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Zhu, Xinxin ; Griffiths, Helen ; Eisner, Manuel ; Hepp, Urs ; Ribeaud, Denis ; Murray, Aja Louise

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DOI: <https://doi.org/10.1111/jcpp.13529>

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ZORA URL: <https://doi.org/10.5167/uzh-215667>

Journal Article

Accepted Version

Originally published at:

Zhu, Xinxin; Griffiths, Helen; Eisner, Manuel; Hepp, Urs; Ribeaud, Denis; Murray, Aja Louise (2022). Developmental associations between bullying victimization and suicidal ideation and direct self-injurious behavior in adolescence and emerging adulthood. *Journal of Child Psychology and Psychiatry*, 63(7):820-828.

DOI: <https://doi.org/10.1111/jcpp.13529>

Developmental associations between bullying victimization and suicidal ideation and direct self-injurious behavior in adolescence and emerging adulthood

Xinxin Zhu^{1*}, Helen Griffiths², Manuel Eisner^{3,4}, Urs Hepp⁵, Denis Ribeaud³, Aja Louise Murray¹

¹Department of Psychology, University of Edinburgh

²Department of Clinical, Health Psychology, University of Edinburgh

³Jacobs Center for Productive Youth Development, University of Zurich

⁴Institute of Criminology, University of Cambridge

⁵Integrated Psychiatric Services Winterthur-Zürcher Unterland, Winterthur, Switzerland

The authors declare that they have no conflict of interest.

Word count: 5963.

Abstract

Background: Bullying, suicide, and self-injury are significant issues among young people.

Extensive research has documented bullying victimization associations with suicidal ideation and self-injury; however, the modeling approaches used have mostly not addressed the relations between these constructs at the within-person level and it is these links that are critical for testing developmental theories and guiding intervention efforts. This examined the within-person, bidirectional relations between these constructs in adolescence and emerging adulthood. **Methods:** Participants were from the Zurich Project on Social Development from Childhood to Adulthood (z-proso). Random intercept cross-lagged panel models (RI-CLPMs) were fit to general and sexual bullying victimization and suicidal ideation data at ages 15, 17, and 20 (n=1465), and general and sexual victimization and direct self-injurious behavior data at ages 13, 15, 17, and 20 (n=1482). **Results:** There was a positive within-person effect of age 15 general bullying victimization on age 17 suicidal ideation ($\beta=.10$) and age 17 suicidal ideation on age 20 general bullying victimization ($\beta=.14$). **Conclusions:** General bullying victimization and suicidal ideation may have detrimental effects on each other over development but at different stages.

Keywords: Suicidal ideation; direct self-injurious behavior; general and sexual bullying victimization; adolescence and emerging adulthood

Suicide is a leading cause of mortality among young people worldwide (World Health Organization, 2019). Two well-established predictors are suicidal ideation and self-injury (see Castellví et al., 2017; Olfson et al., 2018; for reviews) defined respectively as “thinking about, considering, or planning suicide” (Klonsky et al., 2016) and intentionally self-inflicting damage to one’s body’s surface (e.g., cutting, burning, hitting), irrespective of suicidal intent (Brunner et al., 2014).

Bullying victimization has been proposed as a risk factor for youth suicidal ideation and self-injury (see, e.g., Heerde & Hemphill, 2018; Holt et al., 2015, for reviews). It refers to exposure to aggressive behavior characterized by intention to harm and a power imbalance, and may take place in person or online, where the latter is referred to as ‘cyberbullying’ (Gladden et al., 2014; Olweus, 1993). Repetition was previously viewed as a defining feature of bullying; however, it has been suggested that a single incident of aggression may qualify as bullying if it is harmful and/or perceived to have a high likelihood of repetition (Gladden et al., 2014), thus this aspect is now debated. Bullying can take a number of forms; however, a distinction can be made between sexual bullying (also sometimes referred to as sexual harassment) and ‘general’ bullying involving, for example, verbal, physical, and relational acts of a non-sexual nature (Murray et al., 2019). While it is not unanimously accepted as a form of bullying, sexual bullying appears in many conceptualizations of bullying and is correspondingly included in a number of bullying measures (see Vivolo-Kantor et al., 2014, for a review) and has been shown to have a similarly detrimental effect on mental health to more ‘general’ forms of bullying (e.g., Crowley & Cornell, 2020).

The effect of bullying victimization on suicide risk in young people, particularly adolescents, has received considerable attention (see, e.g., Heerde & Hemphill, 2018; van Geel, et al., 2021, for reviews). The relations between bullying victimization and suicidality/self-injury may not, however, be only unidirectional. It has been proposed, for example, that certain diatheses were associated with suicidality and self-injury such as emotional dysregulation (e.g., Law et al., 2015) and social problem solving (e.g., Speckens & Hawton, 2005), which may lead to subsequent interpersonal stressors (e.g., Liu & Spirito, 2015; Burke et al., 2015). However, only a small number of longitudinal studies, using cross-lagged panel models (CLPMs), have examined bidirectional relations between bullying and suicidality/self-injury and these have yielded mixed findings. For example, a study of 238 Canadian adolescents found that victimization at age 13 was associated with suicidal ideation at age 14, but not from age 14 to 15, and there were only non-significant reverse pathways (i.e., from suicidal ideation to victimization) (Marschall-Lévesque et al., 2017). Brunstein Klomek et al. (2019) employed longitudinal assessments with two different intervals (i.e., 3- and 12-months) in an adolescent sample ($n=2,933$; age range 13-18) from 10 European countries. They found that the occurrence of (or chronic) physical victimization and chronic relational victimization were related to suicidal ideation and/or attempts; however, only suicidal attempts were linked to the occurrence of physical victimization in the reverse direction. In the emerging/early adulthood period, a four-year, four-wave longitudinal study based on 1,483 American students (aged 21-29) indicated reciprocal associations between cyber-victimization and suicidal ideation at all time-lags (Wright, 2016).

In terms of bullying victimization and self-injury, Marshall et al. (2013) used Swedish ($n=513$, age rang 12-15) and Canadian ($n=161$, $M_{age}=13.82$ years) longitudinal datasets to find a bidirectional association between peer sexual harassment (i.e., assessing unwanted sexual behavior at school) and self-injury (i.e., measuring direct, intentional self-injury, irrespective of suicidal intent) in the Swedish sample, while the Canadian sample supported only self-injury associations with subsequent sexual harassment. Another study found non-significant cross-lagged relations between bullying victimization and non-suicidal self-injury over a period of about five months in a New Zealand sample ($n=1162$, $M_{age}=16.35$; Garisch & Wilson, 2015).

The above-reviewed research has contributed to a growing understanding of longitudinal associations between bullying victimization and suicidal ideation/self-injury in young people and provides preliminary support for the idea that their relations may be reciprocal. Nevertheless, there are important methodological limitations in previous studies. Specifically, previous studies have typically used CLPMs or other traditional regression techniques which (including often-used CLPMs) provide parameters that fail to separate between-and within-person effects, leading to the former effectively confounding estimates of the latter. The between-person association approximates relatively stable differences between persons (Hamaker et al., 2015). For instance, Adolescent A may report high levels of exposure to victimization and show suicidal ideation, whereas adolescent B may report no recent victimization or suicidal ideation. But this does not imply that adolescent A's (or B's) own experience of an increase or a decrease in victimization would lead to a change in their suicidal ideation from their typical level (and vice versa).

These latter effects, i.e., the within-person association can be estimated using techniques such as random intercept cross-lagged panel models (RI-CLPMs) and is based on associations between fluctuations in different constructs within a person over time. These are more akin to the causal processes referred to in developmental theories (Hamaker et al., 2015) and allow estimates of the within-person relations to be obtained ruling out stable between-person differences (e.g., genetics, gender, family socioeconomic status), strengthening causal inference. As such, examining within-person processes is recognized as a developmentally relevant approach and a more sensitive technique for determining developmental associations. Indeed, it can be problematic if findings at or contaminated by effects at the between-person level are to be used as a basis for interventions designed to causally induce within-individual change over time if they are at odds with the within-person effects (Hamaker et al., 2015). Accordingly, understanding within-person associations, uncontaminated by between-person effects is of substantial interest for developmental theories, intervention science, and clinical practice (Curran & Bauer, 2011).

Previous empirical research has shown that within-person relations often differ from the blended within/between parameters of the CLPM, sometimes even showing effects in the opposite direction. For example, research in the current sample illustrated different within-person versus CLPM relations between externalizing and internalizing problems (Murray et al., 2020), while others have illustrated this in relation to the links between parenting and conduct problems (Besemer et al., 2016), and between corporal punishment and aggression (Berry & Willoughby, 2017). As such, it is important to distinguish between within-person and between-person effects in cross-lagged panel models.

Sex (or gender) differences are also important to consider in the relations between bullying and suicidal ideation and self-injury. There is evidence suggesting, for example, that females are more sensitive to interpersonal stress and are more likely to be sexually harassed than males (e.g., Crowley & Cornell, 2020; Natsuaki et al., 2009), which may raise the possibility of sex differences in the association between bullying victimization and mental health issues. However, findings on sex differences in the relations between bullying victimization and suicidal ideation/self-injury are mixed, with some studies finding a stronger association for female youth (e.g., Heerde & Hemphill, 2018) and some finding no sex differences (e.g., Holt et al., 2015). Further research on these sex differences is thus warranted. Moreover, there is a lack of longitudinal research exploring sex differences in these associations at the within-person level, unconfounded by sex differences in the mean-level effects of each construct. An accurate estimate of sex differences is important for informing sex-specific intervention strategies targeting changes in suicidality/self-injury.

The Current Study

Given the importance of focusing on within-person processes (and sex differences in these) for advancing theory, prevention and interventions for suicidality and self-injury, the current study examines the longitudinal, bidirectional, within-person associations between general and sexual bullying victimization and suicidal ideation and direct self-injurious behavior in adolescence and emerging adulthood. We hypothesized that: (1) general and sexual victimization would predict later within-person increases in suicidal ideation and direct self-injurious behavior (2) suicidal ideation and direct self-injurious behavior would predict subsequent within-person increases in general and sexual victimization.

Method

Participants and procedure

Participants were from the longitudinal z-proso study, a study of children from 56 primary schools, randomly selected from 90 public schools in Zurich, Switzerland. Data collection started when children were 7 years old. We used data from four waves: age 13, age 15, age 17, and age 20; however, suicidal ideation was first measured when participants aged 15. $N=1482$ (for the analysis of self-injury) and 1465 (for the analysis of suicidal ideation) adolescents (52% male, about 90% born in Switzerland) participated at least once between ages 13 and 20 and between ages 15 and 20, respectively (see Table S1 of supplementary materials, for details), from an initial target sample of 1675. We used biological sex (i.e., sex assigned at birth), which was based on the official data provided by the school authorities. The sample was diverse in terms of cultural/ethnic background. For instance, at baseline, more than 50% of the primary caregivers in the target sample were not native German speakers, and approximately 70 different nationalities were represented among the primary caregivers. Common caregivers' birth countries in the current analytical sample are summarized in Table S2 of supplementary materials. Aside from that, no additional race/ethnicity information is available in the z-proso study since the collection of other relevant information (e.g., race) was judged to potentially touch on sensitive issues in the Swiss context. Regarding socioeconomic status, the mean International Socioeconomic Index (ISEI) (Ganzeboom et al., 1992) (based on data available at baseline) was 44.53 ($SD=17.0$), approximately corresponding to the occupational prestige level of a clerical worker. Non-response/attrition was higher for some immigrant background groups; however, the sample

has otherwise been found to show little evidence of non-random attrition (see Eisner et al., 2019). Missing data were handled with full information maximum likelihood estimation, which provides optimal parameter estimates when data are missing at random. Full details regarding z-proso, including the recruitment, assessments, and demographic characteristics, are reported elsewhere (e.g., Eisner et al., 2019; Ribeaud et al., 2021), and further information can be found via the study website (<http://www.jacobscenter.uzh.ch/en/research/zproso/aboutus.html>). Z-proso data have been used previously to examine the links between stressful life events and self-injury. Steinhoff, Bechtiger et al (2020), for example, found strong short-term effects of peer victimization on self-injury. The current study builds on these analyses by disaggregating between-and within-person effects to provide a measure of the latter unconfounded by time-stable between-person differences.

Ethical considerations

This study was approved by the Ethics Committee from the Faculty of Arts and Social Sciences of the University of Zurich. Direct informed consent was obtained from the participants at age 13 onwards.

Measures

Suicidal ideation and direct self-injurious behavior

Suicidal ideation was measured using an item in which youth reported how often they had thought about suicide during the past month, using a five-point scale (1=*never* to 5=*very often*). Direct self-injurious behavior was assessed with one item that asked how often adolescents had intentionally self-injured during the past month. Examples of direct self-

injurious behavior were provided and referred to cutting an arm, tearing wounds open, hitting one's head, and tearing out one's hair. Participants reported their self-injury frequency on a five-point scale (1=*never* to 5=*very often*). Such one-item measures are commonly used to assess young people's suicidal ideation (e.g., Marschall-Lévesque et al., 2017; Perret et al., 2020) and direct self-injurious behavior (e.g., Donath et al., 2019) and can serve as a brief and valid approach for screening. Previous research used these two items in the current sample and supported their validity (Steinhoff, Ribeaud et al., 2020).

General and sexual bullying victimization

General and sexual bullying victimization were both measured by the Zurich Brief Bullying Scales (ZBBS; Murray et al., 2019), an adaptation of the bullying scales developed by Olweus (1996). The ZBBS includes five items, four to assess general bullying victimization (physical, verbal, social, and property damage) and one to evaluate sexual bullying victimization (e.g., hit on you, groped you). Participants reported the frequency of these experiences within the last year on a six-point scale: 1=*never*, 2=*1 to 2-times*, 3=*3 to 10-times*, 4=*about once a month*, 5=*about once a week*, and 6=*(almost) every day*. Favorable psychometric properties (e.g., factorial validity, reliability, convergent and divergent validity) of the ZBBS in the current sample have been demonstrated in a previous study (see Murray et al., 2019, for details). The current study separately evaluated the effects of general and sexual bullying victimization, as the sexual victimization item showed a low loading on the general victimization scale in Murray et al. (2019). Omega reliability coefficients for the general victimization scale were .79 (age 13), .74 (age 15), .77 (age 17), and .72 (age 20). Further discussion of the measures is provided in supplementary materials.

Statistical analyses

Four RI-CLPMs (Hamaker et al., 2015) were fit to evaluate: general (M1) and sexual (M2) bullying victimization associations with suicidal ideation across ages 15, 17 and 20 and general (M3) and sexual (M4) victimization associations with direct self-injurious behavior across ages 13, 15, 17, and 20. In each model, the within-person level parameters (i.e., autoregressive paths, within-time covariances, and cross-lagged paths) and between-person level parameters (i.e., random intercept factors and their covariance) were included. In whole sample analyses, sex differences were adjusted for by regressing random intercept factors on sex.

Multigroup analysis (see e.g., Mulder & Hamaker, 2020) was employed to test for sex differences in associations between general and sexual victimization and suicidal ideation/self-injury. First, we fit an unconstrained multigroup RI-CLPM with all path coefficients allowed to vary across sex. Subsequently, we fit a model in which cross-lagged and within-time parameters were fixed invariant across groups. The Satorra–Bentler scaled chi-square difference (S-B χ^2) test (Satorra & Bentler, 2001) was used to compare constrained and unconstrained models. A significant difference in the chi-square analysis indicates nonequivalence between males and females. Monte Carlo power analyses are provided in supplementary materials.

Models were estimated in Mplus 8.0 (Muthén & Muthén, 2015) using robust maximum likelihood estimation (MLR). This was considered acceptable because items were on at least 5-point scales (Rhemtulla et al., 2012). Based on analysis of the continuous data with the MLR estimator, results are presented as standardized regression coefficients (β) with 95%

confidence intervals. Model fit was deemed acceptable if CFI and TLI were close to or above 0.90 and RMSEA and SRMR were less than 0.08 (e.g., Hu & Bentler, 1999).

Results

Preliminary analysis

Raw Pearson, between-person, and within-person correlations among all variables are provided in Tables S3-S7 of supplementary materials. Raw correlations were majority positive and statistically significant.

Sex differences

Sex differences were firstly tested. All multigroup RI-CLPMs without constraints showed good fit to the data (see Table S8 of supplementary materials). The chi-square difference test was significant only for the model assessing the within-person relations between general victimization and self-injury, $\Delta S-B\chi^2(10)=20.71, p=.023$. Freeing one parameter at a time indicated that this sex difference was due to the cross-lagged path from age 15 self-injury to age 17 general victimization ($\Delta S-B\chi^2(1)=5.43, p=.020, \beta_{\text{males}}=-.15, 95\% \text{ CI}=-.243, -.047, p=.004, \beta_{\text{females}}=.10, 95\% \text{ CI}=-.017, .213, p=.095$). As there were minimal sex differences, the RI-CLPM parameters were reported based on the combined sample.

Longitudinal within-person associations

Tables S9-S10 of supplementary materials present the RI-CLPM parameters and fit statistics. All RI-CLPM models fit well. For the suicidal ideation models (Figures 1 and 2), general bullying victimization at age 15 predicted within-person increases in suicidal ideation at age 17 ($\beta=.10, 95\% \text{ CI}=.014, .180, p=.022$). There was also a positive within-person effect of age 17 suicidal ideation on age 20 general victimization ($\beta=.14, 95\% \text{ CI}=.026, .246,$

$p=.015$). Sexual bullying victimization at age 17 predicted within-person decreases in suicidal ideation at age 20 ($\beta=-.10$, 95% CI $=-.171, -.019$, $p=.014$). No other significant cross-lagged within-person effects were observed, i.e., the within-person effects of age 17 general victimization on age 20 suicidal ideation, of age 15 suicidal ideation on age 17 general victimization, of age 15 sexual victimization on age 20 suicidal ideation, and of suicidal ideation at age 15/17 on sexual victimization at age 17/20 were not significant.

Concerning direct self-injurious behavior (see Figures 3 and 4), no significant cross-lagged effects were found, except for very weak evidence of a within-person effect of age 17 sexual victimization on age 20 direct self-injurious behavior ($\beta=-.09$, 95% CI $=-.170, -.000$, $p=.050$).

Cross-sectional within-person associations

Significant positive within-time covariances (representing within-person cross-sectional associations) between general victimization and suicidal ideation were found at ages 15, 17, and 20, respectively. In addition, age 13 general and sexual victimization were positively related to age 13 direct self-injurious behavior, and, at age 15, there were positive associations between sexual victimization and suicidal ideation/direct self-injurious behavior.

Discussion

This study examined the bidirectional, within-person relations between bullying victimization and suicidal ideation/direct self-injurious behavior in adolescence and emerging adulthood, using RI-CLPMs to separate between-and within-person effects. We found a positive within-person effect of age 15 general bullying victimization on age 17 suicidal ideation. Thus, youth at age 15 suffering from an escalation in the frequency of peer

victimization are more likely to report more frequent suicidal ideation (relative to their typical frequency) at age 17. This finding is consistent with previous studies based on different methods and samples, in addition to the longitudinal results using the traditional CLPM mentioned earlier (e.g., Marschall-Lévesque et al., 2017). This includes, for example, the analysis of bully-discordant monozygotic twins to take account of background genetic/shared environmental factors (Silberg et al., 2016) and propensity score methods to control for pre-existing familial and individual vulnerabilities (Baldwin et al., 2019). It also includes work using person-centered approaches to categorize experiences of being bullied in treatment-seeking adolescents (Roh et al., 2015). However, most previous findings in the broader literature have reflected between-person effects or a mixture of the between-and within-person effects, and our finding adds to the previous work by helping to rule out between-person confounders. Notably, this positive within-person effect was limited to middle to late adolescence. It may be that the non-significant result in emerging adulthood is because our time-lag failed to capture effects of general victimization on suicidal ideation that occur over a shorter timescale. From a developmental perspective, however, a possible explanation is that peer-related interpersonal relationships are more paramount in adolescence, and youth are more emotionally reactive to stressors generated by peer interactions at this stage (see Prinstein, & Giletta, 2016, for a review). Future research employing shorter time-lags can help disentangle these possibilities.

Results also suggested that suicidal ideation at age 17 was related to within-person increases in general victimization at age 20. A possible explanation is that some characteristics associated with suicidality e.g., deficiencies in social problem solving

(Speckens & Hawton, 2005) and cognitive vulnerabilities (e.g., thwarted belongingness; Joiner, 2005) can lead to the occurrence of stressful interpersonal events. Another possibility is that suicidal ideation is also closely associated with other internalizing problems, particularly depression (a sign of ‘weakness’) (e.g., Orri et al., 2020), which may make a young person seem an easier target for bullying.

We also found significant cross-sectional correlations between these constructs at the within-person level. Specifically, at ages 15, 17, and 20, positive relations were found between general victimization and suicidal ideation. Further, despite the fact that positive long-term cross-lagged effects among these constructs were not supported, at age 13, both general and sexual victimization were positively related to direct self-injurious behavior; at age 15, there was a positive association between sexual harassment and suicidal ideation/direct self-injurious behavior. These cross-sectional results do not provide evidence on the temporal order between bullying victimization and suicidal ideation/self-injury, and, thus, future studies will be needed to examine the mechanisms of their associations on short time-lags. However, taken together with our cross-lagged effects, they point to the possibility that the linkages between bullying victimization and suicidal ideation/self-injury occur over a short time period.

Sex difference testing suggested a negative within-person effect of age 15 direct self-injurious behavior on age 17 general victimization in males; however, this effect was positive but not statistically significant in females. Aside from that, no other sex differences were found in the within-person relations between bullying victimization and suicidal ideation/self-injury. This lack of significant sex effects is consistent with some previous findings (e.g.,

Holt et al., 2015; Wright, 2016) and suggests that when between-person effects are partialled out, there are few sex differences in the within-person associations.

Our findings can inform the development/targeting of interventions. Our results suggest, for example, that increases in bullying victimization were cross-sectionally and longitudinally associated with within-person increases in suicidal ideation and vice versa, implying that interventions targeting youth experiencing escalations in victimization would be helpful to reduce their suicidal thinking or break the vicious circle between bullying victimization and suicidal ideation. These results also suggest that there would be benefits to ongoing monitoring of victimization and suicidality to capture within-person fluctuations in these experiences and identify periods of risk relative to individuals' typical (or normative) levels of bullying victimization and suicidality. Furthermore, the findings of the cross-sectional and reciprocal longitudinal within-person association between bullying victimization and suicidal ideation also indicate that more integrated anti-bullying and suicide intervention and prevention programs could enhance efficiency and effectiveness.

Limitations and Future Directions

The limitations of this study bear noting. First, given z-proso is a large, longitudinal community-based sample project, our measures of suicidal ideation, direct self-injurious behavior, and sexual victimization were limited to single items. Nevertheless, single-item measures have been considered a validated source for such sensitive questions, and they can reduce response burden, which is especially needed and widely used in large-scale population-based research (e.g., Donath et al., 2019; Perret et al., 2020). Still, future research using more comprehensive questionnaires might provide higher sensitivity and a more

nuanced picture of suicidal ideation and self-injury relations with bullying victimization (including both general and sexual victimization). Second, sex differences were found in the within-person association between general victimization and self-injury but not between other constructs; however, the observed sex differences (or non-difference) might be partly due to previous demonstrations of a lack of sex invariance (i.e., the measures may not be fully interpreted/responded to in an equivalent fashion by males and females) in the ZBBS (Murray et al., 2019). Further, z-proso did not collect other gender-related information (e.g., gender identities). Future studies using scales that satisfy sex measurement invariance and consider more gender-related information to test sex/gender effects rigorously would help provide further information on sex/gender moderation effects. Third, other than the participants' and their parents' country of birth, no other race/ethnicity information is available in the z-proso study; more detailed information about race/ethnicity would be helpful in characterizing the sample and contextualizing the results. Fourth, although our findings may contribute to a better understanding of the effects of victimization on suicidal ideation/self-injury from the long-term developmental perspective, the follow-up lengths of this study were relatively long. Future studies with shorter time intervals might provide crucial information on the immediate effects of bullying victimization on suicidality/self-injury and vice versa (Eisner & Malti, 2015). Fifth, the observed longitudinal effects in the current study were relatively small, and should be replicated in other samples. However, because most psychological constructs show strong stability over time, the degree of change in levels of the outcome will be small, and controlling for stability effects (i.e., previous levels of constructs) often removes a large portion of variance in the outcome that is shared

with other predictors (Adachi & Willoughby, 2015). As such, ruling out between-person variance can also remove some portion of the variance in the outcome. Thus, given that the above-mentioned confounders were controlled, even small effect sizes could be meaningful, and the findings based on small effect sizes should be taken seriously as a potential target for improving and optimizing interventions to reduce the suicide risk of youth affected by increased bullying victimization. Finally, this study may also be limited to using different time frames to assess bullying victimization and suicidal ideation/self-injury (i.e., the last year and last month), leading to potential difficulties in interpreting within-time parameters in terms of temporal order, as these results reflected both concurrent and short-term time-lag effects.

Conclusion

This study made an important advance in isolating within-person processes from potential confounding influences of between-person associations to evaluate the developmental dynamics between bullying victimization and suicidal ideation/direct self-injurious behavior in adolescence and emerging adulthood. Findings of longitudinal within-person relations suggest that general bullying victimization positively influences suicidal ideation between middle and late adolescence, and that suicidal ideation in late adolescence can lead to the increases in general bullying victimization in emerging adulthood. However, this study did not indicate any positive longitudinal within-person associations between bullying victimization and direct self-injurious behavior. Findings of cross-sectional within-person associations over and above the longitudinal within-person effects indicate that future studies with short-term intervals can yield nuanced information to better detect immediate

effects of bullying victimization on suicidality/self-injury (and vice versa).

***Corresponding author to:** Xinxin Zhu, Department of Psychology, University of Edinburgh, 7 George Square, Edinburgh, EH8 9JZ. Email: X.Zhu-54@sms.ed.ac.uk, Telephone: (+44) 07529995646

Acknowledgements: Funding from the Swiss National Science Foundation (Grants 405240-69025, 100013_116829, 100014_132124, 100014_149979, 100014_149979, 10FI14_170409/1, 10FI14_170409/2, 10FI17_198052/1), the Jacobs Foundation (Grants 2010-888, 2013-1081-1), the Jacobs Center for Productive Youth Development, the Swiss Federal Office of Public Health (Grants 2.001391, 8.000665), the Canton of Zurich's Department of Education, the Swiss Federal Commission on Migration (Grants 03-901 (IMES), E-05-1076), the Julius Baer Foundation, and the Visana Foundation is gratefully acknowledged.

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Figure 1 Within-person associations between general bullying victimization and suicidal ideation

Note. GBVic=General Bullying Victimization; SI=Suicidal Ideation. The values in bold represent statistically significant paths at least at $p < .05$.

Figure 2 Within-person associations between sexual bullying victimization and suicidal ideation

Note. SBVic=Sexual Bullying Victimization; SI=Suicidal Ideation. The values in bold represent statistically significant paths at least at $p < .05$.

Figure 3 Within-person associations between general bullying victimization and D-SIB

Note. GBVic=General Bullying Victimization; D-SIB=Direct Self-Injurious Behavior. The values in bold represent statistically significant paths at least at $p < .05$.

Figure 4 Within-person associations between sexual bullying victimization and D-SIB

Note. SBVic=Sexual Bullying Victimization; D-SIB=Direct Self-Injurious Behavior. The values in bold represent statistically significant paths at least at $p < .05$

Key points

- Extensive research has documented bullying victimization associated with suicidality and self-injury.
- However, the modeling approaches used have mostly not addressed the relations between these constructs at the within-person level, which are critical for testing developmental theories and guiding intervention efforts.
- Results indicated that, at the within-person level, general bullying victimization and suicidal ideation can have detrimental effects on each other over development but at different stages.
- This suggests that the intervention targeting changes in bullying victimization can break the vicious circle between bullying victimization and suicidality.
- Findings also indicate that future studies employing short-term assessments can yield nuanced information to better detect the immediate effects of bullying victimization on suicidality/self-injury (and vice versa).