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ARTICLE

Bullying in German adolescents

Attending special school for students with visual impairment

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ABSTRACT The present study analysed bullying in German adolescents with and without visual impairment. Ninety-eight adolescents with vision loss from schools for students with visual impairment, of whom 31 were blind and 67 had low vision, were compared with 98 sighted peers using a matched-pair design. Students with low vision reported higher levels of peer-victimization and relational victimization in particular than sighted students. In addition, students with low vision reported higher levels of overall victimization and relational victimization by peers in particular than students who are blind, as well as higher levels of overt aggression towards their peers. Support from peers buffered the effects of victimization on psychological adjustment in adolescents with vision loss but not in their peers without vision loss. It is concluded that increasing support from peers may be an effective way of reducing negative effects of victimization of adolescents with visual impairment.

KEY WORDS *aggression, bullying, peer victimization, social support, visual impairment*

Bullying is defined as an aggressive behaviour repeated over time with the intention to harm the victim and characterized by an imbalance of power between the bully and the victim (e.g. Smith, 2004). Physical bullying or aggression is characterized by observable behaviours including being hit or beaten up, physical threats, and blackmail. In contrast, relational forms of bullying or aggression include more subtle indirect forms of behaviour such as untrue rumours, and social exclusion. Research indicates that between 10 percent and 30 percent of children and adolescents are involved in bullying, although prevalence rates vary significantly as a function of how bullying is measured (Cook et al., 2010).

BULLYING AND VISUAL IMPAIRMENT

Children with disabilities are frequent targets of bullying. Although most studies have shown that young people with chronic health conditions tend to be at increased risk of victimization (e.g. Van Cleave and Davis, 2006), others have found no between-group differences (e.g. Nishina et al., 2005). Few studies have addressed bullying in children with visual impairment. Some qualitative studies have identified problems of teasing, bullying rudeness, and social exclusion in young people with visual impairment (e.g. Buultjens et al., 2002; Rosenblum, 2000; Roy and Spinks, 2005). Further, a quantitative study by Sabri et al. (2006) found that nine percent of adolescents with amblyopia (a disorder characterized by poor or indistinct vision because visual stimulation is not or poorly transmitted through the optic nerve) were teased 'mostly' or 'always'. However, these studies did not allow for a comparison with sighted peers.

To our knowledge, only two studies have provided comparative data to date. Horwood et al. (2005) investigated whether wearing glasses, having manifest strabismus, or having a history of wearing an eye patch predisposes preadolescent children to being victimized more frequently at school. Children currently wearing glasses or with a history of wearing eye patches were 35 percent to 37 percent more likely to be victims of physical or verbal bullying but not of relational victimization. In that study no associations of strabismus with bullying were found. However, this study focused on less severe forms of visual impairment. In addition, it only addressed being bullied and did not ask whether young people with visual impairment may also differ from their peers with regard to the probability of being a bully (perpetrator). Such an effect might be observed because available studies not specific to vision loss have found that being victimized is associated with an increased probability of bullying others (e.g. Haynie et al., 2001). That association is probably based on common risk factors, such as low self-control and social competence, or on the fact that being bullied may promote aggressive behaviour. In addition, Nordhagen et al. (2005) observed that, according to parental reports, children with visual impairment were at elevated risk for being bullied (Odds ratio 1.8) but not for bullying others.

The study by Horwood et al. (2005) showed inconsistent results with regard to the association of the severity of visual problems with the risk of being bullied. On the one hand, frequent glasses wearers were slightly more likely to be bullied than occasional glasses wearers. On

the other hand, associations of visual impairment with being bullied were slightly greater for children with one visual defect than for those with two or more defects. Unfortunately, Nordhagen et al. (2005) did not compare young people with different levels of visual impairment.

Thus, the aim of the present study was to compare the levels and correlates of bullying and victimization of adolescents with different vision status (students who are blind versus those with low vision versus sighted students). We ask in the first research question whether higher levels of visual impairment would be associated with a higher risk of being bullied and of bullying other students.

ASSOCIATIONS OF VICTIMIZATION, SOCIAL SUPPORT, AND PSYCHOLOGICAL ADJUSTMENT

The second research question asks whether victimization is associated with lower levels of psychological adjustment, and whether this association differs by vision status and availability of social support. Bullying has been found to be associated with psychosocial maladjustment in the victimized, including increased anxiety, depressive feelings, and lowered self-esteem (for an overview, see Reijntjes et al., 2010). To our knowledge, there are no available studies that have tested whether the size of the associations between victimization and psychological adjustment would vary between students with and without visual impairment.

Some studies have tested whether the size of the association varies according to the level of individual and social resources. For example, social support may promote less threatening appraisals of stressors and other forms of effective coping (e.g. receiving advice on how to behave in situations at risk). A small number of studies not specific to vision loss have examined the role of social support from peers as a moderator of the relationship between victimization and psychological outcomes. However, the results of these studies were inconclusive regarding whether support from peers buffers (e.g. Davidson and Demaray, 2007, male sample; Holt and Espelage, 2007, only with regard to moderate levels of support; Kochenderfer-Ladd and Skinner, 2002) or does not buffer (e.g. Davidson and Demaray, 2007, female sample; Rigby, 2000) the effects of victimization on psychological adjustment. Thus, some young people may benefit more from social support than others.

Kef and Deković (2004) have suggested that peer support may be more important for students with visual impairment than for their sighted

peers because it reflects their need for independence from their parents and their desire to be as normal as possible. In fact, they found a positive linear relationship between peer support and well-being in students with visual impairment whereas no such relationship appeared in sighted adolescents. Based on these considerations, our third research question asks whether peer support may buffer the effect of peer victimization on psychological adjustment to a greater extent in students with visual impairment as compared to their sighted peers. This association has not been tested thus far.

METHODS

Sample

Eighty-nine adolescents with visual impairment were recruited from six German schools for students with visual impairment. Based on age (± 1 year), gender, and school track (Gymnasium [highest school track] versus Realschule [middle school]) these students were matched with 98 sighted peers from schools located near the schools for students with visual impairment. The study was approved by the Ethics Committee of the German Psychological Society. After permission had been obtained from the schools and the parents, students answered our questions in their classes. The response rate was 91 percent. The respondents were, on average, 15.57 years old (SD = 2.05), and their mean age did not differ between the two groups (M = 15.57 vs. 15.31, t_{195} = 0.82, n.s.). In each group, 47 percent of the students were female and 50 percent attended middle schools. Thirty-one students with visual impairment were blind. The remainder had low vision according to the criteria of the International Classification of Diseases and Related Health Problems 10th Revision (World Health Organization, 2010), which is visual acuity of less than 6/18, but equal to or better than 3/60, or a vision field loss to less than 20 degrees in the better eye with best possible correction. Because the participants were recruited from special schools for students with visual impairment they were likely to have more severe disabilities.

Measures

Bullying. The Social Experience Questionnaire – Self Report was used to assess bullying (SEQ-S; Crick and Grotpeter, 1996). It measures adolescents' reports of relational and overt victimization. Parallel versions ask about being a victim and being a perpetrator. The overt victimization scale consists of three items (e.g. 'kids who hit or push others'), and the relational victimization scale consists of five items (e.g. 'kids who tell friends they will stop liking them unless the friends do

what they say'). Items are rated on a five-point Likert scale anchored by 1 = 'never' to 5 = 'always'. Storch et al. (2006) showed that the SEQ-S has acceptable psychometric properties in a large sample of adolescents, with favourable reliability and validity estimations. In the present study, Cronbach's α ranged between .76 (being a victim of relational aggression) and .87 (being a perpetrator of relational aggression). We computed mean scores across the scale items.

Peer support. We used a modified version of the subscales *Perceived Emotional Support* and *Perceived Instrumental Support* from the Berlin Social Support Scales (Schwarzer and Schulz, 2000). All items were asked with regard to support from peers (rather than with regard to support in general). Answers were marked on a four-point Likert-type scale ranging from '1 = totally wrong' to '4 = totally true'. A sample item is 'Those people really like me'. In the present study, the scale had an internal consistency of α = .90.

Psychological adjustment. Two indicators of psychological adjustment were used. Life-satisfaction was assessed with the Satisfaction with Life Scale (Diener et al., 1985), which is a widely used and well-validated measure of life satisfaction. A sample item is 'I am satisfied with my life' (1 = 'strongly disagree', 7 = 'strongly agree'). In the present study, Cronbach's α was .83. In addition, we used the five-item scale 'Emotional Symptoms' from the self-rating form of the Strengths and Difficulties Questionnaire that asks for symptoms of anxiety, depression, and psychosomatic complaints (SDQ; Goodman, 1997). The SDQ is a widely used screening instrument of psychological symptoms of children and adolescents. A sample item is 'I worry a lot'. The items are scored 1 for 'not true', 2 for 'somewhat true', and 3 for 'certainly true'. Cronbach's α was .67.

RESULTS

We started with the analysis of average levels of bullying in the total sample. On average, the respondents reported rarely being bullied, as indicated by a mean score of 1.77 on a five-point Likert scale (Table 1). They more often reported being a victim of relational victimization than of overt victimization ($F_{1,195} = 39.81$, $p < .001$). According to their self-reports, the students rarely showed bullying behaviour, and their levels of relational aggression and overt aggression did not differ significantly ($F_{1,195} = 1.14$, n.s.). The means for the three groups are presented in Table 1.

Table 1. Levels of the study variables in groups with different vision status

	Total sample		Adolescents who are blind		Adolescents with low vision		Sighted adolescents		ANOVA	Post-hoc Tukey contrasts		
	M	*SD*	*M*	*SD*	*M*	SD	*M*	*SD*	$F_{2,193}$	Blind – sighted	Blind – low vision	Low vision – sighted
Bullying: victim	1.77	.71	1.57	.52	1.99	.82	1.69	.64	5.22**		B < L	L > S
Overt aggression	1.56	.75	1.43	.60	1.70	.85	1.51	.72	1.84			
Relational aggression	1.90	.82	1.65	.68	2.15	.93	1.80	.71	5.80**		B < L	L > S
Bullying: perpetrator (bully)	1.68	.89	1.33	.38	1.75	.80	1.55	.63	4.67**		B < L	
Overt aggression	1.62	.89	1.27	.48	1.86	1.07	1.57	.81	5.27**		B < L	
Relational aggression	1.56	.68	1.36	.51	1.69	.76	1.54	.65	2.63			
Peer support	3.50	.62	3.57	.56	3.30	.77	3.61	.48	5.38**			L < S
Emotional symptoms	1.69	.48	1.78	.38	1.79	.54	1.55	.44	6.06**	B > S		L > S
Life-satisfaction	4.73	1.33	4.37	1.38	4.71	1.28	4.85	1.28	1.53			

Note: *M* = mean, *SD* = standard deviation. A significant *F* ratio indicates that the levels of the assessed variables differ between students who are blind, have low vision, and have no visual impairment. Only significant Tukey contrasts are shown. ** $p < .01$.

In our first research question, we had asked whether higher levels of visual impairment would be associated with a higher risk of being victimized and bullying others. Four of the six ANOVAs showed significant differences between groups (Table 1). Post-hoc Tukey-tests indicated that sighted students reported lower levels of peer-victimization and relational aggression in particular than students with low vision. However, the levels of bullying did not vary between sighted and blind students. In addition, blind adolescents were less likely to report victimization by peers, and relational victimization in particular, than adolescents with low vision (Table 1). Similarly, blind students were less likely to report that they had bullied other students than adolescents with low vision. This was the case with regard to the sum scale and overt aggression.

The second research question addressed associations of victimization and peer support with two indicators of psychological adjustment. The levels of emotional symptoms differed significantly between the three groups, with sighted adolescents showing weaker symptoms than adolescents with low vision and students who are blind. In addition, students with low vision reported lower levels of support from peers than sighted students. However, there were no significant between-group differences in life-satisfaction (Table 1).

Because students with low vision and students who are blind did not differ in the two indicators of psychological adjustment, both groups were combined in the following statistical analysis. We computed two multiple linear regression analyses with emotional symptoms and life satisfaction as dependent variables. Independent variables were visual impairment, victimization (sum score), peer support, and the interaction effects of these variables. The three independent variables were centred before computing interaction effects in order to avoid problems with multicollinearity (Aiken and West, 1991).

The first regression analysis found a significant main effect of visual impairment and a significant three-way interaction effect of visual impairment, victimization, and social support on the level of emotional symptoms (Table 2). Higher levels of emotional symptoms were found in students with visual impairment than in their sighted peers.

In order to interpret the interaction effect, we split the sample according to visual impairment (visual impairment versus sighted peers), victimization (scores below versus above the mean), and peer support (scores below versus above the mean) and compared the levels of

Table 2. Associations of visual status, being bullied, and peer support with emotional symptoms and life satisfaction

	Emotional symptoms			Life satisfaction		
	B	β	***t***	***B***	β	***t***
Visual impairment	.20	.21	3.03**	–.09	–.03	–0.59
Victimization	.09	.13	1.70	–.40	–.21	–2.29*
Peer support	.03	.03	0.44	.29	.13	1.72
Visual impairment × victimization	.01	.01	0.07	.22	.06	0.76
Visual impairment × support	–.04	–.03	–0.37	.02	.00	0.05
Victimization × support	.06	.08	0.72	–.45	–.21	–1.85
Victimization × support × visual impairment	–.39	–.25	–2.24*	1.02	.24	2.12*
Adjusted R^2	.10			.08		

B/β = unstandardized/standardized regression coefficient, R^2 = explained variance, * $p < .05$, ** $p < .01$.

emotional symptoms in the resulting eight subgroups. As indicated by the non-overlap of the 95 percent confidence-intervals, students with visual impairment who experienced above-average levels of bullying and below-average levels of peer support had higher levels of emotional symptoms than the other seven groups (Figure 1).

The level of life-satisfaction was predicted by victimization and the three-way interaction of vision status, victimization and peer support. Higher levels of victimization were related to lower levels of life satisfaction (Table 2). As shown in Figure 2, adolescents with visual impairment who reported above-average levels of victimization and below-average levels of peer support reported the lowest levels of life satisfaction. As indicated by the non-overlap of the 95 percent-confidence intervals, their level of satisfaction was lower than in the other groups except sighted students with below-average levels of peer support and bullying. These interaction effects support the suggestion that adolescents with visual impairment may benefit more from peer support than students without visual impairment.

DISCUSSION

Whereas previous studies indicated that wearing glasses (Horwood et al., 2005) or having a visual impairment in general (Nordhagen et al., 2005) increase the risk of being bullied, the present study shows

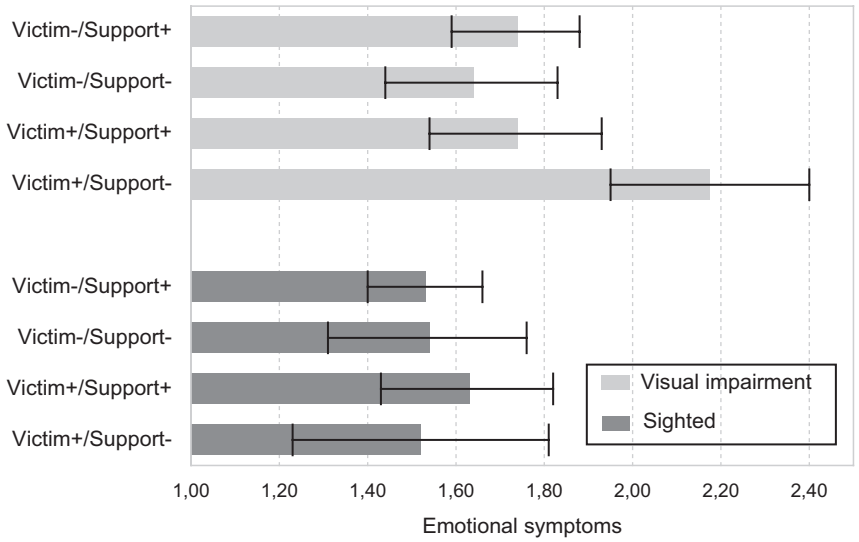

Figure 1. Associations of bullying and peer support with emotional symptoms in adolescents with and without visual impairment
Note: Victim-/Victim+ Levels of victimization below/above the sample mean. Support-/Support+ Levels of peer support below/above the sample mean. Error bars represent 95%-confidence intervals of the mean.

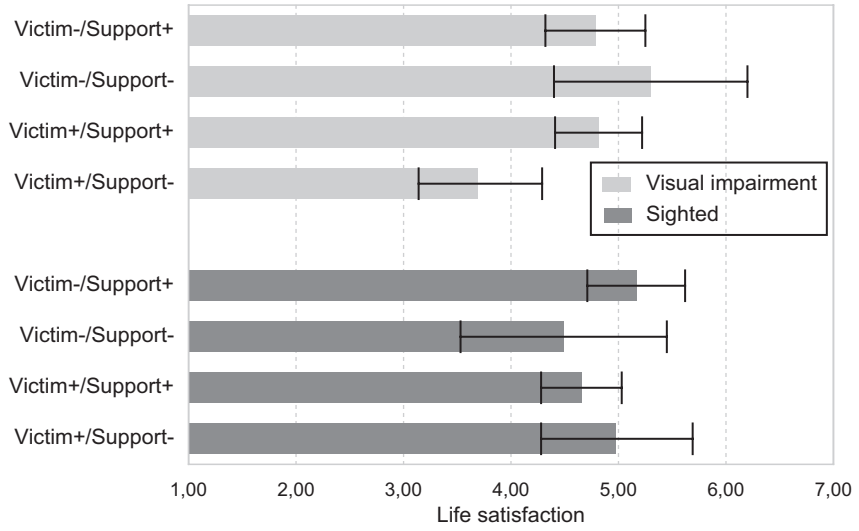

Figure 2. Associations of bullying and peer support with life satisfaction in adolescents with and without visual impairment
Note: Victim-/Victim+ Levels of victimization below/above the sample mean. Support-/Support+ Levels of peer support below/above the sample mean. Error bars represent 95%-confidence intervals of the mean.

that students with low vision rather than blind students experience peer victimization more often than their sighted peers. Two factors could explain these findings. First, students who are blind may not be able to perceive some kinds of bullying, such as when others make faces at them. Thus, they may under-report being bullied. In line with this suggestion, Gold et al. (2010) observed that adolescents and young adults with low vision were more concerned than their blind peers that the idiosyncrasies of visual impairment (such as eye movements) would cause negative reactions by other people. Second, students who are blind may have less contact with other persons than students with low vision which would reduce their risk for being bullied. However, related results are inconsistent. Huurre and Aro (2000) reported that blind adolescents spent more time alone and experience higher levels of loneliness than students with low vision. In contrast, Wolffe et al. (1997) observed that young people with low vision had fewer contacts with sighted peers than young people who were blind. Similarly, Gold et al. (2010) observed that adolescents and young adults with low vision experienced more social barriers, such as poor night vision limiting evening activities.

The present study also tested whether adolescents with visual impairment are more or less likely to bully others than sighted students. Nordhagen et al. (2005) found that children with visual impairment were not more likely than sighted peers to bully others and we would have found the same result when averaging the data from students who are blind and who have low vision. However, our study is the first to show that there are differences between the two groups with visual impairment. The observed lower levels of reported overt aggression of blind students as compared with peers with low vision may indicate that physically aggressive behaviours, such as hitting or beating up other children, would be difficult to pursue due to the lack of visual control. In addition, lower levels of contact with age mates (Huurre and Aro, 2000) may provide fewer opportunities for showing physically aggressive behaviour towards others.

The observed elevated level of emotional symptoms in students with visual impairment replicates the results of a recent meta-analysis (Pinquart and Pfeiffer, 2011), although we could not replicate a reduced level of life-satisfaction, probably due to limited statistical power. Table 1 showed a somewhat lower life-satisfaction score of students who are blind but the low number of blind students did not allow for finding a significant difference.

Elevated emotional symptoms probably reflect the effects of visual impairment on daily life, such as restricted social activities with sighted peers (Huurre and Aro, 2000), reduced availability of support from peers (Table 1) or increased risk for being bullied.

The analysis of predictors of emotional symptoms replicates results on the negative association of victimization with psychological adjustment (Reijntjes et al., 2010). In line with the study by Kef and Deković (2004), we showed that adolescents with vision loss benefit more from peer support than their sighted peers. Having low levels of peer support *and* being bullied is particularly stressful for adolescents with visual impairment because they have, on average, more problems than their sighted peers with building and maintaining peer relations (e.g. Huurre and Aro, 2000). Victims of bullying may believe that it would be very difficult for them to trust others and to establish positive relations with peers because of these negative experiences (Rosenblum, 2000). Sighted students may, on average, be better able to cope with bullying, for example, by searching for peer groups in diverse leisure contexts.

LIMITATIONS AND CONCLUSIONS

Three limitations of the study are outlined. First, the analysis of correlational data based on one measurement source does not provide information about causal relationships. For example, emotional symptoms may not only be a consequence of being bullied but also a risk factor for future victimization (Reijntjes et al., 2010). Second, our results cannot be generalized to students with vision loss from integrated schools. In Germany, most young people with serious vision loss attend special schools for students with visual impairment. We were therefore not able to recruit a sample from integrated schools. Third, only adolescent self-report data were available. Future studies should include other sources, such as peer nominations, teacher reports (where the focus is on bullying in schools), and observational data.

Despite these limitations, several conclusions can be drawn from this study. First, we conclude that students with low vision from special school for students with visual impairment are at higher risk for being bullied than their peers who are blind and sighted students. Second, increasing support from peers may be an effective way of reducing negative effects of victimization of adolescents with visual impairment. Research on available bullying prevention programs not specific to vision loss indicates that these interventions have meaningful, although

small effects (for an overview see, Merrell et al., 2008). Efforts to implement and evaluate these programs in schools and facilities for children and adolescents with vision loss would be welcome. Third, more research is needed on peer victimization of students with visual impairment from integrated schools. In addition, because the present study focused on adolescents, research comparing levels of bullying in younger children with and without visual impairment would be beneficial. Finally, research is needed that identifies risk factors for peer victimization of students with vision loss. Frequency of contact with sighted peers, levels of social competence, and school climate may be relevant risk factors.

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