Supplementary material

Documentation of exploratory factor analyses, scales and items

The items were mostly adapted from Sitzer et al. (2012). For the current study, the adaptation included the selection of items and adding items concerning ethnicity. In this supplementary material, the results for the exploratory factor analyses, scale and item characteristics are documented.

Cybervictimization

Cybervictimization was measured on a 5-point Likert scale (0 = *not at all* to 4 = *several times a week*) in the previous six months. A principal component analysis was conducted on the 13 items with orthogonal varimax rotation. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .81, the Bartlett-test supported that the correlations between variables were significantly different from zero, χ^2 (78) = 1874.38, $p < .001$, and the determinant of d = .003 showed no indication of multicollinearity. Three factors had eigenvalues over Kaiser's criterion of 1 and the scree plot also indicated the extraction of three factors, which together explained 62% of the variance. Items on factor 1 represented "ethnically based cybervictimization", factor 2 "language related cybervictimization" and factor 3 "relational cybervictimization". Table 1 shows the results for the exploratory factor analysis, scale and item characteristics.

Table 1. Results for cybervictimization.

Items	Scale	α	*M*	*SD*	F1	F2	F3	h^2
racist remarks on ethnicity	Ethnically based Cybervictimization	.80	.10	.36	**.71**	.32		.61
attacked because of appearance (skin color, hair color, etc.)			.09	.36	**.54**			.33
attacked because of religion			.13	.44	**.75**			.62
insulted because of ethnicity			.13	.48	**.66**	.38		.62
insulted because of culture			.12	.50	**.79**		.31	.72
laughed at or attacked because of pronunciation or language	Language related Cybervictimization	.80	.18	.62	.42	**.60**		.56
excluded from a group with another language			.06	.34		**.85**		.78
attacked because of school performance			.12	.53		**.83**		.76
made fun of, called names, or threatened *	Relational Cybervictimization	.79	.30	.71			**.75**	.58
spread rumors about you or talked bad about you *			.42	.83		.44	**.66**	.62
pretended to be you and spread or posted things around to destroy your reputation or friendships *			.15	.54			**.75**	.58
shared or posted private messages or confidential information with others.to expose you *			.25	.72		.56	**.62**	.70
faked profile to harm you *			.10	.47	.47		**.60**	.59

Note. F1 – F3 factor loadings in exploratory factor analysis (bold loading concerning the corresponding scales), 5-point Likert scale, 0 = *not at all*, 1 = *one or two times*, 2 = *two or three times per month*, 3 = *around once a week*, 4 = *several times a week*, * items from Sitzer et al. (2012), other items were developed additionally.

Strain

Strain resulting from cybervictimization was measured on a 5-point Likert scale (0 = *not at all*, 4 = *very strongly*) concerning all items on cybervictimization (13 Items, *M* = 0.24, *SD* = 0.52, α = .87, "How stressful was this experience for you?" (with regard to each item of cybervictimization).

A principal component analysis was conducted on the 13 items with orthogonal varimax rotation. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .87, the Bartlett-test supported that the correlations between variables were significantly different from zero, χ^2 (78) = 1795.55, *p* < .001, and the determinant of *d* = .002 showed no indication of multicollinearity. Three factors had eigenvalues over Kaiser's criterion of 1 but the scree plot indicated a very strong first factor (eigenvalues of the first factors: 5.64, 1.52, 1.01, 0.84). Together with the consideration that a differentiation of subscales of strain would not help with the research question, only one factor was extracted, which explained 43% of the variance. All items represented "strain resulting from cybervictimization", table 2 displays the results from the exploratory factor analysis, scale and item characteristics.

Table 2. Results for strain resulting from cybervictimization.

Items	α	*M*	*SD*	F1	h^2
How stressful…? racist remarks because of ethnicity	.87	0.16	0.59	.78	.60
How stressful…? attacked because of appearance (skin color, hair color, etc.)		0.14	0.53	.66	.43
How stressful…? attacked because of religion		0.21	0.72	.57	.32
How stressful…? insulted because of ethnicity		0.15	0.57	.74	.55
How stressful…? insulted because of culture		0.14	0.56	.79	.63
How stressful…? laughed at or attacked because of pronunciation or language		0.19	0.64	.63	.39
How stressful…? excluded from a group with another language		0.11	0.50	.77	.59
How stressful…? attacked because of school performance		0.12	0.53	.70	.49
How stressful…? made fun of, called names, or threatened *		0.30	0.73	.52	.27
How stressful…? spread rumors or talked bad about you *		0.40	0.89	.54	.30
How stressful…? pretended to be you and spread or posted things around to destroy your reputation or friendships *		0.23	0.71	.61	.38
How stressful…? shared or posted private messages or confidential information with others to expose you *		0.29	0.81	.57	.33
How stressful…? faked profile to harm you *		0.19	0.72	.62	.38

Note. F1 factor loadings in exploratory factor analysis (bold loading concerning the corresponding scales), 5-point Likert scale with 0 = *not at all*, 1 = *a little bit*, 2 = *moderately*, 3 = *strongly*, 4 = *very strongly,* * items from Sitzer et al. (2012), other items were additionally developed.

Coping

Coping of cybervictimization was measured on a 4-point Likert scale (0 = *does not apply*, 3 = *applies completely*, "How did you react to this experience?"). A principal component analysis was conducted on the 15 items with orthogonal varimax rotation. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .88, the Bartlett-test supported that the correlations between variables were significantly different from zero, χ^2 (105) = 2185.43, *p* < .001, and the determinant of d = .000 showed no indication of multicollinearity. Three factors had eigenvalues over Kaiser's criterion of 1 and the scree plot also indicated the extraction of three factors, which together explained 64% of the variance. Items on factor 1 represented "ignoring", factor 2 "social adaptation" and factor 3 "revenge". Table 3 shows the results for the exploratory factor analysis, scale and item characteristics.

Table 3. Results for coping of cybervictimization.

Items	Scale	α	*M*	*SD*	F1	F2	F3	*h²*
tried to put it out of my mind *	Ignoring	.91	0.62	1.05	**.72**			.58
tried to ignore it *			0.87	1.21	**.84**			.73
got accustomed to what happened *			0.59	1.01	**.67**		.49	.70
pretended that everything was fine *			0.73	1.20	**.77**		.37	.73
persuaded myself that I could handle it *			0.58	1.01	**.72**		.30	.62
technical precautions to protect myself (e.g., changed privacy settings, email address or chat name) *			0.40	0.86	**.52**	.38		.42
got stronger through it *			0.58	1.00	**.75**			.66
you can't be popular with everyone *			0.69	1.09	**.73**			.60
sought help (e.g., friends, parents, teachers, on the Internet) *	Social Adaptation	.79	0.37	0.79	.48	**.68**		.69
changed social environment (e.g., sought new friends, changed class/school, moved)*			0.22	0.58		**.78**		.69
hid my religion			0.13	0.53		**.77**	.45	.81
adapted myself (dyed my hair, took off my headscarf, changed behavior or talking)			0.14	0.52		**.72**		.61
took revenge for it *	Revenge	.67	0.38	0.87			**.79**	.68
made more of an effort to endear myself to others *			0.38	0.96	.35		**.56**	.48
defended myself aggressively			0.37	0.81		.36	**.63**	.58

Note. F1 – F3 factor loadings in exploratory factor analysis (bold loading concerning the corresponding scales), 4-point Likert scale, 0 = *does not apply*, 1 = *rather does not apply*, 2 = *rather applies*, 3 = *applies completely,* * items from Sitzer et al. (2012), other items were additionally developed.

Motives for cybervictimization

Motives for Cybervictimization were measured on a 4-point Likert scale (0 = *does not apply*, 3 = *applies completely*) with response to the question "What do you think was the reason that you were bullied via Internet or mobile phone?" A principal component analysis on 10 items (including items on "achievement" and "unclear reason") resulted in two factors, but with substantial double loadings for these items. Thus, the items on "achievement" and "unclear reason" were excluded from further analyses and treated as single items.

A principal component analysis was conducted on the 8 items with orthogonal varimax rotation. The Kaiser-Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .85, the Bartlett-test supported that the correlations between variables were significantly different from zero, χ^2 (28) = 697.21, $p < .001$, and the determinant of d = .070 showed no indication of multicollinearity. Two factors had eigenvalues over Kaiser's criterion of 1 and the scree plot also indicated the extraction of two factors, which together explained 60% of the variance. Items on factor 1 represented "dispute-related motives", factor 2 "ethnic-related motives". Table 4 shows the results for the exploratory factor analysis together with scale and item characteristics.

Table 4. Results for motives for cybervictimization.

Items	Scale	α	*M*	*SD*	F1	F2	*h²*
person felt provoked by me *	Dispute-related Motives	.82	0.31	0.74	**.74**		.58
had a quarrel with the person *			0.55	0.92	**.77**		.62
person does not like me *			0.50	0.91	**.76**		.66
person likes to provoke *			0.64	1.09	**.82**	.32	.78
In class, my ethnicity is the minority	Ethnic-related Motives	.68	0.36	0.98		**.71**	.55
lived out my religion.			0.59	1.10	.33	**.54**	.40
look different (headscarf, hair color, skin color, etc.)			0.26	0.73		**.67**	.51
language or accent			0.25	0.69		**.81**	.67
school achievements	Achievement	–	0.21	0.62	–	–	–
don't know the reason *	Unclear reason	–	0.42	0.91	–	–	–

Note. F1 and F2 factor loadings in exploratory factor analysis (bold loading concerning the corresponding scales), 4-point Likert scale, 0 = *does not apply*, 1 = *rather does not apply*, 2 = *rather applies*, 3 = *applies completely,* * items from Sitzer et al. (2012), other items were additionally developed.

Reference

Sitzer, P., Marth, J., Kocik, C., & Müller, K. N. (2012). *Ergebnisbericht der Online-Studie - Cyberbullying bei Schülerinnen und Schülern [Final report of the online study cyberbulliyng among school students].* Institut für interdisziplinäre Konflikt- und Gewaltforschung. Retrieved from: http://www.uni-bielefeld.de/cyberbullying/downloads/Ergebnisbericht-Cyberbullying.pdf