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Isolation and the stress of being bullied

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Abstract

Approximately one-third of children report being victims of bullying, and this victimization has been linked to a number of negative psychological outcomes. In the present study, we examined the effects of perceived isolation on the link between victimization before and during high school and stress symptoms during college. Consistent with our predictions, victimization appears to do the most damage to those who felt isolated during high school. These results suggest that schools should reframe their approach to the bullying problem, and devote more resources to helping students feel less isolated.

Introduction

Being bullied by peers in childhood is a stressful experience. A growing body of research has identified several risk factors and consequences of being bullied, including psychological maladjustment (for a review, see Hawker & Boulton, 2000). However, research has yet to examine moderators of the consequences of being bullied. In the present article, we argue that bullying is best understood as a chronic stressor, and examine individual differences in social support as a moderator of reactions to bullying.

According to most estimates, roughly 30% of children report being victims of bullying at some point, and between 5% and 10% are victims on a regular basis (e.g. Perry, Kusel, & Perry, 1988; Rigby & Slee, 1991; Olweus, 1993; Nansel et al., 2001). Boys are more likely than girls to bully and

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to be bullied (e.g. Arora & Thomson, 1987; Slee & Rigby, 1993; Siann, Callahghan, Glissov, Lockhart, & Rawson, 1994; Nansel et al., 2001), although changing definitions of "bullying" to include more indirect aggression (e.g. teasing, ostracism) can reduce the gender difference (e.g. Crick, 1995). In a study of middle schools in Italy, girls' experiences with bullying included name-calling, rumours, rejection, and teasing, whereas boys' experiences included more physical harm, threats, and rejection (Baldry, 1998).

Being a victim of bullying has been associated with a number of negative psychological outcomes, including anxiety (e.g. Perry et al., 1988; Craig, 1998; Bond et al., 2001), depression (e.g. Neary & Joseph, 1994; Craig, 1998), and poorer perceptions of self-worth and competence (e.g. Roland, 1989; Slee & Rigby, 1993; Neary & Joseph, 1994). A recent meta-analysis found that victimization was related most strongly to depression and least strongly to anxiety (Hawker & Boulton, 2000). Although females tend to report more of these symptoms than males, and although males and females are subjected to different types of bullying, there is typically not a sex difference in the consequences of bullying (i.e. no interaction; Perry et al., 1988; Roland, 1989; Slee & Rigby, 1993; Craig, 1998; for an exception, see Rigby & Bagshaw, 2001).

Reports of victimization by bullies appear to decrease with age (e.g. Boulton & Underwood, 1992; Whitney & Smith, 1993). Perhaps not coincidentally, the majority of bullying research has been done with younger children. One goal of the present study was to examine the psychological consequences of being bullied later in adolescence. However, research also reveals there is a subset of bullying victims who are chronically victimized throughout school, and many of these are also bullied as adults (Smith, Singer, & Hoel, 2003). In a study of Swedish students, Olweus (1978) referred to these frequent targets as "whipping boys", and found that they make up between 4% and 7% of boys in each grade level (girls were not studied). A second goal of the present study was to contrast these "chronic" victims with those bullied only before high school, and examine the consequences of differing durations of bullying.

The "whipping boys" studied by Olweus (1978) were rated as less popular, more passive, and scored higher on several anxiety scales than either bullies or control children. But does bullying cause these problems, or are bullies drawn to anxious loners? To investigate the causal pathway, Kochenderfer and Ladd (1996) followed a group of American boys and girls as they started school for the first time. Their results suggest that bullies initially target all children, leading to loneliness and anxiety symptoms. Certain children seem to react worse to being bullied, and these appear to become the chronic victims. The critical question, therefore, is the basis of these different reactions to similar bullying.

One way to understand these negative outcomes is to view victimization as a chronic stressor, and the outcomes as responses to a traumatic experience. Research reveals that responding to a stressor is a two-stage process (for a review, see Lazarus & Folkman, 1984). First, individuals *appraise* the potential stressor, to determine the demands of the situation and their ability to meet those demands. Individuals typically perceive that they can meet demands if they perceive having control over the stressor (e.g. Langer & Rodin, 1976; Florian, Mikulincer, & Taubman, 1995), or if they view an uncontrollable stressor as due to temporary, external factors (e.g. Abramson, Seligman, & Teasdale, 1978).

Second, if they perceive difficulty in meeting demands, then individuals make use of a variety of *coping* strategies for dealing with the stressor (for a review, see Carver, Scheier, & Weintraub,

1989). One of the best coping strategies appears to be a strong social support network (for reviews, see Leavy, 1983; Schradle & Dougher, 1985; Uchino, Caciopo, & Kiecolt-Glaser, 1996). In times of stress, both acute and chronic, social support has been shown to lower blood pressure, strengthen immune response, and decrease the secretion of stress hormones (Uchino et al., 1996). Social support has been shown to prolong life in breast cancer patients (Spiegel, 1993), reduce the risk of suicide among HIV-positive men (Schneider, Taylor, Hammen, Kemeny, & Dudley, 1991), and reduce the risk of a second heart attack (Case, Moss, Case, McDermott, & Eberly, 1992). In contrast, social *isolation* has been associated with higher death rates in a number of large-scale prospective studies of the general population (e.g. Berkman & Syne, 1979; House, Landis, & Umberson, 1988). Interestingly, perceived support seems to be therapeutic, even if one's perceptions are not accurate (Lakey & Cassady, 1990).

Unfortunately for chronic bullying victims, there is evidence that they are cut off from their peers (e.g. Perry et al., 1988; Olweus, 1993) and rated as less popular (Olweus, 1978). It could be that bullies are drawn to those who are quiet and alone, or that their peers tend to stay away from chronic victims. Either way, the outcome for the victim is the same—a sense of isolation from one's peers. However, the take-home point from the stress literature is that people's *perceptions* have a big effect on both appraisals of stressors and coping with them. Thus, it stands to reason that people may have very different reactions to similar bullying experiences. The third goal of the present study was to examine moderators of the consequences of bullying. Previous examinations of social support as a moderator have focused on younger children, and on current levels of victimization and stress symptoms (Rigby & Slee, 1999; Rigby, 2000). The present study attempted to extend these findings to the long-term consequences of being bullied during adolescence. Specifically, we propose that a key moderator of the long-term psychological consequences of being bullied is the degree to which it makes people feel *isolated*. This was examined in a sample of college freshmen who reported on their experiences before and during high school.

The present study had three specific predictions. *First*, we predicted that those who were bullied more frequently in high school would have more stress symptoms in college. *Second*, we predicted that those bullied for a longer duration would have more stress symptoms in college. Specifically, "chronic" victims—those bullied frequently both before and during high school—should have more stress symptoms in college than those bullied primarily before high school. *Third*, we predicted that those who were bullied *and* felt isolated during high school would have the greatest incidence of stress symptoms during college.

Method

Participants

Participants were 853 undergraduate students (59% female; mean age = 19.1 years; S.D. = 1.4; range = 17–34) enrolled in Introductory Psychology at the University of Texas at Austin. Reported ethnicity was 63% Caucasian, 16% Hispanic, 13% Asian, 3% American Indian/Pacific Islander, and 2% African-American; an additional 3% listed their ethnicity as "other". Participants received partial fulfillment of the course research requirement.

Materials

Experiences with bullying

The eight-item bullying questionnaire ($\alpha = .70$) asked participants about their experiences and their reactions to them. Participants were asked to indicate the frequency with which they were bullied both during high school and before, and were given the following options: *never*; *occasionally*; and *frequently*. These three levels formed our categories of victimization at each time period. Our definition of "bullying" was intentionally vague, because we wanted to capture a wide range of experiences. Participants were also asked the degree to which they felt *isolated* during high school, on a five-point scale from *not at all* to *very*.

Finally, participants were asked a series of *yes/no* questions about whether they had been victims of physical abuse or verbal abuse, and whether they had ever "hit other students who were smaller than [them] in high school". This last question was used to screen the small percentage of people who physically bullied others from the sample ($N = 36$). Thus, the sample consisted only of those who had been victimized with varying frequencies.

Stress and trauma symptoms

The 33-item stress symptoms questionnaire ($\alpha = .90$) asked participants to report their current frequency of several symptoms linked to stressful and traumatic experiences (TSC-33; Briere & Runtz, 1989). All symptoms were assessed on a scale from 0 (*never*) to 3 (*very often*). The TSC provides a measure of total stress, as well as a measure of five subgroups of symptoms—*depression* (e.g. sadness, weight loss); *anxiety* (e.g. feeling tense, trouble breathing); *dissociation* (e.g. flashbacks, spacing out); *sexual problems* (e.g. low sex drive, sexual over-activity); and *sleep disturbance* (e.g. insomnia, nightmares).

Procedure

Participants completed the bullying experiences measure during a pretesting session at the beginning of the semester. All students who completed this measure were then invited to take part in the study. The stress and trauma symptoms questionnaire was completed over the Internet as the first in a large set of questionnaires about bullying.

Results

The results are presented as follows. First, we examined the frequency and duration of victimization. Next, we tested the relationship between frequency of victimization and stress symptoms (Hypothesis 1), followed by the relationship between duration of victimization and stress symptoms (Hypothesis 2). We then explored the relationship between victimization and isolation. Finally, we tested our hypothesis regarding the moderating role of isolation (Hypothesis 3).

Frequency and duration of bullying

Before high school, 33% of the sample reported being bullied occasionally, and 26% reported being bullied frequently. Males were more likely to report occasional victimization ($\chi^2(1) = 8.80$,

Table 1
Frequency of victimization, by gender

	Reported frequency of victimization			
	Not at all	Occasionally	Frequently	Total
Before HS				
Males	30.8% (107)	33.7% (117)	35.4% (123)	100% $n = 347$
Females	47.0% (238)	33.0% (167)	20.0% (101)	100% $n = 506$
Total	40.4% (345)	33.3% (284)	26.3% (224)	100% $N = 853$
During HS				
Males	57.1% (198)	28.8% (100)	14.1% (49)	100% $n = 347$
Females	72.7% (368)	21.5% (109)	5.7% (29)	100% $n = 506$
Total	66.4% (566)	24.5% (209)	9.1% (78)	100% $N = 853$

$p = .00$), whereas females were more likely to report no experience with victimization ($\chi^2(1) = 49.74$, $p = .00$). See the top half of Table 1 for these percentages.

During high school, 25% of the sample reported being bullied occasionally, and 9% reported being bullied frequently. Similar to the gender difference seen before high school, males were more likely to report frequent victimization ($\chi^2(1) = 5.13$, $p = .02$), and females were more likely to report no experience with victimization ($\chi^2(1) = 51.06$, $p = .00$). See the bottom half of Table 1 for these percentages.

There was a strong relationship between bullying prior to and during high school ($\chi^2(4) = 266.39$, $p = .00$), which held for both males ($\chi^2(4) = 109.30$, $p = .00$) and females ($\chi^2(4) = 137.87$, $p = .00$). Among those who were bullied frequently prior to high school, 67% were also bullied during high school. Likewise, among those not bullied prior to high school, only 11% were bullied during high school. Interestingly, among the 224 people bullied frequently before high school, roughly one-third were bullied frequently, one-third were bullied occasionally, and one-third were not bullied at all during high school. We return to these three groups below, to examine the effects of duration of bullying on stress symptoms. See Table 2 for frequencies of chronic victimization.

Frequency and stress symptoms

We examined the relations between frequency of victimization and stress symptoms in two ways. First, we examined the relationship between victimization prior to high school and total stress symptoms[1] (Fig. 1, top panel). Second, we examined the relationship between victimization during high school and total stress symptoms (Fig. 1, bottom panel). Both were examined using a 3 (frequency of bullying: never, occasionally, frequently) × 2 (gender) ANOVA, with total symptoms reported as the dependent variable.

[1]Analyses from the five stress subscales showed the same pattern as total stress, though the strength of the relationship varied slightly across scales. Results from the subscales are available by request.

Table 2
Chronic victimization

Before high school	During high school			Total
	Not at all	Occasionally	Frequently	
Females				
Not at all	90.8% (216)	7.1% (17)	2.1% (5)	100% $n = 238$
Occasionally	68.3% (114)	31.1% (52)	.6% (1)	100% $n = 167$
Frequently	37.6% (38)	39.6% (40)	22.8% (23)	100% $n = 101$
Males				
Not at all	85.0% (91)	13.1% (14)	1.9% (2)	100% $n = 107$
Occasionally	61.5% (72)	35.9% (42)	2.6% (3)	100% $n = 117$
Frequently	28.5% (35)	35.8% (44)	35.8% (44)	100% $n = 123$
Total				
Not at all	89.0% (307)	9.0% (31)	2.0% (7)	100% $n = 345$
Occasionally	65.5% (186)	33.1% (94)	1.4% (4)	100% $n = 284$
Frequently	32.6% (73)	37.5% (84)	29.9% (67)	100% $n = 224$

For the analysis of victimization prior to high school, as expected, there was a main effect of gender ($F(1, 847) = 24.40$, $p = .000$), with females reporting more stress symptoms than males. There was also a linear main effect of bullying ($F(2, 847) = 23.87$, $p = .000$), such that those who were bullied before high school more reported more stress symptoms. Post hoc tests using a Bonferroni correction revealed that the "occasional" victimization group was no different than the not bullied group ($p = .946$), but the "frequent" victimization group was significantly different from both of the others (p's $< .01$). The interaction with gender was not significant. However, post hoc tests revealed the difference between "occasional" and "frequent" victimization was significant for females ($p = .001$), but not for males ($p = .158$).

For the analysis of victimization during high school, as expected, there was a main effect of gender ($F(1, 847) = 21.24$, $p = .00$), such that females reported more stress symptoms than males. Also as expected, there was a linear main effect of bullying ($F(2, 847) = 23.87$, $p = .00$), such that those who were bullied during high school more reported more stress symptoms. Post hoc tests revealed that, unlike bullying before high school, all three groups were significantly different from one another (p's $< .01$). The interaction with gender was not significant. However, post hoc tests revealed a slightly different pattern for males and females. Females bullied "occasionally" had higher stress symptoms than those not bullied at all ($p = .01$), but this differences was not significant for males ($p = .16$). The difference between "occasional" and "frequent" victimization was significant for both males ($p = .03$) and females ($p = .02$).

Duration and stress symptoms

To examine the relationship between duration of victimization and stress symptoms, we limited our analysis to those who were bullied frequently before high school ($n = 224$), and compared

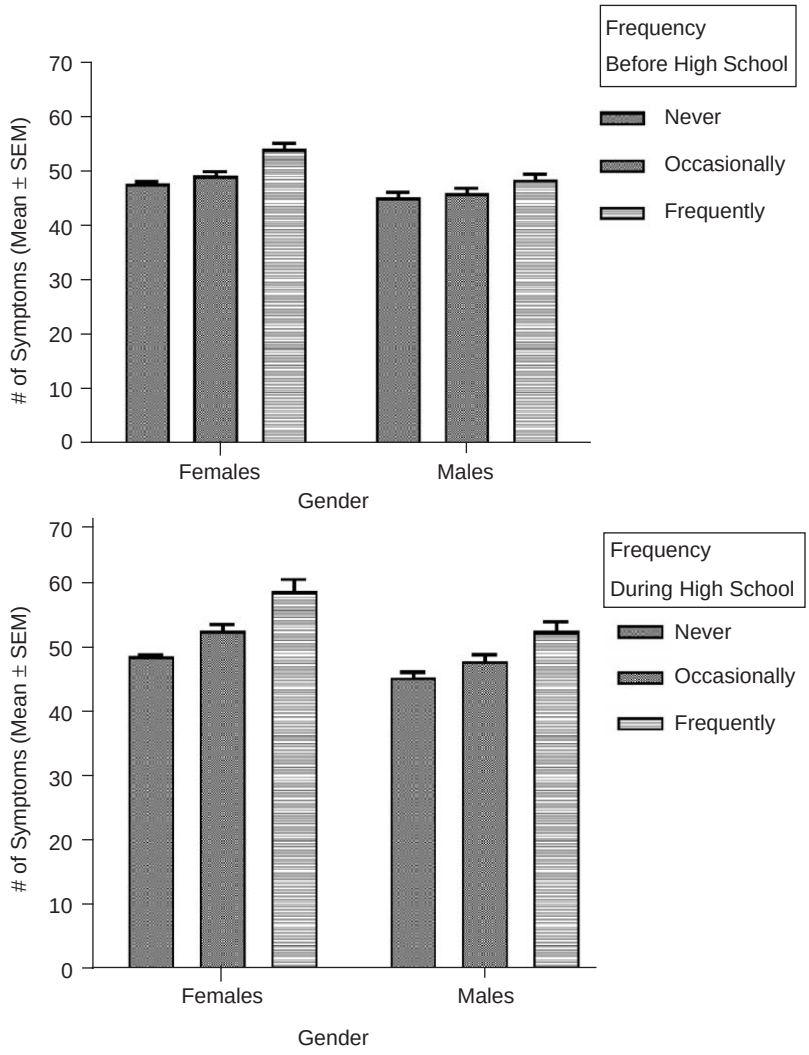

Fig. 1. Total stress symptoms, by gender and frequency of victimization. *Note*: (Top panel) victimization prior to high school; (bottom panel) victimization during high school. Total number of symptoms reported across all subscales. Error bars = 1 standard error.

those bullied frequently, occasionally, and not at all during high school. This comparison was examined using a 3 (frequency of bullying: never, occasionally, frequently) × 2 (gender) ANOVA, with total stress symptoms as the dependent variable.

As expected, there was a main effect of gender ($F(1, 218) = 18.69$, $p = .000$), such that females reported more stress symptoms than males. There was also a main effect of high school victimization ($F(2, 218) = 7.24$, $p = .000$), such that those bullied more frequently reported more stress symptoms. The interaction was not significant. As seen in Fig. 2, those who experienced frequent bullying prior to high school, but no bullying during high school, reported fewer stress symptoms.

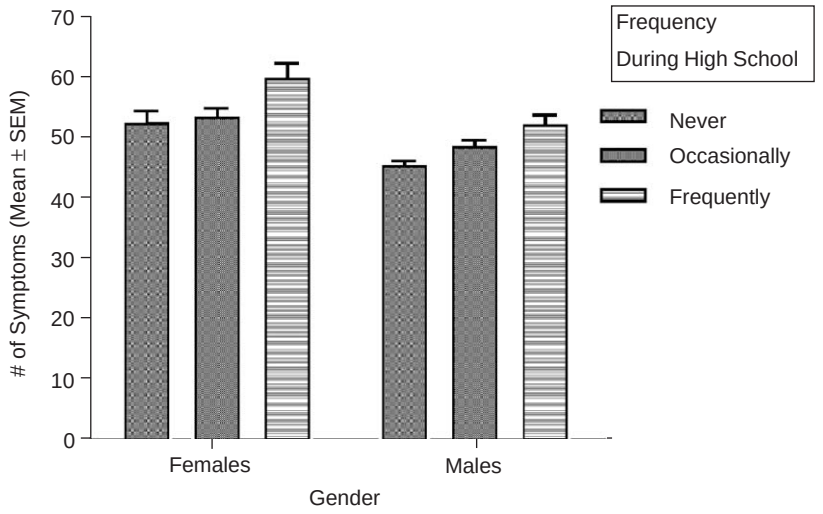

Fig. 2. Duration of bullying and stress symptoms. *Note*: Limited to those bullied "frequently" before high school ($n = 224$). Total number of symptoms reported across all subscales. Error bars = 1 standard error.

Victimization and isolation

Before examining the moderating role of isolation, we compared the frequencies of victimization for individuals at the extremes of the high school isolation scale. "Non-isolated" individuals were defined as those reporting a 1 or a 2 on the isolation scale. "Isolated" individuals were defined as those reporting a 4 or a 5 on the isolation scale. (These extreme scores were used for this analysis only.) If isolation and victimization are independent, then the ratio of "non-isolated" to "isolated" individuals should be roughly equivalent across levels of victimization.

Prior to high school, the ratios varied slightly between those never victimized (94% non-isolated and 6% isolated), those occasionally victimized (96% and 4%), and those frequently victimized (90% and 10%), $\chi^2(2) = 8.41$, $p = .015$. During high school, the ratios also varied slightly between those never victimized (95% and 5%), those occasionally victimized (92% and 8%), and those frequently victimized (85% and 15%), $\chi^2(2) = 12.39$, $p = .002$. At both time periods, those victimized frequently were more likely to be isolated, but a majority of this group still fell into the "non-isolated" category. In fact, the amount of variance shared between isolation and victimization at either time period was less than 4% (r's (848) = .13 and .17, p's = .000). Thus, it appears possible to be victimized without feeling isolated, and vice versa.

Isolation as a moderator

To test our primary hypothesis that the consequences of victimization depend on one's perceived isolation, we conducted two hierarchical linear regressions on total stress symptoms. The first examined moderation of victimization prior to high school, and the second examined moderation during high school. In both analyses, gender (females = 0; males = 1), perceived isolation (1–5), and frequency of victimization (1–3) were entered on the first step. The two-way

Table 3
Regression coefficients: predicting total stress symptoms from isolation and victimization

	B (SEB)		*β*	
	Pre-high school	High school	Pre-high school	High school
Step 1				
Constant	43.47 (1.12)	42.81 (1.07)		
Gender	−3.84 (.76)	−3.96 (.75)	−.172***	−.177***
Victimization	2.19 (.47)	3.57 (.57)	.160***	.213***
Perceived isolation	1.62 (.41)	1.44 (.41)	.133***	.118***
Step 2				
Constant	45.36 (1.3)	45.31 (2.13)		
Gender	−.84 (2.15)	−.29 (2.18)	−.038	−.013
Victimization	1.11 (.51)	1.36 (1.40)	.081*	.081
Perceived isolation	−.65 (.77)	−.24 (.98)	−.054	−.020
Victimization × isolation	1.65 (.34)	1.41 (.57)	.326***	.278*
Isolation × gender	−1.03 (.81)	−1.05 (.82)	−.104	−.107
Victimization × isolation	−.97 (1.04)	−1.20 (1.14)	−.079	−.098
Step 3				
Constant	45.53 (1.35)	46.61 (2.64)		
Gender	−3.17 (3.24)	−3.12 (4.04)	−.142	−.139
Victimization	1.03 (.52)	.43 (1.79)	.076*	.025
Perceived isolation	−.90 (.81)	−.91 (1.27)	−.074	−.075
Victimization × isolation	1.81 (.38)	1.88 (.80)	.357***	.371*
Isolation × gender	.36 (1.66)	.40 (1.93)	.036	.041
Victimization × isolation	.49 (1.84)	.71 (2.56)	.040	.058
Three-way interaction	−.85 (.89)	−.94 (1.13)	−.169	−.187

Note: "*B*" represents unstandardized coefficients; "*β*"represents standardized coefficients. For pre-high school analysis: Step 1, $R^2 = .061$***; Step 2, $\Delta R^2 = .032$**; Step 3, $\Delta R^2 = .001$. For high school analysis: Step 1, $R^2 = .082$***; Step 2, $\Delta R^2 = .009$*; Step 3, $\Delta R^2 = .001$. *** $p < .001$; ** $p < .01$; * $p < .05$.

interactions were entered on the second step, and the three-way interaction was entered on the third step. Coefficients for both analyses are presented in Table 3, separated by time period.

Prior to high school, all three variables significantly affected stress symptoms in Step 1. When the interactions were entered in Steps 2 and 3, only victimization and the victimization × isolation interaction were significant predictors of stress symptoms.

During high school, all three variables significantly affected stress symptoms in Step 1. However, these effects were qualified by the victimization × isolation interaction, which emerged as the only significant predictor in both Step 2 and Step 3.

This interaction showed the same pattern before and during high school, so only the latter is depicted in Fig. 3. As this figure shows, the relation between frequent bullying and stress symptoms was most pronounced among those who reported a higher degree of isolation. This is consistent with the hypothesis that being bullied does the most damage to those who are isolated. For comparison with the other results, Fig. 4 presents total stress means by victimization and the isolation grouping described above.

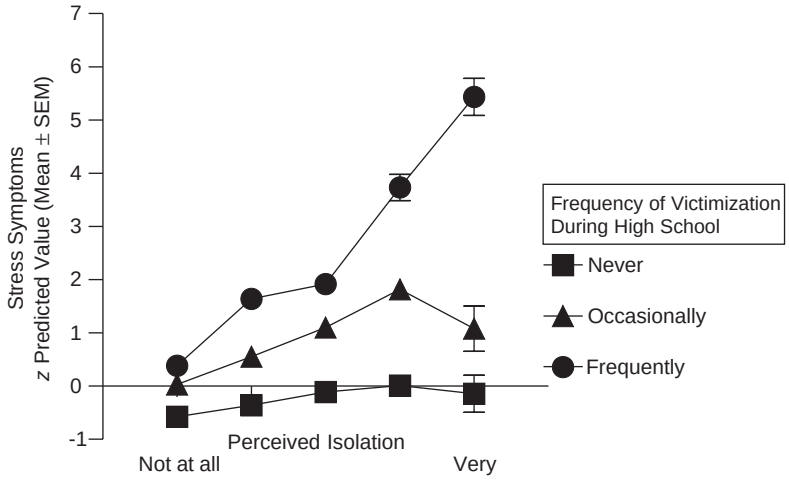

Fig. 3. Victimization, isolation, and stress symptoms. *Note*: *Y*-axis represents standardized predicted values from the regression equation described in the text, and shown in Table 3. Error bars around each point represent deviation from the predicted values.

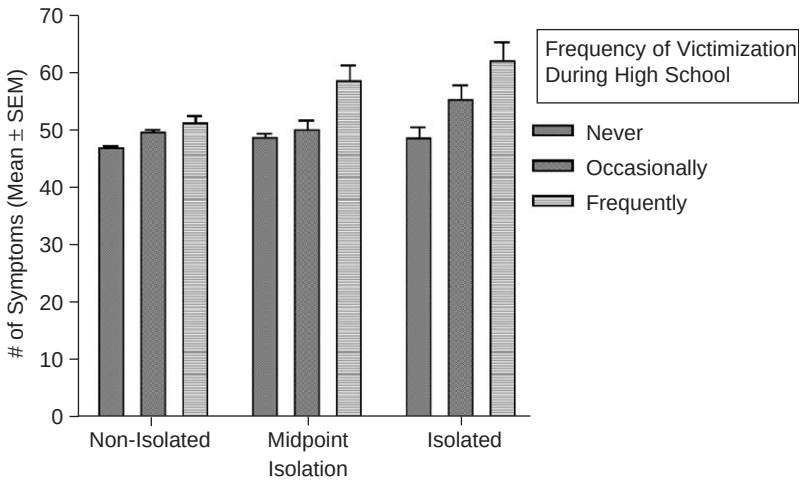

Fig. 4. Total stress symptoms, by isolation level and victimization. *Note*: Total number of symptoms reported across all subscales. Error bars = 1 standard error. "Non-isolated" = 1 or 2 on isolation scale ($N = 680$); "midpoint" = 3 on isolation scale ($N = 125$); "isolated" = 4 or 5 on isolation scale ($N = 45$).

Discussion

A significant proportion of children and adolescents are victims of bullying at some point, and this victimization is undeniably stressful. The present data indicated that the apparent effects of being bullied are still around years later. However, these data also indicated that the long-term impact of this stress is not the same for everyone. Rather, it seems to depend on the degree to

which people feel isolated by it. Those who were bullied frequently in high school, but for whatever reason did not perceive a lack of social support, reported fewer stress symptoms in college. Thus, all of our predictions were confirmed. Frequency and duration of victimization in high school (and before) were both associated with stress symptoms in college, and this relationship was moderated by perceived isolation. The present study both replicates and extends previous research on the consequences of bullying. Prior research into the moderating role of isolation (Rigby & Slee, 1999; Rigby, 2000) examined the benefits of social support for coping with current victimization. These results go a step further, and examine the relationship between past victimization and current stress symptoms.

Despite gender differences in the incidence of stress symptoms, there were no sex differences in the effects of victimization on stress symptoms. This null effect is consistent with prior research (e.g. Perry et al., 1988; Roland, 1989; Slee & Rigby, 1993; Craig, 1998). There were also no sex differences in the effects of isolation. Males and females both reported higher stress symptoms if they were bullied and felt isolated. Our definition of ''bullying'' was intentionally vague in the present study, because we wanted to capture a wide range of experiences. However, it may be the case that different types of bullying (i.e. verbal vs. physical) have different consequences. One possibility is that males are affected more by physical bullying, and females are affected more by verbal bullying. Bullies may have an intuitive sense for what is more harmful, and that may be the reason for gender differences in types of bullying. These questions were not addressed in the present study, but a test of them is currently underway.

The small subgroup of chronic victims had the highest incidence of stress symptoms. Unfortunately, our sample of chronic victims was too small to draw any firm conclusions, or to conduct a full set of analyses. However, even these preliminary results indicate that chronic victims should become a major research focus. These ''whipping boys'' and ''whipping girls'' appear to be at high risk for developing serious physical and psychological health problems. It is critical to understand the reasons for this risk. Results from Kochenderfer and Ladd (1996) argued against the possibility that bullies are drawn to isolated, poorly adjusted children. Thus, it seems likely that chronic victimization might create a sense of learned helplessness (Abramson et al., 1978), making this subgroup particularly vulnerable to stress symptoms. Given the low incidence of chronic bullying victims, future research efforts need to be based on large samples in order to gather an adequate number of chronic victims.

On a related and positive note, a decrease in bullying was associated with lower stress symptoms. The small group of individuals who were bullied frequently before high school, and then either occasionally or not at all during high school, seem to have recovered from the impact of being bullied. It is possible that the timing of bullying (i.e. high school vs. earlier) may be a critical moderator of its impact, such that being bullied in high school is more damaging. However, it is difficult to tease apart the effects of timing from the effects of duration, due to the minute percentage of people who encountered bullying for the first time in high school.

One of the most intriguing questions raised by the present study is the source of differences in perceived isolation. We see three possibilities. First, perceived isolation may reflect differences in actual available support. It is certainly plausible that individuals with a larger support network would be less affected by bullying. This may be the case when, for example, a group of friends is targeted by a bully or group of bullies.

Second, perceived isolation may reflect the quality and quantity of bullying that victims experience. It could be the case that certain types of bullying are more likely to lead to isolation, and also more likely to affect health outcomes. The present study did not address the type of bullying that occurred. However, there is indirect evidence against this possibility. Gender differences in types of bullying are well-documented, with males subjected to more physical bullying and females subjected to more relational and emotional bullying (e.g. Arora & Thomson, 1987; Slee & Rigby, 1993; Siann et al., 1994; Crick, 1995; Nansel et al., 2001). If these types had different effects on isolation, then we would expect gender to interact with perceived isolation. This was not the case. Thus, differences in perceived isolation seem to reflect more than victimization experiences.

Third, and most intriguingly, perceived isolation may reflect individual differences in coping styles. For example, some individuals may be less prone to feeling alone, or may find it easier to seek comfort from others. According to Sarason, Sarason, and Pierce (1994), those who believe others are around to help them are more optimistic, and have a higher sense of self-efficacy. Consequently, these individuals may be more resilient in dealing with stress. Likewise, some individuals may have exaggerated or understated perceptions of their available social support. Both of these mis-perceptions may have distinct consequences for coping with stressful situations. This possibility could be explored with a set of personality measures, tapping individual differences in sociability, extraversion, and resilience. All three possibilities could be addressed with more detailed measures of social support and victimization.

One limitation of the present data is that they were based on retrospective reports of victimization experiences. As such, these reports may reflect differences in perceptions rather than differences in bullying. On the one hand, one review (Brewin, Andrews, & Gotlib, 1993) and a recent study (Rivers, 2001) suggest that autobiographical memories may be reasonably accurate and stable. On the other hand, it is unknown in the present study whether actual experiences or people's perceptions of them are associated with long-term stress symptoms. Similarly, while people's perceptions of support appear to provide a buffer against some of the consequences of being bullied, it is unknown whether these perceptions are accurate. Future research could address these concerns with a prospective design, by identifying victims and their degree of isolation or support during school, and then conducting follow-up assessments to determine stress symptoms. Future research should also include a broader set of personality measures. These measures will be critical in determining whether perceived isolation, per se, is the critical factor, or whether it reflects other individual differences in personality/coping style.

It is also worth mentioning that the percentage of variance explained is relatively small. However, it should come as no surprise that stress symptoms among college students are influenced by a variety of factors. The current findings add to the literature on the consequences of bullying, by demonstrating that these consequences may linger after the bullying has stopped.

Finally, these data have implications for dealing with the consequences of bullying. Schools have typically approached the bullying problem by trying to institute zero tolerance policies, which try to stop bullying from happening. Preventing physical harm is a laudable goal, and these programs have had some success (e.g. Twemlow et al., 2001; for a review, see Olweus, 1993). However, it may not be possible to prevent bullying all bullying inside schools, and even more difficult to attempt to prevent it outside the school walls. The present results raise the possibility of a different approach, which focuses on alleviating some of the consequences of bullying.

Schools should consider creating social support networks for victimized children and adolescents, either in the form of after-school programs or in the form of peer mentoring. Indeed, those intervention programs that have been most effective include an element of mentoring (e.g. Naylor & Cowie, 1999; Twemlow et al., 2001). Often, this mentoring is used as a way to model appropriate, non-violent behavior, but it may have the added benefit of providing a social support network. Other successful interventions have worked by changing the environment, and attempting to make all students feel less isolated, rather than waiting until bullying has occurred (e.g. Blum, McNeely, & Rinehart, 2002). One important question for future research is whether individuals reap the same benefits from being assigned social support as they do from seeking their own social support. In the meantime, though, the present data provide preliminary evidence that perceptions of social support are an effective coping strategy for dealing with the stress of being bullied.

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