

Self- and Peer-Identified Victims in Late Childhood: Differences in Perceptions of the School Ecology

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Abstract Patterns of adjustment for youth victimized by peers vary depending on whether youth are identified as victims through self-reports, peer-reports, or both. In order to provide more targeted strategies that may help mitigate negative consequences associated with specific victimization groups, more information is needed about how these youth perceive their school ecology (bullying and academic ecology), their feelings of school belonging, and their valuing of school. Based on the convergence of self- and peer-reports of victimization, we identified four victim groups from a sample of students in 5th grade classrooms ($N = 1360$; 52.8% girls, 53.1% White, 34.6% Black or Hispanic, 12.2% Native American, Asian, or other) using Latent Profile Analysis (LPA): *convergent victims* (high self- and peer-reports), *self-identified victims* (high self-, low peer-reports), *peer-identified victims* (low self-, high peer-reports), and *nonvictims* (low self- and peer-reports). Convergent victims' perceptions were similar to nonvictims with key differences being convergent victims' greater willingness to protect peers being bullied but lower feelings of school belonging compared to nonvictims. Peer-identified and self-identified victims perceived differences

in the bullying and academic ecology including peer-identified victims' greater willingness to protect peers and expectations for more peers to encourage bullying against them compared to self-identified victims. However, both peer- and self-identified victims perceived greater emotional risk of participating in class and had lower feelings of school belonging compared to nonvictims. Implications for supporting youth with divergent self- and peer-reported victimization status as they transition to middle school are discussed.

Keywords Victimization · Self-report · Peer-report · Perceptions of school ecology · Late childhood

Introduction

Peer victimization can significantly and negatively impact youth's development (e.g., McDougall and Vaillancourt 2015). Patterns of adjustment for those experiencing victimization have been shown to differ depending on whether victims are identified through self-reports or peer-reports (Crick and Bigbee 1998; Graham et al. 2003; Graham and Juvonen 1998; Scholte et al. 2013). For instance, students with divergent self- and peer-reports differ on levels of peer acceptance, number of reciprocal friends, self-esteem, social anxiety, and loneliness (e.g., Graham and Juvonen 1998; Scholte et al. 2013). Researchers investigating the convergence and divergence of self-reports and peer-reports (i.e., peer nominations) of victimization have identified four groups: youth with high peer- and self-reports of victimization are considered *convergent victims*; youth with high peer-reports but low self-report are *peer-identified victims*;

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youth with high self-report but low peer-reports are *self-identified victims*; and lastly, *nonvictims* have low self- and peer-reports of victimization (e.g., Scholte et al. 2013).

Which group youth belong to can have serious implications for their emotional and social adjustment and researchers increasingly acknowledge the need for this type of person-oriented analysis to distinguish the specific risks for maladjustment associated with each victim type (Crick and Bigbee 1998; Graham and Juvonen 1998; Juvonen et al. 2001; Ladd and Kochenderfer-Ladd 2002; Scholte et al. 2013). Such information may then be applied to more targeted strategies for mitigating the significant negative consequences associated with different types of victim status. For instance, understanding how different types of victims perceive themselves in terms of their feelings of self-worth or self-esteem is of considerable interest to researchers and key stakeholders working with victimized youth as these self-perceptions may be linked to other aspects of functioning across academic, social, mental health, and physical health domains (McDougall and Vaillancourt 2015). An equally important component lacking attention in the literature is how these different victim groups perceive their school ecology. Our major aim in this study was to fill this gap by examining differences in victim groups' perceptions of their school ecology, meaning the social and academic context within their school.

For this current study, we identified four victims groups based on convergence and divergence in self- and peer-reports of victimization in a sample of students in late elementary school (i.e., 5th grade classrooms). The necessity of investigating victim group differences in late elementary students' perceptions of their school ecology is threefold. First, it is important to understand differences in victim groups' perceptions prior to the transition to middle school as this may help explain patterns of adjustment for middle school victim groups. The transition to middle school can be a tumultuous time for youth with significant changes in their social (e.g., changing peer relationships; Hardy et al. 2002) and academic domain (e.g., declines in academic motivation; Eccles et al. 1993); and identifying how victims differentially perceive their school context prior to the transition may provide useful information on possible patterns of adjustment in middle school. Second, according to social cognitive theory and social information processing models (e.g., Bandura 2001; Crick and Dodge 1994), perceptions inform and guide additional cognitive processes, such as the establishment of academic and social goals, which are further implicated in youth's behavior and adjustment at school (Downson and McInerney 2003; Shim et al. 2013). Therefore, understanding victim groups' perceptions is arguably a crucial first step in understanding the different types of goals victims pursue and the type of behavior they use to pursue those goals. As such, this

current study serves as a basis for further investigation into victims' cognitive processes. Third, knowledge of victim groups' different perceptions may be applied to targeted intervention strategies aimed at supporting positive adjustment for different types of victims, whether they are identified as victims through self-report, peer-reports, or both. Such information may be used by key school stakeholders to bolster adaptation of youth already at risk for negative short- and long-term consequences given their experiences with peer victimization (Hawker and Boulton 2000; McDougall and Vaillancourt 2015; Nakamoto and Schwartz 2010; Rueger and Jenkins 2014; Schwartz et al. 2015). Given these implications, we identified these four victim groups and examined differences in their perceptions of the school ecology, their sense of school belonging, and their school valuing.

Self- and Peer-Identified Victims

Thus far, we know that convergent victims tend to fare worse than nonvictims across several indices of psychosocial adjustment (Crick and Bigbee 1998; Graham and Juvonen 1998; Graham et al. 2003; Scholte et al. 2013). Interesting patterns of adjustment emerge for youth identified as victims through self-reports only or peer-reports only depending on the marker of adjustment. For instance, self-identified victims resemble convergent victims on several indices of psychological health including: low feelings of self-worth and self-esteem; high social anxiety; high characterological self-blame (e.g., "If I were a cooler kid, I wouldn't get picked on"); and high behavioral self-blame (e.g., "I should have been more careful;" Graham and Juvonen 1998; Scholte et al. 2013). Peer-identified victims tend to resemble nonvictims on markers of emotional and psychological adjustment: lower levels of both characterological and behavioral self-blame; as well as lower levels of loneliness, social anxiety, and self-worth compared to convergent victims and self-identified victims (Graham and Juvonen 1998; Scholte et al. 2013).

In terms of social adjustment, both Graham and Juvonen (1998) and Scholte and colleagues (2013) found similar patterns for peer acceptance across victim groups: peers tend to dislike and reject convergent victims and peer-identified victims more so than self-identified victims and nonvictims. Taken together, these findings suggest that the subjective experience of victimization (i.e., self-identified victims) without the concomitant peer reputation for high levels of victimization is related to a "mixed bag" of psychosocial adjustment: self-identified victims exhibit emotional adjustment difficulties but do not have the same social problems as convergent victims given their higher levels of peer acceptance similar to that of nonvictims (Graham and Juvonen 1998; Sharkey et al. 2015; Scholte

et al. 2013). In contrast, youth with peer reputations for victimization (i.e., peer-identified victims) seem to have the opposite adjustment profile: they are more likely to experience social adjustment problems (e.g., rejection) but less likely to experience the emotional or psychological problems of self-identified victims (Graham and Juvonen 1998; Sharkey et al. 2015; Scholte et al. 2013).

What we do not yet know is how these different groups perceive their school ecology. As outlined, investigating differences in perceptions may provide crucial information for our understanding of how youth adjust following the transition to middle school, the types of goals and behavior victims may pursue, and may inform targeted strategies aimed at mitigating the significant consequences associated with victimization (e.g., Hawker and Boulton 2000; McDougall and Vaillancourt 2015).

Perceptions of the School Ecology

Within the school context, it is useful to think of the existence of both a *social ecology* and an *academic ecology* that impacts students' social and academic adjustment (Eccles and Roeser 2011; Rodkin and Hodges 2003; Rodkin and Ryan 2012). How youth perceive the school ecology can impact their interactions with peers, their goals and behaviors, and ultimately their school success according to assumptions posited by social cognitive theory and social information processing models (Bandura 2001; Crick and Dodge 1994). For instance, negative perceptions about peers may prompt youth to withdraw from social interactions or act in hostile ways, thereby negatively impacting their peer relationships by putting them at risk for social rejection or isolation, which can further lead to or exacerbate school disengagement and decreases in academic achievement (Buhs et al. 2006). As social and academic domains are intricately intertwined in students' school adjustment (e.g., Juvonen et al. 2000; Juvonen and Wentzel 1996; Wentzel 2009), it is important to consider how youth perceive both the social and academic ecologies.

The *social ecology* reflects peer interactions at school and peer social dynamics (also referred to as the peer ecology, Rodkin and Hodges 2003). Particularly relevant for this developmental age is the need to assess youth's perceptions of the *bullying ecology* that reflect the general peer climate towards bullying and includes not only the actions of bullies and victims but also the actions of the broader peer network including bystanders and defenders (e.g., Salmivalli 2010). Whether the bullying ecology supports or discourages victimization can have significant implications for students' adjustment at school (Dijkstra et al. 2008; Kärnä et al. 2010; Leff et al. 2003). Given the increasing prevalence of bullying during early adolescence and the role of perceptions in further adjustment,

understanding differences in perceptions of the bullying ecology may illuminate more targeted strategies for intervening with different victim groups (Bandura 2001; Pellegrini and Long 2002). To capture these perceptions, we assessed whether victims perceived that peers would protect them if they were being bullied, whether they were willing to protect peers being bullied, and whether they thought peers would encourage bullies who were victimizing them.

The *academic ecology* reflects peer interactions as they pertain to academics. A robust literature demonstrates declines in academic engagement during early adolescence (e.g., Dotterer et al. 2009; Eccles and Midgley 1989) and research suggests that peers play a role in engagement (e.g., Perdue et al. 2009). For example, youth may decrease their participation in academic activities as a way to avoid embarrassment or being made fun by peers and may stop showing effort in the classroom as such behavior is not seen to promote popularity that becomes increasingly important during this developmental period (Dawes and Xie 2016; Gorman et al. 2002; Juvonen and Murdock 1995; Troop-Gordon et al. 2011). To capture youth's perceptions of the academic ecology, we assessed victim group differences in perceptions of the emotional riskiness of participation and perceptions of peer norms for academic effort and achievement. Perceived high emotional risk of participating in class has been shown to be negatively related to the extent to which students fit in with and receive emotional support from classmates (Hamm and Faircloth 2005), which is thought to be foundational for students' academic achievement (Furrer and Skinner 2003; Goodenow 1993). Students may also be influenced by peer norms for academic effort through socialization processes (see Rodkin and Ryan 2012 for review) that we captured in this study by assessing perceptions of peer norms for academic effort and achievement. Understanding perceptions of the academic ecology is vital to efforts for reducing disengagement and promoting long-term educational outcomes, particularly for youth involved in victimization who are already at increased risk for poorer academic outcomes (e.g., Schwartz et al. 2005).

Related to perceptions of the school ecology, we assessed victims' feelings of school belonging and school valuing. School belonging captures the extent to which students feel included and supported by peers and teachers at school (Goodenow 1993). It is thought to help students meet their fundamental psychological need for relatedness (Deci and Ryan 1985; Ryan and Deci 2000), thereby significantly impacting students' well-being both academically and psychologically such as higher commitment to succeeding at school, higher levels of academic engagement and motivation, positive self- and peer-views, and lower levels of aggressive behavior (Osterman 2000; Wang and Holcombe 2010). Likewise, feelings of valuing school and school

related outcomes are associated with student engagement and achievement (Voelkl 1996). Knowing whether victims feel like they belong at school and the extent to which they value school are crucial to our efforts for bolstering victims' adjustment and reducing the significant consequences associated with low school belonging such as substance use and truancy (Wormington et al. 2016).

Current Study and Hypotheses

Using a sample of students from 5th grade classrooms, our major aim was to examine differences in victim groups' perceptions of the bullying ecology, academic ecology, feelings of school belonging, and school valuing. We expected victim groups to perceive their ecology differently. Victimized youth may have a victim schema (Perry et al. 2001), a cognitive structure that develops from repeated interpersonal interaction patterns that guides further thought and behavior (Baldwin 1992; Bandura 2001). Victim schemas may be influenced by how peers view youth (i.e., peer-reports) and by how youth view themselves (i.e., self-reports) given that both are involved in interpersonal interactions (Baldwin 1992). This schema may bias victims, particularly convergent victims, to have more negative perceptions of their school ecology compared to nonvictims (Rosen et al. 2007). Additionally, previous studies comparing convergent victims to nonvictims have shown that, across the board, convergent victims have poorer adjustment patterns (e.g., Graham and Juvonen 1998; Graham et al. 2003; Scholte et al. 2013). Given this, we expected convergent victims to have more negative perceptions of the bullying and academic ecology compared to nonvictims. And though no research has directly assessed victim groups' feelings towards school, given convergent victims general negative adjustment patterns at school, we felt it reasonable to expect convergent victims to have lower feelings of school belonging and school valuing compared to nonvictims.

As for differences between self- and peer-identified victims, because victims schemas may be influenced both by self- and peer-views, we could not base our expectations for differences solely on the assumption of youth having a victim schema. As such, our expectations were informed by prior research comparing these victim groups. For perceptions of the bullying ecology, we expected self-identified victims to have more positive perceptions given that they have significantly higher levels of peer acceptance compared to peer-identified victims (e.g., Graham et al. 2003; Scholte et al. 2013). Higher peer acceptance may induce self-identified victims to expect more peer support and less peer encouragement in the event of bullying as higher status confers more social resources like peer support (Hawley

1999; Parkhurst and Hopmeyer 1998). For perceptions of the academic ecology, we expected self- and peer-identified victims to perceive similar levels of emotional risk for participating in class. Peer-identified victims tend to have higher levels of peer rejection and may perceive that by participating in class, they risk being made fun of by their peers and additional rejection (Gorman et al. 2002; Juvonen and Murdock 1995). And although self-identified victims tend to have higher peer acceptance and, therefore, arguably less risk of being made fun of compared to peer-identified victims (given presumed greater peer support from their higher acceptance), prior research shows that self-identified victims have high levels of social anxiety which may bias their perception of the risk for academic participation (e.g., Graham et al. 2003; Graham and Juvonen 1998; Scholte et al. 2013). As for school belonging and school valuing, there is a lack of research evidence comparing self- and peer-identified victims on their feelings toward school; thus, we had no concrete expectations for differences in feelings of school belonging or the extent to which they valued school for these two victim groups. As such, this current study will provide useful information on how these specific victim groups feel toward school, which will complement our current understanding of victim groups' differential risks for maladjustment.

Methods

This study was part of a larger longitudinal study (Project REAL; Rural Early Adolescent Learning; see Hamm et al. 2014) that was designed to develop a teacher training program that supports students at risk for poor school adjustment. Using a cluster randomized trial design, matched pairs of schools were identified and one school from each pair was randomly assigned to either the intervention or control condition. For this current study, we utilized data from the pre-intervention time point of students in 5th grade classrooms (average age 11–12 years) recruited from 50 schools throughout the United States, which were located in predominately rural locales. Across the schools that participated in the study, 72.6% of students were White, 51.8% were boys, and 64% of students were eligible for free- or reduced-price lunch at school.

Participants

Students were recruited from regular 5th grade education classrooms and invited to participate in the study. The original sample consisted of 2231 students in 183 5th grade classrooms. However, 871 participants were excluded from analyses either because they were missing data for self-reported victimization or they were in classrooms with less

than 50% participation rates, precluding us from using peer nominations of victimization (e.g., Marks et al. 2013). The resulting sample included 1360 students in 106 5th grade classrooms. To ensure that the final sample did not differ significantly from the original sample, we conducted chi-square tests on demographic variables. There were no significant gender differences between the samples, $\chi^2 = 0.11$, $p = 0.744$, but there were significant ethnic differences, $\chi^2 = 102.88$, $p < 0.001$. Majority (i.e., White) students were more likely to be excluded from analyses compared to minority (e.g., African American, Hispanic) students. Of the students included in the final sample, 52.8% were girls. The majority of the final sample was White (53.1%) followed by African American (28.8%), Hispanic (5.8%), and Native American (5.7%). The remaining 6.5% of the final sample identified as Asian, multiracial, or other.

Procedure

With approval from the Institutional Review Board, students were recruited from participating schools. Parental informed consent was required for students wishing to participate. Student data was collected during group administered survey sessions where a trained research assistant read aloud questions while other research assistants were available to answer any questions and monitor student participants. Participants were assured of confidentiality and were told they could withdraw from the study at any time. For their participation, students were given a school supply item.

Measures

Victimization

Self-reports of Victimization were gathered by asking participants to answer the question: “How often have you been bullied since school started?” Students' responses were 0 = *never*, 1 = *one or more times a month*, 2 = *one or more times a week*, and 3 = *one or more times a day*. *Peer-reports of Victimization* were gathered using established peer nomination procedures in which participants were asked to nominate up to three peers who best fit certain behavioral and status descriptors from free recall (e.g., Estell et al. 2007). The item for peer-reports of victimization was “picked on.” Nominations for students were summed and divided by the total number of nominators then standardized by classroom per established practice (e.g., Estell et al. 2007; Rodkin et al. 2000).

Perceptions of the bullying ecology

Participants' perceptions of the bullying ecology were assessed using the Protective Peer Ecology Scale (Song

2005), which consists of three subscales. The *Peer Protector* subscale assessed students' willingness to protect peers being bullied using the prompt “If I know that someone in my school is being bullied” with five items (e.g., “I would stick up for them”, $\alpha = 0.82$) using a 5-point scale (1 = *never* to 5 = *always*). The *Peer Protection* subscale used the prompt “If I'm being bullied” to assess students' view that peers would protect them from bullies with eight items (e.g., “my peers would tell others to stop the bullying”, $\alpha = 0.91$) using the same 5-point scale. Lastly, the *Peer Encouragement* subscale consisted of five items that assessed the extent to which students felt that peers would encourage the bully (e.g., “If I'm being bullied, my peers would laugh,” $\alpha = 0.84$) using the same 5-point scale.

Perceptions of the academic ecology

Participants' perceptions of the academic ecology consisted of two measures. *Emotional Risk of Participation* (Hamm and Faircloth 2005) assessed students' perceptions of emotional risk associated with academic participation. Using the prompt, “If I give a wrong answer to a question in my classes, the following happens:” students responded to six items (e.g., “others will make fun of me,” $\alpha = 0.68$) using a 6-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). *Peer Norms for Effort and Achievement* (Hamm et al. 2011) assessed students' perceptions of the acceptability of achievement and effort among peer affiliates with the prompt: “The kids I hang around with in school think it is good to:” for 11 items (e.g., “volunteer to answer questions/work problems,” $\alpha = 0.80$) using the same 6-point scale.

Sense of school belonging

Students' *sense of school belonging* was measured by Hagborg's (1998) Psychological Sense of School Membership-Brief (PSSM-B) scale, which was a short version of Goodenow's (1993) scale and assessed the extent to which students felt included and supported by others at school. Students' used a 5-point response scale (1 = *completely false* to 5 = *completely true*) to respond to 11 items including “I feel a real part of my school” ($\alpha = 0.82$).

Feelings of school valuing

The measure of *school valuing* used in this study was adapted from the Identification with School Questionnaire (Voelkl 1996). Students indicated their feelings of valuing school and school related outcomes on seven items such as “Dropping out of school would be a huge mistake for me” ($\alpha = 0.73$). Students responded to each item using a 5-point

scale from 1 (*strongly disagree*) to 5 (*strongly agree*) with higher scores indicating higher value placed on school.

Controls

Gender and race information were gathered from school record data. Students also completed the Interpersonal Competence Scale—Self Report (ICS-S; Cairns et al. 1995), which assessed several measures of interpersonal competence. Students responded to several items using a 7-point scale with higher scores indicating the item was more characteristic of the student. The ICS-S yields several subscales from factor analysis (see Cairns et al. 1995), two of which were used in this study: *self-reported aggression* (argues, trouble at school, and fights; $\alpha = 0.59$, $M = 3.34$, $SD = 1.20$); and *self-reported popularity* (popular with boys, popular with girls, and lots of friends; $\alpha = 0.57$, $M = 5.12$, $SD = 1.41$). Victim groups did not differ in their self-reported aggression ($ps > 0.203$), but they did differ in self-reported popularity. Convergent victims and peer-identified victims rated themselves as less popular ($M_s = 4.06$ and 4.14 , $SD_s = 0.19$ and 0.13 , respectively) than nonvictims and self-identified victims ($M_s = 5.35$ and 5.01 , $SD_s = 0.05$ and 0.07 , respectively), $ps < 0.001$. Additionally, self-identified victims rated themselves as less popular than nonvictims, $p < 0.001$.

Analytic Plan

First, we conducted Latent Profile Analysis (LPA; see Lanza and Cooper 2016) to identify victim groups based on self- and peer-reports of victimization. LPA uses response patterns of continuous variables to assign individuals to groups (McCutcheon 1987). This type of analysis is able to estimate mutually exclusive groups with unique response patterns and has been used previously to identify convergent and divergent self- and peer-reported victim groups (Scholte et al. 2013) as well as groups based on bullying and victimization reports (e.g., Bettencourt et al. 2013; Williford et al. 2011). Second, we conducted multilevel mixed-effects linear regression to test for victim group differences in all dependent variables, controlling for the nested nature of the data with students nested in classrooms.

We identified victim groups using LPA on our final sample of 1360 students using self-reports and peer-reports of victimization, which were modestly correlated ($r = 0.16$, $p < 0.001$). We conducted a series of analyses to identify the optimal number of classes. The best fitting model was determined based on model fit statistics and theory. We used the following fit indices in determining the optimal number of classes: Log likelihood ratio; Akaike Information Criterion (AIC); Bayesian information criterion (BIC); and adjusted BIC. For each of those four indices, smaller values

indicate better fit to the data (Nylund et al. 2007). We also used the adjusted Lo-Mendell-Rubin likelihood ratio test (ALMR; Lo et al. 2001) and the Vuong-Lo-Mendell-Rubin likelihood ratio test (VLMR) to compare relative model fit. Both indices compare the model with k classes to the model with $k-1$ classes. A p -value less than 0.05 indicates support for the k model over the $k-1$ model. Lastly, entropy and individual class probabilities were also examined to provide evidence for the appropriate number of classes. Entropy ranges from 0 to 1 and measures classification accuracy with higher values indicating better accuracy. Additionally, higher individual class probabilities suggest that classes are comprised of homogeneous individuals.

After identifying victim groups using LPA, we used multilevel mixed-effects linear regression to compare victim groups on perceptions of the school ecology using maximum likelihood estimation with students nested in classrooms. All analyses controlled for gender (0 = girls, 1 = boys) and ethnic minority/majority status (0 = majority ethnic status/White, 1 = minority ethnic status/Black, Hispanic, Asian, Other). We also controlled for students' self-reported aggression under the assumption that aggression and victimization are on a continuum (e.g., Graham et al. 2006; Graham and Juvonen 1998; Solberg and Olweus 2003). We wanted to ensure our analyses accounted for the fact that some students may be both victims and aggressors, which may impact their cognitive processes, including their perceptions. For instance, research suggests that different groups of students involved in victimization (i.e., aggressive-victims vs. victimized youth) have differing beliefs of the acceptability of aggressive behavior (Bettencourt and Farrell 2013). By extension, youth who are both victimized and aggressive may perceive their school ecology differently than students who are only victimized. Thus, we controlled for students' self-reported aggression to account for the association between aggression and perceptions. Additionally, we controlled for students' self-reported popularity. We assumed that students' own view of how popular they were with boys and girls and how many friends they had would likely influence their perceptions of the school ecology. Following all multilevel analyses, we calculated adjusted means for each dependent variable post model estimation to account for covariates.

Results

Descriptive Statistics

Means, standard deviations, and zero-order correlations for all study variables are presented in Table 1. Self-reported victimization was significantly, if moderately, associated with peer-reported victimization, $r = 0.16$, $p < 0.001$. Self-

Table 1 Correlations among study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender	–												
2. Minority	–0.03	–											
3. Aggression	0.21***	0.19***	–										
4. Popularity	0.01	0.09***	0.01	–									
5. Victimization (SR)	–0.02	–0.10***	–0.02	–0.17***	–								
6. Victimization (PR)	0.06*	–0.04	0.03	–0.33***	0.16***	–							
7. Peer protector	–0.13***	–0.19***	–0.24***	0.07**	0.07*	0.05	–						
8. Peer protection	–0.21***	–0.01	–0.22***	0.29***	–0.10***	–0.16***	0.43***	–					
9. Peer encouragement	0.11***	0.08**	0.19***	–0.14***	0.06*	0.18***	–0.10***	–0.40***	–				
10. Emotional risk	–0.02	–0.04	0.10***	–0.25***	0.15***	0.17***	–0.12***	–0.34***	0.32***	–			
11. Peer norm for effort	–0.17***	0.06*	–0.29***	0.11***	–0.01	0.04	0.36***	0.35***	–0.16***	–0.32**	–		
12. School belonging	–0.06*	0.04	–0.20***	0.44***	–0.14***	–0.23***	0.27***	0.51***	–0.27**	–0.43***	0.39***	–	
13. School valuing	–0.17***	0.08**	–0.26***	0.10***	–0.01	–0.03	0.31***	0.28***	–0.17***	–0.21***	0.38***	0.34***	–
Mean	0.47	0.47	3.34	5.12	1.93	0.08	3.78	3.62	1.74	2.61	3.90	3.65	4.25
SD	0.50	0.50	1.20	1.41	1.18	1.02	0.98	1.05	0.97	1.10	0.99	0.78	0.71

Note Gender reference group = girls. Aggression and popularity by self-report

SR self-report, PR peer-report. All other variables self-report

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 2 Predicted adjusted means by victim group for perceptions of the school ecology, school valuing, and school belonging from multilevel mixed-effect linear regression analyses

	Convergent victims <i>M</i> (SE)	Self-identified victims <i>M</i> (SE)	Peer-identified victims <i>M</i> (SE)	Nonvictims <i>M</i> (SE)
Perceptions of bullying ecology				
Peer protector	4.04 (0.14) _{a,b}	3.84 (0.05) _b	4.04 (0.09) _a	3.70 (0.04) _c
Peer protection	3.79 (0.14) _{a,b,c}	3.54 (0.05) _{c,d}	3.46 (0.09) _d	3.66 (0.04) _b
Peer encouragement	1.92 (0.13) _{a,b}	1.74 (0.05) _b	2.17 (0.09) _a	1.67 (0.03) _b
Perceptions of academic ecology				
Emotional risk of participation	2.71 (0.15) _{a,b}	2.74 (0.06) _a	2.80 (0.10) _a	2.53 (0.04) _b
Peer norm for effort	3.99 (0.13) _{a,b}	3.91 (0.06) _b	4.15 (0.09) _a	3.86 (0.04) _b
School belonging	3.47 (0.10) _b	3.61 (0.04) _b	3.48 (0.07) _b	3.71 (0.03) _a
School valuing	4.00 (0.10) _c	4.29 (0.04) _{a,b}	4.37 (0.07) _a	4.23 (0.03) _{b,c}

Note All models controlling for gender, minority status, self-reported aggression, and self-reported popularity status. Groups with different subscripts are significantly different at $p < .05$

reported victimization was positively associated with willingness to be a peer protector ($r = 0.07$, $p = 0.012$) and perceptions of peer encouragement for bullying ($r = 0.06$, $p = 0.034$), but negatively associated with expectations for peer protection from bullying ($r = -0.10$, $p < 0.001$). Students who self-reported higher victimization also perceived more emotional risk of academic participation ($r = 0.15$, $p < 0.001$).

Students high on peer-reported victimization expected more peer encouragement for bullying ($r = 0.18$, $p < 0.001$) and perceived more emotional risk in participating ($r = 0.17$, $p < 0.001$). Both self-reported and peer-reported victimization were negatively associated with feelings of school belonging ($r_s > -0.14$, $p_s < 0.001$) but were not associated with feelings of school valuing ($r_s < -0.03$, ns).

Victim Groups from LPA

Given our focus on four victim groups (i.e., convergent victims, self-identified victims, peer-identified victims, and nonvictims), we conducted a series of LPA models specifying three to five classes using the Mplus software program (Muthén and Muthén 2010). Four classes significantly improved model fit compared to the three class model. According to the ALMR and the VLMR which test the k model vs. a $k-1$ model, the addition of a 5th class improved model fit but the five class model was difficult to interpret and inconsistent with theory and previous research, thus we remained with the four class model. The overall entropy value of 0.98 and individual class probabilities over 0.92 provide further support that the four victim groups represented homogeneous individuals (e.g., Williford et al. 2011). The class sizes for our four class solution were similar to those found by Scholte and colleagues (2013). *Convergent victims* included 49 students (3.6%) who were

high on both self- and peer-reports of victimization ($M_s = 3.73$ and 2.52 , respectively). *Peer-identified victims* ($n = 109$, 8%) were low on self-reported but high on peer-reported victimization ($M_s = 1.67$ and 2.40 , respectively). *Self-identified victims* ($n = 352$, 25.9%) were high on self-reported victimization but low on peer-reported victimization ($M_s = 3.61$ and -0.13 , respectively). Lastly, 850 students (62.5%) were identified as *nonvictims* with low self- and peer-reports of victimization ($M_s = 1.16$ and -0.27 , respectively).

We tested for gender and ethnic differences in victim groups. There was a trend for girls to be more likely to be self-identified victims and less likely to be peer-identified victims compared to boys, but these differences did not reach the significance level, $\chi^2(3, N = 1360) = 6.57$, $p = 0.087$. There were significant ethnic differences in victim group membership, $\chi^2(3, N = 1360) = 31.68$, $p < 0.001$. Majority ethnic students (i.e., White) were more likely to be self-identified victims compared to minority students. Ethnic minority students were more likely to be nonvictims than ethnic majority students.

Perceptions of the School Ecology, School Valuing, and School Belonging

We first ran a series of unconditional models for the school ecology, school belonging, and school valuing variables to partition the variance into between- and within-classroom variance. The resulting intraclass correlation coefficients (ICCs) ranged from 0.03 to 0.12, indicated that 3 to 12% of variance was between classrooms, variance components > 0.03 , $\chi^2_s > 5.83$, $p < 0.01$. The exception was peer encouragement for bullying with less than 1% of variance between classrooms, variance component = 0.003, $\chi^2 = 0.09$, $p = 0.380$. Give that most variables had significant variance at

the classroom-level, we continued to test our hypotheses using multilevel modeling.

After controlling for gender, minority status, self-rated aggression, and self-rated popularity, there were significant victim group differences to students' perceptions of the bullying ecology, the academic ecology, their sense of school belonging, and their school valuing. Estimated means adjusted for model covariates are listed in Table 2. Victim groups significantly differed in their willingness to protect other peers being bullied. Nonvictims were less willing to protect peers being bullied compared to all other victim groups: convergent victims ($p = 0.014$), peer-identified victims ($p < 0.001$), and self-identified victims ($p = 0.021$). Self-identified victims were less willing to protect peers than peer-identified victims ($p = 0.05$), yet neither group significantly differed from convergent victims ($p > 0.158$). In terms of expectations for peer protection, self-identified victims expected less peer protection from bullies than nonvictims ($p = 0.047$) and peer-identified victims expected less protection than convergent victims ($p = 0.045$) and nonvictims ($p = 0.048$), but peer- and self-identified victims did not differ from one another ($p = 0.480$). Comparing perceptions of peer encouragement for bullies, peer-identified victim were more likely to perceive that peers would encourage bullying against them compared to both nonvictims ($p < 0.001$) and self-identified victims ($p < 0.001$).

Comparing perceptions of the academic ecology, both self- and peer-identified victims perceived significantly more emotional riskiness of participating in class compared to nonvictims ($ps < 0.012$), but these two groups did not differ from one another nor from the convergent victim group ($ps > 0.253$). Peer-identified victims perceived significantly higher peer norms for academic effort compared to nonvictims and self-identified victims ($ps < 0.018$) yet nonvictims, self-identified victims, and convergent victims did not differ from one another ($ps > 0.341$).

In terms of school belonging, nonvictims had the highest level of school belonging compared to all other victim groups ($ps < 0.023$) who did not differ from one another ($ps > 0.185$). Lastly, peer-identified victims placed significantly higher value on school compared to both nonvictims and victims ($ps < 0.005$). Self-identified victims valued school more so than victims as well ($p = 0.017$) but did not differ from peer-identified victims ($p = 0.104$).

Alternate Model Analyses

We conducted sensitivity analyses with self-rated aggression as a control in our models. The results for victim group differences in perceptions of the academic ecology, school belonging, and school valuing were unchanged when self-rated aggression was removed from the models. Yet, the

inclusion of self-rated aggression improved model fit across these outcome variables, χ^2 s (1) > 19.46 , $ps < 0.001$. There were slight differences in the results for perceptions of the bullying ecology. However, as with the other models, retaining self-rated aggression improved model fit for perceptions of the bullying ecology, χ^2 s (1) > 38.76 , $ps < 0.001$. Therefore, we retained aggression in the final models reported in Table 2.

Discussion

Victimization experiences significantly impact long-term outcomes (e.g., McDougall and Vaillancourt 2015) and we know that adjustment may vary depending on whether peers report that a student is victimized or if the student himself or herself reports victimization (e.g., Graham and Juvonen 1998; Scholte et al. 2013). Such divergence in adjustment patterns underscores the need to identify possible leverage points to support the positive adaptation of each unique victim group. Previous research revealed differences in how victim groups' perceived themselves but lacking in the literature was an understanding of how victims perceived their school ecology. In an effort to provide such information, we compared victim groups in their perceptions of the bullying and academic ecology, feelings of school belonging, and school valuing.

Convergent Victims

Our analyses comparing victim group differences in perceptions of the school ecology yielded interesting findings for convergent victims. Counter to our expectations, convergent victims had similar perceptions of the bullying ecology as nonvictims. The one significant difference between the groups was their willingness to be a peer protector: convergent victims were more willing to protect peers being bullied compared to nonvictims. This greater willingness to protect peers being bullied may seem counterintuitive since defending a victim may put youth at risk for victimization (Juvonen and Galván 2008) and it would be reasonable to expect already victimized youth to want to avoid placing themselves at further risk for victimization (Boulton et al. 1999; Hodges and Perry 1999). However, some research suggests that victimized youth are more willing to intervene on behalf of other victims than their nonvictimized counterparts (Card and Hodges 2006; Rigby and Johnson 2006). As bystander behavior has become a focus of bullying intervention research (e.g., Polanin et al. 2012; Ttofi and Farrington 2011), it is encouraging that convergent victims indicate willingness to defend other peers being bullied. However, more research is needed to understand the relationship between willingness to defend

others and actual defending behavior (e.g., Polanin et al. 2012).

Convergent victims' perceptions of the academic ecology were generally negative, though they did not significantly differ from other groups. In line with expectations and perhaps unsurprisingly, they had significantly lower feelings of school belonging compared to nonvictims. The more these convergent victims feel like they do not belong at school, the more likely they are to drop out (Finn 1989; Fredricks et al. 2004; Osterman 2000), which in turn may be related to significant public health issues including high rates of unemployment, mortality, incarceration, and criminal behavior (see Belfield and Levin 2007 for review), outcomes that may be exacerbated and reciprocally influenced by the significant mental health consequences of victimization experience (Haynie et al. 2001; Kaltiala-Heino et al. 2000; Kumpulainen et al. 1999; Nansel et al. 2001). The fact that convergent victims tend to have worse adjustment patterns, feel like they do not belong at school, and report low school valuing is a sobering reminder of the extensive support these youth need across multiple domains.

Peer-Identified Victims

Our expectations for differences between peer-identified and self-identified victims' perceptions of the bullying ecology were partially supported. Peer-identified victims expected more peer encouragement for bullying compared to self-identified victims and nonvictims. Such negative perceptions of one's peers may lead to the development of a hostile attribution bias (Crick and Dodge 1994; Dodge and Frame 1982) that may further negatively impact peer interactions in ways that help sustain peer social dynamics that contribute to continued victimization (i.e., peer rejection; Hodges and Perry 1999). Interestingly, peer-identified victims were also more willing to protect peers being bullied compared to self-identified victims and nonvictims. This evidence suggests that those with peer reputations for victimization (convergent and peer-identified victims) are willing to help other victimized youth more so than those students without peer reputations for victimization (nonvictims and self-identified victims). This provides additional support for the notion that victims are more willing to defend other victims (e.g., Card and Hodges 2006). Those with victim reputations are likely keenly aware of the psychological costs of victimization and may be more willing to defend others having the same experience.

Peer-identified victims' perceptions of the academic ecology were mixed. As expected, they perceived similar levels of emotional riskiness of participation as self-identified victims. This perception that academic participation puts them at risk for being made fun of by peers may

prevent youth from actively participating in class and ultimately jeopardize their academic success via impacts on engagement (Patrick et al. 2007; Wang and Holcombe 2010). More encouraging was our finding that peer-identified victims perceived high peer norms for effort, which was counter to our expectations. These opposing findings for perceptions of the academic ecology likely reflect different sources of academic support: support from classmates vs. support from peer affiliates. At the classroom level, peer-identified youth may be less willing to participate because they do not expect support from peers in their classroom but they may be more engaged with peers they hang out with who are academically inclined. This suggests that being able to identify and support productive peer relationships in the classroom (i.e., through group work or seating arrangements) may be an important strategy teachers can use to help promote academic engagement for such peer-identified victims (e.g., Hamm et al. 2014; Farmer et al. 2011; van den Berg et al. 2012).

A striking finding for peer-identified victims was their high levels of school valuing, more so than both convergent victims and nonvictims. This means that even though peer-identified victims tend to have lower GPAs (Graham et al. 2003), they believe school is important. It behooves us to find ways of protecting and encouraging that sense of school valuing by creating a classroom context that supports their academic engagement and buffers them from the negative effects of being victimized (e.g., Schwartz et al. 2005). However, the hopeful message of high valuing for school is tempered by our finding that peer-identified victims do not feel like they belong at school to the same extent as nonvictims. Overall, the results for peer-identified victims reiterate the need to support youth with peer reputations for victimization.

Self-Identified Victims

As for perceptions of the school ecology, though they were not as willing to protect peers to the same extent as peer-identified victims, self-identified victims were still willing to protect peers being bullied more so than nonvictims. This evidence again suggests that experiencing victimization may induce youth to be more willing to defend peers experiencing bullying than youth who do not have experiences with victimization or a victim reputation. Since self-identified victims tend to have higher peer acceptance and thus more peer support than convergent or peer-identified victims (e.g., Graham et al. 2003; Graham and Juvonen 1998; Scholte et al. 2013), their defending behavior may be particularly beneficial to other victims. It remains to be seen whether these self-identified victims are willing to defend victims with low acceptance and high rejection (i.e., peer-identified victims) or if their willingness to defend is

contained only to other self-identified victims who are more likely to have similar social status. We also found that self-identified victims expected less protection from peers compared to nonvictims. These two groups have similar levels of peer acceptance (e.g., Graham et al. 2003; Graham and Juvonen 1998); yet, Scholte et al (2013) found that self-identified victims had higher levels of peer rejection than nonvictims. This suggests that these two groups occupy somewhat different levels of status in the social hierarchy and may, therefore, have slightly different levels of social power and peer support (Hawley 1999); hence, self-identified victims' expectations for less peer protection compared to nonvictims.

Comparing perceptions of the academic ecology, we found that self-identified victims perceived more emotional risk of academic participation compared to nonvictims. This finding suggests that victimization experience may hinder youth's participation, even when those students have high GPAs and are considered to be academically competent by teachers (e.g., Graham et al. 2003). The risk for these victims is that they may become less engaged in the classroom in order to avoid embarrassment, potentially jeopardizing their academic achievement and long-term success (e.g., Juvonen and Murdock 1995). For instance, the perception that participation is risky may induce self-identified victims to pursue a performance goal that emphasizes gaining positive judgments and avoiding negative judgments from others about one's academic competence over pursuing a learning goal, which emphasizes acquiring new skills and knowledge (Dweck 1986). The research evidence is clear that pursuing performance goals over learning goals can be detrimental to students' academic achievement (see Grant and Dweck 2003 for review). Thus, it is crucial that teachers are aware of the peer norms for academic engagement in their classroom in order to understand whether academic behavior is seen as something that can promote peer acceptance and popularity or threaten it (e.g., norm salience, see Dijkstra and Gest 2015).

We found a similar pattern for school belonging: self-identified victims had lower levels of school belonging compared to nonvictims and did not differ from peer-identified victims or convergent victims. This suggests that personally experiencing victimization on a weekly to daily basis or having a peer reputation for victimization is associated with lower feelings of school belonging and reiterates the point that successful adjustment at school is dependent on students' functioning in both the academic and social domain (e.g., Juvonen et al. 2000; Juvonen and Wentzel 1996; Schwartz et al. 2005; Wentzel 2009). Despite their lower levels of school belonging, self-identified victims still valued school, more so than convergent victims. The fact that youth with victimization experiences or reputations still value school is promising; yet any optimism should be

tempered with caution given research which suggests students may lose interest in school during the transition to middle school (Eccles and Midgley 1989; Eccles et al. 1998). This reinforces the need to understand these patterns in the later elementary school years as efforts to intervene and support victimized youth at this developmental stage may positively impact their school experience following the transition to middle school.

Implications

The impetus for investigating victim group differences in perceptions of the school ecology and related feelings of school belonging and valuing was to identify associated factors, which may be used as leverage points in intervention efforts to support youth who are either convergent, peer-identified, or self-identified victims. In many ways, our results confirm concerns voiced in previous research of the significant risk for maladjustment for convergent victims. Notable exceptions include that convergent victims were more willing to protect peers being bullied compared to nonvictims and expected more protection from peers and less encouragement from peers than peer-identified victims in the event they were bullied. These findings indicate that despite their lower levels of peer preference in the overall peer network (Graham and Juvonen 1998; Scholte et al. 2013), convergent victims may have some positive peer interactions which may be prompting their more positive perceptions of the bullying ecology. Peer-identified victims showed negative patterns of perceptions, especially compared to nonvictims. Yet a promising finding for this group was their high valuing for school and their perception of higher peer norms for academic effort. It is possible that reinforcing and bolstering their valuing of school and academic effort may initiate a cascade effect on other academic outcomes over time, but this point needs careful research attention.

As for self-identified victims, although teachers and peers typically consider them to be generally well-adjusted socially and behaviorally (Graham et al. 2003), we found evidence to suggest that their frequent experience with victimization is associated with some negative perceptions of the school ecology including less expectations for peer protection from bullying, greater emotional risk of participation, and lower feelings of school belonging compared to nonvictims. The risk for this group of victims is that school personnel may not be aware of their victimization experience because their general positive social and academic adjustment may be masking potentially significant internalizing issues they are likely facing including social anxiety, low self-esteem, or loneliness (e.g., Graham and Juvonen 1998; Scholte et al. 2013). Combined, our results

underscore the need to identify ways to support youth with different victimization experiences and/ or reputations.

Limitations and Future Directions

Despite the contributions this study provides to the literature on victim groups, a few study limitations warrant discussion. First, victim groups were created from a single item for self-reported victimization and a single item for peer-reported victimization which compromises the psychometric properties of both measures. Undoubtedly, multi-item measures are preferable. However, we strongly felt that the items used in this current study were valid assessments of a peer reputation for victimization and self-reported victimization. The peer nomination item “picked on” has been used previously to identify peer-reported victims (e.g., Graham and Juvonen 1998). The self-report measure used in this study is similar to other measures used by researchers to assess victimization (Olweus 1986, 1996; Scholte et al. 2013). By including a reference period for the experience in question (i.e., since school started), the spatial reference to school, and similar response alternatives as the Olweus (1996) measure (i.e., ranging from *never* to *one or more times a day*), we felt our self-report measure was in line with other victimization assessments and yielded meaningful, interpretable results (Solberg and Olweus 2003).

A second limitation of our study was the lack of attention to bully or aggressor status. We acknowledged the continuum of bullying and victimization by controlling for student’s own level of self-reported aggression in our analyses, which is consistent with previous research (e.g., Graham and Juvonen 1998); yet, our analyses do not give insight into the associated perceptions of youth with convergent or divergent peer- and self-reports for both victimization and aggression and/ or bullying. In a similar vein, it is reasonable to expect divergence in peer- and self-reports of aggressive or bullying behavior and for such divergence to be meaningfully related to different adjustment patterns. More research is needed on identifying these different groups and investigating differences in their psychological, social, and academic outcomes.

Though we felt it necessary to focus on peer- and self-reports of victimization, a third limitation is the lack of attention to teacher-reports of victimization. Whether or not teachers can identify youth who report high levels of victimization experience and youth who are considered victims by the peer network can have significant implications on students’ long term adjustment. Being able to identify these victim groups is key to facilitating positive and productive peer relationships in the classroom, which impact overall classroom functioning as well as the psychological, social, and academic success of individual students (Farmer et al. 2011; Rodkin and Gest 2011). A burgeoning area of

research has focused on teacher attunement (see Ahn and Rodkin 2014; Ahn et al. 2013; Dawes et al. 2016; Hamm et al. 2011; Norwalk et al. 2015) and evidence suggests that greater attunement can positively impact students (Ahn and Rodkin 2014; Norwalk et al. 2015). More work is needed to bridge these research directions in order to understand whether teachers are attuned to the multifaceted nature of victimization.

Fourth, our predominantly rural sample limits the generalizability of the findings to schools located in nonrural settings such as metropolitan or urban schools. Whether or not patterns of victim group differences in perceptions would be similar for adolescent samples drawn from non-rural schools remains to be seen. Despite this limitation, because our use of Latent Profile Analysis in this current study yielded similar victim group characteristics in terms of group size and group means on measures of self- and peer-reported victimization as was found by Scholte and colleagues (2013), we are confident in the generalizability of the victim group distribution to other samples.

Lastly, this study was limited to one time point and does not address questions about the developmental outcomes of these different victim groups. Longitudinal research is needed to help us identify factors which may mitigate the negative adjustment patterns found for each victim group over time. As Scholte and colleagues (2013) demonstrated, membership in each victim group is highly stable over a 1-year time span. An equally interesting direction for future research is examining factors related to changes in victim group status. For instance, what factors are associated with changing from a convergent victim to a nonvictim over time? This research direction may illuminate additional key leverage points for promoting the successful adjustment of different victims groups and we see fruitful research developing along these lines.

Conclusion

A large body of research has established the significant negative consequences of victimization experience (e.g., Graham et al. 2006; Hawker and Boulton 2000; Haynie et al. 2001; Kaltiala-Heino et al. 2000; Kumpulainen et al. 1999; Nansel et al. 2001) and this study and others that have used person-oriented approaches to understanding this phenomenon have revealed meaningful differences in adjustment patterns for victim groups based on the convergence of peer- and self-reports (Graham et al. 2003; Graham and Juvonen 1998; Scholte et al. 2013). Researchers agree that self-reports of victimization experience are important in their own right (e.g., Card and Hodges 2008) as they reveal youth’s feelings of distress, which may impact long-term psychological health (Nishina et al. 2005).

Peer reports, particularly those gathered from peer nominations, are equally important to understand as the peer reputations captured through peer nominations significantly impact youth's psychological adjustment (Gest et al. 2006; Prinstein et al. 2009).

What we showed in this study is that victim groups perceive their school ecology differently depending on whether they are identified as victims through self-reports, peer-reports, or both. Convergent victims generally had negative perceptions of the school ecology and lower feelings of school belonging with notable exceptions being their expectation for more peer protection from peers compared to peer-identified victims and their greater willingness to protect peers being bullied compared to nonvictims. Similarly, peer-identified victims were also more willing to protect peers being bullied compared to nonvictims and self-identified victims. As for their perceptions of the academic ecology, though they perceived higher peer norms for academic effort and had higher levels of school valuing compared to nonvictims, peer-identified victims still perceived greater emotional risk of academic participation than nonvictims. Lastly, we found that self-identified victims expected less protection from peers in the event of bullying, had lower feelings of school belonging, and perceived greater emotional risk of academic participation compared to nonvictims. Altogether, this current study reiterates the need to consider both self- and peer-reports of victimization as membership in different victim groups may impact youth's adjustment across multiple domains.

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Authors' contributions M.D. conceived of the study, conducted all statistical analyses, and drafted the manuscript. C-C.C. also participated in study conception, assisted with statistical analyses, and helped draft the manuscript. T.F. contributed to the study design, coordinated data collection, and helped draft the manuscript. J.H. also contributed to the study design, coordination of data collection, and helped to draft the manuscript. All authors read and approved the final manuscript.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interest..

Ethical Approval All procedures performed in the current study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained for all participants in the study.

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