



# The effects of non-physical peer sexual harassment on high school students' psychological well-being in Norway: consistent and stable findings across studies

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## Abstract

**Objectives** The paper examines how strongly non-physical peer sexual harassment is associated with a wide range of well-being outcomes from symptoms of depression and anxiety to self-esteem and body image.

**Methods** Two large community samples of high school students were analyzed ( $n = 1384$  and  $n = 1485$ ). Students responded to questionnaires on being subject to non-physical sexual harassment, sexual coercion and forced intercourse, and to well-being indicators ranging from anxiety, depression, self-esteem, body image.

**Results** Regression analyses suggest that being harassed by peers in a non-physical way was moderately associated with lower levels of well-being over and above the effect of other risk factors. This effect was present for all indicators of well-being. The effect of peer harassment on depressive symptoms was moderated by sex (affected women more) but not by sexual or ethnic minority status.

**Conclusions** The findings imply that although sticks and stones may break bones, it does seem that derogatory words and other forms of non-physical sexual harassment definitely harm high school students.

**Keywords** Well-being · Peer sexual harassment · Emerging adults · Gender · Sexual and ethnic minorities

## Introduction

Peer sexual harassment is a form of sexual attention that is unwanted or unwelcome to the target and that may produce an educational environment that is perceived more negative and hostile (Chiodo et al. 2009). Such harassment may take several forms: verbal, nonverbal, indirect, or physical. Verbal sexual harassment typically includes derogatory sexual remarks or sexual jokes; nonverbal harassment may involve display of sexual pictures or objects and obscene gestures, and indirect harassment may involve being subject to sexual rumors and having had pictures distributed in social media. Sexual harassment may also take the form of physical coercion such as being brushed against or held in a sexual way, having private parts touched or being coerced into kissing or other forms of sexual behavior. Peer sexual harassment covering any of the above forms is commonly reported among secondary and high school men and women with prevalence rates ranging from 40 to 85% (American Association of University Women 2001; Bendixen and Kennair 2014; Chiodo et al. 2009; Felix and McMahon 2006; Landstedt and Gillander Gådin 2011; Lichty and Campbell 2012; Ormerod et al. 2008; Paludi 1997; Skoog et al. 2015) and possibly more common in samples of sexual minorities (Mitchell et al. 2014). Being subject to physical form of sexual harassment (coercion) is less prevalent, particularly among boys/men (Chiodo et al. 2009; Kennair and Bendixen 2012).

Peer sexual harassment victimization may cause considerable psychosocial strain. Evidently, being subject to peer sexual harassment in middle- and high school is significantly associated with a number of psychosocial and educational problems ranging from symptoms of anxiety and depression (Dahlqvist et al. 2016; Duffy et al. 2004; Landstedt and Gillander Gådin 2011; Lichty and Campbell

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2012; Skoog et al. 2015; Slaatten et al. 2015), self-harm and suicidal ideation (Chiodo et al. 2009), social avoidance (Duffy et al. 2004), lower self-esteem and body image (Gruber and Fineran 2008; Ormerod et al. 2008), loss of appetite and dieting (Chiodo et al. 2009), self-injury (Chiodo et al. 2009; Marshall et al. 2013), and lower academic outcomes (Lichty and Campbell 2012).

The adverse health effects of peer sexual harassment are shown to be as strong as those for bullying (Gruber and Fineran 2008), and are evident over and above the effects of being exposed to bullying for symptoms of depression (Slaatten et al. 2015). However, because most studies apply measures of sexual harassment that comprise non-physical acts along with physical acts, the unique negative health effect of being subject to non-physical peer sexual harassment is not known. To this date, we are not aware of any studies having examined the adverse effects of non-physical peer sexual harassment when controlling for other similar stressors, such as being sexually forced (raped) at some time in the past or concurrent peer sexual coercion. Despite not being able to address the question of causality—it is possible that a psychosocially stressed person experiences more sexual harassment—in the current work we assume that sexual harassment is affecting health outcomes.

There seems to be some disparity on how and how strong sexual harassment affects different groups' psychological and educational well-being. Some studies report similar effects of being sexually harassed for men and women (Duffy et al. 2004; Slaatten et al. 2015). Others find that sexual harassment seem to affect women's health more strongly than men's (Chiodo et al. 2009; Landstedt and Gillander Gådin 2011), or that the effects are differential: that sexual rumoring may be particularly distressing for women while gay-related slurs appear to be more harmful for men (Gruber and Fineran 2008). A recent review also suggests that peer victimization affects sexual minority groups (non-heterosexual orientation and gender identity) more, reporting that associations with depressive symptoms and lack of school belonging are stronger for sexual minority subjects (Collier et al. 2013). Because sexual harassment appears to be more common among sexual minorities and may have more adverse effects on the well-being in these groups, researchers have recommend to take a closer look at how strongly peer sexual harassment affects other minorities as well, ethnic minorities included (Chiodo et al. 2009).

## Aims

This paper sets out to examine how the well-being of high-school students is affected by being subject to non-physical sexual harassment using self-report data from two separate large-scale surveys carried out during 2007 (Study 1) and

2013–2014 (Study 2) in the county Sør-Trøndelag, Norway. Although sexual coercion victimization is regularly included in scales of peer sexual harassment, this inclusion may possibly obscure findings regarding precursors and outcomes of the more common forms of non-physical harassment from those of sexual coercion. Possibly, non-physical sexual harassment may cause stress similar to that of sexual coercion and produce similar adverse effects on adolescents' well-being (Gotlib and Hammen 2015; Landstedt and Gillander Gådin 2011).

In this study, we want to examine (a) how strongly non-physical peer sexual harassment is associated with well-being outcomes ranging from symptoms of depression and anxiety to self-esteem, and body image; (b) whether non-physical peer sexual harassment affects well-being outcomes when potential psychosocial stressors such as parents not living together, parents currently not being employed, sexual minority or immigrant status and sexual coercion victimization are accounted for; and (c) if non-physical peer sexual harassment *differentially* affects the well-being outcomes for women, sexual minorities, immigrants, and students with split parents or parents not currently employed (i.e., if these factors moderate the effect of peer sexual harassment), and finally, (d) whether the findings are robust (stable across studies).

## Methods

### Design and subjects

Two separate cross-sectional studies were carried out among high school students in Central Norway 7 years apart (Study 1: May/June 2007; Study 2: May/June 2013, November/December 2013 and May/June 2014). Further details regarding the sample design are found in Kennair and Bendixen (2012) and Bendixen and Kennair (2017). Both datasets were screened for inconsistent, unlikely, monotonous and extreme responding reflecting lack of motivation. The final sample in Study 1 covered 1384 students (52.4% women and 47.6% men), aged between 16 and 21 (Mean age women = 17.2, SD = 0.97; Mean age men = 17.0, SD = 1.02). Response rate was conservatively estimated to 50% (Kennair and Bendixen 2012) assuming every student was invited. The true response rate was likely to be higher. More women (11.6%) than men (4.2%) reported non-heterosexual orientation (or being uncertain. Vocational education was more common for men (32.7%) than for women (16.2%). Approximately one-third of the students reported that their parents had split. Nearly 20% of the students reported that at least one parent was not currently employed. Based on their self-reports, between seven and eight percent of the students (7.5%) qualified for

the official definition of immigrant status. One in three women and one in five men were currently in a long-term committed relationship (boy/girlfriend, 3 months or more).

The final sample in Study 2 covered 1485 students (58.7% women and 41.3% men), aged between 16 and 21 (Mean age women = 17.7, SD = 0.98; Mean age men = 17.7, SD = 0.96). Response rate was not known but expectedly similar to that of Study 1 (see Bendixen and Kennair 2017). The remaining sample characteristics were very similar to those reported in Study 1. More women (12.5%) than men (8.4%) reported non-heterosexual orientation, vocational education was more common for men (51.6%) than for women (29.4%), and approximately one-third of the students reported that their parents had split up. In addition, similar to Study 1, nearly 20% of the students reported that at least one parent was not currently employed. Based on their self-reports, between 7 and 8% of the students (7.3%) qualified for the official definition of immigrant status. Figures on split parents, immigrant status and proportion of parents not currently employed in Study 1 and Study 2 closely match those reported in Statistics Norway (SSB) for the relevant age groups in Central Norway. E.g., the proportion of the population between the ages 35 and 50 who are employed are estimated by SSB to be 85 and 91% for women and men, respectively. As for Study 1, one in three women and one in five men was currently in a long-term committed relationship.

## Procedure

In both studies, students, their parents and the school staff received written information about the study, stating the purpose and content of the project. The school administered the written information- and informed consent form, and students received a login code in exchange for returning the consent form to get access to the computer-assisted survey. The exact number of students invited to participate was not recorded. Hence, the exact response rate is not known. Students could respond to the questionnaire on their designated computer at home or in the classroom. Arrangements for group administration at school ensured anonymity and confidentiality. Throughout the weeks that the survey took place the school's public health nurses were available for consultation. The Regional Committee for Medical and Health Research Ethics approved the procedure for both studies.

## Measures

### *Peer sexual harassment and coercion victimization (peer related stressors)*

In addition to the dichotomously coded background factors and potentially relevant stressors outlined above (parents

split, parents unemployed, sexual minority, romantic relationship status and immigrant status) we included Kennair and Bendixen (2012) nine-item measure of *Being sexually harassed* (non-physically, slightly revised for Bendixen and Kennair 2017) and a four-item measure of *Being sexually coerced*. The being sexually harassed scale includes nine items on nonphysical behaviors (verbal, non-verbal, and digital forms, see Appendix). Only acts that were offensive, unwanted or that created discomfort were reported. Participants reported whether they had been subject to the behavior in question (no = 0, yes = 1) during the past academic year. Items scores were summed and averaged (scale scores ranging from 0 to 1). Internal consistency (Kuder-Richardson) was good for the nine-item scale (Study 1:  $KR = .74$ ; Study 2:  $KR = .85$ ). Prevalence rates was high for both studies (Study 1: women 80%,  $M = 0.30$ ; men 74%,  $M = 0.27$ . Study 2: women 64%,  $M = 0.23$ ; men 62%,  $M = 0.22$ ). The lower prevalence and mean scores in Study 2 is due to the removal of one item (see Appendix). As would be expected, the four-item Being sexually coerced scale showed lower internal consistency (Study 1:  $KR = .61$ ; Study 2:  $KR = .65$ ). The sexually coerced scale was dichotomized for analysis (no/yes). Prevalence rates for women were 42 and 34% and for men 26 and 24% in Study 1 and Study 2, respectively. In addition, we included a single item on *Forced intercourse prior* to the current academic year (no/yes). Prevalence rates for women were 6 and 10%, and for men < 1 and 2% in Study 1 and Study 2, respectively.

### *Outcome variables of well-being, Study 1*

Symptoms of *Anxiety* and *Depression* were measured applying a 12-item version of the Hopkins Symptom Check List-25, HSCL (Strand et al. 2003). Instructions read "How troubled are you with each of the following...? (1 = not at all, 2 = a little, 3 = quite a bit, 4 = extremely)". Item scores were summed and averaged. High scores indicate more symptoms of anxiety and depression. Internal consistency was good (Anxiety, six items:  $\alpha = .81$ ; Depression, six items:  $\alpha = .81$ ). *Self-Esteem* was measured using the eight-item Global Negative Self-Evaluations Scale, GNSE (Alsaker and Olweus 1986; Rosenberg 1965) and *Body Image* using the four-item Negative Body Image Scale, NBI (Alsaker 1992). Response alternatives ranged from 1 = *strongly disagree* to 5 = *strongly agree*, with the mid category 3 = *neither agree nor disagree*. Item scores were summed and averaged. High scores reflect more negative self-esteem and body image. Internal consistencies were good ( $\alpha = .84$  and  $\alpha = .88$  for the GNSE and the NBI scales, respectively).

### Outcome variables of well-being, Study 2

Symptoms of *Depression* were measured applying the Major (ICD-10) Depression Inventory (Bech et al. 2001). Response alternatives were 0 = *not at all*, 1 = *some of the time*, 2 = *less than half of the time*, 3 = *more than half of the time*, 4 = *most of the time*, 5 = *all the time*. Scale scoring closely followed the original instructions. High scores indicate more depressive symptomatology (maximum score = 50). Internal consistency was excellent ( $\alpha = .92$ ). *Self-Esteem* and *Body Image* were measured and scored identical to Study 1. Internal consistencies were excellent ( $\alpha = .88$  and  $\alpha = .90$ , respectively).

### Analyses

All analyses were performed using Stata version 14.2 for Mac (StataCorp 2015). For predicting Anxiety, Depression, Self-esteem, and Body Image we performed multiple Ordinary Least Squares (OLS) regression analyses. Assumptions were checked throughout, and Stata's 'Robust' option was applied as it implements robust standard errors offering more 'honest' standard errors in the face of heteroscedasticity. To examine if being non-physically sexually harassed by peers *differentially* affected the well-being outcomes in samples of subgroups over and above the effect of the main predictors, we tested relevant moderators one at a time (i.e., interactions). The interaction terms included were harassed  $\times$  sex, harassed  $\times$  minority

status (sexual and immigrant), harassed  $\times$  parents split, and harassed  $\times$  parents not employed.

### Results

First, we looked at how strongly the demographic variables and the stressors in Study 1 were associated with the various indicators of well-being. As can be seen from the left panel of Table 1, women, sexual minorities (non-heterosexuals), participants with both parents not employed, and those being harassed, coerced and forced reported less well-being across all four outcomes. Moreover, being subject stressors such as peer sexual harassment, coercion and force was consistently associated with more symptoms of anxiety, depression, and lower levels of self-esteem and more negative body image (with  $r$ 's typically in the .20 to .30 range).

Next, we looked at how strongly the demographic variables and the stressors were associated with each of the well-being outcomes in Study 2. As can be seen from the right panel of Table 1, with few exceptions the pattern of associations closely mirrored those found in Study 1. Women and students being sexually harassed or coerced during the past year or forced to sex previously, having a non-heterosexual orientation, and having parents not currently employed generally reported more depressive symptoms, lower self-esteem, and more negative body image.

**Table 1** Point-Biserial and Pearson's correlations for demographic predictors, stressors and well-being outcomes

	Study 1				Study 2		
	HSCL-anxiety	HSCL-depression	GNSE	NBI	MDI	GNSE	NBI
Gender (women = 0) <sup>a</sup>	-.24*	-.30*	-.28*	-.34*	-.23*	-.32*	-.41*
Age	.08*	-.09*	-.02	-.01	.04	.03	.02
Vocational education <sup>a</sup>	-.04	-.05	.06	.04	.01	-.01	-.05
Parents split <sup>a</sup>	.00	.02	.04	.07	.10*	.07	.06
Parents not employed <sup>a</sup>	.12*	.11*	.09*	.04	.14*	.09*	.09*
Non-heterosexual <sup>a</sup>	.23*	.21*	.14*	.12*	.20*	.17*	.12*
Immigrant <sup>a</sup>	.08*	.08*	.03	.00	.03	-.04	-.04
Current partner <sup>a</sup>	.08*	.07*	.10*	.04	.04	.01	.00
Harassed by peers	.31*	.32*	.16*	.22*	.29*	.19*	.19*
Coerced by peers <sup>a</sup>	.26*	.25*	.14*	.20*	.22*	.15*	.17*
Prior forced <sup>a</sup>	.16*	.14*	.13*	.13*	.20*	.22*	.22*
<i>M</i>	1.46	1.73	2.33	2.57	16.72	2.41	2.75
<i>SD</i>	0.56	0.64	0.68	0.96	10.93	0.75	1.01
Min-max	1-4	1-4	1-5	1-5	0-50	1-5	1-5

Study 1:  $n = 1253$  (2007), Study 2:  $n = 1330$  (2014), County of Sør-Trøndelag, Norway

HSCL Hopkins symptoms check list, GNSE global negative self-esteem, NBI negative body image, MDI major depression inventory

\*  $p < .01$

<sup>a</sup> Dichotomously coded

**Table 2** Multiple regression analyses (OLS) predicting anxiety, depression, and self-esteem in Study 1 (2007) and Study 2 (2014), County of Sør-Trøndelag, Norway

Variable	Study 1						Study 2							
	HSCL-anxiety		HSCL-depression		GNSE		NBI		MDI		GNSE		NBI	
	$\alpha$	t	$\alpha$	t	$\alpha$	t	$\alpha$	t	$\alpha$	t	$\alpha$	t	$\alpha$	t
Gender (women = 0)	-.161	-6.42**	-.230	-8.86**	-.260	-9.00**	-.324	-11.92**	-.216	-8.63**	-.322	-12.44**	-.404	-16.38**
Age	.064	2.31*	.072	2.75**	-.025	-0.93	-.021	-0.79	.033	1.29	.033	1.40	.017	0.75
Vocational education	.017	0.69	.008	0.34	.106	3.75**	.095	3.60**	.051	2.00*	.060	2.38*	.030	1.23
Parents split	-.043	-1.67	-.019	-0.73	.026	0.95	.058	2.17*	.074	2.90**	.052	2.00*	.061	2.46**
Parents not employed	.101	3.43**	.081	2.99**	.066	2.33*	.014	0.51	.084	3.13**	.046	1.76	.053	2.01*
Non-heterosexual	.169	4.94**	.151	4.74**	.081	2.78**	.053	1.88	.139	5.00**	.120	4.34**	.062	2.56*
Immigrant	.042	1.57	.047	1.70	.006	0.26	-.017	-0.65	.008	0.35	-.041	-1.80	-.041	-1.74
Current partner	.027	1.00	.011	0.40	.047	1.71	-.028	-1.03	-.034	-1.32	-.078	-3.17**	-.096	-3.93**
Harassed by peers	.229	7.16**	.250	8.25**	.110	3.52**	.151	4.83**	.220	7.19**	.126	4.38**	.139	4.97**
Coerced by peers	.110	3.75**	.083	2.89**	.041	1.35	.068	2.23*	.060	2.09*	.011	0.37	.028	1.02
Prior Forced	.072	1.88	.043	1.44	.053	1.93	.055	1.89	.064	2.16*	.112	4.31**	.102	3.99**

HSCL Hopkins symptoms check list, GNSE global negative self-esteem, NBI negative body image, MDI major depression inventory.  $R^2$  (Anxiety) = .211,  $R^2$  (Depression) = .227,  $R^2$  (Study 1 GNSE) = .132,  $R^2$  (Study 1 NBI) = .177,  $R^2$  (MDI) = .188,  $R^2$  (Study 2 GNSE) = .183,  $R^2$  (Study 2 NBI) = .236

\*  $p < .05$ , \*\*  $p < .01$

We then regressed each of the well-being indicators on all predictors in Study 1. The final OLS regression models containing main effects for anxiety, depression, self-esteem and body image are reported in Table 2. The overall pattern of effects was highly consistent across the various outcomes of well-being. Being female, non-heterosexual, and being subject to non-physical sexual harassment and peer sexual coercion were substantially associated with lower levels of well-being in Study 1.

The effects of these predictors were further sustained in Study 2, also for the improved outcome measure of depression, MDI. Notably, the effect of being non-physically sexually harassed on well-being was notable even when the effects of other predictors and being sexually coerced and forced to sex were accounted for. The other predictors showed less consistent effects. Still, when the effect of the remaining variables were accounted for lower levels of well-being, higher scores were found for those enrolled in vocational education, reporting parents not currently employed, or split up. Immigrant status was not consistently associated with well-being across the two surveys. Having a boyfriend/girlfriend was generally not associated with anxiety and depression, but was associated with more positive self-esteem and body image in Study 2. Overall, the predictors accounted for approximately 20% of the variance in high school students' well-being.

The moderator analyses suggest that gender significantly moderated the effect of peer sexual harassment on depressive symptoms in both Study 1 ( $t = -2.84, p < .01$ ) and Study 2 ( $t = -2.29, p < .05$ ). In both surveys the associations were stronger for women ( $r = .35$ ) than for men ( $r = .24$ ). This interaction effect is illustrated in Fig. 1 (Study 2). As can be seen from Fig. 1, women reported higher levels of depressive symptoms for every level of

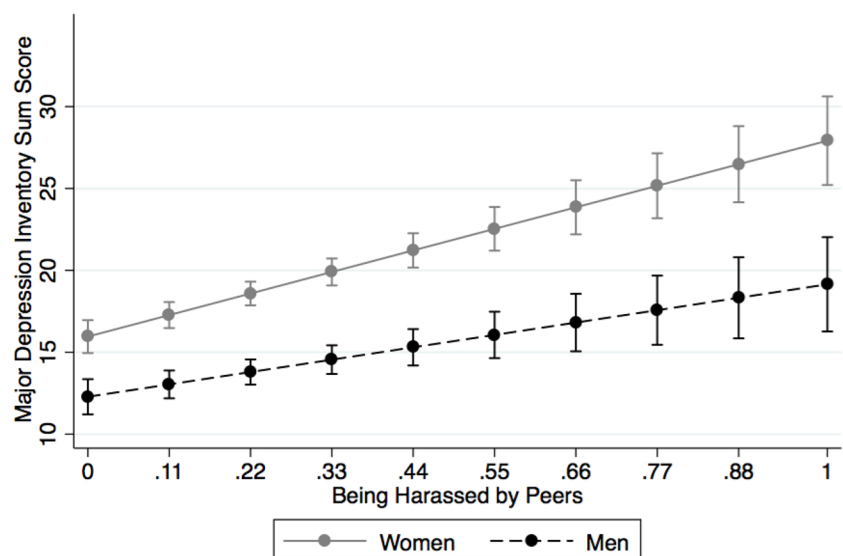
being harassed, but the relative sex difference was more pronounced for high levels of being harassed.

Further, being harassed affected women's self-esteem ( $t = -2.88, p < .01$ ) and body image ( $t = -2.05, p < .05$ ) significantly more negatively in Study 2. In addition, being harassed affected sexual minorities' and immigrant's self-esteem and body image significantly more negatively in Study 2. None of these interactions were evident in Study 1.

## Discussion

In summary, indicators of well-being ranging from symptoms of depression and anxiety, to self-esteem, and body image were all substantially affected by being subject to non-physical peer sexual harassment in high school students. The findings were robust across the two studies. Being sexually coerced (or being forced to sex in the past) also affected student's well-being, but to a lesser degree. Compared to men and heterosexuals, women and sexual minorities reported lower levels of well-being. For most outcomes, non-physical peer sexual harassment was the strongest predictor for reduced well-being, apart from the self-esteem/body image measures that were more strongly related to gender (women). Across the two studies, educational program, parents' social status, students' own social status, or immigrant status did not consistently affect well-being. The adverse effect of non-physical peer sexual harassment on the subject's well-being was evident in both genders, but affected women's depressive symptoms more in both studies and self-esteem and body image in Study 2. Similar negative effects of harassment on self-esteem and body image were found for sexual minorities and immigrants in Study 2.

**Fig. 1** Predictive margins (with 95% CI's) for women's and men's associations between level of being sexually harassed and level of symptoms on the Major Depression Inventory



The possible adverse effects of being subject to non-physical peer sexual harassment are highly comparable to findings from prior studies of adolescents that have applied broader measures of sexual harassment that also cover physical forms (e.g., Chiodo et al. 2009; Dahlqvist et al. 2016; Landstedt and Gillander Gådin 2011; Skoog et al. 2015). The strong effect of non-physical peer sexual harassment on the psychological well-being is particularly noteworthy. While sexual coercion is less prevalent than non-physical harassment, being sexually or physically coerced is generally considered more adverse and found to be linked to the development of mental health symptomatology, depression included (Gotlib and Hammen 2015).

Following prior findings (Collier et al. 2013; Mitchell et al. 2014) and Chiodo et al. (2009) recommendations, we took a closer look at the effect of being subject to peer sexual harassment for ethnic and sexual minorities, as well as other groups assumed to be more vulnerable to harassment such as women, and students having parents split or unemployed in the analyses. We consistently found evidence for increased vulnerability for depressive symptoms in women. Part of the explanation for this gender difference may be linked to reactivity to stress such as coping styles and rumination (Nolen-Hoeksema 2001). Immigrants were generally not more likely to report symptoms of anxiety or depression, but supportive of prior research we did find that sexual and ethnic minorities were more likely to be adversely affected by being sexually harassed by peers. However, these effects were restricted to Study 2 and to self-esteem and body image outcomes.

### Study limitations

Despite applying two community samples of high school students for measuring the effect of peer sexual harassment and coercion on various psychological health outcomes, some limitation to our findings need to be addressed. First, non-response may represent a serious threat to estimates of prevalence rates in surveys if those who respond differ systematically from those who decline. Typically, non-response seems to affect univariate distributions, and efficient procedures suggested to mitigate this are weighting adjustments (Dey 1997). Because the characteristics of the samples included in our two studies were highly comparable, and largely reflected the characteristics of the relevant population on key measures, adjustments were not carried out. Moreover, studies show that the *relationship* between variables tend not to be affected by weighting (Dey 1997). The above adds to our confidence in the associations reported from Study 1 and Study 2.

Second, the nature of the cross-sectional design does not allow to directly address, or to make strong inferences about causality or directionality of effects. It is possible

that students who are more depressed, anxious or have low self-esteem are disproportionately targeted for sexual harassment (Dahlqvist et al. 2016; Marshall et al. 2013). Depression (and possibly anxiety or low self-esteem) may be perceived as a sign of vulnerability or exploitability in the eye of the harasser (Buss and Duntley 2008). On the other hand, students showing these signs of vulnerability could be less likely targeted due to their lower sociability and status, and one study finds that students perceived as *more* powerful by their peers may be *more* likely subjects of subsequent sexual harassment (Petersen and Hyde 2009). It is also possible that anxious students are more likely to *report* being harassed due to a lower threshold and that those who benefit from psychosocial support are more likely to be aware of harassment.

Despite some uncertainty regarding directionality of effects prior longitudinal research evidence suggests that being sexually harassed by peers increases the probability of subsequent psychological adjustment problems and more symptoms of depression as shown by Skoog et al. (2015) and Chiodo et al. (2009). By providing a number of additional stressors as controls, this study underscores this, as the adverse effects of non-physical peer sexual harassment are strong and present over and above the effect of other stressors. However, the problem of inflated associations for measures collected at the same time (i.e., common method variance) remains unknown (Lindell and Whitney 2001; Podsakoff et al. 2003).

### Future research

Most studies regularly apply measures of sexual harassment that cover items on physical harassment of some form (e.g., being brushed against, held, intimate touching, forced kissing and sex) along with non-physical items. We believe this obscures matters more than clarifying with regard to the effect of sexual harassment on well-being. Our findings clearly suggest that the more common and apparently less serious non-physical sexual harassment is the more relevant stressor for student's well-being than sexual coercion. In addition, predictors of non-physical and physical harassment may be partly different; non-physical forms may precede physical harassment, all suggesting different etiologies for the two forms. Hence, future studies on peer sexual harassment are advised to report on predictors and outcomes separately for non-physical and physical (coercive) forms of sexual harassment.

Our two cross-sectional studies complement longitudinal work suggesting that peer sexual harassment is common and that there is substantial negative effects of being sexually harassed on adolescents' well-being (Chiodo et al. 2009; Dahlqvist et al. 2016; Marshall et al. 2013; Skoog et al. 2015). Still, we need more longitudinal studies to

attempt to address casual mechanisms and the dynamics of how depression, anxiety, self-esteem, social stressors and personality factors and sexual harassment are related, and how these change over time. Longitudinal designs are also necessary to reduce integral methodological problems that arise from the use of cross-sectional designs (Lindell and Whitney 2001; Podsakoff et al. 2003).

At the same time interventions designed particularly to deal with sexual harassment have proven ineffective with regard to affecting behavior (Connolly et al. 2015; de Lijster et al. 2016; Pina et al. 2009). In developing interventions, we believe one must target the more common forms of peer sexual harassment, based upon future empirical knowledge on the active mechanisms driving this behavior. Studies designed to both develop and document efficient interventions to reduce both depression, anxiety and sexual harassment among adolescents are sorely needed.

## Conclusions

Being subject to non-physical peer sexual harassment in high school appears to have adverse effects on students' well-being over and above the effect of being sexually coerced or forced and other stressors. In the context of potential psychosocial stressors this may seem counter-intuitive. Compared to students not subject to any sexual harassment, students harassed by their peers reported less satisfaction, lower self-esteem, and more symptoms of depression and anxiety. These effects appear to be generally stronger for women than for men, but not stronger for sexual (or ethnic) minority groups. The old English saying: "sticks and stones may break bones, but words will never harm me" is not empirically supported by the current data. The current findings clearly suggest that also relatively common derogatory words and other forms of non-physical sexual harassment are negatively associated with high school student's well-being.

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## Compliance with ethical standards

**Ethical statement** The study was carried out in line with the American Psychological Association's ethical principles of psychologists and code of conduct.

## Appendix

### Harassment acts, Study 1

1. Unpleasant sexual gazes<sup>†</sup>.
2. Denigrating comments such as "cunt", "prick", "bitch", "whore", etc.
3. Denigrating comments such as "gay", "lesbo", "fag", "dyke", etc.
4. Dirty/debasing talk or denigrating comments on body or looks.
5. Shown sexually laden pictures or objects.
6. Having had sexual rumors spread.
7. Having had pictures of you distributed online when undressed.
8. Receiving sexual content through electronic media (mobile or internet).
9. Sexual requests (being asked for sexual service).

*Note:* <sup>†</sup> this item was not part of the Study 2 list of items.

### Harassment acts, Study 2

1. Denigrating comments such as "whore", "man-whore", "slut", "manslut", "loose", etc.
2. Denigrating comments such as "gay", "lesbo", "fag", "dyke", etc.
3. Denigrating comments such "cunt", "prick", "ass-hole", "bitch", etc.
4. Dirty/debasing talk or denigrating comments on body or looks.
5. Shown sexually laden pictures or objects.
6. Having had sexual rumors spread.
7. Having had pictures of you distributed online when undressed.
8. Receiving sexual content through electronic media (mobile or internet).
9. Sexual requests (being asked for sexual service).

*Note:* All items were coded 0 = no and 1 = yes.

## References

- Alsaker FD (1992) Pubertal timing, overweight, and psychological adjustment. *J Early Adolesc* 12:396–419
- Alsaker FD, Olweus D (1986) Assessment of global negative self-evaluations and perceived stability of self in Norwegian preadolescents and adolescents. *J Early Adolesc* 6:269–278
- American Association of University Women (2001) *Hostile hallways: bullying, teasing, and sexual harassment in school*. American Association of University Women, Washington, DC
- Bech P, Rasmussen NA, Olsen LR, Noerholm V, Abildgaard W (2001) The sensitivity and specificity of the Major Depression

- Inventory, using the Present State Examination as the index of diagnostic validity. *J Affect Disord* 66:159–164
- Bendixen M, Kennair LEO (2014) Resultater fra prosjekt Seksuell helse og trakassering i videregående opplæring 2013–2014 [Findings from the Sexual health and harassment project in high school education 2013–2014]. vol ISBN 978-82-8094-018-6 (pdf). NTNU, Trondheim
- Bendixen M, Kennair LEO (2017) Advances in the understanding of same-sex and opposite-sex sexual Harassment. *Evol Hum Behav* 38:583–591. <https://doi.org/10.1016/j.evolhumbehav.2017.01.001>
- Buss DM, Duntley JD (2008) Adaptations for exploitation Group Dyn 12:53–62
- Chiodo D, Wolfe DA, Crooks C, Hughes R, Jaffe P (2009) Impact of sexual harassment victimization by peers on subsequent adolescent victimization and adjustment: a longitudinal study. *J Adolesc Health* 45:246–252. <https://doi.org/10.1016/j.jadohealth.2009.01.006>
- Collier KL, van Beusekom G, Bos HMW, Sandfort TGM (2013) Sexual orientation and gender identity/expression related peer victimization in adolescence: a systematic review of associated psychosocial and health outcomes. *J Sex Res* 50:299–317. <https://doi.org/10.1080/00224499.2012.750639>
- Connolly J et al (2015) Evaluation of a youth-led program for preventing bullying, sexual harassment, and dating aggression in middle schools. *J Early Adolesc* 35:403–434. <https://doi.org/10.1177/0272431614535090>
- Dahlqvist HZ, Landstedt E, Young R, Gadin KG (2016) Dimensions of peer sexual harassment victimization and depressive symptoms in adolescence: a longitudinal cross-lagged study in a Swedish sample. *J Youth Adolesc*. <https://doi.org/10.1007/s10964-016-0446-x>
- de Lijster GPA, Felten H, Kok G, Kocken PL (2016) Effects of an interactive school-based program for preventing adolescent sexual harassment: a cluster-randomized controlled evaluation study. *J Youth Adolesc* 45:874–886. <https://doi.org/10.1007/s10964-016-0471-9>
- Dey EL (1997) Working with low survey response rates: the efficacy of weighting adjustments. *Res High Educ* 38:215–227. <https://doi.org/10.1023/A:1024985704202>
- Duffy J, Wareham S, Walsh M (2004) Psychological consequences for high school students of having been sexually harassed. *Sex Roles* 50:811–821. <https://doi.org/10.1023/B:SERS.0000029099.38912.28>
- Felix ED, McMahon SD (2006) Gender and multiple forms of peer victimization: how do they influence adolescent psychosocial adjustment? *Violence Vict* 21:707–724
- Gottlib IH, Hammen CL (2015) *Handbook of depression*. Guilford Press, New York
- Gruber JE, Fineran S (2008) Comparing the impact of bullying and sexual harassment victimization on the mental and physical health of adolescents. *Sex Roles* 59:1–13. <https://doi.org/10.1007/s11199-008-9431-5>
- Kennair LEO, Bendixen M (2012) Sociosexuality as predictor of sexual harassment and coercion in female and male high school students. *Evol Hum Behav* 33:479–490. <https://doi.org/10.1016/j.evolhumbehav.2012.01.001>
- Landstedt E, Gillander Gadin K (2011) Experiences of violence among adolescents: gender patterns in types, perpetrators and associated psychological distress. *Intl J Pub Health* 56:419–427. <https://doi.org/10.1007/s00038-011-0258-4>
- Lichty LF, Campbell R (2012) Targets and witnesses: middle school students' sexual harassment experiences. *J Early Adolesc* 32:414–430. <https://doi.org/10.1177/0272431610396090>
- Lindell MK, Whitney DJ (2001) Accounting for common method variance in cross-sectional research designs. *J Appl Psychol* 86:114. <https://doi.org/10.1037/0021-9010.86.1.114>
- Marshall SK, Faaborg-Andersen P, Tilton-Weaver LC, Stattin H (2013) Peer sexual harassment and deliberate self-injury: longitudinal cross-lag investigations in Canada and Sweden. *J Adolesc Health* 53:717–722. <https://doi.org/10.1016/j.jadohealth.2013.06.009>
- Mitchell KJ, Ybarra ML, Korchmaros JD (2014) Sexual harassment among adolescents of different sexual orientations and gender identities. *Child Abuse Negl* 38:280–295. <https://doi.org/10.1016/j.chiabu.2013.09.008>
- Nolen-Hoeksema S (2001) Gender differences in Depression. *Curr Dir Psychol Sci* 10:173–176
- Ormerod AJ, Collinsworth LL, Perry LA (2008) Critical climate: relations among sexual harassment. Climate, and outcomes for high school girls and boys. *Psychol Women Q* 32:113–125. <https://doi.org/10.1111/j.1471-6402.2008.00417.x>
- Paludi MA (1997) Sexual harassment in schools. In: O'Donohue W (ed) *Sexual harassment: theory, research, and treatment*. Allyn and Bacon, Boston, pp 225–249
- Petersen JL, Hyde JS (2009) A longitudinal investigation of peer sexual harassment victimization in adolescence. *J Adolesc* 32:1173–1188. <https://doi.org/10.1016/j.adolescence.2009.01.011>
- Pina A, Gannon TA, Saunders B (2009) An overview of the literature on sexual harassment: perpetrator, theory, and treatment issues. *Aggress Violent Behav* 14:126–138. <https://doi.org/10.1016/j.avb.2009.01.002>
- Podsakoff PM, MacKenzie SB, Lee J-Y, Podsakoff NP (2003) Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J Appl Psychol* 88:879. <https://doi.org/10.1037/0021-9010.88.5.879>
- Rosenberg M (1965) *Society and the adolescent self-image*. Princeton University Press, Princeton
- Skoog T, Özdemir SB, Stattin H (2015) Understanding the link between pubertal timing in girls and the development of depressive symptoms: the role of sexual harassment. *J Youth Adolesc*. <https://doi.org/10.1007/s10964-015-0292-2>
- Slaatten H, Anderssen N, Hetland J (2015) Gay-related name-calling among Norwegian adolescents—harmful and harmless. *Scand J Psychol* 56:708–716. <https://doi.org/10.1111/sjop.12256>
- StataCorp (2015) *Stata Statistical Software: release 14*. StataCorp LP, College Station
- Strand BH, Dalgard OS, Tambs K, Rognerud M (2003) Measuring the mental health status of the Norwegian population: a comparison of the instruments SCL-25, SCL-10, SCL-5 and MHI-5 (SF-36). *Nord J Psychiatry* 57:113–118. <https://doi.org/10.1080/08039480310000932>