ELSEVIER

Original article

Developmental Trajectories of Peer Victimization: Off-line and Online Experiences During Adolescence

Sindy R. Sumter, Ph.D.*, Susanne E. Baumgartner, M.A., Patti M. Valkenburg, Ph.D., and Jochen Peter, Ph.D.

Amsterdam School of Communication Research, University of Amsterdam, Amsterdam, Netherlands

A B S T R A C T

Purpose: This study investigated the development and consequences of off-line and online victimization during adolescence. We examined the number and shapes of off-line and online victimization trajectories, the relationship between trajectories of off-line and online victimization, and their effect on life satisfaction.
Methods: A four-wave panel study with 6-month time intervals was conducted among a representative sample of Dutch adolescents aged 12–17 years (N = 1,762). We used group-based modeling to investigate the victimization trajectories.
Results: Three off-line victimization trajectories could be distinguished. One group followed a trajectory of low to no victimization experiences across adolescence. A second group followed a pathway of moderate and decreasing victimization. A third group followed a pathway of high and decreasing victimization. Two groups in online victimization could be distinguished. One group followed a trajectory of low to no victimization experiences. A second group followed a pathway of moderate victimization that peaked at age 14. Dual-trajectory analyses revealed a substantial overlap between off-line and online victimization trajectories. Finally, victimization and life satisfaction were longitudinally related; moderate and high victimization trajectories resulted in lower levels of life satisfaction during wave 4.
Conclusions: The overlap between the off-line and online victimization trajectories and their negative consequences on life satisfaction suggests that prevention of victimization should focus on both types of victimization. The results suggest that peer victimization should not be studied without considering adolescent peer relationships on the Internet.

© 2012 Society for Adolescent Health and Medicine. All rights reserved.

Peer victimization has been studied widely since the pioneering work of Olweus [1]. Peer victimization refers to exposure to aggressive acts by same-age peers. These aggressive acts include harming victims physically or psychologically or harming their social status [2]. Many studies have investigated the development of peer victimization [3,4], as well as its causes and harmful consequences [5,6]. As children and adolescents more frequently interact with same-age peers on the Internet [7], peer victimization has extended to the Internet [8,9]. Therefore, it is necessary to distinguish between two forms of peer victimization, namely off-line victimization and online victimization.

Aggressive acts related to online victimization have been studied under different names [8,9] but are most frequently labeled "cyberbullying" [10–13]. For online victimization, interactions between aggressors and victims are digitally mediated, for example, by the Internet or a cell phone. There is a great need to better understand negative peer interactions on the Internet, as youth spend more time online. However, although the number of studies on online victimization has rapidly increased in recent years, few longitudinal studies are available, and we know little about the development and consequences of online victimization. The primary goal of this study is to address this research gap.

* Address correspondence to: Sindy R. Sumter, Ph.D., Kloveniersburgwal 48, 1012 CX, Amsterdam, Netherlands.
E-mail address: s.r.sumter@uva.nl (S.R. Sumter).

In off-line victimization, distinct developmental trajectories can be distinguished during childhood [4,14–16] and adolescence [3]. Although the majority follows a trajectory of little to no off-line victimization, smaller groups of youth experience moderate or frequent victimization. To date, no studies have investigated whether developmental trajectories found for off-line victimization can also be discerned for online victimization. The presence of diverse developmental trajectories in online victimization could explain why general prevention programs are less effective when they do not take into account the heterogeneous nature of victimized youth. Given that there is only one study on developmental trajectories of off-line victimization across adolescence [3] and no studies on online victimization trajectories, we will investigate the number and shapes of developmental trajectories in both off-line and online victimization across adolescence.

Because of the limited amount of research on the development of online and off-line victimization during adolescence, we also lack an understanding of the relationship between both forms of victimization. Although some researchers suggest that specific characteristics of the Internet, such as increased anonymity, lead to limited overlap between off-line and online victimization [17,18], recent research has provided evidence of an overlap between the two forms [19–21]. However, these studies only show that off-line victimization and online victimization are concurrently related. Little is known about the overlap between developmental trajectories of off-line and online victimization.

The Victim Schema Model may provide a useful basis to understand the relationship between developmental trajectories of off-line and online victimization [22]. The model posits that victimization changes children's social-cognitive processing. Victimized children develop a negative cognitive bias. They interpret future interactions more negatively and become more sensitive to threatening information. This bias will contribute to children acting awkwardly in future interactions and increases their chance of further victimization—both off-line and online. The Victim Schema Model implies that all peer victimization experiences are part of a continuous, self-sustaining cycle. As a result, off-line and online victimization trajectories seem to be related: a trajectory of continued off-line victimization would foster a negative bias, which would likely result in continued online victimization and vice versa.

Although numerous studies have shown that off-line victimization is related to negative consequences, little is known about the consequences of online victimization [5,6,14]. For online victimization, the relationship with psychosocial well-being has only been studied using cross-sectional or short-term longitudinal designs. In accordance with research on off-line victimization, online victimization resulted in increased feelings of social anxiety [11,23], depression [24], and decreased levels of well-being even when off-line victimization experiences were controlled for [21].

To date, no study has related online victimization trajectories to psychosocial well-being. Thus, it is not possible to make claims about the direction of causality between online victimization and well-being. The current study will investigate whether off-line and online victimization trajectories are linked to psychosocial well-being. By investigating both, we will be able to test the unique contribution of online victimization to psychosocial well-being. We included life satisfaction because recent studies showed that it is strongly related to several aspects of youth's

psychosocial well-being [25]. More specifically, higher levels of life satisfaction are related to positive development, fewer risk behaviors, and can mitigate negative effects of stressful experiences [26].

In sum, our understanding of developmental trajectories of off-line and online victimization across adolescence is limited. However, if we establish that different trajectories can be distinguished in off-line and online victimization during adolescence, future research can determine specific risk and protective factors related to decreasing or increasing victimization trajectories. These factors could then be used to inform victimization prevention programs. The current study will fill three gaps in the literature. First, we will investigate whether it is possible to distinguish different developmental trajectories of off-line and online peer victimization during adolescence. In line with previous studies [27,28], we specifically assessed both harassment and bullying experiences because we were interested in peer victimization in general. Furthermore, previous research shows that harassment experiences are highly intertwined with a variety of specific bullying experiences [29]. Second, we will investigate whether there is an overlap in off-line and online victimization trajectories. Finally, we will test whether off-line and online victimization trajectories are linked to life satisfaction.

Methods

Participants

We conducted a four-wave panel study with 6-month intervals among Dutch adolescents (12–17-year-olds) between May 2008 and November 2009. The study was approved by the university's ethical committee. Parental consent and adolescent assent were obtained before participation.

Data were collected using an online survey. The Dutch research bureau Veldkamp randomly sampled 2,092 participants from their existing representative online panel, which comprised 10,990 adolescents. The initial response rate was 84%; three people were excluded due to missing information on age (N = 1,762, 49% females). The average rate of attrition across four waves was 17%, which resulted in a sample size of 1,444 at wave 2, 1,227 at wave 3, and 1,016 at wave 4. Participants received €5 (approximately $7) for a completed questionnaire.

To cover a wider age range within a short span, we used an accelerated cohort-sequential design, which allowed us to test developmental patterns between the ages of 12 and 19.5 years. Cohort-sequential designs adequately approximate true longitudinal designs [30]. The age-groups partly overlap, and, this way, each age-group contributes to different parts of the developmental trajectory curve. For instance, 12-year-olds at wave 1 provide information for the part of the curve between the ages of 12 and 13.5 years. This design resulted in the following number of adolescents/age-group: 12-year-olds, N = 70; 12.5–18.5-year-olds, all N's >206; 19-year-olds, N = 106; and 19.5-year-olds, N = 26.

Measures

Off-line and online peer victimization. We assessed off-line and online peer victimization by asking participants to rate "how often they had been harassed" and "how often they had been bullied" off-line and online in the past 6 months. Frequency of victimization was rated on a 5-point scale, ranging from 0 (*never*) to 4 (≥ *6 times*). In the four waves, correlations between the two
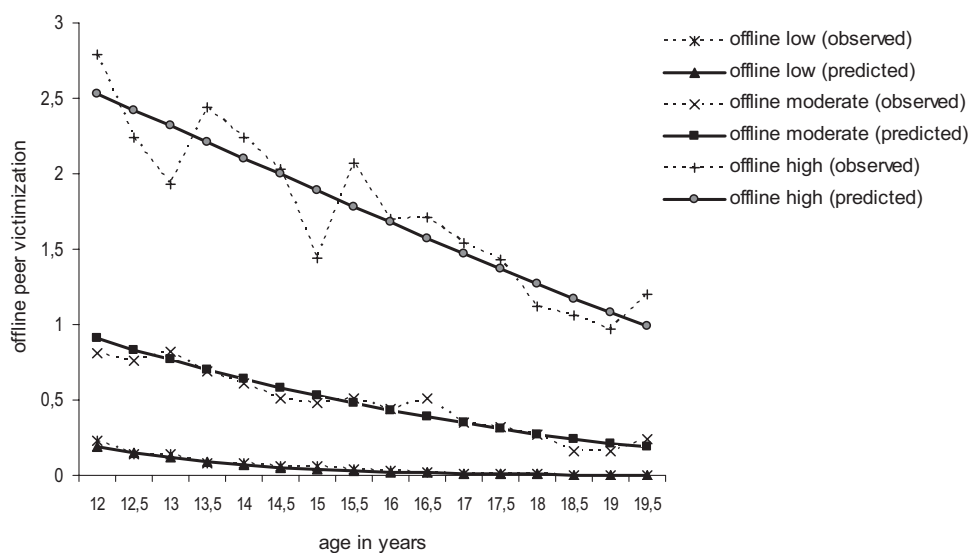
Figure 1. Observed and predicted off-line peer victimization trajectories across adolescence.

items for off-line victimization ranged between .45 and .52, and for online victimization between .51 and .57. Off-line and online victimization indexes were calculated by taking the mean score of the two variables. The correlation between average off-line and online victimization within each wave varied between .45 and .54.

Life satisfaction. We measured life satisfaction with the Satisfaction with Life scale [31]. The scale consists of five items, including "I am satisfied with my life." All items are rated on a 5-point scale, ranging from 1 (*agree entirely*) to 5 (*disagree entirely*), and were reversely coded. High scores thus reflect high life satisfaction. The Cronbach alphas were .87 at wave 1 and .91 at wave 4.

Statistical analysis

To test whether different trajectories could be distinguished for off-line and online victimization, group-based modeling was performed in three steps using the ProcTraj macro in SAS (SAS Institute, Cary, NC) [32]. First, to determine the optimal number of trajectories, the model fit of an increasing number of trajectories was tested. Improvement between different models was tested by comparing the Bayesian information criterion of each model [33]. The numbers of trajectories were extended until the Bayesian information criterion no longer improved. Once the number of trajectories was established, we investigated the parameter estimates of different shapes of the trajectories to determine whether trajectories were linear, quadratic, or cubic.

Second, adequacy of the final model was investigated by calculating the average posterior probabilities of the final groups. The posterior probability reflects the likelihood of being in the determined trajectory group for each participant. Based on individual posterior probabilities, participants were assigned to a trajectory group. Model fit is adequate when the average posterior probability for each trajectory group exceeds .70 [33].

Third, to test the relationship between off-line and online victimization, a dual-trajectory model was estimated using the parameters from the two single trajectory models.

Results

Off-line victimization trajectories

The log Bayes factor comparing models with different numbers of groups showed that three trajectories of off-line victimization best fit the data (Figure 1). Fit parameters are presented in Table 1. Overall, off-line victimization was highest during early adolescence, around age 12. From age 12, all groups showed a linear decrease. Group 1 evidenced limited to no experiences with off-line victimization (48%, "low"). Group 2 was characterized by moderate experiences with off-line victimization (45%, "moderate"). Group 3 showed high experiences with off-line victimization (6%, "high"). The average posterior probabilities of all groups exceeded .70. Boys and girls were almost equally represented in the low and moderate off-line trajectories. However, the high off-line trajectory included a higher percentage of girls (61%).

Online victimization trajectories

The log Bayes factor revealed that two trajectories of online victimization best fit the data (Figure 2). Fit parameters are presented in Table 1. Group 1 is characterized by limited to no experiences with online victimization (78%, "low"). Group 2 is characterized by moderate experiences with online victimization (22%, "moderate"). The moderate online trajectory showed a peak in online victimization at age 14, followed by a decrease. The average posterior probabilities for both groups exceeded .70. Boys (54%) and girls were almost equally represented in the low online trajectory. However, the moderate online trajectory included a higher percentage of girls (63%).

Dual trajectory model: joint online and off-line victimization trajectories

Dual trajectory analysis was conducted to study the relationship between online and off-line victimization. Table 2 shows the

S.R. Sumter et al. / Journal of Adolescent Health 50 (2012) 607–613

Table 1
Parameters for evaluation of model adequacy of off-line and online victimization

Variable and number of classes (order)	Model fit	Class membership probabilities for final model			
	BIC	Groups (description)	Estimated proportion	Assigned proportion	AvgPP
Off-line bullying					
1 (3)	−4,992.25	1. Low	41.91%	48.47%	.74
2 (33)	−4,764.49	2. Moderate	48.97%	45.06%	.78
3 (333)	−4,761.07	3. High	9.11%	6.47%	.79
3 (111)	**−4,731.75**				
4 (3,333)	−4,759.52				
Online bullying					
1 (3)	−3,817.59	1. Low	74.53%	77.70%	.91
2 (33)	−3,592.78	2. Moderate	25.47%	22.30%	.85
2 (21)	**−3,582.69**				
3 (333)	−3,638.37				

Order between parentheses reflects whether model was fit with intercept only (0), linear (1), quadratic (2), or cubic (3) growth function.
The final model is presented in bold.
BIC = Bayesian information criterion; AvgPP = average posterior probability.

joint probabilities for online and off-line group membership. The joint probabilities showed that online and off-line victimization trajectories were related.

From panel A, it can be concluded that online victimization predicts off-line victimization. That is, adolescents who were victimized online were also victimized off-line. Panel B shows that adolescents who were frequently victimized off-line were also likely to be victimized online. Reversely, adolescents who were not victimized off-line were also not victimized online. However, moderate off-line victimization is linked to both low and moderate online victimization, although the probability for moderate online victimization is higher.

Panel C, depicting the joint trajectory groups, shows that it was possible to distinguish only four instead of six joint trajectory groups, namely the groups "low off-line/low online," "moderate off-line/low online," "moderate off-line/moderate online," and "high off-line/moderate online." No participants were assigned to a group that experienced online victimization in isolation (i.e., online moderate with off-line low) or high off-line victimization in isolation (i.e., off-line high with online low). This

again suggests that online victimization and off-line victimization are closely related.

Outcome of victimization trajectories: life satisfaction

To investigate whether online victimization and off-line victimization have an effect on life satisfaction, we conducted three univariate analyses of variance, including the off-line (three groups), online (two groups), and joint (four groups) trajectory groups as independent variables, and life satisfaction measured at wave 4 as the dependent variable. All analyses were controlled for life satisfaction at wave 1 to be able to investigate longitudinal change.

Off-line and online trajectory groups. For off-line trajectory groups, a main effect was observed for life satisfaction, $F(2, 1,012) = 7.36$, $p < .01$, $\eta_p^2 = .01$. Post hoc analyses (least squares difference) showed that the low off-line group (M = 3.58, SD = .72) reported the highest level of life satisfaction, $p < .01$ for high
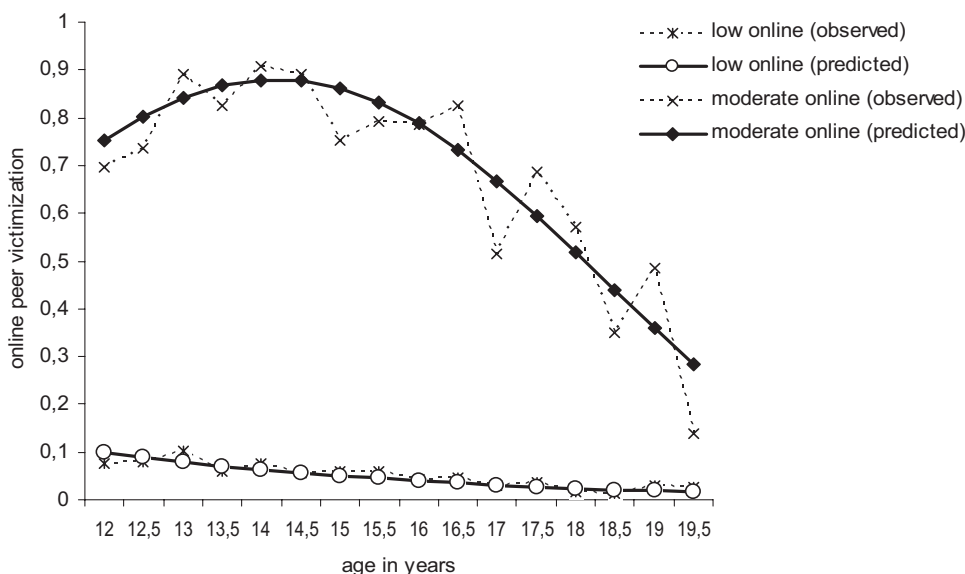

Figure 2. Observed and predicted online peer victimization trajectories across adolescence.

Table 2
Probability estimates for unconditional dual-trajectory model

Victimization groups	Group 1, low	Group 2, moderate	Group 3, high	Row total
Panel A. Probability of off-line group conditional on online group				
Online 1 (low)	.83	.17	.00	1.00
Online 2 (moderate)	.00	.81	.19	1.00
Panel B. Probability of online group conditional on off-line group				
Off-line 1 (low)	1.00	.00	NA	1.00
Off-line 2 (moderate)	.34	.66	NA	1.00
Off-line 3 (high)	.00	1.00	NA	1.00
Panel C. Joint probability of off-line and online trajectory groups				
Online 1 (low)	.59	.12	.00	.71
Online 2 (moderate)	.00	.23	.06	.29
Column total for joint probability matrix	.59	.35	.06	

Probabilities are point estimates.
Row and column totals are rounded.
NA = not applicable.

victimization and $p = .08$ for moderate victimization. The high off-line group reported the lowest level of life satisfaction ($p < .01$, M = 3.09, SD = .82). The moderate off-line group (M = 3.45, SD = .71) reported less life satisfaction than the high off-line group and more life satisfaction than the low off-line group.

For the online trajectory groups, a main effect was observed for life satisfaction, $F(1, 1,013) = 8.97$, $p < .01$, $\eta_p^2 = .01$. Life satisfaction was higher for the low online group (M = 3.55, SD = .71) than for the moderate-online group (M = 3.28, SD = .77).

Joint trajectory groups. A main effect on life satisfaction was observed for the joint trajectory groups, $F(3, 1,011) = 7.61$, $p < .001$, $\eta_p^2 = .02$ (Table 3). Post hoc tests (least squares difference) showed that the joint group "online low/off-line low" reported the highest level of life satisfaction. Finally, the joint group "online low/off-line moderate" reported more life satisfaction than the "online moderate/off-line high" group.

Discussion

The current study revealed that distinct developmental trajectories can be observed for off-line and online victimization across adolescence, from age 12 to 19.5 years. Furthermore, off-line and online victimization trajectories were related and predicted life satisfaction. Gender differences were limited; however, we found a slightly higher percentage of girls who were assigned to the high off-line and moderate online victimization trajectories.

Table 3
Mean life satisfaction by joint victimization groups

Online victimization trajectories	Off-line victimization trajectories		
	Low	Moderate	High
Low	3.60 (.71)[a]	3.37 (.71)[b,c]	NA
	n = 658	n = 109	n = 0
Moderate	NA	3.32 (.72)[b]	3.02 (.82)[b,d]
	n = 0	n = 213	n = 36

Cells show means and standard deviations between brackets.
Superscript symbols indicate whether joint groups differ significantly, least squares difference. a < b at $p < .05$, and c > d at $p = .051$.

Off-line victimization trajectories

Overall, off-line victimization decreased across adolescence. The low off-line victimization group experienced little to no off-line victimization across adolescence. A second group followed a trajectory of moderate off-line victimization, which decreased across adolescence. Third, a small number of adolescents (6%) were assigned to a high off-line victimization trajectory. In contrast with Barker et al [3], the high off-line victimization trajectory decreased rather than increased across adolescence. This discrepancy might be related to the age range. In contrast to our study, Barker et al [3] studied development only up to 16 years of age. A decrease in victimization experiences might set in during late adolescence. The discrepancy might also be related to differences in methodology. Barker et al [3] explicitly assessed different forms of victimization, including verbal bullying. Although physical bullying decreases during adolescence, verbal bullying is found to increase at the end of childhood and remains relatively high during adolescence [34]. From research on off-line peer victimization, it is apparent that making a distinction between at least two types of aggression, direct and indirect aggression, is crucial [35]. Indirect victimization and direct peer victimization are characterized by differences in prevalence rates, age, and gender effects. Thus, the current trajectories that are observed for victimization, in general, might differ from those found for direct and indirect victimization separately. Future studies will need to investigate the influence of the type of victimization on the number and shape of developmental trajectories.

Online victimization trajectories

To date, no studies have investigated developmental trajectories of online victimization. As off-line and online victimization are related, we expected to find similar trajectories for online victimization. However, only two, rather than three, developmental trajectories could be distinguished for online victimization. The two trajectories mirrored the two substantial trajectories found for off-line victimization. The first group could be assigned to a trajectory of little to no online victimization, and the second to a trajectory of moderate decreasing victimization. The latter group showed an increase in online victimization during early adolescence up to age 14 years, followed by a decrease. For online victimization, a developmental trajectory of high victimization could not be found. Although off-line victimization showed a steady decrease across adolescence, it might be that specific aspects of the Internet contribute to the increase in victimization experiences before age 14 years. From communication science, we know that specifically the absence of visual and auditory cues during computer-mediated communication might lead to feelings of anonymity and disinhibited behavior [36]. Furthermore, in the absence of immediate visible feedback from victims, youth might need more advanced perspective-taking skills to understand the effects of their aggressive acts on the Internet. This would contribute to a later decrease in online victimization compared with off-line victimization.

Overall, reported levels of online victimization were lower compared with off-line victimization. Although new technologies, such as Internet and mobile phones, have provided new venues for victimization, traditional forms still seem to domi-

nate. The finding that off-line victimization is still more common than online victimization is not unique to this study [34].

Joint online and off-line victimization trajectories

In line with cross-sectional studies, we observed an association between the off-line and online trajectory group membership. Notably, online victimization was always accompanied by off-line victimization. Furthermore, adolescents who experienced high off-line victimization were always victimized online as well. In contrast to previous assumptions [37], the Internet does not seem to create new victims. It seems that the Internet is just another tool that bullies use to victimize a peer. This significant overlap between the victimization trajectories is in line with the Victim Schema Model [22].

As the present study showed that we can distinguish between different trajectories of off-line and online victimization and distinct joint trajectories, future research should investigate specific risk factors that increase the likelihood of belonging to a high-risk trajectory. One of these risk factors could be the negative bias that has been proposed as an underlying mechanism by the Victim Schema Model. Notably, this model mainly focuses on victim characteristics that trigger victimization experiences. When investigating risk factors, it will be important to also consider structural issues that might play a role in victimization. For example, the likelihood of victimization is also related to class climate [38].

Life satisfaction and victimization trajectories

A final aim of the study was to investigate the effect of off-line and online victimization trajectories on life satisfaction. Previous studies showed that off-line victimization had a negative effect on psychosocial well-being [5]. In line with these studies, adolescents assigned to the low off-line victimization trajectory reported the highest level of life satisfaction. Furthermore, our study showed that adolescents who were assigned to the low online victimization trajectory reported more life satisfaction than those assigned to the moderate online victimization trajectory.

Finally, we looked at the relationship between life satisfaction and the joint trajectories. Adolescents assigned to the high off-line and moderate-online groups reported the lowest level of life satisfaction. In line with Fredstrom et al [21], we expected that online victimization would show a unique relationship with life satisfaction. However, as low online and high off-line victimization did not occur in isolation, the unique contribution of both types could not be further distinguished. All youth who experienced online victimization also experienced off-line victimization. Therefore, on the basis of our findings, we cannot decisively rule out that it is adolescents' online experiences per se that led to decreases in life satisfaction.

Limitations and suggestions for future research

Although the cohort-sequential design (CSD) we used is considered an adequate approximation of a true longitudinal designs, it also has some disadvantages [30,39]. For one, in comparison with a full longitudinal design, a CSD reflects individual development over a shorter span. A second limitation concerns the operationalization of peer victimization, we assessed victimization experiences with only two items. We believe that future

research would benefit from including a more comprehensive measure to assess victimization in a true longitudinal design.

In sum, the current study was the first to investigate developmental trajectories in both online and off-line victimization during adolescence in a single study. Overall, victimization experiences diminished across adolescence. In addition to a large group of adolescents who did not experience online or off-line victimization, some adolescents followed a trajectory of moderate to high victimization.

Although online victimization is less prevalent than off-line victimization, the dual-trajectory approach demonstrated why the study of online victimization is crucial. A particular group of youth experience dual victimization. They are victimized both off-line and online. Thus, victimization follows youth home from school [40]. We need to understand better how we can stop this cycle of victimization.

Finally, the current study shows that not only recurring off-line victimization but also that recurring online victimization has negative consequences. However, definite conclusions about the unique contribution of online victimization cannot yet be drawn. Our results do confirm that victimization can no longer be studied without considering adolescent peer relationships on the Internet. As a result, the overlap between off-line and online victimization trajectories suggests that prevention programs should focus on both forms to better reflect adolescents' everyday peer victimization experiences.

References

[1] Olweus D. The Olweus Bully/Victim Questionnaire. Bergen, Norway: Mimeo, University of Bergen, 1986.

[2] Smith PK, Brain P. Bullying in schools: Lessons from two decades of research. Aggress Behav 2000;26:1–9.

[3] Barker ED, Arseneault L, Brendgen M, et al. Joint development of bullying and victimization in adolescence: Relations to delinquency and self-harm. J Am Acad Child Psychiatry 2008;47:1030–8.

[4] Barker ED, Boivin M, Brendgen M, et al. Predictive validity and early predictors of peer-victimization trajectories in preschool. Arch Gen Psychiatry 2008;65:1185–92.

[5] Hawker DSJ, Boulton MJ. Twenty years' research on peer victimization and psychosocial maladjustment: A meta-analytic review of cross-sectional studies. J Child Psychol Psychiatry 2000;41:441–55.

[6] Reijntjes A, Kamphuis JH, Prinzie P, et al. Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. Child Abus Negl 2010;34:244–52.

[7] Valkenburg PM, Peter J. Preadolescents' and adolescents' online communication and their closeness to friends. Dev Psychol 2007;43:267–77.

[8] David-Ferdon C, Hertz MF. Electronic media, violence, and adolescents: An emerging public health problem. J Adolesc Health 2007;41:1–5.

[9] Chisholm JF. Cyberspace violence against girls and adolescent females. Ann NY Acad Sci 2006;1087:74–89.

[10] Cassidy W, Jackson M, Brown KN. Sticks and stones can break my bones, but how can pixels hurt me? Students' experiences with cyber-bullying. Sch Psychol Int 2009;30:383–402.

[11] Juvonen J, Gross EF. Extending the school grounds?—Bullying experiences in cyberspace. J Sch Health 2008;78:496–505.

[12] Smith PK, Mahdavi J, Carvalho M, et al. Cyberbullying: Its nature and impact in secondary school pupils. J Child Psychol Psychiatry 2008;49:376–85.

[13] Sourander A, Brunstein Klomek A, Ikonen M, et al. Psychosocial risk factors associated with cyberbullying among adolescents: A population-based study. Arch Gen Psychiatry 2010;67:720–8.

[14] Boivin M, Petitclerc A, Feng B, et al. The developmental trajectories of peer victimization in middle to late childhood and the changing nature of their behavioral correlates. Merrill Palmer Q 2010;56:231–60.

[15] Leadbeater BJ, Hoglund WLG. The effects of peer victimization and physical aggression on changes in internalizing from first to third grade. Child Dev 2009;80:843–59.

[16] Biggs BK, Vernberg E, Little TD, et al. Peer victimization trajectories and their association with children's affect in late elementary school. Int J Behav Dev 2010;34:136–46.

[17] Ybarra ML, Diener-West M, Leaf PJ, et al. Examining the overlap in internet harassment and school bullying: Implications for school intervention. J Adolesc Health 2007;41:42–50.

[18] Slonje R, Smith PK. Cyberbullying: Another main type of bullying? Scand J Psychol 2008;49:147–54.

[19] Ybarra ML, Espelage DL, Mitchell KJ. The co-occurrence of internet harassment and unwanted sexual solicitation victimization and perpetration: Associations with psychosocial indicators. J Adolesc Health 2007;41:31–41.

[20] Wolak J, Mitchell KJ, Finkelhor D, Kaplan CP. Does online harassment constitute bullying? An exploration of online harassment by known peers and online-only contacts. J Adolesc Health 2007;41:51–8.

[21] Fredstrom BK, Adams RE, Gilman R. Electronic and school-based victimization: Unique contexts for adjustment difficulties during adolescence. J Youth Adolesc 2011;40:405–15.

[22] Rosen PJ, Milich R, Harris MJ. Victims of their own cognitions: Implicit social cognitions, emotional distress, and peer victimization. J Appl Dev Psychol 2007;28:211–26.

[23] Dempsey AG, Sulkowski ML, Nichols R, et al. Differences between peer victimization in cyber and physical settings and associated psychosocial adjustment in early adolescence. Psychol Sch 2009;46:962–72.

[24] Wang J, Nansel TR, Iannotti RJ. Cyber and traditional bullying: Differential association with depression. J Adolesc Health 2011;48:415–7.

[25] Park N. The role of subjective well-being in positive youth development. Ann Am Acad Polit Soc Sci 2004;591:25–39.

[26] Gilman R, Huebner ES. Characteristics of adolescents who report very high life satisfaction. J Youth Adolesc 2006;35:293–301.

[27] Law DM, Shapka JD, Hymel S, et al. The changing face of bullying: An empirical comparison between traditional and internet bullying and victimization. Comput Hum Behav (in press).

[28] Ybarra ML, Mitchell KJ, Wolak J, Finkelhor D. Examining characteristics and associated distress related to internet harassment: Findings from the second youth internet safety survey. Pediatrics 2006;118:e1169–77.

[29] Katzer C, Fetchenhauer D, Cyberbullying BF. Who are the victims? A comparison of victimization in internet chat rooms and victimization in school. J Media Psychol 2009;21:25–36.

[30] Duncan SC, Duncan TE, Hops H. Analysis of longitudinal data within accelerated longitudinal designs. Psychol Methods 1996;1:236–48.

[31] Diener E, Emmons RA, Larsen RJ, Griffin S. The satisfaction with life scale. J Pers Assess 1985;49:71–5.

[32] Jones BL, Nagin DS, Roeder K. A SAS procedure based on mixture models for estimating developmental trajectories. Sociol Methods Res 2001;29:374–93.

[33] Nagin DS. Group-Based Modeling of Development. Cambridge, MA: Harvard University Press, 2005.

[34] Williams KR, Guerra NG. Prevalence and predictors of Internet bullying. J Adolesc Health 2007;41:S14–21.

[35] Card NA, Stucky BD, Sawalani GM, Little TD. Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. Child Dev 2008;79:1185–229.

[36] Valkenburg PM, Peter J. Online communication among adolescents: An integrated model of its attraction, opportunities, and risks. J Adolesc Health 2011;48:121–7.

[37] Huang Y, Chou C. An analysis of multiple factors of cyberbullying among junior high school students in Taiwan. Comput Hum Behav 2010;26:1581–90.

[38] Gazelle H. Class climate moderates peer relations and emotional adjustment in children with an early history of anxious solitude: A child x environment model. Dev Psychol 2006;42:1179–92.

[39] Prinzie P, Onghena P. Cohort sequential design. In: Everitt BS, Howell DC, eds. Encyclopedia of Statistics in Behavioral Science. Chichester, UK: John Wiley & Sons, Ltd, 2005:319–22.

[40] Tokunaga RS. Following you home from school: A critical review and synthesis of research on cyberbullying victimization. Comput Hum Behav 2010;26:277–87.