

Continued Bullying Victimization from Childhood to Young Adulthood: a Longitudinal Study of Mediating and Protective Factors

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Abstract Bullying in schools has severe consequences for victims' adjustment. It is unclear, however, whether victims of school bullying continue to be victimized in other contexts during adulthood. Mediating processes through which peer victimization in school increases the risk of revictimization in adulthood, as well as protective factors, also need to be explored. This study examined 1) the longitudinal association between peer victimization in school and victimization at work during young adulthood, 2) the predictive link of reactive and proactive aggression and anxious-withdrawn behavior in childhood with victimization in school and at the workplace, 3) the potential mediating role of depression symptoms, and 4) the potential protective effect of friendship support. The study included 251 participants (61% females) followed from age 12 to age 22. Participants reported about their victimization in school from ages 12 to 17 and their workplace victimization at age 22. They also reported about their depression-related thoughts and feelings and about friendship support. Teachers rated reactive and proactive aggression and anxiety-withdrawal at age 12. Structural equation modeling revealed that anxiety-withdrawal at age 12 predicted peer victimization in school, which in turn predicted later victimization at work. The latter association was partially mediated by increased depression symptoms. However, friendship support counteracted (via a main effect) the

link between school victimization and subsequent depression symptoms. Bullying victims may benefit from interventions aimed at reducing depression symptoms and fostering social skills to establish supportive friendships to help avoid the generation of new interpersonal stress such as workplace victimization in adulthood.

Keywords Peer victimization · Workplace victimization · Depression symptoms · Friendship support

Introduction

Peer victimization in schools is a major public health concern in many countries (Craig et al. 2009). For instance, Canadian data suggest that between 20% and 25% of girls and boys are bullied by peers at some point during their school years (Craig and Edge 2011; Statistics Canada 2008/2009). Peer victimization is defined as the use of power and aggression to cause distress or to control another person (Olweus 1993). Whereas direct victimization includes physical and verbal aggression, social victimization involves the manipulation of social relationships to hurt the victim (e.g., through gossiping, spreading rumors or social exclusion). Regardless of the form, victims of bullying are at risk for a number of concurrent and short-term adjustment problems, including school difficulties, internalizing and externalizing behaviors, and compromised physical health (Vaillancourt et al. 2013).

While the immediate and short-term consequences of peer victimization are well documented, there is also emerging evidence that victims of school bullying are more likely than others to suffer from psychiatric disorders, poorer social relationships, as well as financial and work-related problems once they become adults (Copeland et al. 2013; Wolke et al. 2013). Still, much remains to be learned about the link between peer

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victimization during the school years and later adjustment in adulthood. In particular, it is unclear whether peer victimization during the school years is associated with an increased risk of becoming a target of bullying at the workplace in adulthood. Conceptually highly similar to bullying by peers, workplace bullying is defined as an intentional effort to harm co-workers or subordinates by inflicting psychological or even physical injury (Baron and Neuman 1996). Given this conceptual overlap, it is thus possible that individuals who fall prey to bullies in school are also at risk of being harassed by co-workers or superiors at the workplace. Examining this association is crucial, because at least some of the reported economic, social and health-related problems of adults who were victimized by their peers in school may be due to continued victimization experiences at the workplace. Indeed, victimization by colleagues or supervisors at work has been cited as the principal source of work-related stress and illness (Einarsen and Mikkelsen 2003), in addition to being linked to increased employee turnover (Hoel et al. 2003). From a prevention perspective, research is also critical to understand the mediating processes through which peer victimization in school may put individuals at risk to suffer the same fate at work later on. Equally important, however, is the identification of protective factors that may moderate the relation between peer victimization in school and re-victimization at the workplace during adulthood.

Peer Victimization in School and Workplace Victimization during Adulthood

Several prospective studies show that victimization during childhood increases individuals' vulnerability for subsequent re-victimization in adulthood. These studies, however, have typically focused either a) on the link between maltreatment by parents or other adults during childhood and later victimization in dating or marital relationships during adulthood (e.g., Manchikanti Gómez 2011) or b) on the link between criminal victimization during childhood on later criminal victimization in adulthood (e.g., Desai et al. 2002). In contrast, research on the link between peer victimization in school and re-victimization at the workplace is extremely scarce. One exception is a cross-sectional study of over 5000 middle-aged adults, in which recollections of bullying experiences in school were assessed along with reports of victimization at the workplace over the past 6 months and the past 5 years (Smith et al. 2003). The findings showed that those who report having been bullied at school were almost 30% more likely to also state having been bullied at the workplace over the past 6 months or the past 5 years, and this was especially true for females. Retrospective reports provide important information because they reflect the meaning of the recalled events to the individual. Nevertheless, some scholars have questioned the

reliability and validity of retrospective reports due to the lack of control of previous adjustment problems and because autobiographical memory may be biased by mood-congruent memory processes (Hardt and Rutter 2004). Longitudinal data are thus needed to draw more reliable conclusions about a possible continuity in victimization experiences from the school context to the workplace context in adulthood.

The Role of Personal Characteristics

The presence of a possible link between victimization experiences in school and later victimization experiences at work raises the question what may explain this continuity. One explanation focuses on specific personal – and presumable relative stable – behavior characteristics that may put some individuals at continued risk of becoming the target of bullies (Smith et al. 2003). Although physical characteristics (e.g., overweight) have been found to render individuals vulnerable to being victimized (Pryor et al. 2016), behavioral characteristics are the most consistently identified risk factors in this context. Thus, several short-term longitudinal studies have shown that children and adolescents with pre-existing reactive – but not proactive – aggression or anxious-withdrawn behavior are more frequently bullied by their peers than others (for meta-analyses, see Reijntjes et al. 2011; Reijntjes et al. 2010). In contrast to proactive aggression, which is described as a deliberate, “cold-blooded”, non-provoked act aimed at dominating others, reactive aggression is defined as an exaggerated affective, impulsive, and hostile response to a perceived threat or provocation (Vitaro and Brendgen 2011). Reactively aggressive individuals have been found to attribute hostile intent to others even in relatively benign situations and to overreact to teasing (Crick and Dodge 1996). They also have more difficulties handling failure or sharing, negotiating, and compromising with others (Day et al. 1992). Reactively aggressive children may thus become victimized because their behavior annoys or provokes others and because it allows potential bullies to blame the victim for their actions. Anxious-withdrawn children, for their part, may be seen as “easy targets” unable to defend themselves. These children often display a more submissive interactional style and are more socially isolated than their age-mates (Rubin and Burgess 2001; Stewart and Rubin 1995). They are thus not only ill equipped to successfully ward off potential bullies, but may also have problems to solicit help from others to prevent future attacks.

Since both reactive aggression and anxious-withdrawn behavior are relatively stable over time (Franić et al. 2010; Paquin et al. 2014), these behaviors may also increase the risk of continued victimization over time and across different contexts. Research on the behavioral characteristics of victims of workplace bullying tends to support this notion. Thus, many

victims have been found to display more unassertive and anxious behavior and poorer conflict management skills than their colleagues (Nielsen et al. 2017; Zapf and Einarsen 2011). There is also some evidence that individuals high in hostile-aggressive behavior are more frequent targets of workplace bullying (Aquino and Bradfield 2000). Unfortunately, studies in this context are mostly based on cross-sectional data. However, one cross-lagged study of adults indicates that neurotic behavior, which encompasses anxiety, moodiness, frustration and withdrawal, indeed predicts increased harassment experiences at work two years later (Nielsen and Knardahl 2015). Still, no study so far has examined whether behavior characteristics measured in childhood can predict not only victimization in school but also later victimization experiences at the workplace in adulthood.

The Role of Depression Symptoms

Another explanation for the link between victimization in school and later victimization at work is that such traumatic experiences may foster the development of depression symptoms, which may in turn elicit negative reactions from others and thus put individuals at risk of renewed bullying in adulthood. This explanation is rooted in the Stress Generation Hypothesis of Depression (Hammen 2006), which postulates that depression symptoms are not only a consequence of stressful experiences, but also contribute to the occurrence of new stress, particularly stress related to social interactions. Depressed individuals are believed to display thoughts, emotions, and behaviors that compromise successful functioning in interpersonal contexts. Empirical evidence for the reciprocal link between depression and interpersonal stress has been found both for clinical depression and depressive symptomatology in children, adolescents, and adults (for a review, see Liu and Alloy 2010). Research also highlights the role of specific depression-related cognitions and behaviors in the risk of experiencing interpersonal difficulties. Thus, high levels of hopelessness, which are considered a main feature of depression (Abramson et al. 1989), were not only found to predict rejection by roommates in college students, but hopelessness also mediated the link between depression symptoms and interpersonal stress (Joiner et al. 2005). Similarly, an avoidance-focused coping style, which is frequently observed in depressed individuals (Ottenbreit and Dobson 2004), was found to mediate the prospective association between depression symptoms and interpersonal hassles (Barker 2007).

While the previously mentioned studies often relate to broader measures of interpersonal stress, empirical evidence for the stress-generation hypothesis has also been reported specifically in regard to peer victimization. Indeed, numerous studies have shown that victimization suffered at the hand of peers is related to increased depression symptoms (e.g., Bilsky

et al. 2013; Boivin et al. 2001; Cole et al. 2016). Elevated depression symptoms, in turn, have been found to render youngsters vulnerable to subsequent increases in rejection and victimization by peers (Bilsky et al. 2013; Tran et al. 2012). Acquired depressogenic thoughts, feelings and behaviors may thus mediate the link between peer victimization experiences in school and later victimization experiences at work in a similar fashion. An empirical test of this hypothesis is still outstanding, however.

The Role of Social Support from Friends

In addition to understanding the explanatory mechanisms underlying the link between victimization experiences in school and later victimization experiences at work, uncovering potential protective factors is equally important. Supportive interpersonal relationships – in particular support from close friends – may play a crucial role in this context. Social support is defined as the degree to which an individual is esteemed and valued and is provided with instrumental help or companionship (Taylor 2011). Although parents remain an important source of social support, older children and adolescents increasingly turn to close friends for these social provisions (Furman and Buhrmester 1992). Indeed, especially during adolescence, victimized youth are more likely to disclose their plight to friends than to parents or other adults (Rigby and Barnes 2002). Moreover, a high level of support from friends has been associated with a decrease of peer victimization in adolescence (Kendrick et al. 2012). Whether friends' social support can also reduce victimized youngsters' risk of victimization at the workplace later in adulthood remains to be seen.

One way friends' social support may offset the risk of continued victimization over time is by preventing the development of depressogenic thoughts and feelings. In line with this notion, a high level of support from friends has been associated with lower levels of depression symptoms over time (Colarossi and Eccles 2003). Social support from friends may thus disrupt the possible mediational chain linking peer victimization in school to later workplace victimization via increased depression symptoms. It is unclear, however, whether friends' support would work by moderating (i.e., via an interaction effect) or by counterbalancing (via a main effect) the predictive effect of peer victimization in school on subsequent depression symptoms and, eventually, continued victimization at the workplace. Theoretically, both a moderation and a main effects model are conceivable (Cohen and Wills 1985). Thus, friends' social support may moderate the negative effect of stressful experiences such as peer victimization by providing protection or other tangible solutions for victims. Alternatively, friends' social support may promote a sense of self-worth in all youth, thus counterbalancing the negative effect of peer victimization on depressogenic thoughts and

emotions and the risk of continued harassment. Existing findings so far favor the moderation model, showing that friendship support mitigates the predictive effect of peer victimization on increased depression symptoms in pre-adolescents over the course of one year (Hodges et al. 1999). No study has examined this issue in late adolescents or young adults and for victimization across difference contexts (i.e., in school and at the workplace), however.

The Present Study

The present study used a longitudinal design over a period of 10 years to investigate a) whether peer victimization in school predicts later workplace victimization during young adulthood, b) whether personal behavior characteristics (notably reactive aggression and anxious-withdrawn behavior) predict both victimization in school and victimization at the workplace, c) whether the longitudinal association between victimization in school and victimization at the workplace is at least partly mediated by increased depression symptoms, and d) whether social support from friends protects against this mediational sequence, either via a counterbalancing (i.e., main) effect or via a buffering (i.e., moderating) effect. Peer victimization in school was assessed from grade 6 in primary school (i.e., age 12) until the end of high school in grade 11 (i.e., age 17). Longitudinal data show that most youth who are frequently victimized by their peers in high school already suffered the same fate in primary school (Brendgen et al. 2016). Workplace victimization was assessed in early adulthood (i.e., at age 22 years) because problems during this period have profound implications for the quality of later life (Macmillan and Hagan 2004).

Based on the literature reviewed above, we expected that higher levels of reactive (but not proactive) aggression and of anxious-withdrawn behavior would predict both peer victimization in high school and at the workplace. However, there should also be an additional predictive link between peer victimization in high school and later victimization at the workplace. This latter association should be at least partially mediated by increased depression symptoms in victimized youth. Nevertheless, support by a close friend should offset (either via a main effect or via a moderating effect) the indirect effect linking peer victimization with increased depression and subsequent victimization at the workplace victimization. We tested these associations while controlling for peer victimization and depression symptoms at the end of primary school as well as for family adversity (as indicated by low family income, low parental education, single-parent status and harsh parenting behavior). Family adversity has been linked not only to peer victimization but also to externalizing and internalizing problems in the offspring in some studies (Bender et al. 2007; Laucht et al. 2000; Lereya et al. 2013; Lereya and Wolke

2013). Potential confounding effects of participant's sex were also controlled, as females not only report higher levels of depressive symptoms but sometimes also higher levels of workplace victimization than males (Liu and Alloy 2010; Smith et al. 2003).

Method

Participants

Participants were part of a longitudinal study initiated in 2001 based on 390 sixth graders (58% females, $M_{\text{age}} = 12.38$, $SD = 0.42$) from eight French-speaking elementary schools in the province of Quebec, Canada. Recruitment proceeded in three steps. First, the project was presented to the school principals and Grade 6 teachers who agreed to be part of the study. Second, the project was described to the Grade 6 students in class by graduate research assistants. Third, the students who were interested in the project were asked to bring home a flyer describing the study and a consent form to be read and signed by parents. Of those eligible at the start of the study, 75% received parental consent and provided verbal assent to participate in the study. Parents also provided written consent for their child's participation and youths provided verbal assent at each subsequent year of the study until the youths were 18. At ages 18 and 19, written consent was provided by the participants themselves. In order to track the youths over the course of the longitudinal study, we used the contact information (e.g., phone, address, email) provided by the parents and later on by the participants. There were no inclusion or exclusion criteria. Most (90%) participants were European Canadian, 3% Haitian Canadian, 3% Middle Eastern Canadian, 2% Asian Canadian, and 2% Latino Canadian. The majority (69%) came from intact families, 6% were living in single parent families and the rest in blended families. Annual employment income ranged from less than CAN\$5000 to CAN\$60,000 or more ($M = 48,750$; $SD = 12,500$). Their mothers and fathers had similar levels of education (i.e., the number of years of education for the mother ranged from 2 to 21, $M = 13.08$ years, $SD = 2.68$, and the number of years of education for the father ranged from 4 to 27, $M = 13.20$ years, $SD = 3.20$). Participants were assessed each year between ages 12 to 22. Of the initial sample, 303 participants (78%) completed the assessment at age 22. Compared to the rest of the sample ($n = 87$), the 303 youths remaining in the study at age 22 years scored lower on family adversity ($p < 0.001$), but were not different on depression symptoms and aggression at age 12. Of the 303 participants remaining at age 22 years, 251 (60% females) indicated that they currently had a job outside their home for which they were paid. These 251 participants form the current study sample. T-tests showed that the study participants

with a paid job did not differ from those without a job ($n = 52$) on family adversity, depression symptoms, peer victimization, anxiety-withdrawal or proactive and reactive aggression at age 12. They also did not differ on peer victimization from ages 12 to 17, friend support at ages 16–19, and depression symptoms at ages 19–20.

Procedures

At age 12 (Grade 6 of elementary school), questionnaires were completed individually in the classroom under the supervision of trained research assistants. During the assessment period, teachers left the room and also filled out questionnaires. For parent-reported data, the measures were sent home with a prepaid self-addressed return envelope. From ages 13 to 17 (Grades 7 to 11 of high school), questionnaires were also completed in the school setting under the supervision of trained research assistants. From age 18 onward, questionnaires were administered during a visit at the participant’s home, although questionnaires were mailed out for some participants (less than 5% per year). From age 15 years onward, youths received a gift certificate (to a movie theater, music store, or sports store) for their participation at each time point. Unless original measures were already in French, validated French versions of the original English instruments were used (see description of measures below). When validated French versions were not available for instruments originally written in English, we followed the translation procedure suggested by Vallerand (1989). Specifically, the instruments were then first translated into French and then translated back into English. Bilingual judges then verified the semantic similarity between the back-translated items and the original items in the questionnaire. All procedures were in accordance with APA ethical standards. All instruments and procedures were approved by the authors’ Institutional Review Board.

Measures

Reactive and Proactive Aggression, and Anxiety-Withdrawal at age 12 The questionnaire completed by the Grade 6 teacher included three items assessing proactively aggressive behavior (e.g., gets others to gang up on a peer), and three items assessing reactively aggressive behavior (e.g., overreacts angrily to accidents; Dodge and Coie 1987; see Poulin and Boivin 2000, for the validated French translation) as well as two items assessing anxiety-withdrawal behavior (e.g., is solitary, often alone; Tremblay et al. 1991). Responses were given on a Likert scale ranging from 1 (*never*) to 5 (*almost always*). Respective item scores were averaged ($M = 1.78, SD = 0.96$, range from 1 to 5, skewness = 1.25, kurtosis = 0.80, Cronbach’s alpha = 0.91 for reactive aggression; $M = 1.47, SD = 0.76$, range from 1 to 4.67, skewness = 1.70, kurtosis = 2.23, Cronbach’s alpha = 0.91 for proactive aggression, and $M = 2.12, SD = 0.90$, range from 1 to 5, skewness = 0.61, kurtosis = -0.11, inter-item $r = 0.61$ for anxiety-withdrawal). As commonly found in the literature (Cooley et al. 2017; Rommelse et al. 2017; Vitaro and Brendgen 2011), reactive and proactive aggression were highly correlated (see Table 1). Proactive aggression was therefore included as a control variable in the analyses to account for this overlap and to identify any potential unique effects associated with reactive aggression.

Peer Victimization in School from Ages 12 to 17 Each year from age 12 through 17 years, participants completed a 5-item questionnaire assessing victimization by peers in school (Bélanger et al. 2010). Sample items are “Students have used threats or force to make you give them things, money or clothes (extortion)”, “Students have threatened you verbally (blackmail, harassment, etc.)”, “Students have threatened or attacked you with a weapon (club, knife, chain, etc.)”. For

Table 1 Bivariate correlations between the study variables

	1	2	3	4	5	6	7	8	9	10
1. Sex	–									
2. Family adversity age 12	-0.09	–								
3. Reactive aggression age 12	-0.30***	0.22***	–							
4. Proactive aggression age 12	-0.27***	0.26***	0.84***	–						
5. Anxiety-withdrawal age 12	-0.06	0.09	0.22***	0.14*	–					
6. Depression symptoms age 12	0.14*	0.12	0.17*	0.21**	0.02	–				
7. Peer victimization age 12	-0.05	0.05	0.18**	0.08	0.04	0.23***	–			
8. Peer victimization ages 13–17	-0.12	0.08	0.18*	0.16*	0.20**	0.09	0.23***	–		
9. Friend support ages 16–19	0.47***	-0.03	-0.20**	0.05	-0.16*	0.05	-0.03	-0.14*	–	
10. Depression symptoms ages 19–20	0.20***	0.04	0.05	0.05	0.08	0.30***	0.06	0.23**	-0.05	–
11. Work victimization age 22	0.01	0.06	0.04	0.04	0.03	0.01	0.09	0.27***	-0.06	0.23***

* $p < 0.05$; *** $p < 0.01$.; *** $p < 0.001$.

each item, participants were asked to report how many times during the last month, the event described happened to him/her using a 6-point scale ranging from 0 (*never*) to 5 (*10 times or more*). Because responses were extremely skewed, items were recoded as 0 (*never*) or 1 (*1 time or more*). Item scores at age 12 were averaged to create a *Peer Victimization score at age 12*, which served as a control variable in the analyses ($M = 0.72$, $SD = 0.95$, range from 0 to 1, skewness = 1.40, kurtosis = 1.91, ordinal alpha = 0.82). In addition, we created another peer victimization variable *Peer Victimization in Secondary School* to reflect participants' cumulative experiences during the period between ages 13 and 17 years. To this end, the number of years a participant reported at least one event of victimization (e.g., a score of 1 or higher on at least one victimization item in a given year) was summed. Five data points were available for 68% of the participants, four data points for 13%, three data points for 7%, two data points for 7% and one data point for 5%. To account for instances of missing data, the sum score was divided by the number of available data points for each participant, resulting in a score with a possible range from 0 to 1 ($M = 0.24$, $SD = 0.25$, skewness = 0.85, kurtosis = 0.07). An ANOVA to compare participants with varying degrees of missingness showed no significant differences in terms of victimization levels from age 13 to age 17, $p = 0.89$.

Friend Support at Ages 16–19 Each year from ages 16 to 19, participants were asked to think about the relationship they had with their current best friend and complete a short version (3 items) of the intimacy scale from the Network of Relationships Inventory (Furman and Buhrmester 1985). They had to indicate the extent to which each item described their relationship using a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*most of the time*). Cronbach's alphas were acceptable (between 0.75 and 0.84). The year-to-year correlations were significant ($r = 0.41$, 0.47, and 0.48, respectively) and a mean score was computed using the four data points to obtain a more reliable indicator ($M = 4.13$, $SD = 0.71$, range from 1.67 to 5.00, skewness = -0.85 , kurtosis = 0.29).

Depression Symptoms at Ages 19–20 The Center for Epidemiological Studies–Depression Scale (CES-D; Radloff 1991; see Führer and Rouillon 1989, for the validated French translation) was used to measure depression symptoms at ages 19 and 20. The CES-D is a self-administered questionnaire assessing the severity of depression symptoms over the past week. The instrument includes 20 items (e.g., “I felt depressed”, “I did not feel like eating; my appetite was poor”). Participants are asked to respond using a 4-point Likert scale, with higher ratings indicating more severe symptoms. A sum-score was calculated. Cronbach's alphas were 0.92 and 0.88 at ages 19 and 20 respectively. The correlation between the two data collection points was significant ($r = 0.45$) and a mean

score was computed in order to obtain a more reliable indicator ($M = 30.75$, $SD = 8.08$, range from 20 to 64.50, skewness = 1.08, kurtosis = 1.16).

Workplace Victimization at Age 22 To measure victimization in the workplace, we used the 20-item Aggressive Experiences Scale (AES; Glomb 2002; Glomb and Liao 2003). The original version of this instrument assesses the frequency with which respondents engage in and are the targets of aggressive behaviors at work. Only the items referring to being the target of victimization were used in the present study. The behaviors described in these items reflect a range of hostile acts at work. Participants were asked “How often have your supervisors or coworkers engaged in this behavior and you were the target?” Examples of items are: “Belittled your opinions in front of others”, “Insulted or criticized you (including sarcasm)”, and “Physically assaulted you”. The response scale ranged from 1 (*never*) to 5 (*almost every day*). Responses to each item were recoded as 0 (*never*) or 1 (*values of 2 or more on the scale*). A total score was then computed by summing the 20 items ($M = 2.94$, $SD = 3.58$, range from 0 to 16, skewness = 1.44, kurtosis = 1.54, ordinal alpha = 0.86).

Additional Control Variables Family adversity at age 12. A cumulative family adversity score was created by aggregating four indicators: (a) mother did not complete a high school degree; (b) low family annual income according to government criteria (less than CAN\$30,000); (c) family structure other than the two biological parents; (d) parental use of harsh discipline based on a score greater than 1 on any of the two following items: “if I disobey, my parents... 1. spank me; 2. slap or hit me” using a Likert scale ranging from 1 (*never*) to 5 (*always*). The first two indicators were reported by the parents and the last two by the child. A value of 1 was assigned to each indicator and a sum score was computed with a possible range of 0 to 4. Each participant had valid data on at least two out of the four risk indicators. To account for occasional missing data (13% of data points) on some indicators, this total score was then divided by the number of available indicators for each child, resulting in a score with a possible range of 0 to 1 ($M = 0.19$, $SD = 0.23$, range from 0 to 1, skewness = 2.18, kurtosis = 1.06). *Depression symptoms at age 12.* The Children's Depression Inventory (CDI; Kovacs 1992; see Boivin et al. 1994, for the validated French translation) was employed to measure depression symptoms at age 12. The CDI is a self-administered questionnaire assessing the severity of affective, behavioral and cognitive symptoms of depression among children. The questionnaire includes 27 items. In the present study, the suicidal ideation item was excluded due to ethical concerns. For each item, participants were asked to choose one of three statements that best describes how they have felt over the last 2 weeks (e.g., “I am tired sometimes”; “I am tired often”; “I am tired all the time”). Individual item

scores ranged from 0 to 2, with higher ratings indicating more severe symptoms. A sum-score across all items was calculated ($M = 10.96$, $SD = 6.92$, with a range from 0 to 40, skewness = 1.18, kurtosis = 1.06, alpha = 0.85).

Analyses

Model tests were performed with the Mplus Version 6 software package (Muthén and Muthén 1998–2010) as a path analysis with manifest variables. These analyses were conducted using Full Information Maximum Likelihood (FIML) estimation to account for occasional missing data (2% of data points). The tested model (see Fig. 1) was fully saturated: It included direct effects from all exogenous variables measured at age 12 to all endogenous variables measured subsequently. The model also included direct effects from all endogenous variables to all other endogenous variables that were measured at subsequent times. In addition, all exogenous variables measured at age 12 were allowed to covary. To test a possible moderating effect of friendship support, we also included two interactive effects: a) an interaction between peer victimization at ages 13–17 and friendship support at ages 16–19 to predict depression symptoms at ages 19–20 and b) an interaction between peer victimization at ages 13–17 and friendship support at ages 16–19 to predict victimization at the workplace at age 22. The indirect effect from victimization in school to victimization at the workplace via increased depression symptoms was tested with bootstrapped confidence intervals (CI) based on 5000 resamples. To facilitate interpretation

of regression coefficients, all variables except child sex were z-standardized prior to the analyses.

Results

Bivariate Associations between Study Variables

Prior to the path analyses, bivariate associations between the study variables were examined (see Table 1). Results showed that, compared to males, females were less proactively and reactively aggressive, showed more depression symptoms at age 12 and at ages 19–20, and experienced more support from friends at ages 16–19. Females and males did not report different levels of peer victimization in school and at the workplace, however. Higher levels of peer victimization in school at ages 13–17 were associated with higher levels of peer victimization in school at age 12, with higher levels of proactive and reactive aggression and of social withdrawal at age 12, with lower levels of friendship support at ages 16–19, with higher levels of depression symptoms at ages 19–20, and with higher levels of victimization at the workplace at age 22. Higher levels of depression symptoms at ages 19–20 were also correlated with higher levels of victimization at the workplace at age 22. Other significant associations among the study variables were also in the expected direction.

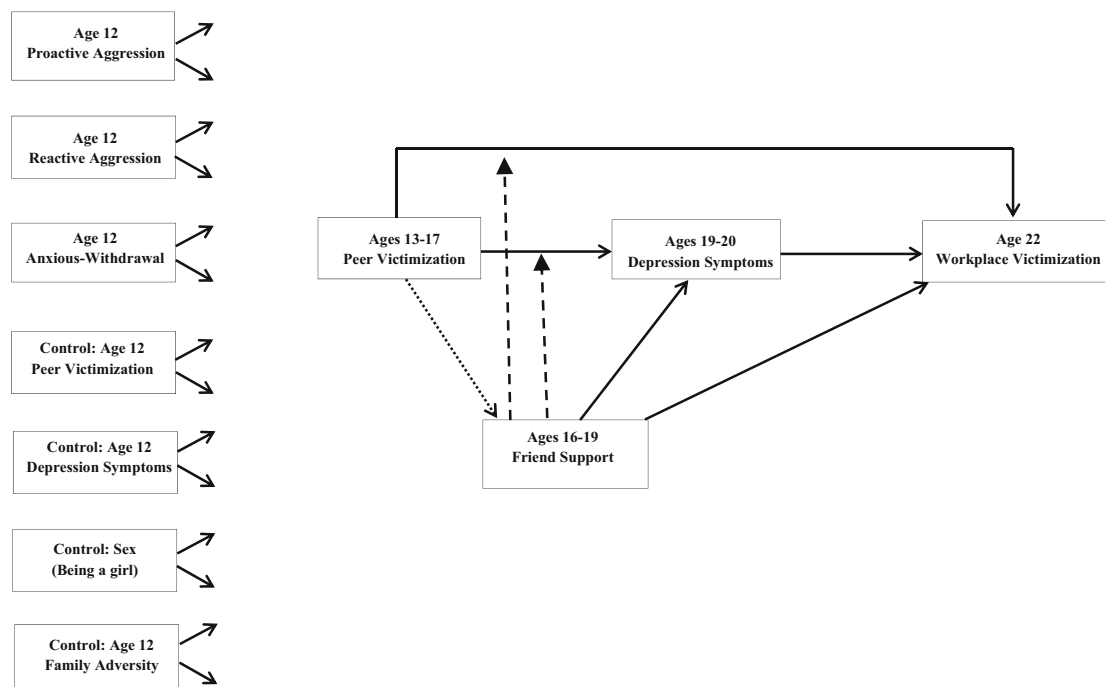


Fig. 1 The estimated model is fully saturated. All exogenous variables measured at age 12 are allowed to be intercorrelated (not shown for parsimony) and predict all subsequently measured variables

Path Analysis Results

Results from the path analyses are presented in Fig. 2. Only significant directional links are depicted for maximal parsimony and clarity; significant correlations among the exogenous variables measured at age 12 are already shown in Table 1. As can be seen in Fig. 2, victimization in school at ages 13–17 was predicted by higher levels of peer victimization at age 12, $b = 0.21, p = 0.01$, and by higher levels of anxious-withdrawn behavior at age 12, $b = 0.17, p = 0.05$. Victimization in school at ages 13–17 predicted increased depression symptoms at ages 19–20, $b = 0.21, p = 0.01$, above and beyond the predictive effects of depression symptoms at age 12, $b = 0.26, p = 0.001$, child sex, $b = 0.51, p = 0.001$, and friendship support at ages 16–19, $b = -0.13, p = 0.05$. In turn, increased depression symptoms at ages 19–20 predicted victimization at the workplace at age 22, $b = 0.19, p = 0.01$. The bootstrapped indirect effect from peer victimization in school at ages 13–17 to victimization at the workplace at age 22 via increased depression symptoms at ages 19–20 was significantly different from zero, b indirect = 0.04, bootstrapped 95% CI [0.01, 0.07]. In addition to this indirect effect, however, there was also a remaining direct effect from peer victimization in school at ages 13–17 to victimization at the workplace at age 22 ($b = 0.22, p = 0.01$). The two interaction terms involving friendship support at ages 16–19 were not significant ($p = 0.09$ and $p = 0.60$, respectively). Thus, the indirect effect from peer victimization in school at ages 13–17 to victimization at the workplace at age 22 via increased depression

symptoms at ages 19–20 was not moderated by the level of friendship support.

Discussion

The goal of this study was to examine a) whether peer victimization in school predicts later workplace victimization during young adulthood, b) whether personal behavior characteristics predict both victimization in school and victimization at the workplace, c) whether the longitudinal association between victimization in school and victimization at the workplace is at least partly mediated by increased depression symptoms, and d) whether social support from friends can protect against this mediational sequence, either via a counterbalancing (i.e., main) effect or via a buffering (i.e., moderating) effect. As expected, the results showed that youth experiencing high levels of peer victimization during the school years also reported high levels of victimization by colleagues or supervisors at work in young adulthood. Importantly, this longitudinal association held even when controlling for a host of potential family-related and individual confounding variables. These findings lend support to previous research based on retrospective data linking victimization experiences in school with victimization at the workplace (Smith et al. 2003). As mentioned, most youth who are frequently bullied by peers in high school already suffered the same fate in primary school (Brendgen et al. 2016). Such continued victimization experiences across different developmental periods and different

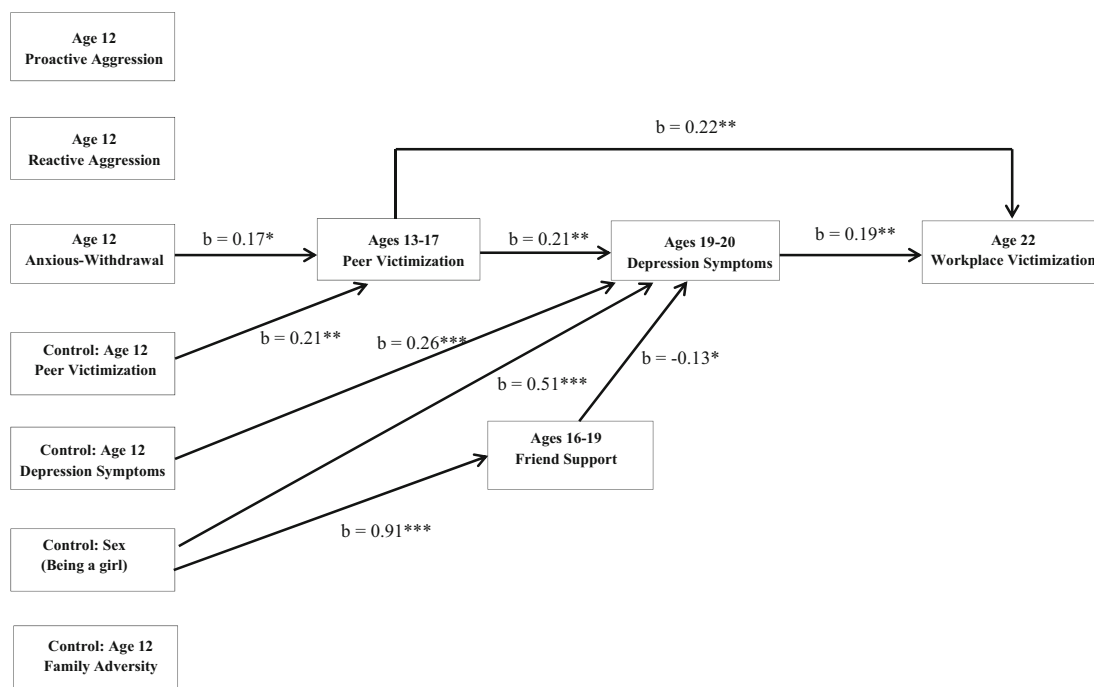


Fig. 2 Only statistically significant coefficients at $p = 0.05$ or smaller are depicted. Standardized coefficients are shown, except for sex effects. Correlations between age 12 variables are not shown for parsimony. * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$

contexts are a cause for concern, as repeated exposure to stress impacts individuals' mental and physical health and hence their future social and economic well-being (Taylor 2010).

The finding that adult victims of workplace bullying were often already bullied in school stands in contrast to the notion that organizational factors related to the workplace are the main cause of workplace bullying and that personal characteristics of the victims play no role in this regard (Leymann 1996). Instead, in line with previous research (Reijntjes et al. 2010), we found that especially anxious-withdrawn behavior that is already present in childhood can put individuals at risk of becoming the target of harassment by others. The finding that only anxious-withdrawn behavior, but not reactive aggression, predicted peer victimization in high-school (age 13 to 17 years) may be specific to this developmental period. It has been suggested that internalizing behaviors such as anxiety and social withdrawal become more salient and more negatively perceived by peers during adolescence, whereas aggressive behavior is more tolerated at that age (Boivin et al. 2010; Cillessen and Mayeux 2004). In line with this notion, aggressive behavior has been shown to play a more important role than anxious-withdrawn behavior in explaining peer victimization in primary school, whereas the opposite is true in regard to peer victimization in adolescence (Brendgen et al. 2016). Individuals showing fearful and submissive behavior may be perceived as an especially easy prey by potential bullies. As such, our results concord with the theoretical perspective proposed by Einarsen and other scholars that victims' personal characteristics also need to be considered to gain a comprehensive understanding of workplace bullying (Nielsen et al. 2017; Zapf and Einarsen 2011).

Personal behavioral characteristics did not directly explain why youth continued to be harassed even in adulthood, however. Rather, these personal vulnerability factors seem to trigger a chain of negative events by increasing the risk of chronic peer victimization in school, which then contributes to the development of depressogenic thoughts, feelings and behaviors. Through evocative person-environment transactions, victimized individuals displaying depression symptoms may eventually elicit negative behaviors from others also in other contexts, such as the workplace. The finding that acquired depression symptoms mediate the link between peer victimization in school and later victimization at work align with previous research showing that depression symptoms are both an outcome and a predictor of peer victimization (e.g., Bilsky et al. 2013; Boivin et al. 2001; Cole et al. 2016; Tran et al. 2012). This finding also supports the basic tenets of the Stress Generation Hypothesis of Depression (Hammen 2006). According to this theoretical model, depression symptoms are not only a consequence of stressful experiences, but depressogenic thoughts, emotions, and behaviors may also contribute to the occurrence of new stress, particularly in social relationships.

Still, increased depression symptoms did not fully mediate the association between peer victimization in school and later victimization at work. One possible additional mediating mechanism could be increased reactive aggression as a result of victimization experiences in school. Although reactive aggression was not measured in emerging and young adulthood in the present study, several studies have shown that peer victimization leads to increases in reactive aggression (for a review, see Vitaro and Brendgen 2011). Research shows that reactively aggressive individuals not only overreact to even mild teasing, but they also have difficulties handling failures, sharing and compromising with others (Day et al. 1992). While reactive aggression did not predict victimization during adolescence in the present study, it has been shown to do so in younger samples (Cooley et al. 2017; Lamarche et al. 2006) and may again be perceived as unacceptable in the workplace once individuals reach adulthood. The scenario of both depression symptoms and reactive aggression as potential mediators in the link between peer victimization in school and later victimization at the workplace is also in line with propositions that - similar to victims of harassment in school - victims of workplace harassment may be classified into either submissive victims or provocative victims (Aquino and Lamertz 2004; Hanish and Guerra 2004). Thus, by displaying depression-related attitudes and behaviors such as helplessness or a lack of persistence when faced with challenges, or by reacting in a hostile manner to criticism, previously victimized individuals may signal to colleagues or superiors that bullying behavior will not be met with much resistance and may even be justified. Through the same interactional processes, these individuals may also be unsuccessful in soliciting help from other co-workers, thereby unwittingly fostering the maintenance or further escalation of their victimization at work. Future studies should assess the relative importance of depression symptoms and of reactive aggression as mediators in the continuation of victimization from childhood to adulthood.

On a positive note, the mediational sequence linking school and workplace victimization via increased depression symptoms was offset by social support from friends. However, this protective effect of friendship support did not work via a buffering (i.e., moderating) effect, but rather via a counterbalancing (i.e., main) effect on reduced depression symptoms. Our finding that a high level of friendship support is associated with fewer depression symptoms is in line with results from other research (Colarossi and Eccles 2003). By providing positive feedback and offering companionship, supportive friends can promote individuals' self-perceptions as cherished and capable beings and hence prevent depressogenic thoughts and feelings. In turn, positive self-perceptions likely translate into increased self-affirmative behavior, thus reducing individuals' risk of

becoming the target of bullying. Despite this beneficial effect of friendship support, the absence of a moderation effect stands in contrast to previous findings that friendship support mitigates the link between peer victimization in school and increased depression symptoms (Hodges et al. 1999). However, that latter study was based on pre-adolescents assessed over the course of one school year and friendship support was specifically related to school friends. In that context, friends not only promoted positive self-perceptions but, through their very presence in school, also provided physical protection against bullies. The much longer time frame of the present study, with friendship support and depression symptoms assessed beyond the high-school period, may explain why a main effect, but not a moderating effect, of friendship support was found.

Strengths and Limitations

This study is the first to examine the link peer victimization in school and later workplace victimization during young adulthood, as well as the roles of personal behavior characteristics, depression symptoms, and social support from friends in this context. A main strength of this study is its prospective design spanning 10 years from age 12 through age 22 years. Another strength rests on the repeated assessment of many predictor variables. This allowed us to capture peer victimization experiences in school from childhood through adolescence and to control previous levels of depression symptoms when testing mediation. The reliance on teacher ratings to assess behavior characteristics is a further advantage, as it reduced the risk of inflated associations due to shared source variance.

Our study also has several limitations. One limitation concerns the fact that we relied on individuals' perceived social support by friends, in addition to their self-reported victimization experiences and depression symptoms, which may inflate associations due to shared source variance. However, developmental theories of depression (Beck 2002; Cole et al. 2010) as well as threat appraisal theory (Blascovich and Berry Mendez 2013) imply that it is individuals' perception of events that shapes their cognitive, emotional and behavioral reactions, and hence also their future social outcomes such as the risk of re-victimization. Another limitation is that peer victimization in school was only assessed starting in the final year of elementary school. As previously mentioned, most youth who are frequently victimized by their peers in high school were already victims of bullying in elementary school (Brendgen et al. 2016). High levels of peer victimization over the period covered here are thus likely to identify many youth who were chronically victimized throughout their school years. Still, future studies should cover the full interval from kindergarten to the end of high school to obtain a complete picture of individuals' victimization experiences in school.

Also worth mentioning is the relatively small sample size, which precluded examination of potential sex differences in the tested associations. The previously reviewed studies either reported no or inconsistent sex differences in the links between the variables studied here. Nevertheless, studies with larger sample sizes are needed to examine whether the direct and indirect association between peer victimization in school and later workplace victimization in adulthood is the same for females and males. Finally, our findings necessarily rest only on those participants who worked at least part-time by age 22, excluding full-time college or university students. Unfortunately, victimization by peers on campus was not assessed in the present study. However, empirical evidence suggests that around 7% of college students report being bullied at least sometimes by others and 72% of those being bullied in college indicate that they were also bullied previously in elementary and high school (Chapell et al. 2006).

Conclusions

By promoting depressogenic thoughts and feelings, victimization by peers in school may put individuals at risk of continued victimization at work when they are adults. However, support received from close friends has the potential to offset this vicious cycle. By demonstrating the long-term risk associated with peer victimization in school for adult functioning, our findings highlight the importance of prevention programs aimed at reducing school bullying as early as possible, before victims become caught in a spiral of chronic abuse (for a review, see Yeager et al. 2015). Our results also suggest, however, that victims of school bullying might benefit from additional interventions that are specifically aimed at reducing depression symptoms and at fostering social skills to establish supportive friendships (e.g., Rose et al. 2014; Stice et al. 2009). Indeed, there is evidence that the addition of a friendship-building skills program (with a focus on skills related to friendship formation, interactions between friends and management of friendship conflict) to a program designed to prevent or reduce depression (by promoting self-esteem, emotion-regulation, perspective taking skills and active coping strategies) produces better and longer-lasting results in adolescents than only the latter program or a wait-list control condition (Rose et al. 2014). Specifically, those receiving both programs showed not only fewer depression symptoms at the end of the training session but also increased school-related life satisfaction and social functioning with peers one year later. Peer victimization was not specifically assessed as an outcome. However, because the programs are administered within schools, they are well suited to reach – and thus potentially benefit – individuals at risk of being bullied by their peers. Together, such efforts might also help avoid the generation of

new interpersonal stress such as victimization at the workplace in young adulthood.

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Compliance with Ethical Standards

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

Ethical Approval All procedures performed in studies involving human participants 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 from all individual participants included in the study.

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