Perceived Family and Peer Invalidation as Predictors of Adolescent Suicidal Behaviors and Self-Mutilation

Shirley Yen, PhD, Kevin Kuehn, BS, Katherine Tezanos, BA, Lauren M. Weinstock, PhD,
Joel Solomon, MD, and Anthony Spirito, PhD

Abstract

Objective: The present study investigates the longitudinal relationship between perceived family and peer invalidation and adolescent suicidal events (SE) and self-mutilation (SM) in a 6 month follow-up (f/u) study of adolescents admitted to an inpatient psychiatric unit for suicide risk.

Methods: Adolescents ($n = 119$) and their parent(s) were administered interviews and self-report assessments at baseline and at a 6 month f/u, with 99 (83%) completing both assessments. The Adolescent Longitudinal Interval Follow-Up Evaluation (A-LIFE) was modified to provide weekly ratings (baseline and each week of f/u) for perceived family and peer invalidation. Regression analyses examined whether: 1) Prospectively rated perceived family and peer invalidation at baseline predicted SE and SM during f/u; and 2) chronicity of perceived invalidation operationalized as proportion of weeks at moderate to high invalidation during f/u was associated with SE and SM during f/u.

Results: Multiple regression analyses, controlling for previously identified covariates, revealed that perceived family invalidation predicted SE over f/u for boys only and perceived peer invalidation predicted SM over f/u in the overall sample. This was the case for both baseline and f/u ratings of perceived invalidation.

Conclusions: Our results demonstrate the adverse impact of perceived family and peer invalidation. Specifically, boys who experienced high perceived family invalidation were more likely to have an SE over f/u. Both boys and girls who experienced high perceived peer invalidation were more likely to engage in SM over f/u.

Introduction

SUICIDE IS THE THIRD LEADING CAUSE OF DEATH among children, adolescents, and young adults ages 10–24, and the second leading cause of death among adolescents ages 13–17 (Centers for Disease Control and Prevention 2010). Among high school females, 17.4% have reported considering suicide, 13.2% have reported planning suicide, and 8.1% have attempted suicide, whereas among high school males, 10.5% have considered, 8.6% have planned, and 4.6% have attempted suicide. Mirroring the gender disparity observed in adults, adolescent girls attempt suicide at a higher rate than boys, but boys are at greater risk of completing suicide (Andrews and Lewinsohn 1992; Reinherz et al. 1995). A particularly vulnerable population are psychiatrically hospitalized adolescents, especially in the 6 months following discharge (King et al. 1995; Goldston et al. 1999; Prinstein et al. 2008; Yen et al. 2013). Studies estimate that among hospitalized adolescents admitted to an inpatient psychiatric unit for suicidality, 7–18% will make a suicide attempt within 6 months (King et al. 1995; Goldston et al. 1999; Prinstein et al. 2008; Yen et al. 2013). Furthermore, these adolescents face increased risk of suicidal behavior in adulthood (Groholt et al. 2006). A multidimensional understanding of the processes that contribute to suicidal

and self-injurious behavior in adolescents is needed to circumvent this perpetuating cycle.

Most prevalent theories of suicidal behaviors include a social perspective (see King and Merchant 2008). In Durkheim's influential book *Suicide: A Study in Sociology*, he proposes that the likelihood of suicide is influenced by the degree of social integration such that those who are insufficiently integrated into social groups feel more disconnected from others and are at greater risk of dying from suicide (Durkheim 1897). A more recent theory, Joiner's interpersonal-psychological theory of suicide, proposes that a thwarted sense of belongingness combined with a perceived burdensomeness produce the desire for death, which if further combined with the acquired capability for lethal self-harm, leads to suicidal behaviors (Joiner 2005). Linehan's biosocial theory of borderline personality disorder (BPD), a disorder marked by elevated rates of suicidal and self-injurious behaviors, proposes that BPD develops as a consequence of both a biologically based disposition toward negative affectivity and an invalidating environment marked by intolerance toward the expression of private emotional experiences (Linehan 1993). Although the emphasis is

on different aspects of the social experience, these models all assert that a lack of acceptance within a person's social environment (i.e., lack of social integration, belongingness, emotional invalidation) contribute to suicidality.

Emotional invalidation in the family environment (hereafter referred to as perceived family invalidation), particularly experienced as a child or adolescent, is postulated to lead to the development of severe emotion dysregulation difficulties that may manifest in suicidal or self-injurious behaviors (Linehan 1993). However, despite the widespread acceptance of Linehan's biosocial theory, there have been very few empirical studies that have directly examined perceived family invalidation as a predictor of suicidal and self-injurious behavior in adolescents, and few measures that assess this construct. More often, related constructs such as low family support, family dysfunction, or childhood abuse, an extreme form of emotional invalidation, have been examined in relation to suicidal and self-injurious behavior. Numerous studies have found that childhood abuse, particularly sexual abuse, is a robust predictor of future suicidal behavior (Martin et al. 2004; Calder et al. 2010; Hahm et al. 2010; Yen et al. 2013). In addition, perception of insufficient family support has been positively correlated with adolescents' suicide attempts (Morano et al. 1993; King et al. 1995; Groholt et al. 2000) and suicidal patients have been found to report lower levels of family support and parental affection and engagement than nonsuicidal inpatients and adolescents from the community (King et al. 1993; Morano et al. 1993; Groholt et al. 2000). However, to the best of our knowledge, no longitudinal study has examined the role of perceived family emotional invalidation as a predictor of suicidal and self-injurious behavior.

Whereas Linehan's model of emotional invalidation mainly pertains to experiences within the family environment, adolescence is a time in which the peer environment is particularly salient, and a sense of acceptance and belonging can be paramount. Emotional invalidation from peers (hereafter referred to as perceived peer invalidation) may be experienced overtly (e.g., bullying) or covertly (e.g., social rejection). Bullying is commonly experienced during adolescence with nearly a third of adolescents in sixth through tenth grades engaging in bullying behavior, either as perpetrator (13%), victim (10.6%), or both (6.3%) (Nansel et al. 2001). Two reviews on bullying and suicidal behaviors in adolescence (Kim and Leventhal 2008; Brunstein-Klomek et al. 2010) concluded that there is a robust association between peer victimization and suicidal ideation as well as self-injurious behaviors. Furthermore, whereas both victims and bullies are at increased risk for suicidal ideation, the general consensus across studies is that those who are bullies/victims or victims only, are at much higher risk.

However, these associations vary by sex and not always in a consistent direction. In a population-based birth cohort study of >5000 Finnish children, the relationship between bullying behavior at age 8 and later suicide attempts and completions varied by sex; whereas this was a direct effect for girls, in boys this association was possibly accounted for by conduct and depression symptoms (Brunstein-Klomek et al. 2009). In contrast, a prospective population-based study of 1420 participants who had been bullied, found that being a bully or victim increased the risk of suicidality (ideation and attempts) for boys only (Copeland et al. 2013). Other large-sample epidemiological (Kaminski and Fang 2009) and prospective (Winsper et al. 2012) studies report positive cross-sectional and prospective associations between peer victimization and suicidality in both sexes. Studies using clinical samples such as the present one report mixed findings as well. In a

large sample of 508 hospitalized adolescents, girls who were either bullies or victims had a significant number of past suicide attempts, but this was not found for boys, and there was no association between bullying and self-mutilation (SM) in either sex (Luukkonen et al. 2009). However, this study was cross sectional. In a recent longitudinal study of 433 psychiatrically hospitalized adolescents, the association between bully perpetration and suicidal ideation, significant at baseline, remitted at 6 weeks, but functional impairment persisted through the 12 months of follow-up (f/u) (King et al. 2013). However, there were no interactions between sex and bully-perpetrator group on any clinical outcomes.

A number of studies have also examined problems in peer functioning, such as social isolation, and have found that these experiences are more frequently reported by hospitalized suicidal adolescents (e.g., Khan 1987; Prinstein et al. 2000) and associated with suicidal ideation in community samples (e.g., Lewinsohn et al. 1993). Few studies have looked at frequency or chronicity of perceived peer invalidation prospectively as a predictor of suicidal behaviors or SM in adolescents.

The aim of the present study was to examine the extent to which perceived family invalidation and perceived peer invalidation predict suicide events (SE) (operationalized as suicide attempts or emergency interventions to intercede in a suicide attempt) and SM (operationalized as cutting, burning, or other SM without expressed intent to die) in a sample of adolescent inpatients admitted on the basis of suicide risk. Previous reports from this same study sample have found that black race, childhood sexual abuse, positive affect intensity, and high aggression prospectively predicted SEs over 6 months of f/u (Yen et al. 2013), and were, therefore, controlled for in the present study. In contrast, past history of suicide attempts and Axis I psychiatric diagnoses were not statistically significant in predicting SEs over the 6 month f/u. Another investigation based on this same sample found that prior week's rating on a number of constructs, including perceived family invalidation and perceived peer invalidation, predicted following week's rating of suicidal ideation along a six point severity scale, suggesting a time-varying association between invalidation and suicidal ideation (Selby et al. 2013). The present study is distinct from these other studies in that the present objectives are to: 1) Examine whether perceived family and peer invalidation ratings at baseline prospectively predict f/u SE and SM; and 2) examine whether chronicity of perceived invalidation, operationalized as proportion of weeks with ratings of moderate to high invalidation, predict f/u SE and SM. We hypothesized that both indices of perceived family invalidation and perceived peer invalidation would predict f/u SE and SM.

Methods

Participants

Participants ($n=119$) were recruited from an adolescent inpatient psychiatric unit on the basis of having been recently admitted to the unit for elevated suicide risk (e.g., recent suicide attempt, self-injury with suicidal ideation, or suicidal ideation only). Parental consent and adolescent assent were provided, and this study was approved by both the hospital and university institutional review boards. Adolescents and parents were compensated (\$50) for the time it took to complete both the baseline interview and the 6 month f/u interview. Ninety-nine participants (83.2%) completed both baseline and 6 month follow-up; analyses are based on this subsample.

Assessment

Assessments were conducted during the patient's intake hospitalization stay or shortly thereafter. Whenever applicable, assessments were administered to both adolescent and parent. When reports were discrepant, consensus scores were determined during weekly case review meetings using all available information including chart review and information from the treating physician on the adolescent unit. For family and peer invalidation, adolescent report was primary, as our main focus is on perceived invalidation. Following the baseline assessments (Time 0), patients were then contacted every 2 months over the subsequent 6 months (26 weeks) for the purpose of gathering important life events to assist with recall at the 6 month f/u interview.

Schedule for Affective Disorders and Schizophrenia for School Aged Children – Present and Lifetime Versions (K-SADS-PL). The K-SADS-PL (Kaufman et al. 1997) was used to obtain demographic information, history of childhood sexual abuse, psychiatric diagnoses, and past history of suicidal behavior.

Adolescent – Longitudinal Interval Follow-Up Evaluation (A-LIFE). The A-LIFE (Keller et al. 1987) is a semistructured interview rating system with demonstrated reliability for assessing the longitudinal course of psychiatric disorders and functioning, including suicidal behaviors, emergency department visits, and inpatient hospitalization admissions. The A-LIFE methodology uses significant life events and key dates to help participants identify key change points in symptomatology and functioning, yielding weekly ratings over the f/u interval (6 months). The A-LIFE was modified to provide ratings for perceived family invalidation and perceived peer invalidation for each week of the f/u interval. The questions to assess perceived family invalidation were: “Were there times when you did not feel accepted by your family? Or that you could not express your true thoughts or feelings? Or that if you did express your thoughts and feelings, that you would be dismissed, punished, ignored, or made fun of?” The questions to assess perceived peer invalidation were: “Were there times when you did not feel accepted by your classmates? Or that you were being left out? Or that you could not express your true thoughts or feelings? Or that if you did express your thoughts and feelings, that you would be dismissed, punished, ignored, or made fun of? How many friends do you have that can confide in?” Ratings were made on a 6 point scale, with higher ratings indicating higher perceived invalidation (lower acceptance). Weekly ratings over f/u were used to calculate an overall score indicating proportion of weeks at moderate to high perceived invalidation, for family and peers, respectively. Baseline interrater reliability for perceived family and peer invalidation was assessed with a random sample of 10% of the participants whose interviews were reviewed and rated by a second blind reviewer. Rater agreement was found to be excellent: Perceived family invalidation $\kappa=0.99$; perceived peer invalidation $\kappa=0.93$ (Selby et al. 2013).

Functional Assessment of Self-Mutilation (FASM). The FASM (Lloyd-Richardson et al. 2007) is a self-report instrument that assesses engagement in SM in the past year. The FASM consists of two parts. In the present study, we utilized responses from the first part of the FASM to determine whether SM was present.

Analyses

Multivariate logistic regression analyses were used to examine whether baseline ratings of perceived family and peer invalidation

predicted SE and SM reported during f/u; models contained covariates (black race, positive affect, and aggression) previously found to significantly predict SE in the present sample (Yen et al. 2013). Childhood sexual abuse was a covariate in the perceived peer invalidation models, but not the perceived family invalidation models, because of excessive collinearity between these variables that made the results uninterpretable. Based on the number of studies that have found sex differences in relation to bullying and suicidal behaviors, we conducted whole sample analyses as well as separate analyses for boys and girls. F/u outcomes include SE (operationalized as either a suicide attempt or emergency intervention to intercede an attempt), and SM as assessed by the FASM. Multivariate logistic regression analyses were also conducted to examine whether chronicity of perceived invalidation, operationalized as proportion of weeks at moderate to high invalidation during f/u, was associated with SE and SM during f/u. As with baseline analyses, these models included significant covariates, and were performed on the entire sample as well as separately by sex.

Results

Table 1 summarizes the demographic and clinical data for the sample dichotomized into those who reported low versus high perceived invalidation for family and peers, respectively. The low perceived invalidation group is composed of those who responded “not at all,” “minimal,” or “somewhat” to the respective invalidation questions; the high perceived invalidation group is composed of those who responded “moderate,” “high,” or “extremely high.” Girls were significantly more likely than boys to have high perceived family invalidation at baseline. There were no other differences in reporting of baseline perceived family or peer invalidation based on other demographic variables, past history of suicide attempts, and psychiatric diagnoses. Baseline perceived family invalidation was significantly correlated with baseline perceived peer invalidation ($r=0.35$, $p<0.01$). Additionally, f/u perceived family invalidation was significantly correlated to f/u perceived peer invalidation ($r=0.35$, $p<0.01$). SE and SM co-occurred relatively frequently in our sample. Of the 35 participants who reported a SE over f/u, 21 (60%) also reported that they engaged in SM over f/u. Overall, 21.2% of our sample both reported an SE and engaged in SM over f/u.

Table 2 depicts f/u outcomes (SE and SM) for those who reported high perceived family and peer invalidation at baseline and f/u. Interestingly, the majority of boys and girls who had an SE over f/u reported high perceived family invalidation at baseline. Particularly notable is that of the 25 girls who engaged in SM during f/u, 18 (72%) reported high family invalidation at baseline, and of the 15 boys who engaged in SM during f/u, 10 (66.7%) reported high perceived peer invalidation at baseline. This pattern is also observed to a lesser extent in the f/u ratings. Surprisingly, a relatively low percentage of girls (28.6%) with an SE reported high baseline perceived peer invalidation. Comparatively, of the 43 girls who did not report an SE over f/u, 45.6% reported high perceived peer invalidation at baseline.

In the prospective analyses of baseline ratings predicting SE and SM during f/u (Table 3), perceived family invalidation predicted SE in boys only (OR = 3.84; 95% CI = 1.05–14.04; $p=0.04$), and these results remained significant in multivariate analyses controlling for previously identified covariates. Baseline ratings of perceived peer invalidation predicted SM in the overall sample with boys and girls (OR = 1.37; 95% CI = 1.03–1.84; $p=0.03$). However, when the sample was analyzed separately by sex, the effect remained

TABLE 1. BASELINE DEMOGRAPHICS AND CLINICAL CHARACTERISTICS BY LOW VERSUS HIGH INVALIDATION

	<i>Family invalidation</i>		χ^2	<i>Peer invalidation</i>		χ^2
	<i>Low</i> n = 46 (46.5%) n (%)	<i>High</i> n = 53 (53.5%) n (%)		<i>Low</i> n = 57 (57.6%) n (%)	<i>High</i> n = 42 (42.4%) n (%)	
Sex						
Girls	23 (50%)	41 (77%)	8.0*	38 (67%)	26 (62%)	0.24
Boys	23 (50%)	12 (23%)		19 (33%)	16 (38%)	
Hispanic/Latino	9 (20%)	7 (14%)	0.60	10 (18%)	6 (14%)	0.26
Any minority	9 (20%)	13 (25%)	0.41	12 (21%)	10 (24%)	0.08
Black race	3 (7%)	7 (14%)	1.28	6 (11%)	4 (10%)	0.03
White race	39 (85%)	43 (83%)	0.08	48 (86%)	34 (81%)	0.40
Admit SA	15 (33%)	20 (38%)	0.28	21 (37%)	14 (33%)	1.3
Past SA	26 (57%)	33 (65%)	0.68	32 (58%)	27 (64%)	0.37
Any dep d/o	43 (94%)	49 (93%)	0.04	53 (93%)	39 (93%)	0.01
Any GAD	16 (35%)	25 (47%)	1.56	21 (37%)	20 (48%)	1.16
Any disruptive d/o	15 (33%)	23 (43%)	1.21	25 (44%)	13 (31%)	1.70
Any substance d/o	10 (22%)	7 (13%)	1.26	12 (21%)	5 (12%)	1.42
BPD	14 (30%)	22 (42%)	1.31	19 (33%)	17 (41%)	0.53
Child sexual abuse	8 (20%)	15 (36%)	2.72	14 (30%)	9 (24%)	0.38

The low perceived invalidation group is composed of those who responded “not at all,” “minimal,” or “somewhat” to the respective invalidation questions; the high perceived invalidation group is composed of those who responded “moderate,” “high,” or “extremely high.” Admit SA, suicide attempt prior to index admission; any dep d/o, any depressive disorder; any GAD, any generalized anxiety disorder; any disruptive d/o, any disruptive disorder, i.e., oppositional defiant disorder, conduct disorder, attention-deficit disorder; any substance d/o, any substance use disorder; BPD, borderline personality disorder.

* $p < 0.05$.

significant for girls (OR = 1.86; 95% CI = 1.07–3.24; $p = 0.03$), with a trend toward significance for boys (OR = 2.45; 95% CI = 0.99–6.10; $p = 0.053$). Examination of the CIs indicates a wide range of variability for boys.

In the analyses using f/u ratings of perceived invalidation (Table 4), regression analyses mirrored our findings from baseline. Specifically, a high proportion of weeks (more than 50% of the f/u period) at high perceived family invalidation was associated with SE in boys only (OR = 8.01; 95% CI = 1.08–59.37; $p = 0.04$). Furthermore, f/u perceived peer invalidation was associated with SM in the overall sample (OR = 1.63; 95% CI = 1.05–2.52; $p = 0.03$), but when the sample was analyzed separately by sex, the effect remained significant for girls (OR = 2.57; 95% CI = 1.11–5.95; $p = 0.03$), with a trend towards significance for boys (OR = 3.91; 95% CI = 0.98–15.56; $p = 0.53$). As with the baseline ratings, CIs were wide for the analyses with boys, indicating high variability.

Discussion

In our sample of high-risk adolescents who were admitted to an inpatient psychiatric unit for suicide risk, it is perhaps not sur-

prising that a high proportion (defined as more than 50% of f/u period with moderate to severe invalidation) of adolescents had feelings of perceived invalidation from family and peers at baseline, and that this persisted for a significant proportion of the f/u interval. However, the clinical acuity of our sample increases the relevance of our data, as it is more difficult to detect a risk signal in a relatively homogeneous high-risk sample than in community samples. Furthermore, we controlled for other significant risk factors for suicidal and self-injurious behaviors, which is uncommon in most studies of perceived family and peer invalidation (Kim and Leventhal 2008). Detection of an effect in this high-risk sample, after controlling for a number of covariates, adds robustness to our findings.

Our results found that both baseline and f/u ratings of perceived family invalidation predicted SEs in boys only, and that this effect remained significant after controlling for black race, positive affectivity, and aggression. Our finding of an effect for boys only was surprising, particularly as Linehan’s conceptualization of perceived family emotional invalidation was based predominantly on women with borderline personality disorder (BPD). The studies that examine a broader construct of family functioning have also not

TABLE 2. HIGH PERCEIVED INVALIDATION BY SUICIDE EVENTS (SEs) AND SELF-MUTILATION (SM) DURING FOLLOW-UP

	<i>Boys</i>				<i>Girls</i>			
	<i>SE</i> (n = 14)	<i>No SE</i> (n = 21)	<i>SM</i> (n = 15)	<i>No SM</i> (n = 18)	<i>SE</i> (n = 21)	<i>No SE</i> (n = 43)	<i>SM</i> (n = 25)	<i>No SM</i> (n = 35)
Baseline								
Family	8 (57.1%)	4 (19.0%)	7 (46.7%)	4 (22.2%)	13 (61.9%)	28 (65.1%)	18 (72%)	22 (62.9%)
Peer	7 (50%)	9 (42.8%)	10 (66.7%)	6 (33.3%)	6 (28.6%)	20 (46.5%)	13 (52%)	12 (34.3%)
Follow-up								
Family	53%	8.2%	33.60%	17.3%	53%	38.6%	53.10%	35.6%
Peer	43%	14.6%	40.50%	15.0%	30.60%	29.8%	37.40%	25.4%

TABLE 3. BASELINE INVALIDATION AS PROSPECTIVE PREDICTORS OF FOLLOW-UP SUICIDAL EVENTS (SEs) AND SELF-MUTILATION (SM)

	Boys				Girls			
	SEs		SM		SEs		SM	
	β (SE)	OR (95% CI)	β (SE)	OR (95% CI)	β (SE)	OR (95% CI)	β (SE)	OR (95% CI)
Family invalidation	1.35 (0.66)	3.84* (1.05–14.04)	0.58 (0.45)	1.79 (0.74–4.33)	–0.28 (0.26)	0.76 (0.45–1.26)	–0.10 (0.24)	0.91 (0.56–1.46)
Peer invalidation	0.43 (0.51)	1.54 (0.57–4.14)	0.90 (0.46)	2.45 (0.99–6.10)	0.04 (0.30)	1.04 (0.58–1.86)	0.62 (0.28)	1.86* (1.07–3.24)

All models included covariates previously identified as significant predictors of SEs (primary outcome) in the present sample. They include positive affect, aggression, and race.

* $p < 0.05$.

(SE), standard error accompanying the β weights.

yielded consistent effects by sex. Nonetheless, the wide CIs for the analyses with boys indicate that caution should be exercised in interpreting these results. Whereas we can confidently state that the boys in our sample reported high perceived family invalidation at baseline and throughout the 6 month f/u period, and that perceived family invalidation was a significant prospective predictor of SEs during f/u, replication in a larger sample is needed.

Both baseline and f/u perceived peer invalidation predicted SM during f/u. This was found for the overall sample, but when genders were analyzed separately, the effect remained statistically significant for girls only. The lower number of boys who exhibited SM, and our wide CIs, suggest that sample size may be an issue. Unlike the family functioning literature, a number of studies suggest that boys and girls may respond differently to perceived peer invalidation, particularly bullying. There appear to be wide inconsistencies complicated by different sample populations, differential assessment of a loosely defined construct, potential sex effects, and whether deleterious effects persist longitudinally.

Our findings suggest that in an acute high-risk sample, perceived family invalidation predicts SEs in boys, whereas perceived peer invalidation predicts SM in boys and girls. It may be that perceived family invalidation, which is particularly intractable, leads to a greater sense of hopelessness and despair that may elicit the very extreme response of a suicide attempt. At minimum, a return to the psychiatric inpatient unit provides respite from the family environment. Although it is certainly the case that perceived peer invalidation can also trigger intense hopelessness and despair, peer environments are potentially more modifiable (e.g., transferring to a new school) such that the behavioral consequence of perceived

peer invalidation is more consistent with a desire to escape or distract (e.g., SM) rather than a desire to end one's life.

This study has a number of limitations. As in all longitudinal studies with clinical populations, there was attrition from baseline to f/u. We retained 83% of our sample over 6 months, which is considered good in light of the clinical acuity and the age of our sample. As described in prior reports, there were no significant demographic or clinical differences between those who remained in the study and those who did not (Yen et al. 2013); nonetheless, attrition and incompleteness of self-report measures decreased the amount of analyzable data, which was particularly problematic when examining relatively small subgroups (e.g., boys only) as high variability can lead to unstable effects.

In hindsight, the direct assessment of bullying as well as acceptance of one's sexual orientation would have been helpful in further understanding our findings, and are directly relevant to the construct of invalidation. The measurement of co-rumination, excessively speculating and focusing on negative emotions with peers, would also have been useful to better interpret the role of perceived peer invalidation as it relates to SM in girls. Furthermore, a finer assessment of the nature of invalidation (e.g., nonresponsive vs. punitive) would be informative, and should be considered in future assessment. Lastly, our ratings are based primarily on one set of interview questions rather than on a developed instrument, for two reasons. First, there are few instruments and no clear gold standard in assessing perceived family or peer invalidation. Several of the reviewed studies (e.g., Luukkonen et al. 2009; Copeland et al. 2013) employed a similar approach of using responses to a handful of interview questions. This is particularly the case in studies that have

TABLE 4. FOLLOW-UP INVALIDATION AS A PREDICTOR OF FOLLOW-UP SUICIDAL EVENTS (SEs) AND SELF-MUTILATION (SM)

	Boys				Girls			
	SE		SM		SE		SM	
	β (SE)	OR (95% CI)	β (SE)	OR (95% CI)	β (SE)	OR (95% CI)	β (SE)	OR (95% CI)
Family invalidation	2.08 (1.02)	8.01* (1.08–59.37)	0.90 (0.70)	2.47 (0.63–9.64)	–0.44 (0.41)	0.65 (0.29–1.43)	–0.15 (0.37)	0.86 (0.41–1.79)
Peer invalidation	0.66 (0.77)	1.93 (0.43–8.65)	1.36 (0.71)	3.91 (0.98–15.56)	0.05 (0.46)	1.06 (0.43–2.57)	0.94 (0.43)	2.57* (1.11–5.95)

Peer and family invalidation expressed as proportion of time throughout follow-up with moderate to high invalidation. All models included covariates previously identified as significant predictors of SEs (primary outcome) in the present sample. They include positive affect, aggression, and race.

* $p < 0.05$.

(SE), standard error accompanying the β weights.

examined bullying. Second and more importantly, we believed that perceptions of invalidation are not necessarily static, but rather can fluctuate dynamically. Therefore, we sought to assess perceived invalidation dynamically by using a few targeted questions to assess the basic construct, and additional questions to assess change points during the f/u interval.

The present study has a number of advantages in that it is based on a prospective study in which participants were followed for 6 months after discharge, and weekly ratings were captured that allowed us to get a more refined picture of those 6 months. The weekly ratings allowed us to look at course and time varying prediction (Selby et al. 2013) as well as chronicity of perceived invalidation.

Conclusions

Our results reveal a persisting effect of both perceived family and peer invalidation. Our findings suggest that perceived family invalidation predicts SEs in boys, whereas perceived peer invalidation predicts SM in the entire sample, but with a more robust association in girls. Further refinement in the assessment of this construct and replication of our findings in larger studies are warranted.

Clinical Significance

Perceived family invalidation and perceived peer invalidation are clinically useful constructs, and based on their prevalence, they are common and salient experiences for psychiatrically hospitalized adolescents at risk for suicide. Whereas they are somewhat overlapping with other constructs (e.g., social support, social alienation, social adjustment, family functioning, and peer functioning), what is unique about perceived invalidation is the rejection of the individual as a person, and the emotionality associated with that experience. Therefore, assessment of emotional invalidation and identification of perceived invalidation are important in treatment planning with this population.

Disclosures

No competing financial interests exist.

References

- Andrews J, Lewinsohn P: Suicidal attempts among older adolescents: Prevalence and co-occurrence with psychiatric disorders. *J Am Acad Child Adolesc Psychiatry* 31:655–662, 1992.
- Brunstein-Klomek A, Sourander A, Gould M: The association of suicide and bullying in childhood to young adulthood: A review of cross-sectional and longitudinal research findings. *Can J Psychiatry* 55:282–288, 2010.
- Brunstein-Klomek A, Sourander A, Niemela S, Kumpulainen K, Piha K, Tamminen T, Almqvist F, Gould MS: Childhood bullying behaviors as a risk for suicide attempts and completed suicides: A population-based birth cohort study. *J Am Acad Child Adolesc Psychiatry* 48:254–261, 2009.
- Calder J, McVean A, Yang W: History of abuse and current suicidal ideation: Results from a population based survey. *J Fam Violence* 25:205–214, 2010.
- Centers for Disease Control and Prevention: Web-based Injury Statistics Query and Reporting System (WISQARS). National Center for Injury Prevention and Control; 2010. <http://www.cdc.gov/violenceprevention/suicide/statistics/rates03.html>.
- Copeland WE, Wolke D, Angold A, Costello EJ: Adult psychiatric outcomes of bullying and being bullied by peers in childhood and adolescence. *JAMA Psychiatry* 70:419–426, 2013.
- Durkheim E: *A Study in Sociology*. New York: Free Press; 1897.
- Goldston DB, Daniel SS, Reboussin DM, Frazier PH, Kelley, AE: Suicide attempts among formerly hospitalized adolescents: A prospective naturalistic study of risk during the first 5 years after discharge. *J Am Acad Child Adolesc Psychiatry* 38:660–671, 1999.
- Groholt B, Ekeberg Ø, Haldorsen T: Adolescent suicide attempters: What predicts future suicidal acts. *Suicide Life Threat Behav* 36:638–650, 2006.
- Groholt B, Ekeberg Ø, Wichstrøm L, Haldorsen T: Young suicide attempters: A comparison between a clinical and an epidemiological sample. *J Am Acad Child Adolesc Psychiatry* 39:868–875, 2000.
- Hahn HC, Lee Y, Ozonoff A, Van Wert MJ: The impact of multiple types of child maltreatment on subsequent risk behaviors among women during the transition from adolescence to young adulthood. *J Youth Adolesc* 39:528–540, 2010.
- Joiner TE: *Why People Die by Suicide*. Cambridge, MA: Harvard University Press; 2005.
- Kaminski JW, Fang, X: Victimization by peers and adolescent suicide in three US samples. *J Pediatr* 155:683–688, 2009.
- Kaufman J, Birmaher B, Brent D, Rao U, Flynn C, Moreci P, Williamson D, Ryan N: Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version (K-SADS-PL): Initial reliability and validity data. *J Am Acad Child Adolesc Psychiatry* 36:980–988, 1997.
- Keller MB, Lavori P W, Friedman B, Nielsen E, Endicott J, McDonald-Scott P, Andreason NC: The longitudinal follow-up evaluation. *Arch Gen Psychiatry* 44:540–548, 1987.
- Khan AU: Heterogeneity of suicidal adolescents. *J Am Acad Child Adolesc Psychiatry* 26:92–96, 1987.
- Kim YS, Leventhal B: (2008). Bullying and suicide. A review. *Int J Adolesc Med Health* 20:133–154, 2008.
- King CA, Horwitz A, Berona J, Jiang Q: Acutely suicidal adolescents who engage in bullying behavior: 1-year trajectories. *J Adolesc Health* 53:S43–S50, 2013.
- King CA, Merchant CR: Social and interpersonal factors relating to adolescent suicidality: A review of the literature. *Arch Suicide Res* 12:181–196, 2008.
- King CA, Segal H, Kaminski K, Naylor MW, Ghaziuddin N, Radpour L: A prospective study of adolescent suicidal behavior following hospitalization. *Suicide Life Threat Behav* 25:327–338, 1995.
- King CA, Segal H, Naylor M, Evans T: Family functioning and suicidal behavior in adolescent inpatients with mood disorders. *J Am Acad Child Adolesc Psychiatry* 32:1198–1206, 1993.
- Lewinsohn PM, Rohde P, Seeley JR: Psychosocial characteristics of adolescents with a history of suicide attempt. *J Am Acad Child Adolesc Psychiatry* 32:60–68, 1993.
- Linehan M: *Cognitive-Behavioral Treatment of Borderline Personality Disorder*. New York: The Guilford Press; 1993.
- Lloyd-Richardson EE, Perrine N, Dierker L, Kelley ML: Characteristics and functions of non-suicidal self-injury in a community sample of adolescents. *Psychol Med* 37:1183–1192, 2007.
- Luukkainen A, Rasanen P, Hakko K, Riala K: Bullying behavior is related to suicide attempts but not to self-mutilation among psychiatric inpatient adolescents. *Psychopathology* 42:131–138, 2009.
- Martin G, Bergen HA, Richardson AS, Roeger L, Allison S: Sexual abuse and suicide-related behaviors: Gender differences in a large community sample of adolescents. *Child Abuse Negl* 28:491–503, 2004.
- Morano CD, Cisler RA, Lemerond J: Risk factors for adolescent suicidal behavior: Loss, insufficient familial support, and hopelessness. *Adolescence* 28:851–865, 1993.
- Nansel T, Overpeck M, Pilla RW, Ruan J, Simons-Morton B, Scheidt P: Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *JAMA* 285:2094–2100, 2001.
- Prinstein MJ, Boergers J, Spirito A, Little T, Grapentine WL: Peer functioning, family dysfunction, and psychological symptoms in a

- risk factor model for adolescent inpatients' suicidal ideation severity. *J Clin Child Psychol* 29:392–405, 2000.
- Prinstein MJ, Nock M.K., Simon V, Aikins JW, Cheah CSL, Spirito A: Longitudinal trajectories and predictors of adolescent suicidal ideation and attempts following inpatient hospitalization. *J Consult Clin Psychol* 76:92–103, 2008.
- Reinherz H, Giaconia R, Silverman A, Friedman A, Pakiz B, Frost A, Cohen E: Early psychosocial risks for adolescent suicidal ideation and attempts. *J Am Acad Child Adolesc Psychiatry* 34:599–611, 1995.
- Selby E, Yen S, Spirito A: Time varying prediction of thoughts of death and suicidal ideation in adolescents: Weekly ratings over 6-month follow up. *J Clin Child Adolesc Psychol* 42:481–495, 2013.
- Winsper C, Lereya T, Zanarini M, Wolke D: Involvement in bullying and suicide-related behavior at 11 years: A prospective birth cohort study. *J Am Acad Child Adolesc Psychiatry* 51:271–282, 2012.
- Yen S, Weinstock LM, Andover MS, Sheets ES, Selby EA, Spirito A: Prospective predictors of adolescent suicidality: 6-month post-hospitalization follow-up. *Psychol Med* 43: 983–993, 2013.

Address correspondence to:
Shirley Yen, PhD
Brown University
Box G-BH
Providence, RI 02912-G

E-mail: shirley_yen_phd@brown.edu