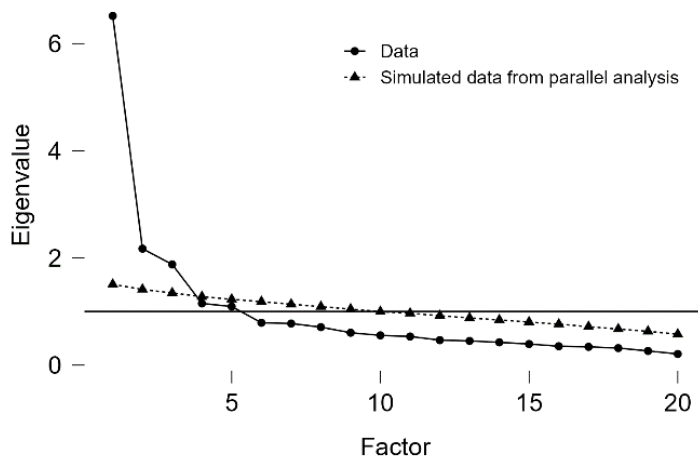


Table 1 - EFA - Factor characteristics parents' subsample

	Unrotated solution				Rotated solution		
	Eigenvalues	SumSq. Loadings	Proportion var.	Cumulative	SumSq. Loadings	Proportion var.	Cumulative
Child Emotionality	6.518	5.985	0.299	0.299	3.537	0.177	0.177
Parent Emotionality	2.173	1.680	0.084	0.383	3.328	0.166	0.343
Child Concerns	1.879	1.339	0.067	0.450	2.161	0.108	0.451

Table 2 – Parents subsample - EFA factor loadings – Oblique Promax rotation

	Child Emotionality	Parent Emotionality	Child Concerns
Amount of school engagement	0.728		
Level of school satisfaction	0.726		
Child's concentration	0.711		
Child's agitation	0.702		

Child's irritability	0.655		
Child's anxiety	0.552		
Child's aggressiveness	0.503		
Child's sadness	0.404		
Engagement on activities	0.395		
Parent's concerns	0.577		
Parent's agitation	0.857		
Parent's concentration	0.488		
Parent's Enjoyment	0.507		
Concerns about Covid Infection among friends		0.806	
Child's Concerns		0.669	
Parent's anxiety	0.710		
Concerns about own Covid Infection		0.805	
Parent's irritability	0.726		
Parent's sadness	0.565		
Parent's fatigue	0.620		
Cronbach's Alpha	0.861	0.834	0.783

Confirmatory Factor Analysis – Parents' subsample

The Confirmatory was performed to validate the factor structure identified in the EFA, using the Diagonally Weighted Least Squares (DWLS) estimation method. Bartlett's test of sphericity remained significant ($\chi^2(190) = 2706.302$, $p < .001$), further supporting the adequacy of the correlations for CFA.

Table 4 – Parents' subsample - CFA for model 1 and model 2

Model	df	Chi Squared	RMSEA	RMSEA [90% CI]	SRMR	CFI	NFI	TLI
Model 1 – One factor	170	1247.67	0.164	0.155 - 0.172	0.128	0.888	0.873	0.875
Model 2 – Three factors	167	536.207	0.097	0.088 - 0.106	0.087	0.962	0.945	0.956

Note: df= degrees of freedom; RMSEA (90% CI) = Root Mean Square Error of Approximation with confidence interval; SRMR = standardized root mean square residual; CFI = comparative fit index; NFI = Bentler-Bonett Normed Fit Index; TLI= Tucker-Lewis Index;

Table 5 – CFA parents subsample - Model 2 - Factor loadings

Factor	Indicator	Estimate	Std. Error	z-value	95% Confidence Interval	
					Lower	Upper
Factor 1	Child's sadness	0.650	0.023	28.854** *	0.606	0.695
	Engagement on activities	0.662	0.022	30.557** *	0.620	0.705
	Child's anxiety	0.824	0.021	38.469** *	0.782	0.866
	Child's agitation	0.867	0.020	43.007** *	0.827	0.906
	Child's concentration	0.628	0.024	26.694** *	0.582	0.674
	Child's irritability	0.876	0.020	43.590** *	0.837	0.916
	Child's aggressiveness	0.658	0.025	26.110** *	0.609	0.707
	Level of school satisfaction	0.389	0.027	14.423** *	0.337	0.442
	Amount of school engagement	0.244	0.028	8.868***	0.190	0.298
Factor 2	Parent's anxiety	0.760	0.024	31.216** *	0.712	0.807
	Parent's agitation	0.821	0.024	34.751** *	0.775	0.868
	Parent's concentration	0.616	0.025	24.725** *	0.568	0.665
	Parent's irritability	0.726	0.024	30.557** *	0.680	0.773
	Parent's concerns	0.472	0.026	18.074** *	0.421	0.523
	Parent's sadness	0.636	0.026	24.645** *	0.585	0.686
	Parent's Enjoyment	0.548	0.026	21.081** *	0.497	0.599
	Parent's fatigue	0.607	0.026	23.252** *	0.556	0.658
Factor 3	Child's Concerns	0.912	0.034	27.148** *	0.847	0.978
	Concerns about own Covid Infection	0.847	0.032	26.464** *	0.784	0.910
	Concerns about Covid Infection among friends	0.763	0.030	25.664** *	0.705	0.821

Note: *** p-value <0.001

Children Factor Analysis

The Kaiser–Meyer–Olkin (KMO) test confirmed the adequacy of the sample, with KMO = .736 (considered 'good' according to Field, 2009), and individual KMO values above the acceptable limit of .5 (range: 0.63-0.76) [29]. Bartlett's test of sphericity $\chi^2 (136) = 1167.322$, $p < .001$, indicated sufficient item correlations for EFA.

Figure 2 – EFA Scree plot and simulated data in parallel analysis – children subsample

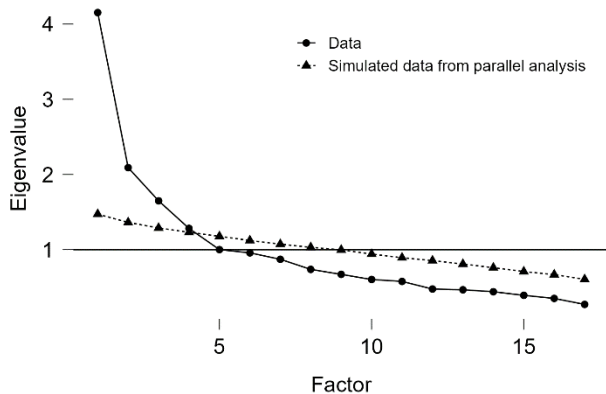


Table 6 - EFA - Factor solution for children subsample

	Unrotated solution				Rotated solution		
	Eigenvalues	SumSq. Loadings	Proportion var.	Cumulative	SumSq. Loadings	Proportion var.	Cumulative
Child/Adolescent Emotionality	4.152	3.596	0.212	0.212	2.137	0.126	0.126
Mental Health Support	2.091	1.647	0.097	0.308	1.825	0.107	0.233
Child/Adolescent Behavior	1.650	1.124	0.066	0.375	1.571	0.092	0.325
Child/Adolescent Concerns	1.283	0.636	0.037	0.412	1.470	0.086	0.412

Table 7 – Children subsample - EFA factor loadings – Oblique Promax rotation

	Child/Adolescent Emotionality	Mental Health Support	Child/Adolescent Behavior	Child/Adolescent Concerns
Child's concerns				0.574
Child's sadness	0.595			
Child's anxiety	0.717			
Amount of child's sleep	0.392			
Child's agitation	0.660			
Child's concentration	0.410			
Child's irritability			0.695	
Child's aggressivity (offender)			0.690	
Child's aggressivity (victim)			0.469	
Child's loneliness	0.439			
Child's Concerns about own Covid Infection				0.698
Child's Concerns about Covid Infection of others				0.723
Impact of emotions and behaviors on parental relationship			0.456	
Impact of emotions and behaviors on friendship	0.412			
Change in quality of mental health care		0.834		
Change in quantity of mental health care		0.849		
Level of child's satisfaction of mental health care		0.567		
Cronbach's Alpha	0.694	0.635	0.648	0.695

In the first children's subsample the EFA (Weighted Least Squares Method of estimation, applying promax rotation) highlighted four factors.

Confirmatory Factor Analysis – Children’ subsample

Table 8 – Children subsample - CFA for model 1 and model 2

Model	df	Chi ²	RMSEA	RMSEA [90% CI]	SRMR	CFI	NFI	TLI
Model 1 – One factor	104	1291.889	0.233	0.221 – 0.244	0.333	0.787	0.773	0.754
Model 2 – Four factors	98	172.354	0.060	0.045 – 0.075	0.076	0.979	0.952	0.974

Note: df= degrees of freedom; RMSEA (90% CI) = Root Mean Square Error of Approximation with confidence interval; SRMR = standardized root mean square residual; CFI = comparative fit index; NFI = Bentler-Bonett Normed Fit Index; TLI= Tucker-Lewis Index;

Table 9 – CFA children subsample - Model 2 - Factor loadings

Factor	r		Estimate	Std. Error	z-value	95% Confidence Interval		
						Lower	Upper	
Factor 1		Child's sadness	0.572	0.048	11.803	***	0.477	0.667
		Child's anxiety	0.664	0.043	15.603	***	0.581	0.748
		Amount of child's sleep	0.427	0.061	7.042	***	0.308	0.546
		Child's loneliness	0.477	0.055	8.612	***	0.369	0.586
		Impact of emotions and behaviors on friendship	0.462	0.059	7.878	***	0.347	0.577
		Child's agitation	0.915	0.027	34.273	***	0.863	0.968
Factor 2		Change in quality of mental health care	0.810	0.054	15.027	***	0.705	0.916
		Change in quantity of mental health care	0.819	0.049	16.634	***	0.722	0.915
		Level of child's satisfaction of mental health care	0.660	0.048	13.682	***	0.565	0.754
Factor 3		Child's irritability	0.899	0.037	24.281	***	0.826	0.971
		Child's aggressivity (offender)	0.813	0.051	15.806	***	0.712	0.914
		Child's aggressivity (victim)	0.547	0.079	6.882	***	0.391	0.702
		Impact of emotions and behaviors on parental relationship	0.438	0.062	7.079	***	0.317	0.560
Factor 4		Child's Concerns about own Covid Infection	0.856	0.039	22.203	***	0.781	0.932
		Child's Concerns about Covid Infection of others	0.766	0.040	19.347	***	0.688	0.844
		Child's concerns	0.789	0.038	20.736	***	0.714	0.863

Note: *** p-value <0.001

REFERENCES

- Field A (2009). *Discovering Statistics Using SPSS (3rd ed.)* (Sage Publications).
- Beaujean A (2011). Applications of item response theory to practical testing problems. *Routledge*.
- Hayton JC (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods*, 191–205.

Test-Retest Correlation Analysis for parents and children

A test-retest correlation analysis was performed to evaluate the temporal stability of the emotional and concern factors over the three time points, (T0, T1, and T2). Including the total sample of parents, Pearson's r correlation was calculated to assess the linear correlation between the three factors identified across the three time points. All three identified factors in 2020 were moderately correlated with the same factors in 2021 ($r = .531$, $p < .001$) and in 2022 ($r = .358$, $p < .001$), indicating temporal stability.

Table 10 – Parents' sample - Pearson's r correlations between assessed factors in 3 waves

		Child Emotionality 2020	Parent Emotionality 2020	Child Concerns 2020	Child Emotionality 2021	Parent Emotionality 2021	Child Concerns 2021	Child Emotionality 2022	Parent Emotionality 2022	Child Concerns 2022
Child Emotionality 2020	Pearson's r	1	.537**	.313**	.631**	.414**	.282**	.443**	.282**	.117
	n	490	485	490	254	254	254	213	212	213
Parent Emotionality 2020	Pearson's r		1	.279**	.418**	.531**	.265**	.287**	.358**	.151*
	n		485	485	251	251	251	213	212	213
Child Concerns 2020	Pearson's r			1	.180**	.125*	.424**	.128	.162*	.206**
	n			490	254	254	254	213	212	213
Child Emotionality 2021	Pearson's r				1	.589**	.328**	.549**	.401**	.250**
	n				257	257	257	131	131	131
Parent Emotionality 2021	Pearson's r					1	.303**	.422**	.612**	.230**
	n					257	257	131	131	131
Child Concerns 2021	Pearson's r						1	.209*	.268**	.453**
	n						257	131	131	131
Child Emotionality 2022	Pearson's r							1	.441**	.371**
	n							215	214	215
Parent Emotionality 2022	Pearson's r								1	.249**
	n								214	214
Child Concerns 2022	Pearson's r									1
	n									215

Note *p-value two tails <0.05; ** p-value <0.01; *** p-value <0.001

Similarly, for children, the factors identified in 2020 showed moderate to strong correlations in 2021 ($r = .631$, $p < .001$) and in 2022 ($r = .443$, $p < .001$), again suggesting good temporal stability (Table 11). These results might confirm the test-retest validity of the questionnaires administrated.

Table 11 – Children sample - Pearson's r correlations between assessed factors in 3 waves

		Child Emotionality 2020	Mental Health Support 2020	Child Behavior 2020	Child Concerns 2020	Child Emotionality 2021	Mental Health Support 2021	Child Behavior 2021	Child Concerns 2021	Child Emotionality 2022	Mental Health Support 2022	Child Behavior 2022	Child Concerns 2022
Child/Adolescent Emotionality 2020	Pearson's r	1	,145**	,536**	,377**	,560**	,240**	,388**	,331**	,391**	,033	,296**	,194*
	n	516	508	516	516	208	207	208	208	165	165	165	165
Mental Health Support 2020	Pearson's r		1	,241**	,007	,133	,490**	,203**	,056	,113	,208**	,116	,037
	n		508	508	508	208	207	208	208	165	165	165	165
Child/Adolescent Behavior 2020	Pearson's r			1	,123**	,444**	,199**	,480**	,134	,257**	,220**	,332**	,044
	n			516	516	208	207	208	208	165	165	165	165
Child/Adolescent Concerns 2020	Pearson's r				1	,224**	,007	,152*	,440**	,115	,031	,184*	,254**
	n				516	208	207	208	208	165	165	165	165
Child/Adolescent Emotionality 2021	Pearson's r					1	,235**	,642**	,326**	,490**	,211	,414**	,081
	n					215	214	215	215	83	83	83	83
Mental Health Support 2021	Pearson's r						1	,194**	,018	,037	,266*	,062	,066
	n						214	214	214	83	83	83	83
Child/Adolescent Behavior 2021	Pearson's r							1	,220**	,333**	,222*	,489**	-,020
	n							215	215	83	83	83	83
Child/Adolescent Concerns 2021	Pearson's r								1	,117	,044	,013	,509**
	n								215	83	83	83	83
Child/Adolescent Emotionality 2022	Pearson's r									1	,239**	,509**	,376**
	n									167	167	167	167
Mental Health Support 2022	Pearson's r										1	,183*	,067
	n										167	167	167
Child/Adolescent Behavior 2022	Pearson's r											1	,100
	n											167	167
Child/Adolescent Concerns 2022	Pearson's r												1
	n												167

Note *p-value <0.05; ** p-value <0.01; *** p-value <0.001