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Adolescent inpatient girls' report of dependent life events predicts prospective suicide risk

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ABSTRACT

Adolescents with a history of suicidal behavior are especially vulnerable for future suicide attempts, particularly following discharge from an inpatient psychiatric admission. This study is the first to test whether adolescents' tendency to generate stress, or report more dependent events to which they contributed, was predictive of prospective suicide events. Ninety adolescent psychiatric inpatients who were admitted for recent suicide risk, completed diagnostic interviews, assessments of history of suicidal behavior, and a self-report questionnaire of major life events at baseline. Participants were followed over the subsequent 6 months after discharge to assess stability vs. onset of suicide events. Cox proportional hazard regressions were used to predict adolescents' time to suicide events. Results supported hypothesis, such that only recent greater dependent events, not independent or overall events, predicted risk for prospective suicide events. This effect was specific to adolescent girls. Importantly, dependent events maintained statistical significance as a predictor of future suicide events after co-varying for the effects of several established risk factors and psychopathology. Results suggest that the tendency to generate dependent events may contribute unique additional prediction for adolescent girls' prospective suicide risk, and highlight the need for future work in this area.

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1. Introduction

Adolescents with a prior suicide attempt are 8.1 times more likely to make a future attempt compared to peers (Lewinsohn et al., 1993). These youth are particularly vulnerable during the 6–12 months following discharge from hospital (e.g., Spirito et al., 1992; Brent et al., 1993a; Prinstein et al., 2008). Thus it is crucial to find risk factors that both identify vulnerable youth in this high risk population, and indicate intervention targets to decrease prospective risk.

The link between recent life events coinciding with adolescents' suicide attempts has been well established (cf. Overholser, 2003), but the role of life events for predicting future suicide risk is less certain. To date, the majority of studies assessing life events and adolescents' suicide risk have been cross-sectional or retrospective (for a review, see Liu and Miller, 2014), or were conducted on community samples (e.g., Lewinsohn et al., 1994), which limits the ability to discern the extent to which results are driven by psychopathology. Studies with psychiatric samples though have often been limited by methodology (e.g., chart review) or assessment range, examining only one or a few stressors (Overholser, 2003). Further, despite mounting evidence that the tendency to generate stress (or experience greater dependent events to which an individual contributes) predicts prospective maintenance and exacerbation of psychopathology highly co-morbid with suicide (Hammen, 1991; Liu and Alloy, 2010), this distinction from independent (or fateful events) has yet to be extended to predicting suicide risk. The primary aim of the current study, therefore, was to address the following limitations, by testing whether dependent, as opposed to independent events, exhibits utility in predicting adolescent inpatients' risk for prospective suicide events across the first 6 months following hospital discharge.

According to the stress generation theory (Hammen, 1991), psychopathology such as depression coincides with greater negative events not only through exposure to stress outside one's control (fateful or independent events), but also through the tendency to 'generate' events that are dependent on one's actions (e.g., conflicts with parents or peers, failing a test). In turn, the tendency to generate stress prospectively is hypothesized to predict future risk. That is, the impact of ongoing dependent events, which involves a greater, consistent presentation of (a) environmental stressors to navigate and (b) internal reactions (or distress) with which to cope, serves to maintain or exacerbate risk prospectively. In contrast, although independent life events are also associated with depression onset (stress exposure model),

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the random inconsistent nature of independent events (e.g., medical illness of self or relative, friend moving away) make them less likely to consistently recur to maintain external stress and internal distress to impact risk prospectively.

To date, research supports that the tendency to generate stress increases in adolescence (Rudolph and Hammen, 1999), and is associated with primary depression and borderline personality disorder (Daley et al., 2000; cf. Liu and Alloy, 2010), two of the most common diagnoses associated with suicidal acts. Critically, the tendency to generate stress appears to reflect a stable trait, such that adolescents' baseline interpersonal stress has been found to predict greater dependent, but not independent events, prospectively (Daley et al., 1997). Finally, research also supports that dependent events in turn maintain and exacerbate adolescent depression prospectively (e.g., Kercher and Rapee, 2009; Wetter and Hankin, 2009; Hankin et al., 2010).

Research on adolescent suicide attempts has largely focused on a stress exposure model, and supports that suicide attempts coincide with events that may be presumed to be both independent, (e.g., chronic illness, Hawton et al., 1996; de Wilde et al., 1992) and dependent (e.g., interpersonal conflict, Hawton et al., 1996; Beautrais et al., 1997; Overholser, 2003). There is some evidence that specific events predict prospective suicide attempts (Brent et al., 1993a), but an assessment of the relative contribution of independent vs. dependent events in prospective suicide risk in adolescents has yet to be undertaken. We propose that dependent events may be a critical predictor of chronic risk seen with multiple attempters in adolescence. Specifically, we hypothesized that adolescents' who exhibit suicidal behavior in the context of more dependent events should be at greater imminent risk for future suicide events once they return to the environments where they tend to generate stress. We did not anticipate a link between independent events and risk for prospective suicide events.

As a secondary aim, we also considered the role of gender. The tendency to experience greater dependent events is more common of adolescent girls than boys (Rudolph and Hammen, 1999; Shih et al., 2006). Thus, this greater stress generation tendency may mediate adolescent girls' greater rates of suicide events (Lewinsohn et al., 2001). Alternatively, research to date also supports gender moderation, such that girls' exhibit greater reactivity to stress (Hankin and Abramson, 2001), particularly interpersonal events (Rudolph, 2002) which are largely dependent in nature. Dependent events, as a stronger predictor of maintenance effects of psychopathology among girls' (Liu and Alloy, 2010), may also extend to predicting stronger effects on girls' suicide risk as well. An initial study based on inpatient chart reviews supports this trend, with rates of recent interpersonal conflict associated with suicide attempts among girls but not boys (Kotila and Lonnqvist, 1988). The current study builds on this work with a more encompassing assessment of life events to test gender mediation and moderation models of dependent events and adolescents' risk for future suicide events. We did not anticipate significant gender mediation or moderation models between independent events and future suicide events.

Finally, to determine the clinical utility of dependent life events as a predictor of prospective suicide events, we also covaried for the effects of established risk factors: diagnoses of major depressive disorder (MDD), substance abuse, and borderline personality disorder (BPD), adolescents' and family history of suicide attempts (Brent et al., 1993b, 1996), and current symptom severity (symptoms of anxiety and depression). Additionally, we also covaried for risk factors previously found to predict adolescents' prospective suicide events in this sample: black ethnicity, current diagnosis of post-traumatic stress disorder (PTSD), suicidal ideation at baseline, history of childhood sexual abuse, lower positive affectivity, and higher levels of aggression (Yen et al., 2012). While other studies have analyzed data from this sample (Lipschitz et al., 2012; Selby and Yen, 2014; Selby et al., 2013; Yen et al., 2013) none have examined life events.

2. Methods

2.1. Participants

Participants consisted of 119 adolescents and their legal guardians/primary caregivers, who were recruited from an adolescent inpatient psychiatric unit on the basis of having been recently admitted for elevated suicide risk (i.e., recent suicide attempt, or suicidal ideation with or without self-injury). The present study is based on data from the 90 adolescents who completed both the self-report measures at baseline, and the final 6 month assessment. Of the 90 participants, 59 were female; 80% of youth were Caucasian, 10% African American, 2% Asian/Pacific Islander, and 8% identified as 'other', and 17% reported Hispanic ethnicity.

2.2. Procedure

Baseline assessments were conducted during adolescents' hospitalization stay (or shortly thereafter). At that time parental consent and adolescent assent were obtained and participants completed diagnostic interviews and self-report instruments on symptomatology and life events. Following the baseline assessments (Time 0), patients were contacted every two months via phone over the subsequent 6 months (26 weeks), at which time participants reported on mood and psychiatric status. Data in the current study reflect baseline measures, except for the LIFE interview which was administered at the 6-month follow-up to assess the presence and timing of prospective suicide events.

2.3. Measures

2.3.1. 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) is a semi-structured interview that was administered to adolescents and their caregivers individually. The K-SADS-PL was used to obtain demographics, adolescents' psychiatric diagnoses, and history of childhood sexual abuse (reported for 21 youth), and the suicide module assessed both adolescents' and family history of suicidal behavior. Consensus ratings were used to establish presence or absence of Axis I diagnoses (κ ranged 0.61–1.00 for disorders endorsed by at least 15% of the sample).

2.3.2. Childhood Interview for Borderline Personality Disorders (CI-BPD)

The CI-BPD, a subsection of the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV; Zanarini et al., 1996), is a semi-structured diagnostic interview that assesses for borderline personality disorder according to DSM-IV criteria in adolescents. Inter-rater reliability in the current study was satisfactory (κ=0.82).

2.3.3. Adolescent – Longitudinal Interval Follow-Up Evaluation (LIFE)

The LIFE (Keller et al., 1987) is a semi-structured interview assessing the longitudinal course of psychiatric disorders and functioning including suicidal behaviors. The LIFE was administered at the 6-month assessment to assess for the occurrence and timing of prospective suicide attempts or treatment utilization due to suicide risk (ER visits, inpatient hospitalization or residential placements). In the current study suicide attempts as well as emergency interventions to intercede a potential suicide attempt were counted as a suicide event, in weeks since adolescents' discharge from baseline hospital stay.

2.3.4. Life Events Checklist – Child Form (LEC-C)

The LEC-C (Johnson and McCutheon, 1980) is a widely used self-report questionnaire that lists 46 major life events relevant to children and adolescents. Regarding validity, the LEC-C has been used as a measure of convergent validity to establish alternative life-stress interviews (Williamson et al., 2003). At baseline, adolescents provided objective ratings of which life events they had experienced over the past 6 months. To distinguish dependent from independent life events, three independent clinicians rated each event as mostly dependent (e.g., trouble with sibling; failing a grade) or independent (e.g., major personal injury or illness; parent going to jail) of the individual's behavior, with discordant ratings being resolved by consensus between the raters. Excellent inter-rater reliability was found (ICC=0.99). The final set of items included 27 dependent (52% of which were interpersonal), and 18 independent events (50% interpersonal).

2.3.5. Suicide Ideation Questionnaire (SIQ)

The SIQ (Reynolds, 1985) is a 30-item self-report instrument that was administered at baseline to assess the frequency of adolescents' suicidal thoughts during the prior month (α=0.97).

2.3.6. Affect Intensity Measure (AIM)

The AIM (Larsen et al., 1987) is a 40-item questionnaire that provides three measures of affective responsiveness: negative intensity, positive affectivity, and negative reactivity. The current study focused on the positive affectivity subscale (α=0.90) as the only significant predictor of suicide event risk (Yen et al., 2012).

2.3.7. Aggression Questionnaire (AQ)

The AQ (Buss and Perry, 1992) is a 34 item scale on which parents reported on youths' level of physical and verbal aggression, anger, hostility, and indirect aggression (α=0.95).

2.3.8. Negative Affect Self-Statement Questionnaire (NASSQ)

The NASSQ (Ronan, et al., 1994) measures self-statements associated with negative affect in youth. The depression and anxiety subsections yield measures of symptoms at baseline (α=0.96).

2.4. Data analytic plan

The outcome variable of interest was time to suicide event following discharge. Univariate and multivariable Cox proportional hazard regressions were run predicting adolescents time to suicide event (scored as weeks) with the occurrence of a suicide event coded dichotomously (1=event). The primary predictor variables, summary scores of reported dependent, independent, and overall life events, were tested individually in separate regressions.

3. Results

Of the 90 participants, 14 (10 female) reported a non-fatal suicide attempt and overall, 31 (19 female) reported a suicide event. At baseline, adolescents reported on life events in the past 6 months (*Range*=0–28, *MN*=10.16, S.D.=5.91), which were coded as either dependent (*Range*=0–20, *MN*=6.27, S.D.=3.59) or independent events (*Range*=0–17, *MN*=4.19, S.D.=3.36). Descriptive data and bivariate associations are presented in Table 1.

We first tested if life event types predicted risk for prospective suicide events. Contrary to hypothesis, none of the predictors predicted the timing of adolescent's future suicide events: overall life events: *Wald*=0.07, p=0.80, *OR*=1.01; independent events: *Wald*=0.25, p=0.62, *OR*=0.97; or dependent events: *Wald*=1.01, p=0.32, *OR*=1.05.

Before formally testing the gender mediation model we first tested for gender differences in event types (dependent events: t=0.37, p=0.71; independent events: t=0.29, p=0.77) and timing of suicide events *Wald*=0.43, p=0.51, *OR*=0.79. The lack of gender differences precluded testing for mediation, thus the model was not supported.

Next we tested whether gender moderated the link between life events and future suicide events. Three survival analyses were run, with gender and life event type entered as simultaneous predictors and the interaction variable entered in the second step. Gender did not interact with rates of overall life events, *Wald*=3.09, p=0.08, *OR*=0.13; or independent events, *Wald*=1.68, p=0.20, *OR*=1.17, to predict future suicide events. In contrast, the analysis of gender moderation among dependent events was significant: gender, *Wald*=4.04, p=0.04, *OR*=0.20, 95% *CI*: 0.04–0.96; dependent events, *Wald*=0.58, p=0.44, *OR*=0.94, *CI*: 0.79–1.11, gender × dependent

Table 1
Sample characteristics and bivariate associations with life events.

	Suicide event (n=31)	No suicide event (n=59)		Dep. events	Indep. events
Demographics					
Age, mean (S.D.)	15.4 (1.3)	15.2 (1.4)	*r*	0.04	−0.02
Female, *n* (%)	19 (61)	40 (59)	*t*	0.37	−0.29
Caucasian, *n* (%)	24 (77)	51 (86)	*t*	−1.32	0.21
Black, *n* (%)	5 (16)	4 (7)	*t*	2.55*	2.42*
Suicide characteristics					
Hx of Suicide Attempts, *n* (%)	23 (74)	33 (56)	*t*	1.48	0.64
Suicide Ideation, mean (S.D.)	106.8 (45.6)	84.6 (43.2)	*r*	0.04	0.01
Family Hx, *n* (%)	14 (45)	33 (56)	*t*	0.06	0.25
Axis I disorders, *n* (%)					
MDE	26 (84)	51 (86)	*t*	−1.87	−1.31
Bipolar disorder I	2 (7)	3 (5)	*t*	1.51	0.92
Phobic Anx. Disorder	13 (42)	30 (51)	*t*	−0.63	0.51
PTSD	13 (42)	13 (22)	*t*	0.90	1.11
Substance Use disorder	6 (19)	9 (15)	*t*	1.31	−0.10
Disruptive disorder	15 (48)	19 (32)	*t*	2.68**	−0.08
ADHD	16 (52)	21 (36)	*t*	0.80	−0.50
Eating disorder	1 (3)	5 (8.5)	*t*	−0.04	−1.44
Personality, symptoms and history					
Borderline PD, *n* (%)	16 (52)	17 (29)	*t*	−0.23	−0.94
Positive Affect, mean (S.D.)	2.8 (0.7)	3.3 (0.9)	*r*	−0.08	−0.06
Aggression, mean (S.D.)	106.0 (26.9)	87.8 (26.7)	*r*	0.08	−0.10
Depressive sxs, mean (S.D.)	3.6 (0.8)	3.3 (0.9)	*r*	0.07	0.23*
Anxiety symptoms, mean (S.D.)	3.0 (0.9)	2.9 (0.9)	*r*	0.10	0.16
Childhood sexual abuse, *n* (%)	13 (42)	8 (14)	*t*	−0.68	1.19
Current Predictors, mean (S.D.)					
Overall events	10.8 (6.1)	10.4 (5.8)			
Dependent events	6.6 (3.5)	5.8 (3.2)			
Independent events	4.1 (3.4)	4.4 (3.3)	*r*	0.49***	

Hx of Suicide Attempts, child history of suicide attempts; Family Hx, family history of suicidal behavior; MDE, major depressive episode; Phobic Anx disorder, includes social phobia, panic disorder, agoraphobia, and generalized anxiety disorder; PTSD, post-traumatic stress disorder; Substance Use disorder, includes alcohol or drug abuse or dependence; Disruptive disorder, includes conduct disorder and oppositional defiant disorder, Eating disorder, includes anorexia and bulimia nervosa; Borderline PD, borderline personality disorder; Depressive sxs, current depressive symptoms; Dep. events, dependent events; Indep. events, independent events. All dichotomous variables were coded: 1=present, 0=absent.

* $p \leq 0.05$.
** $p < 0.01$.
*** $p < 0.01$.

events, *Wald*=3.88, $p=0.05$, *OR*=1.25, *CI*: 1.00–1.56. Examining the form of this interaction, dependent events predicted girls' time to suicide events among adolescent girls, *Wald*=4.31, $p=0.04$, *OR*=1.17, 95% *CI*: 1.01–1.35, but not boys, *Wald*=0.50, $p=0.48$, *OR*=0.94, 95% *CI*: 0.80–1.11. The survival curve for high vs. low dependent events (defined using a median split) is presented in Fig. 1. Adolescent girls with higher rates of dependent events at baseline were at greater risk for a suicide event during the 34 weeks following their discharge from hospital (42% vs. 21% respectively).

To determine if dependent events accounted for unique variance in the prediction of girls' prospective suicide events, we ran multiple survival analyses, covarying for the individual effects of established risk factors and previously identified predictors in this sample (see Table 2). Dependent life events maintained statistical significance as a predictor of adolescent girls' prospective suicide events with the majority of established risk factors. The association trended to significance when covarying for history of suicide attempts ($p=0.06$), positive affectivity ($p=0.06$), and was non-significant when covarying for parents' report of adolescent aggression ($p=0.22$). Finally, we considered whether rates of interpersonal events yielded stronger prediction of adolescent girls' future suicide risk. Neither dependent interpersonal nor overall interpersonal events were significant (lowest $p=0.13$).

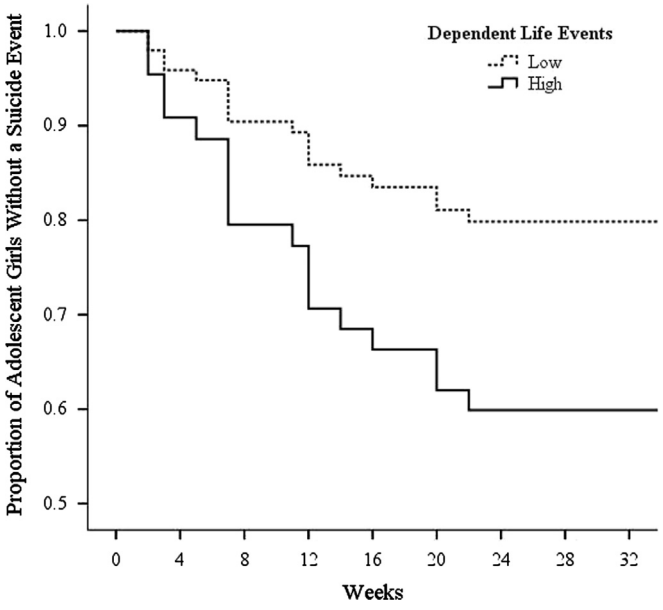

Fig. 1. Results of survival analysis: dependent life events predicts adolescent girls' time to suicide events in the weeks following discharge from hospital.

4. Discussion

The primary aim of the current study was to determine whether adolescents' tendency to generate more dependent life events would yield utility in predicting their prospective risk for future suicide events following discharge from hospital. Results supported the stress generation model such that dependent events predicted girls' prospective risk. Specifically, girls whose suicidal behavior at baseline coincided with the tendency to experience more dependent life events were identified as the most vulnerable individuals, with shorter times to onset of suicide events following discharge.

A strength of the current study was the ability to determine the extent to which dependent events, as a new predictor, accounts for unique variance in girls' future suicide events. It is noteworthy that dependent events maintained significance after controlling for multiple indices of psychopathology, baseline symptom severity, and well-established suicide risk factors (family history of suicide behavior, and baseline suicidal ideation). The only exception is that the strength of the association differed prominently when co-varying for aggression, which arguably contributes to generation of negative events. One possibility is that overlap between these constructs may reduce the unique variance of dependent events as a predictor. Overall, results support the utility of assessing dependent events for predicting girls' vulnerability for imminent suicide events following hospital discharge.

Table 2
Specificity tests of Dependent Life Events for predicting girls' future suicide events.

	Bivariate Cox PH Models			Multivariate Cox PH Models					
				Covariates			Dependent Life Events		
	Wald	*OR*	95% *CI*	*Wald*	*OR*	95% *CI*	*Wald*	*OR*	95% *CI*
MDE	1.90	0.46	0.15–1.39	1.78	0.47	0.16–1.43	4.25*	1.17	1.01–1.35
Borderline PD[a]	1.84	1.88	0.76–4.68	1.29	1.70	0.68–4.26	3.71*	1.16	1.00–1.34
Substance use disorder	0.00	0.96	0.28–3.30	0.25	0.73	0.20–2.58	4.55*	1.18	1.01–1.37
PTSD[a]	2.04	1.93	0.78–4.76	1.47	1.75	0.71–4.34	3.78*	1.16	1.00–1.35
Suicide Ideation[a]	1.05	1.01	0.99–1.02	0.85	1.01	0.99–1.02	4.10*	1.17	1.01–1.35
Depressive symptoms	1.37	1.38	0.81–2.37	1.08	1.32	0.78–2.24	4.00*	1.17	1.00–1.35
Anxiety symptoms	0.08	1.08	0.63–1.86	0.00	0.99	0.56–1.71	4.24*	1.17	1.01–1.36
Positive affect[a]	9.10**	0.43	0.25–0.74	8.19**	0.49	0.27–0.78	3.45†	1.16	0.99–1.36
Aggression[a]	4.96*	1.02	1.00–1.04	4.61*	1.02	1.00–1.04	1.48	1.11	0.94–1.32
Hx of suicide attempts	3.63†	4.16	0.96–18.04	3.23	3.84	0.87–16.67	3.50†	1.16	0.99–1.36
Family Hx of suicide	1.35	0.59	0.24–1.44	0.90	0.64	0.26–1.60	3.81*	1.16	1.00–1.34
Childhood sexual abuse[a]	9.76**	4.44	1.74–11.32	9.48**	4.37	1.71–11.18	3.91*	1.19	1.00–1.42
Black ethnicity[a]	10.09***	6.16	2.01–18.92	9.47**	5.96	1.91–18.59	4.02*	1.18	1.00–1.38

MDE, major depressive episode; Borderline PD, borderline personality disorder; Substance use disorder, includes alcohol or drug abuse or dependence; PTSD, post-traumatic stress disorder; Family Hx, family history of suicidal behavior; Hx of suicide attempts, adolescent's history of suicide attempts. All dichotomous variables were coded: 1=present, 0=absent.

[a] Previously identified predictors of suicide events in this sample (Yen et al., 2012).
† $p=0.06$.
* $p \leq 0.05$.
** $p < 0.01$.
*** $p \leq 0.001$.

The current results indicate that specifically dependent life events (not independent events or overall levels of events) may be useful in predicting adolescent girls' prospective suicide risk. Prior, cross-sectional studies assessing specific life events support that both dependent and independent events are associated with concurrent suicide attempts (cf. Overholser, 2003). Taken together, one potential interpretation is that both stress generation and stress exposure processes may account for initial suicide attempts, while the tendency to generate more dependent events, presumably continues upon discharge to account for the chronic recurrent suicide risk seen with multiple attempters. Converging evidence supports that maladaptive characteristics and behaviors of the individual, including cognitive and interpersonal vulnerabilities, are implicated in the generation of dependent events (Liu and Alloy, 2010). It is likely that these characteristics in turn impact individuals' response to generated events (e.g., self-blame attributions) to maintain suicide risk (Yen and Siegler, 2003). Thus important avenues of future research will be to test (a) the stability of dependent events, (b) whether adolescents' history of suicide attempts is indeed predictive of stress generation prospectively, (c) and identify characteristics that account for prospective suicide risk specifically.

Gender moderated the link between dependent life events and adolescents' prospective suicide risk, such that the association was only significant among adolescent girls. This mirrors initial cross-sectional work on suicide attempts (Kotila and Lonnqvist, 1988), and aligns with the larger literature supporting that dependent events is a stronger predictor of adolescent girls' depression risk and maintenance compared to boys (Kercher and Rapee, 2009; Wetter and Hankin, 2009; Hankin et al., 2010). One potential explanation is that girls more commonly report cognitive vulnerabilities that serve to increase their reactivity to life events and subsequent risk (Hankin and Abramson, 2001). Future research is needed to determine whether individual characteristics predict future suicide risk specifically, or if stress generation predicts the recurrence of past psychopathology (e.g., whether it be prior depression, suicidal acts, self-injurious behaviors, substance abuse).

The lack of gender difference in rates of dependent events in the current results did not support a gender mediation model, which contrasts prior research supporting that the tendency to generate dependent events is more typical of adolescent girls (e.g., Rudolph and Hammen, 1999; Shih et al., 2006). A more sensitive assessment of life stress that codes the amount or frequency of specific events (e.g,. number of conflict with peers, tests failed) will provide a more reliable analysis of the model. Thus, future research should examine whether these trends seen in depression also account for adolescent girls' higher rates of suicide attempts.

It is also noteworthy that interpersonal events did not predict suicide events in the current study. Prior research supports the robust association between interpersonal events and depression risk (Liu and Alloy, 2010) and it has been emphasized that dependent events often consist of mostly interpersonal events, largely due to greater possibilities for conflict than achievement-related failure (e.g., fail a class, lose a job). However, with the current results suggesting that dependent events is a stronger predictor of future risk for suicidal behavior, we propose an alternate possibility, that the majority of interpersonal events are dependent in nature. Under this interpretation, dependent events provides a more encompassing measure, rating both dependent interpersonal and non-interpersonal events, that better predicts a person's tendency to consistently encounter stressors (and react with distress) to increase prospective risk.

Results of the current study have clinical implications for potential targets of intervention for adolescent girls. Research on suicidal adolescents has consistently failed to identify impairments in problem solving capacity. Rather, their inability to navigate ongoing stressors is attributable to higher hopelessness and tendency to resort to maladaptive coping strategies (e.g., Fremouw et al., 1993; Wilson et al., 1995; Spirito et al., 1996; Grover et al., 2009). Since many dependent events reflect interpersonal conflict or loss, interventions that address psychosocial mechanisms that exacerbate conflict (negative feedback-seeking, blame maintenance, conflict avoidance; Joiner, 2000) such as interpersonal and dialectical behavioral therapies may be particularly relevant for decreasing dependent events and thus prospective suicide risk (IPT, Mufson et al., 1999; DBT, Miller et al., 1997).

The current study benefits from observing a high-risk clinical sample, prospective design, and diagnostic assessments of psychopathology. However, several limitations should be noted. The study relies on a checklist of life events, of which a number of criticisms have been identified including a lack of contextual information for determining event dependence and rating event severity (Hammen, 2005; Monroe, 2008). We attempted to minimize bias in the current study by completing the LEC-C in-person with adolescents, relying on objective report of life events, and covarying for psychopathology. That said, future research with clinical samples would benefit from life-stress interviews that incorporate parental report, assess for an array of events, differentiate episodic from chronic stressors, capture event frequency, timing and context to assign independence vs. dependence ratings, and also consider event severity (Adrian and Hammen, 1993; Hammen, 2005). Another limitation to the current study was the small sample size, which limited power to conduct some analyses such as exploring the differential impact of positive vs. negative life events. The current study assessed a range of suicidal crises which included ER visits and re-hospitalization. Therefore, important extensions for future research will include testing the link between dependent events and risk for future suicide attempts specifically, and also exploring the impact of both positive and negative dependent events for predicting these high-risk adolescents' prospective suicide risk. The current findings must therefore be interpreted with caution, but nonetheless validate the need for future research in this area, with interview-based assessments.

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