

Same- and Other-Sex Victimization: Are the Risk Factors Similar?

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Risk factors for same- and other-sex victimization were examined in a longitudinal data set involving 9- to 14-year-old students. The findings regarding same-sex victimization supported the view that bullies select personally and interpersonally vulnerable targets in order to maximize their gains in status while minimizing loss of affection within their same-sex peer group. Although low self-esteem was a joint predictor of same- and other-sex victimization, rejection and lack of friends among other-sex peers failed to predict victimization by other-sex bullies, and being perceived as popular among other-sex peers *increased* the risk. Although the findings suggests that interpersonal risk factors for other-sex victimization differ from those found for same-sex victimization, they do not provide strong support for heterosexual interest being the basis for other-sex target selection, as suggested by some previous literature. As about half of the study participants were involved in the KiVa antibullying program, we had the possibility to examine whether the program effects were similar for same- and other-sex victimization. It turned out that in middle schools the program decreased only same-sex victimization, whereas in elementary school the decrease was observed regardless of the sex composition of bully–victim dyads. *Aggr. Behav.* 38:442–455, 2012. © 2012 Wiley Periodicals, Inc.

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INTRODUCTION

Bullying is repeated aggressive behavior in which the relationship between the bully and the victim is characterized by a power imbalance [Olweus, 1991; Smith and Brain, 2000]. As suggested by several studies, bullying is often goal-oriented behavior motivated by the pursuit of a high status and a powerful, dominant position in the peer group [Olthof et al., 2011; Pellegrini and Long, 2002; Salmivalli, 2010; Sijtsema et al., 2009]. Bullying can thus be seen as *a means to gain or maintain status*. This has implications for target selection as bullies seek to maximize their gains in status while minimizing loss of affection by other peers [Veenstra et al., 2010]. However, status goals are not necessarily the only motivation underlying bullying. For instance, it has been recently suggested that there may be different motivational bases for bullying crossing sex boundaries, as compared to same-sex bullying [Felix and Greif Green, 2010; O'Brien, 2011; Rodkin and Berger, 2008]. So far only few studies have examined the sex composition of the bully–

victim dyads, and none of them has looked at the question of target selection in a longitudinal setting.

We utilized 1-year longitudinal data to examine the risk factors of victimization by same- and other-sex peers to unravel whether bullies have a similar rationale for target selection when attacking same- versus other-sex peers. As the study is part of the evaluation of the KiVa antibullying program [Salmivalli et al., 2010], we also had the possibility of exploring whether same- and other-sex victimization can be equally reduced by a school-based program that was designed to reduce bullying and victimization in general,

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rather than either same- or other-sex victimization specifically.

Bullying Crossing Sex Boundaries

Although the distinction between same- and other-sex victimization has sometimes been made in bullying research, it has rarely extended beyond prevalence estimation of girls and boys who are bullied by their same-sex peers, other-sex peers, or both.

Olweus [1991, p. 420] reported that 60% of victimized girls in grades 5–7 were bullied mainly by boys, an additional 20–25% were bullied mainly by girls, and 15–20% were bullied by both. More recently, based on a sample including both elementary and junior high school students from 10 to 16 years of age, Olweus [2010] found that 46% of bullied girls were bullied mainly by boys, 38% were bullied by both sexes, and only 16% were bullied mainly by girls. In the study by Eslea and Smith [1998], girls reported being bullied equally often by girls only or boys only, both estimates ranging from 30% to 40% of female victims. Despite somewhat different criteria for identifying the victims of bullying, these studies indicate that only a minority of female victims is targeted mainly or only by other girls.

Among bullied boys, the situation is clearly different. The majority of male victims (60–80%) were targeted by boys only, whereas only 5–7% were bullied by girls only [Eslea and Smith, 1998; Olweus, 1991, 2010]. However, even if boys who are *mainly* or *only* bullied by girls are rare, up to 20–40% of bullied boys are still targeted by girls, showing that other-sex bullying from girls to boys exists as well.

Although some researchers have suggested same-sex victimization to be more common than other-sex victimization [Pellegrini and Long, 2002], it seems safe to conclude that this is only true of boys. Girls are actually quite often bullied by boys, whereas only a minority of bullied boys experience bullying from girls. This can be understood in terms of power imbalance: Boys are advantaged at least in terms of physical power, which makes it difficult for girls to defend themselves against boys' attacks. Although physical strength is not the only source of power, it is one of the often-mentioned differences between bullies and their victims [Olweus, 1991, p. 413; Smith and Brain, 2000].

It should be noted, however, that previous studies have assessed same- and other-sex bullying by general questions (e.g., are you bullied *mainly by boys*, *mainly by girls*, or *by both*), neither specifying the form of bullying nor requiring any reflection on the identities of the male or female peers doing the bullying. The forms of bullying perpetrated by girls versus boys are known

to be different; boys use direct forms of bullying more often than girls, whereas many studies report equal rates for boys and girls on indirect bullying [Card et al., 2008; Salmivalli and Peets, 2009]. A general question about bullying may lead the participants to think about the most prototypical or common forms, rather than reflecting on a wide variety of situations where bullying might have manifested in more subtle ways, such as indirect or relational bullying [Björkqvist et al., 1992; Crick and Grotpeter, 1995]. If, for instance, girl–boy bullying involved more indirect aggression than boy–boy bullying [e.g., Russell and Owens, 1999], and boys did not consider indirect aggression as “bullying,” this would bias the prevalence estimation of girl–boy bullying.

Personal and Interpersonal Vulnerabilities Increasing the Risk for Victimization

Victimization has both individual and interpersonal risk factors [Hodges and Perry, 1999]. One of the individual factors increasing the risk for victimization is low self-esteem, especially social self-esteem [Egan and Perry, 1998; Salmivalli and Isaacs, 2005]. This can be interpreted from the motivational perspective to bullying: In order to maximize the gains in status, it is beneficial for the perpetrators to target peers who are insecure, especially in the peer context. Children with low social self-worth signal submissiveness and thus, they provide “easy victories” for the bullies. Choosing them as targets the bullies can repeatedly demonstrate their status to the other peers, who often witness bullying situations [Salmivalli, 2010].

Veenstra et al. [2010] suggested that bullies seek to minimize their loss of affection by choosing targets who are also socially vulnerable, that is, disliked by peers. It is well documented that both peer rejection and friendlessness predict victimization [Boulton et al., 1999; Hodges et al., 1999; Salmivalli and Isaacs, 2005]. Targeting a child who is generally disliked or has few friends minimizes the possibility that other peers will feel negatively about the perpetrator or challenge his or her behavior.

Is the Motivational Basis for Other-Sex Bullying Different?

From the age of three, children have a preference to seek out same-sex playmates [Maccoby, 1998]. Sex segregation is perpetuated by the so-called homosocial norm [Mehta and Strough, 2009]; liking same-sex peers and spending time with them is considered normative, whereas almost the opposite [“normative aversion,” see Abecassis et al., 2002] is true of other-sex relationships. The boundary between boys and girls is not allowed to be crossed in a friendly way [Sroufe

et al., 1993]. Peers are strict enforcers of the homosocial norm, and according to Shaw [1995], being accused of liking or loving an other-sex peer can be one of the most hurtful charges leveled at a child. Thus, antagonistic relationships between girls and boys may not necessarily be based on hostility (as similar relationships with same-sex peers), but may have to do with normative expressions of dislike governed by the rules of the peer group. This may be the case especially in middle childhood, when sex segregation and the homosocial norm are strong, until starting to dissolve during early adolescence [Maccoby, 1998].

Bullying is defined as unilateral, repeated aggressive behavior from a stronger person toward a weaker one and as such, clearly distinct from mere *disliking*. Nevertheless, it is common to hear suggestions of other-sex victimization having different motivational basis as compared with same-sex victimization. One such motivation presented in the literature is *premature heterosexual or romantic interest*. It has been suggested that other-sex bullying might either be a clumsy, inadequate attempt to *approach*, and *express interest* toward an other-sex peer [Rodkin and Berger, 2008], or an attempt to *hide the actual interest*, which is not allowed to be openly demonstrated [Shaw, 1995]. Empirical support for these views is so far very limited. In a study based on group interviews by O'Brien [2011], however, one of the most frequently mentioned reasons for other-sex bullying by 13-year-old adolescents was that *the bully secretly fancies the victim*. Moreover, Rodkin and Berger [2008; see also Berger and Rodkin, 2009] found, in a sample of 10- to 11-year-old children, that whereas boys victimized by boys were clearly low in peer status (i.e., were neither well-liked nor perceived as popular), girls victimized by boys had a relatively high status, especially in terms of perceived popularity. This surprising (and so far unreplicated) finding might suggest that preadolescent boys begin to seek the attention of popular girls in disturbing ways, perhaps partly because they are still clumsy in approaching the members of the other sex, partly because the peer group only allows the interaction if masked as antagonistic. Unfortunately, the Rodkin and Berger sample ($n = 508$) involved few girls identified as bullies (1.7%), and therefore, neither girls nor boys targeted by girl bullies could be studied. Furthermore, they assessed popularity among peers in general, rather than popularity among other-sex peers. The latter, rather than the former, could be expected to be associated with other-sex victimization if the heterosexual interest assumption was true.

Theorizing about motivations behind bullying has typically been based either on the assumption that bullying is a within-sex phenomenon, or that the mo-

tivational basis for same- and other-sex bullying are similar. Veenstra et al. [2010], for instance, assumed that in both cases, the victims are selected among the peers who are interpersonally vulnerable. These authors further suggested that as bullies avoid losing affection especially among their same-sex peers, being rejected among peers who are of the same sex as the bully is an especially important risk factor for victimization. They found indeed that 9- to 12-year-old bullies targeted victims who were rejected specifically by the bullies' same-sex peers; children who were victimized by boys were rejected especially by boys, whereas children victimized by girls were rejected by girls.

The findings of Rodkin and Berger [2008] and Veenstra et al. [2010] lead to different predictions regarding the risk factors for other-sex victimization. The findings by Rodkin and Berger [2008] suggest that other-sex victimization may be characterized by different features than same-sex victimization; other-sex victims are relatively popular and possibly well adjusted. The findings by Veenstra et al. [2010], in turn, imply that target selection for same- and other-sex victimization is similar; the victims are selected among the vulnerable peers. Because the two studies utilized different samples, designs, and measures, it is important to include the two indices of social status (peer rejection assessed by Veenstra and colleagues and perceived popularity included in the Rodkin and Berger study) within a single study. Furthermore, as both studies were cross-sectional, it is a novel approach to examine the risk factors for same- and other-sex victimization in a longitudinal setting.

Finally, in addition to different aspects of peer status (i.e., peer rejection and perceived popularity) it is worth considering other known risk factors for bullying, such as low self-esteem and lack of friends. Children have predominantly same-sex friends [Maccoby, 1998; Mehta and Strough, 2009], and it is a relevant question whether the lack of same-sex friends increases the risk for other-sex victimization, as these friends are not the peers among whom other-sex bullies' seek to maintain affection [Veenstra et al., 2010].

Are Same- and Other-Sex Victimization Both Reduced by the KiVa Intervention?

Numerous school-based intervention programs have been developed to reduce bullying and victimization. Although the effects of such programs vary considerably, the latest meta-analysis concluded that they are often successful in reducing bullying [Ttofi and Farrington, 2011]. One of the school-based antibullying programs identified as "clearly effective" by Ttofi and Farrington [2011] was the KiVa program. It has so far been evaluated in all elementary and middle

school grades (1–9), first in a randomized controlled trial [Kärnä et al., 2011, 2012] and then during broad rollout in Finnish schools [Kärnä et al., 2011]. The findings indicate stronger program effects in elementary than in middle schools; other subpopulations for whom KiVa may or may not be effective have not been investigated.

The main aim of the KiVa antibullying program is to enhance children's awareness of what constitutes bullying and how peer witnesses often contribute to the problem rather than helping to dissolve it. The program seeks to increase understanding of each group member's responsibility in acting against bullying, to increase the students' empathic understanding of the victims' plight, and importantly, to offer safe strategies for supporting and defending the victims. In addition, KiVa emphasizes the importance of adult involvement in putting an end to bullying incidents and supporting the victims. Accordingly, KiVa consists of both *universal actions* (e.g., student lessons, targeted at all children) and *indicated actions* (e.g., discussions with children involved in bullying); for a more detailed introduction to the program, see Salmivalli et al. [2010].

The KiVa program was designed to reduce bullying and victimization in general, rather than either same- or other-sex victimization specifically. Neither the discussions and activities included in the student lessons nor the guidelines provided for school personnel make a distinction between the two, as both are assumed to be driven by similar mechanisms, such as peer reinforcement. One of the main aims of KiVa is to *empower students to provide support for victimized peers*. As such support is much more likely to be provided by same-sex peers than other-sex peers [Sainio et al., 2011], it may be less influential on other-sex bullies who care more about the reactions of their same-sex peers [Veenstra et al., 2010]. For instance, even if a girl bullied by a male peer was supported by girls, this may not be relevant feedback for the boy doing the bullying. Therefore, it is important to consider whether additional effort is necessary to influence bullying crossing sex boundaries.

The Present Study

The short-term longitudinal data from the KiVa project offer a unique opportunity to examine the prevalence of same- and other-sex victimization across grade levels. The large sample size (more than 15,000 students) with participants representing a wide age range (9–14 years) enabled reliable prevalence estimation of students who were victimized by same-sex peers, other-sex peers, or both—even the relatively rare cases where boys were bullied by girls.

Furthermore, we were able to examine the unique effects of several personal and interpersonal risk factors for same- and other-victimization while controlling for previous victimization experiences. Finally, we explored whether the KiVa antibullying program was equally effective in reducing same- and other-sex victimization.

In order to obtain unbiased estimates of same- and other-sex victimization, we presented first a definition of bullying including a wide variety of situations in which bullying can happen. Thereafter, participants were asked whether they had been bullied in any of the ten different forms included in the *Olweus Bully-Victim Questionnaire* [Olweus, 1996]. If they reported frequent victimization by any form, they were asked to nominate the same- and other-sex peers who had been bullying them. Asking students as such to nominate the actual bullies may be more accurate in counting the prevalence rates.

With respect to *same-sex victimization*, we tested whether previously found personal and interpersonal vulnerability factors [Boulton et al., 1999; Hodges et al., 1999; Salmivalli and Isaacs, 2005] increase the risk for being selected as a target. Of special interest was whether the findings of Veenstra et al. [2010] regarding target selection could be replicated in a longitudinal setting. If they were, especially individuals who are rejected by same-sex peers would be at increasing risk for same-sex victimization over time. Similarly, low popularity and few friends among same-sex peers would function as predictors of same-sex victimization.

When it comes to *other-sex victimization*, our goal was to test whether the risk factors are similar or different from the ones found for same-sex victimization. If the selection of vulnerable targets applies to other-sex victimization, the bullies would tend to choose other-sex victims who have low self-esteem, low peer status (being rejected and unpopular), and few friends. Furthermore, as suggested by Veenstra et al. [2010] it would be the *social status of the target among the bully's same-sex peers* that mattered most in target selection, not the sex of the target. Thus, regardless of being boys or girls themselves, other-sex victims would be rejected, unpopular, and lack friends among other-sex peers.

Although it has been suggested that the motives for same- and other-sex victimization may differ [Felix and Greif Green, 2010; O'Brien, 2011; Rodkin and Berger, 2008], only one possible alternative motivation for other-sex victimization has been presented in previous literature: inadequate attempts to approach other-sex peers driven by heterosexual interest. Apart from comments provided by young people in group

interviews [O'Brien, 2011], the only empirical support for the heterosexual interest assumption has been provided by Rodkin and Berger [2008] who found that girls bullied by boys (contrary to boys bullied by boys) were perceived as relatively popular by their peers. Besides aiming to replicate their findings in a large, longitudinal data set, our study makes an additional contribution to previous literature by (a) including both girl-boy and boy-girl bullying, (b) including peer rejection, friendlessness and low self-esteem as additional vulnerability factors, and (c) assessing all three interpersonal vulnerability factors (low popularity, rejection, and lack of friends) among same- as well and other-sex peers. If other-sex victimization was based on heterosexual interest, other-sex victims would be expected to be selected among relatively well-adjusted peers (both personally and interpersonally) rather than among the most vulnerable ones. In that case, other-sex victimization would be unrelated (or even positively related) to self-esteem and having other-sex friends, positively related to other-sex popularity, and negatively to other-sex rejection.

As the participants represent an age span during which the nature of other-sex relationships is changing, we examined potential differences between age groups (elementary vs. middle school) not only in prevalence, but also with respect to the processes of target selection in same- and other-sex victimization. The Rodkin and Berger [2008] finding of popular other-sex victims concerned 10- to 11-year-old girls, and the predictors of other-sex victimization have not been studied in a middle school sample. It is possible that the results of Rodkin and Berger on popular girls bullied by boys only replicate in the elementary school level when the homosocial norm is stronger [Maccoby, 1998]. In other words, if other-sex victimization is based on different mechanisms than same-sex victimization, we assumed this being the case especially among elementary school children, rather than adolescents when other-sex relationships are more acceptable.

Finally, the KiVa data provide an opportunity to look at the effects of a school-based antibullying program on same-sex and other-sex victimization, which has not been done in any previous study. Although KiVa does not focus exclusively on either type of victimization, it emphasizes empowering students to support their victimized peers. Previous findings have shown that such defenders are often the victims' same-sex peers [Sainio et al., 2011] and therefore the program might be less influential in reducing other-sex than same-sex victimization. That is, bullies may ignore the attempts to support or defend the victim when coming from their other-sex peers.

METHOD

Participants

All elementary and middle schools (grade levels 1–9) in mainland Finland were invited to participate in the evaluation of the KiVa antibullying program either as experimental or control schools. Stratified random sampling was used to categorize 234 schools of the nearly 300 volunteering schools into 117 pilot and 117 control schools, which represented all provinces of mainland Finland. The program was piloted and evaluated during 2007–2008 in the elementary school grades 4–6 (ages 10–12), and during 2008–2009 in the elementary school grades 1–3 (ages 7–9) and the middle school grades 7–9 (ages 13–15). In this study, we used the three waves of data, collected in grades 4–6 and 8–9. Children from grades 1–3 were excluded, because they did not answer the dyadic questions on bullying/victimization or peer reports on status (due to the shortened version of the questionnaire). Also, students in the seventh grade were excluded. As a result of the school transition between the sixth and seventh grades, they responded only to the third wave of the data collection. During the first wave of the data collection (T1, pretest), in May 2007 and 2008, children in the target sample were finishing grades 3–5 and 7–8, respectively. The second and the third wave of the data collection took place in grades 4–6 and 8–9; at the end of the fall semester in December/January (T2) and at the end of the school year in May 2008 and 2009 (T3, posttest).

The target sample consisted of a total 21,778 students in 1,135 classes in 151 schools (78 schools participated in the KiVa program). Only students with active consent from parents (88.5%) were included in this study. Moreover, sociometric peer nominations (used from T2) were presented only to classes with at least seven children, and therefore classes below this limit were excluded, as well as classes with less than 60% participation rate at T2 [to obtain stable constructs from sociometric procedure, as suggested by Cillessen, 2009], leaving us with 926 classes in 147 schools. In these schools, boys represented 48.5% of the total of 17,011 students, and 58.9% of the students were in grades 8–9. Most students were native Finns, with the proportion of immigrants being approximately 2%. The response rate was 91.9% ($n = 15,628$) at T1, which was used for the prevalence rates of victimization. In the longitudinal model predicting the source of victimization at T3, we were able to use 90.0% of the sample (15,304 students in 901 classes in 145 schools had complete data at T1 and T2 predictors).

Procedure

Students filled out Internet-based questionnaires in their school computer labs during regular school hours. The teachers, who administered the process, received detailed instructions concerning the procedure and individual passwords for all the children who had obtained parental permission to participate in the study. They distributed the passwords to the children, who used them to log into the questionnaire. The order of the questions, the individual items, and the scales used in this study was randomized as much as possible by the survey program so that the order of presenting the questions would not have any systematic effect on the results. Similarly, the order of the names of the classmates in the peer nominations was randomized. Students were assured that their answers would remain confidential and would not be revealed to their teachers, peers, or parents.

The term *bullying* was defined to the children in the way formulated in the *Olweus' Bully/Victim Questionnaire* [Olweus, 1996], which emphasizes the repetitive nature of bullying and the power imbalance between the bully and the victim. Several examples covering different forms of bullying were given. Moreover, an explanation of what is not bullying (teasing in a friendly and playful way; fighting between children of equal strength) was provided. Teachers read the definition out loud while children could read it from their computer screens. Additionally, to remind the children of the meaning of the term *bullying*, a shortened version of the definition appeared on the upper part of the computer screen when children responded to any bullying-related question.

Measures

Same-sex and other-sex victimization. We used dyadic nominations to identify the victims of same- and other-sex bullies at T1 and T3 (not available at T2). Children first answered questions on self-reported victimization with the global item from Olweus [1996, "How often have you been bullied at school in the last two months?"], and ten specific items concerning different forms of bullying. They answered on a 5-point scale (0 = *not at all*, 2 = *two or three times a month*, 4 = *several times a week*) to each item. All the children who (a) indicated on any of the eleven self-report items that they were victimized at least two or three times a month [Solberg and Olweus, 2003], and (b) reported being bullied by their classmates (they could indicate being bullied by classmates, by students from different classes, or both), answered to a follow-up question on their bullies. They were presented with a roster with the names of all their class-

mates and were asked to mark an unlimited number of classmates who bully them ("By which classmates are you victimized?").

Based on the bully nominations, we categorized the participants into four groups: Students who were *victimized by their same-sex peers* (students nominated only same-sex bullies), *victimized by their other-sex peers* (students nominated only other-sex bullies), *victimized by both* (students nominated both same- and other-sex bullies), and students who were *nonvictimized* (students did not nominate any bullies harassing them). Additionally, two dummy variables were created: *same-sex victimization* and *other-sex victimization*. The four group categorical variable was used to examine the frequencies (T1), and in the longitudinal analyses as the outcome variable (T3). The dummy variables were used to examine the correlations (T3), and to control the previous levels of same- and other-sex victimization (T1) in the longitudinal analysis.

Self-esteem. We used a 9-item scale to measure the children's self-esteem at T1 (was not asked from grades 4–6 at T2). The items were derived from the Rosenberg *Self-Esteem Scale* [Rosenberg, 1965], slightly adapted in that children were instructed to "report the way you feel about yourself when around peers," following Harter et al. [1998; see also Salmivalli et al., 2005; Salmivalli and Isaacs, 2005]. Participants responded on a 5-point bipolar (0 = *not true at all*, 4 = *exactly true*) scale to items such as "I feel that I have a number of good qualities" and "I feel that I am a person of worth, at least on an equal plane with others." The scores for the ten items formed a reliable scale and were averaged (Cronbach's $\alpha = .81$).

Same- and other-sex peer rejection, perceived popularity, and friendships. We used the T2 peer reports to assess peer rejection, perceived popularity, and friendships (reciprocal liking), as changes in classroom compositions are less likely between T2 and T3 (both during the same school year) than between T1 and T3. For each measure, the children marked the classmates from a roster of all students in their class. For perceived popularity they were asked to indicate up to three peers they considered to be the most popular in the class ("Who are the most popular ones in your class?"), whereas for peer rejection ("Who do you like the least?") and liking ("Who do you like the most?") nominations were unlimited. The liking nominations were considered in this study only when they were reciprocated, and we considered these nominations as friendships. In case the receiver of the liking nomination was missing at T2, but he or she reciprocated the received nomination at T1 or T3, the relationship was also considered a friendship. The received

nominations (peer rejection and perceived popularity) and the number of reciprocated liking nominations with same- and other-sex peers (friendships) were summed and divided by the number of the same- and other-sex nominators (classmates who answered the questionnaire).

Analyses

First, we examined, for boys and girls separately in each grade level, the prevalence of students victimized by only their same-sex peers, only other-sex peers, and both same- and other-sex peers at T1. We used chi-square tests to examine the differences between the sex and the grade. For the reason of parsimony, the chi-square tests were conducted comparing elementary (grades 3–5) and middle (7–9) schools instead of all grade levels separately. Second, we examined the correlations among the predictor variables (self-esteem from T1, and same- and other-sex rejection, perceived popularity, and friendship from T2) and same-sex and other-sex victimization from T3. Finally, we examined in which of the four categories (nonvictimized, only same-sex victimized, only other-sex victimized, or both same- and other-sex victimized) a student falls at T3 when we controlled for T1 same-sex and other-sex victimization. This is done by a multinomial logistic regression, which is used to predict the likelihood of different possible outcomes of a categorical dependent variable (similar to the logistic regression for binary outcomes).

To handle the hierarchical data structure (students are nested in classes in schools), a multilevel modeling framework was adapted. To accomplish this, we used Mplus Version 6.1, in which the standard errors were computed taking into account the clustering of children in the 145 schools, while modeling the between-level variation due to clustering in the 901 classes [Muthén and Muthén, 1998–2000]. The model was estimated using maximum likelihood with robust standard errors, and missing data were addressed by using the full information maximum likelihood approach [see Enders, 2010].

In Step 1, we included the control variables at the individual (being a girl and the dummies for same- and other-sex victimization at T1) and the classroom level (being in middle school and whether or not the class participated in the KiVa intervention). In Step 1, we also included the T1 self-esteem. In Step 2, we added peer rejection, perceived popularity, and friendships. To avoid collinearity, which appears between same- and other-sex predictors, we entered them in separate models, indicated as Step 2a and Step 2b (both represented in Table IV). Furthermore, in both the Steps 1 and 2, we tested the two-way interactions of sex,

grade, and intervention with each predictor, leaving them in the model if significant at $P < .01$. Because of the large sample size, we used a conservative criterion ($P < .01$) for statistical significance.

RESULTS

Prevalence of Same-Sex and Other-Sex Victimization

Frequencies of students in the four categories at T1 (nonvictimized, victimized by only same-sex, only other-sex, and both same- and other-sex peers) are reported in Tables I (girls) and II (boys), separately for each grade level. The chi-square test showed significant differences between the elementary and middle school, both for boys, $\chi^2(3) = 20.46$, $P < .001$ and for girls, $\chi^2(3) = 77.93$, $P < .001$. Victimization was overall more frequent in the elementary (18.2% of students were victimized by same-sex, other-sex peers, or both) than in the middle school (13.1% of students were victimized by same-sex, other-sex peers, or both). The decreasing age trend (the difference between the elementary and middle school) was observed in all the three categories (victimized by same-sex, other-sex peers, and both, $P < .01$), except for boys victimized by their other-sex peers.

Concerning sex differences in how the students were distributed into the four categories, the chi-square test indicated significant differences both in the elementary, $\chi^2(3) = 328.41$, $P < .001$, and in the middle school, $\chi^2(3) = 298.90$, $P < .001$. Regarding victimization overall (students victimized by same-sex, other-sex peers, or both vs. nonvictims), the sex difference was not significant in the elementary school (boys 18.0% and girls 18.4%), whereas in the middle school, boys were more often victimized than girls (boys 14.5% and girls 11.9%). Both in the elementary and middle school, boys were more often victimized by their same-sex peers than girls (boys 12.3% and girls 4.4%), whereas girls were more often targeted by their other-sex peers than boys (boys 0.7% and girls 5.7%). Finally, boys were victimized less often than girls by both the sexes in the elementary school (boys 3.5% and girls 6.4%), whereas in the middle school there was no difference (boys 2.6% and girls 3.1%).

To make the frequencies more comparable with previous findings, we calculated the proportions of female and male victims (rather than of girls and boys in the whole sample) who were bullied by same-sex peers, other-sex peers, and both. It turned out that among female victims, most were bullied by boys (39.3%), and the proportions of victims targeted by girls-only or by both sexes were equal (30.3% of female victims in each category). The majority of male victims

TABLE I. Frequency of Girls Victimized by Only Same-Sex, Only Other-Sex Peers, and Both at T1

Victimized by	Grade 3 (<i>n</i> = 1,003)	Grade 4 (<i>n</i> = 1,167)	Grade 5 (<i>n</i> = 1,112)	Grade 7 (<i>n</i> = 2,450)	Grade 8 (<i>n</i> = 2,313)	Total (<i>n</i> = 8,045)
Nobody (%)	78.7	82.5	83.4	86.5	89.8	85.5
Same-sex peers (%)	5.7	4.9	5.1	4.5	3.3	4.4
Other-sex peers (%)	8.7	5.9	5.9	5.6	4.1	5.7
Both (%)	7.0	6.7	5.6	3.3	2.8	4.4

(76.9%) were bullied only by boys, whereas 4.4% of them were bullied by girls-only and 18.8% by both girls and boys.

Correlations

Correlations among the predictor variables (self-esteem at T1 and same- and other-sex rejection, perceived popularity, and friendships at T2) and the dummy variables of same-sex and other-sex victimization at T3 are reported in Table III. Self-esteem was weakly associated with other predictors; higher self-esteem was related to a better social status (negatively with peer rejection and positively with perceived popularity), and having more same-sex friendships. The correlations among peer rejection, perceived popularity and friendships were from low to moderate. Also, note that same- and other-sex peer evaluations were associated with each other. Especially, same- and other-sex perceived popularity was strongly related ($r = .58$ for boys and $r = .56$ for girls). The correlation between same- and other-sex rejection was moderate, being significantly higher for boys ($r = .37$) than for girls ($r = .28$), $z = -6.31$, $P < .001$.

The zero-order correlations between T1 and T2 predictor variables and same- and other-sex victimization at T3 were, overall, low. Low self-esteem and peer rejection were generally more strongly related to victimization than to low popularity and a low number of friends. Regarding same-sex victimization, the pattern of the correlations was comparable for boys and girls, with significant correlations with all the other predictors except for other-sex friendship. For other-sex victimization, however, significant differences between boys and girls were found for the association with other-sex rejection ($r = .05$ for boys and $r = .15$ for girls, $z = 5.63$, $P < .001$) and other-sex

friendships ($r = .04$ for boys and $r = -.03$ for girls, $z = -3.81$, $P < .001$). Moreover, other-sex victimization was not related to perceived popularity either for boys or girls, and the association of other-sex victimization with same-sex friendship was weaker than the correlation of same-sex victimization with same-sex friendship. Finally, same-sex and other-sex victimization were related; more for girls ($r = .51$) than for boys ($r = .39$), $z = 8.55$, $P < .001$.

Multilevel Multinomial Logistic Regression Analyses

The results of the multilevel multinomial logistic regression model predicting only same-sex victimization, only other-sex victimization, and victimization by both the sexes at T3, with nonvictims as the reference category, are reported in Table IV with the standardized coefficients as well as the odds ratios. As can be seen in Table IV, the likelihood of being victimized by only same-sex peers was 62% lower for girls than for boys (OR = .38), and 49% lower in middle school than in elementary school (OR = .51). Being victimized by only other-sex peers or by both sexes, however, was more likely for girls than for boys, although the significant interaction of being a *girl and going to middle school* shows that this applied only in elementary school.

Considering the predictors, low self-esteem was a risk factor for victimization, regardless of the sex of the perpetrator(s) (ORs ranged from .63 to .71, i.e., the odds of being victimized decreased by 37–29% with a one-unit increase in self-esteem). It also appeared that both same-sex and other-sex rejection (Steps 2a and 2b) were significant risk factors for victimization. The effects of same-sex rejection were larger in each victimization category (ORs ranged from 2.50 to 6.72)

TABLE II. Frequency of Boys Victimized by Only Same-Sex, Only Other-Sex Peers, and Both at T1

Victimized by	Grade 3 (<i>n</i> = 1,035)	Grade 4 (<i>n</i> = 1,118)	Grade 5 (<i>n</i> = 1,033)	Grade 7 (<i>n</i> = 2,257)	Grade 8 (<i>n</i> = 2,140)	Total (<i>n</i> = 7,583)
Nobody (%)	80.2	84.2	81.6	84.5	86.4	84.0
Same-sex peers (%)	16.0	11.6	14.4	12.6	9.6	12.3
Other-sex peers (%)	.4	.5	.7	.6	1.0	.7
Both (%)	3.4	3.7	3.3	2.3	3.0	3.0

TABLE III. Pearson Correlations Among Predictor Variables from T1 and T2, and the Dummy Variables of Being Bullied by Same-Sex Peers and Other-Sex Peers from T3

	1	2	3	4	5	6	7	8	9
1 Self-esteem T1	–	–.08*	–.09*	.06*	.04*	.06*	.00	–.10*	–.12*
2 Same-sex rejection T2	–.12*	–	.28*	–.06*	–.01	–.29*	–.01	.12*	.12*
3 Other-sex rejection T2	–.10*	.37*	–	–.13*	–.11*	–.10*	–.14*	.11*	.15*
4 Same-sex popularity T2	.07*	–.10*	–.14*	–	.56*	.16*	.24*	–.04*	–.00
5 Other-sex popularity T2	.03†	–.04*	–.15*	.58*	–	.04*	.30*	–.04*	–.00
6 Same-sex friends T2	.14*	–.22*	–.09*	.27*	.08*	–	.07*	–.10*	–.05*
7 Other-sex friends T2	.02	–.05*	–.20*	.17*	.26*	.15*	–	–.01	–.03
8 Same-sex victimized T3	–.14*	.13*	.12*	–.07*	–.04†	–.09*	–.03	–	.51*
9 Other-sex victimized T3	–.09*	.09*	.05*	–.02	.02	–.05*	.04†	.39*	–

Note. Girls above, $n = 7,903$; boys below, $n = 6,655$, diagonal. Correlations that are statistically significantly ($P < .01$) different between boys and girls are underlined.

* $P < .001$, † $P < .01$.

than the respective effects of other-sex rejection (ORs ranged from 1.83 to 4.74). Moreover, other-sex rejection did not reach significance for other-sex victimization at $P < .01$ ($P = .033$). Overall, these findings are in line with the idea of bullies being strategic in selecting their victims among the vulnerable peers.

Same-sex perceived popularity was negatively related to same-sex victimization (OR = .46) and children with same-sex friends were less likely to be victimized by their same-sex peers (OR = .33), again reflecting the strategic selection of vulnerable peers. However, other-sex perceived popularity was positively related to other-sex victimization (OR = 3.05). Thus, although low same-sex perceived popularity and lack of friends among same-sex peers seemed to increase the risk of same-sex victimization (but not of other-sex victimization), *high* other-sex perceived popularity, in contrast, appeared a risk factor for other-sex victimization. None of the interaction effects between sex or grade level and predictors were significant at $P < .01$ and were thus excluded from the model.

Finally, as regards the intervention effect, our analysis replicated the previous findings showing that the KiVa program reduced victimization effectively in elementary school [Kärnä et al., 2011]. This was seen in the higher likelihood of being nonvictimized in the KiVa schools compared with control schools. The reduction was observed in all three victimization categories, although the effect seemed to be weaker for other-sex victimization. However, the interaction effect (*KiVa* × *Middle School*), suggested that the KiVa program was not equally effective in middle school [Kärnä et al., 2012]. Specifically, other-sex victimization and victimization by both sexes were not influenced by the intervention in middle school, whereas some reduction was observed in same-sex victimization.

DISCUSSION

Our exceptionally large sample with more than 15,000 participants enabled us to examine the prevalence of same- and other-sex victimization among girls and boys in both elementary and middle school. More importantly, in a longitudinal setting, we tested whether same- and other-sex victims share the same risk factors. Furthermore, we had the possibility of testing whether the KiVa antibullying program is equally effective in reducing same- and other-sex victimization.

Prevalence

The results were in line with previous findings [Eisler and Smith, 1998; Olweus, 1991, 2010] showing that bullying is not only taking place among same-sex peers. Among girls, being bullied by boys was even more common than being bullied by other girls. Boys were involved in the bullying of 69.6% of all female victims (39.3% of these girls were bullied by boys only, and an additional 30.3% by both boys and girls). Among boys, most bullying came from boys (76.9% of male victims were bullied only by boys), but there are also male victims who were bullied exclusively by girls (4.4% of male victims, .7% of all boys) and even more of those bullied by boys as well as girls (18.8% of male victims, 3.0% of all boys). Thus, although girl-to-boy bullying is relatively rare, it is important to note that about one fourth of male victims experience some victimization coming from girls.

Besides (physical) power imbalance [Olweus, 1991], some of the difference found in the prevalence of boy-to-girl versus girl-to-boy bullying might be related to self-presentational motivation. Boys may be ashamed of reporting girls as bullying them because they are supposed to be stronger than girls [O'Brien, 2011]. It is even possible that boys ignore harassment by girls.

TABLE IV. Multilevel Multinomial Logistic Regression: Predicting Victim Category Based on the Source of Victimization (Nonvictims as the Reference Category)

	Only same-sex victimized				Only other-sex victimized				Victimized by both			
	B	(SE)	OR	(CI 95%)	B	(SE)	OR	(CI 95%)	B	(SE)	OR	(CI 95%)
Step 1												
Intercept	-3.92	(1.12)			-12.81	(4.64)			-10.86	(3.52)		
Between Level												
KiVa	-.58	(.19) [†]	.69	(.56-.85)	-1.18	(.43) [†]	.56	(.42-.75)	-1.59	(.07) [*]	.53	(.39-.71)
Middle School	-1.03	(.16) [*]	.51	(.40-.65)	.10	(.56)	1.05	(.65-1.70)	-.68	(.52)	.76	(.53-1.08)
KiVa × Middle School	.28	(.28)	1.20	(.89-1.62)	1.11	(.58)	1.76	(1.12-2.75)	1.39	(.48) [†]	1.79	(1.18-1.79)
Within Level												
Girl	-.68	(.10) [*]	.38	(.29-.49)	.85	(.10) [*]	3.58	(2.46-5.18)	.37	(.10) [*]	1.68	(1.32-2.14)
Girl × Middle School	-.00	(.13)	1.00	(.71-1.40)	-.71	(.13) [*]	.32	(.20-.51)	-.70	(.12) [*]	.35	(.24-.51)
Same-sex victimization T1	.66	(.04) [*]	4.35	(3.74-5.06)	-.17	(.10)	.67	(.46-.97)	.45	(.08) [*]	2.66	(2.10-3.36)
Other-sex victimization T1	-.01	(.05)	.96	(.76-1.22)	.61	(.07) [*]	6.02	(4.39-8.25)	.54	(.06) [*]	4.46	(3.63-5.48)
Self-esteem T1	-.36	(.06) [*]	.71	(.65-.78)	-.41	(.08) [*]	.67	(.59-.77)	-.51	(.07) [*]	.63	(.56-.71)
Step 2a												
Same-sex T2												
Rejection	.17	(.05) [*]	2.50	(1.61-3.87)	.29	(.06) [*]	4.74	(2.66-8.46)	.33	(.05) [*]	6.72	(4.35-10.36)
Perceived popularity	-.20	(.07) [†]	.46	(.30-.71)	.16	(.06)	1.85	(1.22-2.81)	-.08	(.07)	.72	(.45-1.15)
Friends	-.26	(.06) [*]	.33	(.21-.53)	.01	(.09)	1.06	(.59-1.90)	-.20	(.07) [†]	.40	(.23-.71)
Step 2b												
Other-sex T2												
Rejection	-.17	(.05) [*]	1.89	(1.40-2.57)	.16	(.07)	1.83	(1.13-2.96)	.35	(.05) [*]	4.74	(3.21-7.00)
Perceived popularity	-.15	(.06)	.47	(.28-.79)	.22	(.07) [*]	3.05	(1.69-5.53)	.00	(.07)	1.03	(.54-1.95)
Friends	-.05	(.06)	.62	(.24-1.63)	-.03	(.09)	.74	(.19-2.93)	.12	(.06)	3.66	(1.27-10.52)

Note. The effects of same-sex and other-sex rejection, perceived popularity, and friends were examined in two separate models (Steps 2a and 2b) because of collinearity; N = 15,304; Standardized coefficients (B).

* P < .001, † P < .01.

For instance, Huuki [2003] suggested that relationships with boys are an important aspect in constructing femininity for girls, whereas for boys, constructing masculinity mainly takes place in the relationships with other boys. Thus, for girls being bullied by boys might be more relevant, and therefore noticed and remembered well, than it is for boys being harassed by girls. Nevertheless, it is important to keep in mind that although rare, girl-to-boy bullying does exist. Neglecting this phenomenon in the research literature could also influence practitioners' attitudes toward girl-to-boy bullying so that these cases would not be taken seriously.

Risk Factors

Regarding same-sex victimization, our findings clearly supported the view that both personal and interpersonal vulnerability factors increase the risk for being selected as a target [e.g., Hodges and Perry, 1999]. Low self-esteem, peer rejection, low perceived popularity, and lack of friends predicted same-sex victimization over time, while controlling for previous victimization experiences. Moreover, we found support for the hypothesis put forth by Veenstra et al. [2010] that interpersonal vulnerability (rejection, low popularity, lack of friends) among bullies' same-sex peers is especially important, because that is the in-group where the bully wants to maintain affection; same-sex victimization was predicted specifically by rejection among same-sex peers, low popularity among same-sex peers, and lack of same-sex friends.

With respect to other-sex victimization, the picture was partly similar and partly different. Regarding similarity, low self-esteem predicted other-sex victimization as well. With respect to differences, rejection and lack of friends among other-sex peers failed to predict other-sex victimization, and *high (rather than low) popularity increased the risk*. Thus, not only we replicated the finding by Rodkin and Berger [2008] on the association between popularity and other-sex bullying, but also showed that it applies to both female and male victims, and concerns popularity among other-sex (but not same-sex) peers. Furthermore, our longitudinal analyses suggest that perceived popularity is the antecedent, rather than a consequence of other-sex victimization.

Altogether, we found that the selection of other-sex victims follows a partly different pattern than the selection of same-sex victims, that is, other-sex victims are not necessarily selected among the *interpersonally* vulnerable peers (it should be noted, however, that even if other-sex victimization was not predicted by other-sex rejection, it was predicted by same-sex rejection—indicating some interpersonal vulnerabil-

ity). Taking the mixed profile of other-sex victims into account, we can hardly conclude that other-sex bullying was related to heterosexual or romantic interest, as Rodkin and Berger [2008] speculated. If it was, self-esteem should be unrelated, or even positively related to other-sex victimization. Therefore, alternative explanations for the association between popularity and other-sex victimization should be considered.

One explanation could be that popularity makes a student stand out from the peer group and thus motivates put-downs and attacks from others [so-called “tall poppy syndrome” of success leading to resentment, e.g., Feather and Nairn, 2005]. However, given that status hierarchies are mainly formed within-sex peer groups [Dijkstra et al., 2010] this explanation would be more conceivable if popularity led to same-sex victimization, which was *not* the case. A girl who has a high status among boys, for instance, is probably more of a threat to other girls than for boys [e.g., eliciting romantic jealousy as found by Mayeux, 2011]—this is what evolutionary views would suggest as well.

Perhaps the association between other-sex popularity and other-sex victimization is related to saliency. Popular other-sex peers are more likely to be noticed than other-sex peers with lower status, and therefore, likely targets for victimization. A profile of being rejected as well as popular can also be a sign of being *tough* [compare the antisocial popular boys in the study by Rodkin et al., 2006]. Whether popular other-sex victims are themselves aggressive toward other-sex peers should be investigated in future studies.

It is nevertheless plausible that heterosexual interest plays a role in some other-sex bullying relationships. As we did not examine different forms of victimization (e.g., sexual victimization) occurring in different bully–victim dyads, future research should investigate whether different forms of other-sex victimization (involving vs. not involving sexual bullying) have distinct relations to perceived popularity. In other words, other-sex victims can be a heterogeneous group, indicating a need for a person-centered approach to shed light on this issue in future studies. However, the present study shows that other-sex victims are often selected from among the vulnerable peers, as indicated especially by their low self-esteem. This finding reminds us that other-sex victimization is not only targeted to children who are doing well.

Developmental Changes

Considering age-related changes, the prevalence of victims decreased by age, comparable to previous findings on self-reported victimization [Olweus, 2010; Salmivalli, 2002; Smith et al., 1999]. Other-sex victimization decreased among girls, whereas its prevalence

remained the same among boys. Regarding the selection of same- versus other-sex targets, we did not find significant interactions between any of the individual predictors and grade level (elementary vs. middle school). Thus, even though the nature of other-sex relationships changes from middle childhood to adolescence, this seems not to affect target selection in bullying.

KiVa Antibullying Program Effects

Exploring the effects of the KiVa antibullying program on same- and other-sex victimization, it turned out that in middle school the program effect on other-sex victimization was weaker than on same-sex victimization. The complexity of other-sex relationships in adolescence might make other-sex bullying increasingly difficult to tackle—with or without an intervention program. For instance, interviews by Duncan [1999] revealed that adolescent girls seemed to lack faith in teachers, especially when bullying involved sexual dimensions which are common in middle school [Shute et al., 2008].

One key element of the KiVa program is to encourage students to support their victimized peers. It is known that such support is likely to come from the victims' same-sex peers [Sainio et al., 2011], and it may not refrain other-sex bullies from their mean acts. Perhaps social feedback from the bullies' same-sex peers would be more effective in putting an end to bullying [Veenstra et al., 2010]. In addition, it may be harder to evoke empathy toward other-sex victims than toward same-sex victims. It should be examined whether bullies attacking other-sex peers even consider their behavior as bullying. They may view it as teasing even though it can be highly intimidating for the victims. Shute et al. [2008] reported that boys harassing girls often justified their behavior as “having fun” and that it is taken too seriously by girls. Finally, even teachers may view other-sex bullying as normative behavior related to sexual development and do nothing about it.

Strengths and Limitations

This study has several strengths including the large data set and the longitudinal setting. We also consider the usage of the dyadic nominations as a strength, although, the fact that these nominations were restricted to the victims' viewpoint could be seen as a limitation [e.g., Ladd and Kochenderfer-Ladd, 2002]. Some victims may not admit being bullied, or alternatively, be overtly vulnerable in interpreting peer behavior. Another way of identifying victims of same- and other-sex bullies would be to ask all the children in the class “Who bullies whom” [Rodkin and Berger,

2008; Sijtsema et al., 2009]. However, by using this type of peer report we may miss the relationships that are not salient to the peer group, and only experienced by the victims [Huitsing et al., 2010].

In future studies it may be interesting to look at the different forms of bullying in relation to target selection. Examining different forms of bullying (e.g., indirect, direct, and for instance, sexual bullying), in addition to sex composition, could give deeper insight on the issues examined. Also, whereas our dyadic nominations were limited to classmates, it would be important to allow cross-classroom nominations, as especially sexual bullying may be targeted from the older peers toward the younger schoolmates.

It could be argued that the effects found were not very strong and only significant because of the large sample size. However, our criterion for statistical significance was conservative; only P -values lower than .01 were considered significant, and most of the effects were close to or below $P < .001$.

Implications

This study highlights the importance of taking the sex composition of the bully–victim dyads into account when studying bullying, in addition to the individual level sex differences. So far, this has been done only in a couple of studies [Berger and Rodkin, 2009; Dijkstra et al., 2007; Rodkin and Berger, 2008; Veenstra et al., 2010]. There can be characteristics of bullying that are specific for same- or other-sex victimization that we might miss considering them as a single phenomenon.

From the practical point of view, this study raises concerns for other-sex victimization. It may well be that the motives for other-sex bullying are somewhat different from those for same-sex bullying. However, we found that other-sex victims (similar to same-sex victims) were selected from among peers with low self-esteem. Thus, although bullies tend to pick on other-sex targets who are popular, we should not justify other-sex bullying by explaining it by romantic interest [see also Huuki, 2003], or dismiss boy-to-girl bullying by perceiving it as normative behavior [Berger and Rodkin, 2009; McMaster et al., 2002]. Another concern is the tendency to ignore bullying of boys by girls in the research literature. Although not often reported by boys, it happens occasionally. In focus group interviews, O'Brien [2011] found that many students considered it worse for boys to be bullied by girls than by boys because of its embarrassing nature and the social unacceptability of fighting back. We need to take persistent other-sex victimization (regardless of whether experienced by girls or by boys)

as a serious problem and start looking for specific remedies to improve other-sex relationships.

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