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Violent victimization and perpetration as distinct risk factors for adolescent suicide attempts

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ABSTRACT

This study examined associations among violent victimization, perpetration, and suicide attempts in youth reporting suicide ideation, within an ideation-to-action framework of suicide. Data on 821 youth (Mage = 16.20, SD = 1.66) were drawn from the National Longitudinal Study of Adolescent to Adult Health, with information regarding violent victimization and perpetration, history of suicide ideation and attempts, non-violent delinquency, depressive symptoms, and substance use. Hierarchical regression analyses indicated that greater experiences of violent victimization and the interaction of violence perpetration by victimization were associated with greater frequency of suicide attempts. Consistent with an ideation-to-action framework, results indicate that violent experiences (victimization or perpetration) may increase the capability for suicide.

Suicide is the second leading cause of death for adolescents and young adults in the United States (Centers for Disease Control and Prevention, 2018a), and suicide-related behaviors are a serious public health concern. Adolescence appears to be a crucial period for the onset of suicide-related behaviors: The suicide rate increases from 0.29 per 100,000 children at age 10 to 17.32 per 100,000 by age 21 and remains elevated throughout adulthood (CDC, 2018a). Although the rate of suicide increases dramatically across adolescence, the rate of suicide ideation remains relatively high across middle school and high school youth; 16% – 25% of middle school youth and 17% of high school youth report seriously considering suicide in the previous 12 months (Centers for Disease Control and Prevention, 2018b; Kann et al., 2018). The increase in suicide deaths, coupled with steady suicide ideation rates, suggests that adolescence may be a key period of onset for factors associated with the transition from suicide ideation to suicide behavior. Understanding factors that promote this transition is a crucial goal for suicide research, as only a subset of those who consider suicide actually act on their suicidal thoughts (Kessler, Borges, & Walters, 1999; Nock et al., 2008; Ten Have et al., 2009).

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However, relatively little work has examined risk factors specific to suicide attempts (May & Klonsky, 2016).

Exposure to violence through victimization and acts of perpetration may contribute to risk for suicide attempts during adolescence. Violent victimization and perpetration increase during adolescence (Finkelhor, Turner, Ormrod, & Hamby, 2009; Moffitt, 1993), and experiencing violent victimization and perpetration may provide youth with the capability (e.g., fearlessness, physical means) for suicide behavior. The current study examined the potential associations between violent victimization, perpetration, and suicide attempts among a national sample of youth endorsing suicide ideation.

Ideation-to-action theories of suicide

Several recent theories of suicide-related behavior propose an "ideation-to-action" framework, in which suicide ideation and suicide attempts have distinct risk markers and causal processes (Klonsky & May, 2015; O'Connor, 2011; Van Orden et al., 2010). While there is considerable evidence supporting the associations between various risk factors (e.g., depression, hopelessness, social isolation, and negative life events) and suicide *ideation* (see Van Orden et al., 2010 for a review), comparatively less work has focused on identifying risk factors specific to suicide *behavior* (May & Klonsky, 2016). Identification of factors associated with the transition from ideation to action is key for identifying potential mechanisms for intervention and improving suicide prevention efforts (Fergusson, Beautrais, & Horwood, 2003; Kessler et al., 1999; Nock et al., 2008; Ten Have et al., 2009).

One such ideation-to-action theory is the interpersonal-psychological theory of suicide (IPTS; Joiner, 2005; Van Orden et al., 2010). The IPTS proposes that suicide ideation occurs in the joint presence of two proximal risk factors, thwarted belongingness and perceived burdensomeness (Joiner, 2005), and a substantial evidence base supports this hypothesis among adolescent samples (for reviews, see Hill & Pettit, 2014; Stewart, Eaddy, Horton, Hughes, & Kennard, 2017). Under the IPTS framework, the transition from suicide ideation to serious suicide behaviors requires the acquired capability to enact lethal self-injury (Joiner, 2005). This acquired capability, attained via exposure to painful and provocative events, is hypothesized to result from increased fearlessness about death and pain tolerance (Van Orden et al., 2010). Evidence from a variety of samples supports the hypothesis that the acquired capability is associated with increased rates of serious suicide behavior (Anestis, Khazem, Mohn, & Green, 2015; Czyz, Berona, & King, 2015; Van Orden et al., 2010).

Another ideation-to-action theory is the integrated motivational-volitional model of suicide behavior (IMV; O'Connor, 2011). The IMV consists of three phases: the pre-motivational phase (i.e., predisposition towards suicide including individual differences and negative life experiences), the motivational phase (i.e.,

formation of suicide ideation), and the volitional phase (i.e., formation of the capability for suicide). The motivational phase is denoted by feelings of defeat, humiliation, and entrapment, which have been associated with suicide ideation (Dhingra, Boduszek, & O'Connor, 2015, 2016). The volitional phase represents the shift from suicide ideation to suicide behavior and is hypothesized to include factors such as capability, impulsivity, and access to means (O'Connor, 2011). Unlike the IPTS, the IMV takes into account a broader range of genetic and personality factors as direct (versus indirect) contributors to the volitional shift from suicide ideation to suicide attempts. Research has also demonstrated that this set of factors is associated with suicide attempts (Dhingra et al., 2015).

A third ideation-to-action model is the Three-Step Theory (3ST; Klonsky & May, 2015). The 3ST posits that suicide ideation develops in the presence of day-to-day experiences of pain (e.g., emotional pain, physical pain, social isolation) paired with a sense of hopelessness about the future. The second step, following every day experiences of pain, is the development of serious or active ideation, which forms when an individual's pain becomes greater than their connectedness. Finally, like other ideation-to-action models, the 3ST emphasizes the capability for suicide as a necessary component for suicide behavior with the intent to die. Klonsky and May (2015) highlight a range of factors that contribute to the development of this capability, including: dispositional (i.e., inherited genetic or temperamental traits), acquired (e.g., exposure to events that habituate one to experiences of fear, pain, or death), and practical (e.g., access to firearms) factors. Initial empirical studies support the hypotheses of the 3ST (Dhingra, Klonsky, & Tapola, 2018; May & Klonsky, 2016).

Common across these ideation-to-action models, the transition from suicide ideation to suicide behavior requires the development of the capability for suicide, characterized by habituation to the innate fear of death evoked by suicide ideation. The elucidation of specific factors or experiences associated with suicide behavior may provide greater insight into the development of suicide capability and help identify potential mechanisms for suicide prevention and intervention. Consistent with the theories outlined above, the present study aims to elucidate risk markers that may be important for the conceptually distinct process of engaging in suicide attempts by only testing our models among participants who have reported experiencing suicide ideation. Specifically, we propose two risk factors for suicide attempts that may contribute to the capability for suicide among those experiencing suicide ideation: violence victimization and violence perpetration.

Risk factors for suicide attempts: The role of violent victimization and perpetration

Adolescent experiences with violence through victimization and perpetration, insofar as these experiences may involve substantial exposure to pain or risk of

physical injury, represent candidate mechanisms for developing the acquired capability and increasing the likelihood of engaging in suicide behavior. Interpersonal violence exposure is associated with suicide attempts and suicide among youth and young adults (Castellví et al., 2017). Additionally, in a population-based survey of U.S. adults, those who experienced violent victimization at the hands of police officers had a significantly increased likelihood of suicide attempts than those who did not (DeVylder et al., 2017). These data suggest the importance of violent victimization as a factor associated with suicide behavior. Within ideation-to-action frameworks, experiences characterized by traumatic victimization may serve to increase suicide capability through habituation to the fear of death or increased pain tolerance.

Violence exposure may also take the form of perpetration, and those who perpetrate violent acts may also experience habituation to fear of death and thus acquire suicide capability. Engaging in violence during adolescence is associated with both suicide ideation and attempts in young adulthood (Van Dulmen et al., 2013), and conduct disorder is associated with suicide attempts among adults with suicide ideation, even after adjusting for other psychiatric disorders (Borges, Nock, Medina-Mora, Hwang, & Kessler, 2010). Evidence also links bully perpetration to youth suicide-related behaviors (Arango, Opperman, Gipson, & King, 2016; Klomek et al., 2013; Thomas et al., 2017). Among adults, those who perpetrate violence are more likely to report suicide attempts (Ilgen et al., 2010). Taken together, this research highlights the potential role of adolescent violence perpetration as a risk marker for suicide attempts, in addition to violent victimization.

While both violent victimization and perpetration are associated with suicide behavior generally, little research has investigated suicide behaviors among those who are both victims and perpetrators. For example, research examining suicide risk among bully-victims (i.e., those who bully others and are bullied themselves) suggests that they are at greater risk for suicide than those who are only victims *or* perpetrators (Hepburn, Azrael, Molnar, & Miller, 2012; Kiriakidis, 2008; Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007). Within ideation-to-action frameworks, the combination of violence victimization and perpetration may indicate a high degree of suicide capability and therefore be strongly associated with suicide attempts. Thus, it is important to determine whether those who both experience and perpetrate violence are at greater risk for engaging in suicide behaviors, and whether this effect is additive (independent main effects) or multiplicative (interactive effects). Little research has explicitly examined the independent and interactive effects of violent victimization and perpetration on suicide attempts among adolescents who report suicide ideation. Testing these associations may help elucidate the potential role of violence exposure in promoting adolescent suicide behaviors and provide novel insight into developmental processes that potentially contribute to increased suicide attempts during this age period.

Current study

The present study examined the associations between violent victimization and perpetration and suicide attempts, among those who endorsed suicide ideation in the past year, in a national sample of youth. Focusing only on those who endorsed suicide ideation enables the analyses to examine factors associated with suicide attempts after controlling for the presence of suicide ideation. That is, this approach allows for the examination of factors associated with the transition from suicide ideation to suicide attempt, by limiting analyses to only those with suicide ideation. We hypothesized that violent victimization and perpetration would be associated with more frequent suicide attempts made during the past year. Based on prior research on adolescent bully-victims (Hepburn et al., 2012; Kiriakidis, 2008; Klomek et al., 2007), we also expected that that the effects of victimization on suicide attempts would be stronger for youth who report higher violence perpetration. To further clarify the role of violence perpetration, analyses accounted for demographic characteristics, depressive symptoms, non-violent delinquency, and substance use. Depressive symptoms were included as they are strongly associated with victimization (Deeds, Lagrange, Simoni-Wastila, & Peralta, 2007; Kimmel, 2014) and suicidality (Van Orden et al., 2010) and their inclusion enabled us to examine the role of violence exposure beyond that of an established predictive factor for suicidality. Non-violent delinquency and substance use were also included as they may indicate painful or provocative experiences and enabled us to contrast the role of violence perpetration with other externalizing behaviors (see May & Victor, 2018 for a review).

Method

Participants

Data were drawn from the National Longitudinal Study of Adolescent to Adult Health (Add Health) database. Details regarding the Add Health database are available elsewhere (Harris, 2013; Resnick et al., 1997). This study utilizes Wave 1 (1994–1995) of the public use dataset, which included responses for n = 6,054 adolescents (M_{age} = 16.09, SD = 1.61, range: 13–21). Of the youth who completed Wave 1 of the Add Health study, n = 821 indicated that they had seriously thought about committing suicide in the past year and these youth comprised the analytic sample. Participants (63.1% female; M_{age} = 16.20, SD = 1.66, range: 13–21) were primarily White (64.7%), African American/Black (16.8%), Asian (3.9%), Native American (1.7%), other (6.4%), or biracial (6.5%) and 12.1% of participants identified as Hispanic. The median household income was $40,000 (range: $0 – $900,000). Regarding parent education, 15.8% of parent respondents (16.0% of spouses) did not complete high school, 38.9% completed high school without college training (40.9% spouses), 19.3% completed some college (16.4% spouses), and 25.9% obtained a college degree or higher (26.7% of spouses).

Measures

Suicide attempts

Participants' history of suicide attempts was measured using one item that assessed the frequency with which youth attempted suicide in the last 12 months. Responses were given using a 5-point scale ranging from 0 (*0 times*) to 4 (*6 or more times*).

Violent victimization

Consistent with prior research (Oosterhoff, Kaplow, & Layne, 2016), participants reported the number of times they were exposed to six types of violent events during the past 12 months. These events included witnessing a shooting/stabbing, being held at knife/gunpoint, being shot, being stabbed, being jumped, or being in a physical fight that resulted in a serious injury. Responses were given on a 3-point scale comprised of 0 (*never*), 1 (*once*), and 2 (*more than once*). Mean scores were created with higher values indicating greater violence exposure ($\alpha = .75$).

Violence perpetration

Violence perpetration was measured with two items ($r = .31$) assessing the frequency with which youth had seriously injured someone or used or threatened someone with a weapon in the past 12 months. Responses were given on a 3-point scale comprised of 0 (*never*), 1 (*once*), and 2 (*more than once*). Mean scores were created with higher values indicating greater violence perpetration ($\alpha = .60$).

Non-violent delinquency

Non-violent delinquency was measured with 10 items assessing the frequency with which youth had engaged in various forms of delinquent behavior (i.e., paint graffiti, damage property, lie to parents, run away from home, steal a car, sell drugs, burglarize a building, shoplift, steal property valued over $50, steal property valued under $50) in the past 12 months. Responses were given on a 3-point scale comprised of 0 (*never*), 1 (*once*), and 2 (*more than once*). Mean scores were created with higher values indicating greater non-violent delinquency ($\alpha = .80$).

Binge drinking and marijuana use

Substance use was measured using two items assessing adolescents' frequency of binge drinking and marijuana use. Binge drinking was measured via a single item assessing the frequency youth had gotten drunk in the past 12 months. Responses were given on a 7-point scale from 1 (*never*) to 7 (*everyday*). Marijuana use was measured using a single item assessing the frequency youth had used marijuana or hashish in the past 30 days. Responses were given in count format. Items were modeled separately because of the different response scaling with higher values indicating greater binge drinking and marijuana use.

Depressive symptoms

Depressive symptoms were measured with the 20-item version of the Center for Epidemiologic Studies Depression Scale (CESD-20; Hann, Winter, & Jacobsen, 1999). Participants rated their agreement with 20 statements about how they have felt in the past 7 days (e.g., feeling bothered by things) on a 4-point scale ranging from 0 (*never/rarely*) to 3 (*most/all of the time*). Mean scores were calculated with higher values indicating more depressive symptoms (α = .91).

Demographics

Participants reported their date of birth which was used to compute age at time of assessment. Participants were also asked to report their ethnicity (i.e., Hispanic or non-Hispanic) and their race (i.e., White, Black or African-American, American Indian or Native American, Asian or Pacific Islander, or Other). Additionally, participants' parents reported their household income; ratio of the federal poverty line was calculated from this value and was used for all analyses.

Analytic technique

Stepwise hierarchical regressions were used to examine associations among violent victimization and perpetration and suicide attempts among adolescents who reported suicide ideation. The first step of the model consisted of demographic covariates (age, gender, race, and parents' income). The second step of the model consisted of depressive symptoms, non-violent delinquency, binge drinking, and marijuana use. The third step of the model consisted of violent victimization and perpetration. The fourth step of the model consisted of the interaction between violent victimization and perpetration. Given that suicide attempts were assessed on an ordinal scale with unequal intervals, analyses were estimated in M*plus* version 7 using WLSMV, which has demonstrated favorable properties over other estimation methods when specifying asymmetric ordinal outcomes (Li, 2014). Variables were centered prior to creating interaction terms. Full information maximum likelihood (FIML) missing data analysis was used to estimate low levels of missing data (ranging from 1% to 5%, although income was missing 13.2%). The magnitude and direction of all effects were similar with and without FIML estimation.

Results

Preliminary analyses

Descriptive statistics and bivariate correlations for all study variables are displayed in Tables 1 and 2, respectively. A total of n = 433 (52.7%) experienced some form of

Table 1. Descriptive statistics for key study variables.

	Range	M	SD
Binge Drinking	1–7	2.01	1.48
Marijuana Use	1–120	3.35	11.03
Non-violent Delinquency	0–3	0.45	0.47
Depressive Symptoms	0–3	0.93	0.50
Violence Perpetration	0–3	0.27	0.51
Victimization	0–2	0.25	0.35
Suicide Attempts		N	%
0 times	–	587	71.8
1 time	–	131	16.0
2 or 3 times	–	64	7.8
4 or 5 times	–	10	1.2
6 or more times	–	25	3.1

Notes: Study N = 821.

Table 2. Bivariate correlations among study variables.

	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	−.10*	−.03	−.01	−.01	−.02	.18*	.14*	.00	.12*	−.03	−.04	−.04
2. Gender		.06	.03	−.05	.02	−.09*	−.16*	−.18*	.13*	−.23*	−.25*	.03
3. Black			−.02	−.08*	−.07	−.16*	−.02	−.11*	.01	.04	.04	.06
4. Hispanic				−.01	−.04	.03	.03	.01	.03	.06	.08	.03
5. Other					.01	−.01	−.06	.00	.04	−.03	−.01	.00
6. Income						.03	.02	−.04	−.12*	−.03	−.07	−.09*
7. Binge Drinking							.37*	.40*	.15*	.23*	.24*	.11*
8. Marijuana Use								.32*	.18*	.26*	.21*	.07
9. Non-violent Delinquency									.15*	.50*	.43*	.22*
10. Depressive Symptoms										.11*	.12*	.14*
11. Violence Perpetration											.61*	.26*
12. Victimization												.22*
13. Suicide Attempts												

Notes: *$p < .05$. Gender coded 1 = Male, 2 = Female.

victimization in the past year and n = 253 (30.8%) experienced some form of perpetration in the past year. Approximately 28% of youth who reported suicide ideation attempted suicide at least once in the past year, with 12.1% attempting suicide multiple times in the past year. In general, lower income, greater binge drinking, greater engagement in non-violent delinquency, greater depressive symptoms, greater experiences with violent victimization, and greater experiences with violence perpetration were correlated with higher suicide attempts (Table 2).

Victimization, perpetration, and suicide attempts

A stepwise hierarchical regression was used to examine associations between violent victimization and perpetration and suicide attempts among youth who endorsed past-year suicide ideation. The standardized estimates, unstandardized estimates, and standard errors from this model are displayed in Table 3. Demographic characteristics were entered into the first step of the

Table 3. Standardized estimates, unstandardized estimates, and standard errors for hierarchical multiple regression predicting suicide attempts.

	Suicide Attempts among Ideators															
	Step 1				Step 2				Step 3				Step 4			
	β	*B*	*SE*	*p*	*β*	*B*	*SE*	*p*	*β*	*B*	*SE*	*p*	*β*	*B*	*SE*	*p*
Age	−.06	−.04	.03	.21	−.08	−.05	.03	.08	−.07	−.04	.03	.15	−.07	−.04	.03	.16
Gender	.06	.13	.09	.15	.09*	.20	.10	.05	.13*	.28	.11	.01	.12*	.26	.11	.02
Black	.08*	.22	.11	.05	.11*	.29	.12	.01	.09*	.25	.12	.04	.10*	.26	.12	.03
Hispanic	.04	.16	.20	.44	.03	.13	.20	.52	.01	.06	.20	.78	.02	.08	.20	.71
Other	.02	.10	.21	.64	.02	.08	.21	.70	.02	.09	.22	.70	.02	.08	.22	.72
Income	−.16*	.01	.01	.03	−.12	.01	.01	.07	−.10	.01	.01	.15	−.10	.01	.01	.12
Binge Drinking					−.08	−.05	.03	.09	−.07	−.05	.03	.13	−.07	−.05	.03	.13
Marijuana Use					.01	.01	.01	.94	−.01	.01	.01	.77	−.02	.00	.01	.64
Non-violent Delinquency					.20*	.21	.05	.01	.13*	.14	.05	.01	.12*	.13	.06	.02
Depression					.12*	.01	.01	.01	.11*	.01	.01	.01	.11*	.01	.01	.01
Violence Perpetration									.03	.04	.07	.59	−.01	−.01	.08	.95
Violence Victimization									.13*	.14	.06	.03	.08	.09	.06	.18
Perpetration x Victimization													.11*	.06	.03	.04
R^2		.04				.10				.13				.14		
ΔR^2						.06*				.03*				.01		

Notes: *$p < .05$. Gender coded 1 = Male, 2 = Female. The overall model statistics were χ^2 (13) = 7.36, CFI = 1.00, RMSEA = < 0.01.

model. Income and race differences were the only significant effects in the first step of the model, with greater income associated with lower suicide attempts and Black youth experiencing a higher number of suicide attempts relative to non-Black youth among adolescents who reported suicide ideation. Overall, demographic characteristics explained 4% of the variance in suicide attempts. Binge drinking, marijuana use, non-violent delinquency, and depressive symptoms were entered into the second step of the model. Greater endorsement of non-violent delinquency and depressive symptoms were associated with a higher number of suicide attempts among adolescents who reported suicide ideation. Overall, binge drinking, marijuana use, non-violent delinquency, and depressive symptoms accounted for an additional 6% of variance in suicide attempts over demographic characteristics.

Violent victimization and perpetration were entered into the third step of the model. After accounting for demographic characteristics, binge drinking, marijuana use, non-violent delinquency, and depressive symptoms, we found that more frequent victimization experiences were associated with greater suicide attempts among adolescents who reported suicide ideation. Overall, these constructs explained an additional 3% of the variance in suicide attempts. The fourth and final step of the model consisted of a violence perpetration by violent victimization interaction. This interaction was significant and simple slope analyses were used to probe the nature of this interaction (Figure 1). These analyses indicate that violence perpetration was more strongly associated with suicide attempts for youth who experienced greater victimization ($\beta = .11$, $B = .134$, $SE = .054$, $p = .13$) relative to those who experienced less victimization ($\beta = .056$, $B = .124$, $SE = .151$, $p = .41$).

Discussion

Ideation-to-action frameworks for suicide behavior suggest that separate processes contribute to suicide ideation versus suicide attempts, which may help explain the

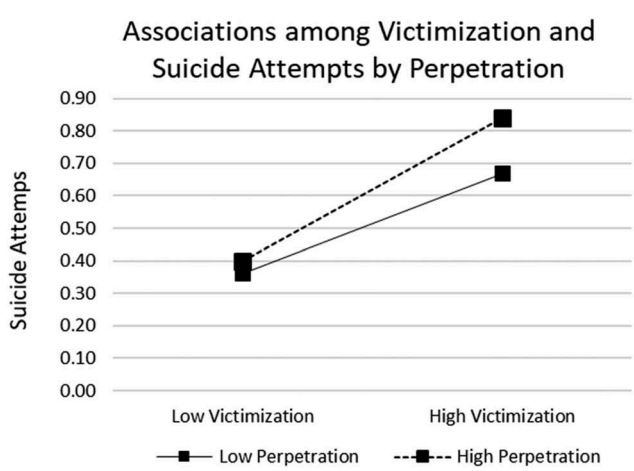

Figure 1. Interactive effect of victimization and perpetration on adolescents' suicide attempts.

discrepant rates of those who contemplate suicide and those who attempt suicide (Klonsky & May, 2015; O'Connor, 2011; Van Orden et al., 2010). While differences exist across theories, ideation-to-action frameworks highlight the role of the acquired capability for suicide in the process towards engaging in suicide behavior. Specifically, the IPTS describes how painful or provocative experiences drive increases in pain tolerance and fearlessness of death, which contribute to the acquired capability for suicide (Van Orden et al., 2010).

This study examined the associations between violent victimization and perpetration and suicide attempts in the past 12 months among youth who have reported past-year suicide ideation. Consistent with our main hypothesis, results indicated that violent victimization was associated with suicide attempts, even when accounting for demographic characteristics, depressive symptoms, and other externalizing behaviors that have been linked with suicide attempts in previous research (e.g., substance use and non-violent delinquency; May & Victor, 2018). Findings also indicated that the interaction of violence perpetration by victimization was associated with suicide attempts, demonstrating that the combination of victimization and perpetration has the strongest association with suicide attempts among adolescents who reported suicide ideation. Additionally, simple slopes analysis indicated that high levels of only victimization or perpetration were not significantly associated with suicide attempts.

One possible explanation of the current findings is that violent victimization and perpetration contribute to different elements of the acquired capability, as proposed by the IPTS (Van Orden et al., 2010). It may be that violent victimization is associated with an increase in pain tolerance, whereas violence perpetration is associated with decreased fear of death (and thus, increased willingness to engage in self-directed violent acts). The IPTS proposes that exposure to painful and provocative experiences results in increased pain tolerance via habituation to pain (Van Orden et al., 2010). Thus, repeated violent victimization, or violent victimization followed by a traumatic stress response (i.e., re-experiencing, intrusive cognitions, avoidance, and/or numbing), may serve to habituate adolescents to pain, increasing their acquired capability and accounting for the association between victimization and suicide attempts (Bryan & Anestis, 2011; Kaplow, Gipson, Horwitz, Burch, & King, 2014; Zuromski, Davis, Witte, Weathers, & Blevins, 2014).

Similarly, violent perpetration, including injuring or threatening others, involves exposure to physical danger and risk. Repeated experiences of perpetration may result in decreased fear of death in the face of physical danger – signaling an increase in the acquired capability for suicide. Thus, both violent victimization and perpetration may increase different aspects of the acquired capability for suicide, via mechanisms proposed by the IPTS.

Further, we may speculate that if violent victimization and perpetration differentially activate elements of the acquired capability, the joint presence of both violent victimization and perpetration may signal a heightened level of acquired

capability, as would be predicted by the IPTS. Thus, individuals high in violent victimization but low in violence perpetration may have increased pain tolerance but may not have developed the fearlessness about death necessary to engage in self-directed violence. This would imply that either aspect of the acquired capability (pain tolerance or fearlessness about death) in isolation is not sufficient to result in suicide attempts. Additional research is needed to examine whether victimization and perpetration are differentially associated with pain tolerance or fearlessness about death. Future research should also attempt to replicate the interaction effect reported above.

In addition to the observed association between violent victimization and suicide attempts, non-violent delinquency remained significantly associated with suicide attempts in the final step of our model. While these behaviors do not expose people to pain as directly as experiences of violence, risky behaviors (e.g., drug sales, illegal activities, unprotected sex) may increase the acquired capability for suicide via gradual exposure to a lower grade of painful and provocative experiences or risk-taking more generally. Further, these behaviors may occur with greater frequency than violence exposure, providing greater opportunities for habituation to pain and/or fear of death. Future research should evaluate associations between non-violent delinquency and elements of the acquired capability for suicide.

Findings from this study have important implications for developmental conceptualizations of suicide risk. The association between violent victimization, perpetration, and suicide attempts may help explain age-related changes in suicide attempts across adolescence. Prior research has indicated that experiences of violent victimization, perpetration, and non-violent delinquency all increase during adolescence (Finkelhor et al., 2009; Moffitt, 1993), and evidence indicates an increase in suicide rates by age (Centers for Disease Control and Prevention (CDC), 2018a). Findings from this study suggest that risk for suicide may increase throughout adolescence due, in part, to increased exposure to painful and provocative experiences such as violent victimization, perpetration, and non-violent delinquency.

Implications for practice

Identifying specific painful or provocative experiences associated with suicide behavior may help us better understand the development of the acquired capability for suicide. Violent experiences directly expose people to pain and to the fear of death, providing opportunities for the acquired capability to develop. These findings also highlight the importance of regular assessment for trauma history (victimization) and violent and non-violent externalizing behaviors (perpetration and delinquency) in clinical practice. They suggest that histories of violent victimization, perpetration, or non-violent delinquency may be helpful in assessing suicide risk among youth. Specifically, when a client indicates thoughts of suicide,

these factors may be of particular importance and may help clinicians make critical decisions regarding the safety of their client. The presence of a history of violent victimization and perpetration may indicate that an adolescent has an increased capability for suicide in the presence of suicide ideation. In addition, providers and professionals working in agencies that serve clients with heightened rates of violent victimization, perpetration, or non-violent delinquency (i.e., juvenile justice system, trauma-focused clinics, and agencies serving neighborhoods with high rates of community violence) should receive suicide risk assessment training and be aware of potentially heightened rates of suicide behavior among the populations they serve.

With regard to preventive interventions, ideation-to-action frameworks highlight key targets for suicide prevention when the acquired capability is present: The IPTS stresses reduction of suicide ideation as critical for those with the acquired capability (Joiner, 2005). The IMV and 3ST models also highlight the need to address other factors associated with suicide behavior, such as reducing access to lethal means, particularly when the acquired capability may be present. Practitioners working with adolescents exposed to violent victimization or perpetration should pay particular attention to lethal means restriction and providing services to address suicide ideation (e.g., the Collaborative Assessment and Management of Suicide; Jobes, 2012; the Safety Planning Intervention; Stanley & Brown, 2012).

Limitations and future directions

The findings of this study should be interpreted in the context of the strengths and weakness of the study design. Strengths include: (a) the use of a large national sample, (b) the large number of youth reporting recent suicide behavior, (c) examination of suicide attempts among those reporting suicide ideation, and (d) the use of an ideation-to-action framework. However, this study is limited by the use of cross-sectional data, which prevents examination of the directionality of the findings and causal interpretations, and by a limited number of mental health related variables, preventing an examination of the larger context around the transition from suicide ideation to suicide attempts. Future research should utilize a prospective, longitudinal study design to better evaluate the effects of violent victimization and perpetration experiences on suicide attempts across time. Additionally, the study relied on adolescent self-report and may have been subject to reporting biases. However, previous research has demonstrated that youth and parents frequently disagree when reporting on suicide related behaviors, so multiple informants may be of limited utility (Klaus, Mobilio, & King, 2009). Additional research is needed to more closely examine the associations between suicide-related behaviors and violence victimization and perpetration, as well as specific violent experiences that may contribute to suicide risk. Future studies should also evaluate whether violence victimization and perpetration are associated with

hypothesized mechanisms of the acquired capability for suicide, namely fearlessness about death and increased pain tolerance. For example, examination of adolescent exposure to violence in relation to self-report measures of fearlessness about death (Ribeiro et al., 2014) or behavioral measures of pain tolerance (e.g., cold pressor or pressure algometer tasks; Pennings & Anestis, 2013) may help identify mechanisms by which violence victimization and perpetration are associated with suicide-related behaviors.

Conclusion

The current study examined the relations between violent victimization and perpetration and suicide attempts among a national sample of youth reporting suicide ideation. Violent victimization and the interaction between violent victimization and perpetration were associated with greater frequency of suicide attempts, even after accounting for demographic characteristics, depressive symptoms, and other non-violent externalizing behaviors. Non-violent delinquency was also significantly associated with suicide attempts in the final step of our model. These findings suggest that these experiences and behaviors may be important factors in the progression from suicide ideation to suicide attempts. Additionally, our findings suggest clinicians working with populations with high rates of violent victimization and perpetration should be aware of the potentially higher risk for suicide behavior amid the population they serve. Future research should examine the associations between these factors and mechanisms of ideation-to-action frameworks for suicide behavior, such as fearlessness of death, increased pain tolerance, and the subsequent acquired capability for suicide.

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