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Caregiver Strain and Youth Suicide Attempt: Are They Related?

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Abstract

There are scant data documenting the relationship between caregiver strain and suicidal behavior among youth. This study includes data from the caregivers of 1,854 youth who received services through the Comprehensive Community Mental Health Services for Children and Their Families Program. Caregiver strain, family functioning, and youth functional impairment were assessed with the Caregiver Strain Questionnaire, Family Life Questionnaire, and Columbia Impairment Scale. Caregivers of suicidal and nonsuicidal youth differed in subjective internalizing strain (e.g., worry and guilt) and objective strain (e.g., constraints on activities). Differences in objective strain persisted even after controlling for family life and youth functional impairment.

Suicidal behavior is a major mental health problem among young people. For example, in a community-based longitudinal study, Foley, Goldston, Costello, and Angold (2006) conservatively estimated that 3.9% of youth attempted suicide by the age of 16. Even with taking into consideration the many parents who are unaware of youth suicidal behavior (Foley et al., 2006), there are a large number of parental and caregiver “survivors” who are left to cope with the stress and sometimes trauma of their children’s suicide attempts.

Against this backdrop, it is important to note that parents and caregivers are instrumental in recognizing the need for treatment, seeking help, and following through with treatment recommendations for their children (Logan & King, 2001). Moreover, suicidal behavior among youth often occurs in a family context. Family distress and violence, parental conflict, and inflexible family structures are among the documented risk factors for childhood suicidal behavior (Gould, Shaffer, & Greenberg, 2003; Stillion & McDowell, 1996; Wise & Spengler, 1997). Given the importance of family variables on youth suicidal behavior, the parent-child relationship is often a focus of interventions to reduce the likelihood of future suicidal behavior. However, there remains a gap between what we know about the family context of adolescent suicidal behavior and what we know about the effect of youth suicidal behavior on parents and families and their well-being.

Taking care of a child with emotional and behavioral difficulties can be a source of stress or strain on parents (e.g., Angold et al., 1998; Brannan & Heflinger, 2001; Brannan, Heflinger, & Bickman, 1997; Brannan, Heflinger, & Foster, 2003; Taylor-Richardson, Heflinger, & Brown, 2006). Caregiver strain can be conceptualized as the “demands, responsibilities, difficulties, and negative psychic consequences of caring for relatives with special needs” (Brannan et al., 1997, p. 212). To date, there have been few studies examining

specifically how the suicidal behavior of children and adolescents affects parents or is a potential source of strain.

In the only published study of parents of hospitalized adolescent suicide attempters that we were able to locate, Wagner, Aiken, Mullaley, and Tobin (2000) found that the most prominent emotion parents experienced immediately after suicide attempts was caring and sadness, with high levels of both emotions remaining through the next day after the attempt. Parents also reported significant anxiety and worry following the attempts; a portion experienced hostility, although it was not typically verbalized. However, their study was limited by the small sample size and lack of a comparison group. In a study of adults, relatives of adult suicide attempters needed their own mental health care, were prevented from spending time with friends because of the emotional problems of the suicidal patient, and worried more about additional attempts than relatives of other adult hospitalized patients (Kjellin & Ostman, 2005). In a recent study, a history of suicide attempts among adults with bipolar disorder was associated with poorer caregiver health status and a greater burden in role functioning among parent caregivers compared to other caregivers (Chessick et al., 2007).

Nonetheless, it is unclear whether perceptions of caregiver strain are simply reflective of overall family environment, the youth's overall level of functional impairment, or if they are specifically related to child and adolescent suicidal behavior. In this regard, it is plausible that a family that is supportive of one another, has good communication among family members, is well-supported by social networks, and has access to material resources might function better than, or not experience as much caregiver strain as, a family that lacks these characteristics, even during highly stressful situations. It also could be argued that almost all emotional and behavioral problems experienced by children and adolescents create burdens or strains on parents, and that the strain associated with suicidal behavior is no different from the general strains and burdens experienced by other parents of youth with psychiatric difficulties. Yet because of fears about a recurrence of self-harm behavior, and the steps necessary to prevent this from happening, it could be hypothesized that adolescent suicidal behavior presents unique strains or stresses on parents above and beyond what might be expected on the basis of general family functioning or overall level of functional impairment.

The purpose of this study was to examine the relationships between youth suicidal behavior, caregiver strain, general family functioning, and youth functional impairment in a community sample. We used a subset of data from the national evaluation of the Comprehensive Community Mental Health Services for Children and Their Families Program to examine caregiving among a large number of families entering community-based mental health services because of child mental health problems. We hypothesized that young people's past suicidal behavior would be positively related to caregiver strain at the outset of treatment. Further, we hypothesized that a significant relationship between suicidal behavior and caregiver strain would be evident, even after considering overall level of family functioning and youth level of functional impairment.

METHOD

Data Source

Data used in this study were collected between 2003 and 2006 as a part of the congressionally mandated national evaluation of the Comprehensive Community Mental Health Services for Children and Their Families Program (subsequently referred to as the Comprehensive Communities Program). This program, funded by the Child, Adolescent and Family Branch (CAFB) of the Center for Mental Health Services (CMHS) within the Substance Abuse and Mental Health Services Administration (SAMHSA), provides communities with funds for the development and implementation of comprehensive multi-agency coordinated and integrated

mental health services for children and their families. The data used in this study were collected via structured interview from caregivers of youth (aged 5 to 22) enrolled into service at one of the 29 communities funded between 2002 and 2004 who also consented to participate in the national evaluation (Center for Mental Health Services, 2006).

Sample Selection

Children aged five and older enrolled in the longitudinal outcome portion of the national evaluation were eligible for inclusion in this study sample if there was complete data on child age, gender, race, and suicide attempt; caregiver gender, age, and relation to the child; family income; two family measures—the Caregiver Strain Questionnaire (CGSQ; Brannan et al., 1997) and the Family Life Questionnaire (FLQ, developed specifically for the national evaluation); and the Columbia Impairment Scale (CIS; Bird et al., 1993). Complete data requirements did not result in a substantial reduction in sample size and were desirable due to listwise deletion processes included in the analytic strategy. Of the 2,071 children with baseline data at the time of this study, 1,854 (89.5%) had complete data on the indicators/measures of interest and were included in the current study. Most importantly, an assessment of sample comparability indicated that those children included in the study sample did not significantly differ in terms of their lifetime suicide attempt history ($\chi^2(2, N = 2,012) = 0.94, p = .63$) from those excluded. Caregivers included in the study sample did not significantly differ in terms of their gender [$\chi^2(2, N = 2,049) = 2.7, p = .10$], age [$t(2023) = 1.76, p = .08$], household income [$t(1981) = 1.22, p = .22$], and FLQ total score [$t(1993) = -1.55, p = .88$] from those excluded. Statistically significant differences were detected between the two groups in terms of child's race [$\chi^2(3, N = 2,071) = 8.40, p < .05$], gender [$\chi^2(1, N = 2,071) = 5.24, p < .05$], age [$t(2069) = 5.3, p < .01$], and CIS total score [$t(2026) = -3.63, p < .001$]. Furthermore, statistically significant differences were found between the groups in terms of the caregiver respondent's relation to the child [$\chi^2(1, N = 2,025) = 8.3, p < .01$], CGSQ subjective internalizing strain subscale [$t(1997) = -4.50, p < .001$], CGSQ subjective externalizing strain subscale [$t(1998) = -3.59, p < .0001$], and CGSQ objective strain scale [$t(1999) = -3.36, p < .001$]. The magnitude of difference in most instances of statistically significant difference was quite small and have little practical implication or interpretation. The magnitude of the difference associated with the caregiver relation to the child, however, was larger. Specifically, a higher percentage of the children in the study sample had caregiver respondents that were their biological parents (78.6%) as compared to those children that were not included in the study sample (69.0%).

Participants

The predominant race/ethnic background of the children included in the study sample was White (43.3%), followed by Black/African American (32.3%), Hispanic (14.7%), and other (9.8%). Approximately two thirds of the children in the study sample were male (67.6%). The average age of the children in the sample was 12.02 ($SD = 3.35$, with a range 5 to 19 years). While the majority of the sample had not attempted suicide (86.5%), there were near equal proportions of children in the sample with one suicide attempt (6.3%) as compared to multiple (7.2%). A higher proportion of children age 16 and older had a lifetime attempt of suicide (33.8%), followed by those age 12–15 years (23.1%), and finally those aged 5–11 years (13.7%); $\chi^2(4, N = 1,854) = 52.52, p < .001$.

Caregiver respondents for children in the study sample were predominately biological parents (78.6%), female (90.8%) and the average age was 40.50 ($SD = 10.2$). The median annual household income fell in the \$15,000–\$19,999 category. Biological and nonbiological parents differed in FLQ total score, $F(1,1844) = 15.29, p < .001$, and in caregiver strain, Wilks' Lambda = 0.98, $F(3,1842) = 13.23, p < .001$ [$F(1,1844) = 30.20, p < .001$ for subjective internalizing; $F(1,1844) = 10.53, p < .01$ for subjective externalizing strain], with greater strain and less positive family life reported for biological parents.

Variables and Measures

Demographic information, including child age, race/ethnicity, and gender; respondent caregiver age and gender; and household income, was collected via structured interview from the caregiver respondent at intake into service. Caregiver respondents were those who had the majority of contact with the target child in the 6 months prior to the structured interview, and as indicated above were largely comprised of biological parents. As required by all federally funded data collection efforts, caregiver respondents were able to endorse multiple race/ethnic categories. The analyses in this study collapsed those multiple categories into four mutually exclusive race/ethnic categories: White, Black/African American, Hispanic, and Other. Individuals endorsing multiple race/ethnic categories were included in the Other category.

Caregivers responded to two structured interview questions concerning their child's history of suicide attempts. The first question, "Has (child's name) ever attempted suicide?" was answered with a binary *yes/no* response. If the caregiver responded yes, they were asked, "How many times has (child's name) attempted suicide?" Based on the responses to these two questions, a single suicide attempt frequency variable was created that was categorized as (0) *no attempts*, (1) *one attempt*, or (2) *two or more attempts*.

The Caregiver Strain Questionnaire is a measure designed to assess the potential strain experienced by caregivers in caring for a child with emotional or behavioral problems across three dimensions: objective strain, subjective externalized strain, and subjective internalized strain (Brannan et al., 1997). The internal consistency of these CGSQ subscales has been demonstrated ($0.73 < \alpha < 0.91$; Heflinger, Northrup, Sonnichsen, & Brannan, 1998), as has the convergent and predictive validity (Brannan et al., 1997; Foster, Saunders & Summerfelt, 1996; Lambert, Brannan, Heflinger, Breda, & Bickman, 1998). The objective strain subscale of the CGSQ includes 11 items that assess observable disruptions in family and community life (e.g., interruption of personal time, lost work time, financial strain); the subjective internalizing strain subscale includes six items that assess negative "internalized" feelings such as worry, guilt, and fatigue; and the subjective externalizing strain subscale includes four items that assess negative "externalized" feelings about the child such as anger, resentment, or embarrassment. Each of the 21 items is rated on a 5-point scale indicating that the feelings or disruptions have been experienced (1) *not at all*, (2) *a little*, (3) *somewhat*, (4) *quite a bit*, or (5) *very much* over the last 6 months. The CGSQ was administered via structured interviews to caregivers of children in the longitudinal outcome study and each of the three subscales was used in the current study.

The Family Life Questionnaire was developed specifically for the national evaluation of the Comprehensive Communities Program to assess overall family functioning as evidenced in family communication, decision making, support, and bonding. This questionnaire is a strength-based measure designed to evaluate aspects of family life potentially affected by changes in children's functional impairment. The measure contains ten statements describing positive family interactions, such as "Our family talks about fun things and things that make us laugh," and "Family members can solve problems {child's name} has when they happen." Each statement is rated according to how often the interaction occurred in the prior 6 months in their family, using a 5-point scale from 1 (*never*) to 5 (*always*). The measure was administered in structured interview format to caregivers participating in the longitudinal outcome study of the national evaluation. Preliminary analyses of this scale using the national evaluation data set indicated that the measure was a one factor scale with high internal consistency ($\alpha = .86$; Center for Mental Health Services, 2006).

The Columbia Impairment Scale is a 13-item caregiver assessment of child impairment in four basic areas of functioning; interpersonal relations, job/school, use of leisure time, and select broad psychological domains (Bird et al., 1993). Caregivers rate the extent to which each

described situation is a problem for their child from 0 (*no problem*) to 4 (*a very big problem*). High internal consistency and test-retest reliability, in addition to strong convergent validity, have been demonstrated (Bird et al., 1993).

RESULTS

The effects of history of suicide attempts (classified as no prior attempts, single attempt, or multiple attempts) on the baseline CGSQ subscale area scores were initially analyzed with multivariate analysis of covariance (MANCOVA), with sociodemographic variables as covariates. Simple contrasts were used to determine pairwise differences in burden associated with no, single, and multiple attempts. The effects of suicide attempts on baseline FLQ and CIS scores were examined in separate analysis of covariance (ANCOVA) models. In these models, the background variables of gender, ethnicity, and age of child; household income, caregiver respondent's relation to the child, and caregiver age and gender at the time of the child's intake into services were included as covariates. The adjusted means and standard errors from the initial MANCOVA of caregiver strain and the ANCOVA of FLQ and CIS are presented in Table 1. In a follow-up multivariate model, we examined the relationship between lifetime suicide attempts and the CGSQ subscales while controlling for the effects of family functioning and youth functional impairment on caregiver strain.

In the initial MANCOVA, lifetime suicide attempts were related to caregiver strain, Wilks' Lambda = 0.97, $F(6,3684) = 10.83$, $p < .001$. In the tests of the separate caregiver strain areas, lifetime suicide attempts were found to be related to subjective internalizing strain, $F(2,1844) = 13.12$, $p < .001$, and objective strain, $F(2,1844) = 26.42$, $p < .001$, but not subjective externalizing strain, $F(2,1844) = 1.47$, $p = .230$. Pairwise contrasts of the groups indicated that differences in subjective internalizing and objective strain were evident between caregivers of youth with no versus single attempts ($p < .001$), and between caregivers of youth with no versus multiple attempts ($p < .001$).

In the separate ANCOVA models, the number of lifetime suicide attempts was related to FLQ total scores, $F(2,1844) = 3.33$, $p < 0.05$, and to CIS total scores, $F(2,1844) = 17.50$, $p < .001$. Simple contrasts revealed significant differences in reports of family functioning between caregivers of youth with no versus multiple attempts ($p < .05$), and a trend for a difference between caregivers of youth with no versus single attempts ($p = .097$). Simple contrasts also revealed differences in reported youth functional impairment between caregivers of no versus single attempts ($p < .001$), and between caregivers of no versus multiple attempts ($p < .001$).

In the follow-up MANCOVA model, lifetime suicide attempts again were found to be related to the indices of caregiver strain, Wilks' Lambda = 0.98, $F(6,3680) = 6.49$, $p < .001$, even after considering the relationship between family functioning and strain, Wilks' Lambda = 0.94, $F(3,1840) = 40.46$, $p < .001$ [$F(1,1842) = 26.28$, $p < .001$ for internalizing strain; $F(1,1842) = 10.89$, $p < .001$ for objective strain; $F(1,1842) = 120.50$, $p < .001$ for externalizing strain], and youth functional impairment and strain, Wilks' Lambda = 0.68, $F(3,1840) = 288.36$, $p < .001$ [$F(1,1842) = 413.85$, $p < .001$ for internalizing strain; $F(1,1842) = 807.89$, $p < .001$ for objective strain; $F(1,1842) = 234.35$, $p < .001$ for externalizing strain]. When examining effects on the separate areas of caregiver strain, suicide attempts were related to subjective internalizing strain, $F(2,1842) = 3.60$, $p < .05$; objective strain $F(2,1842) = 11.41$, $p < .001$; and subjective externalizing strain, $F(2,1842) = 3.46$, $p = .05$. Simple pairwise contrasts indicated that significant differences in subjective internalizing strain were evident between caregivers of youth with no and single attempts ($p < .017$), but were not found between caregivers of youth with no versus multiple attempts ($p = .153$). Differences in objective strain were evident both between caregivers of youth with no versus single attempts ($p < .001$) and between caregivers

of youth with no versus multiple attempts ($p < .01$). As for subjective externalizing strain, pairwise contrasts revealed differences between caregivers of youth with no versus single attempts ($p < .01$) and between caregivers of youth with single versus multiple attempts ($p = .049$). In this last set of contrasts, however, the adjusted mean level of externalizing strain for the multiple attempters was lower than for the other two groups, in contrast to the pattern observed with unadjusted multivariate analyses.

DISCUSSION

The possibility of losing a child or adolescent to death by suicide is understandably stressful for many caregivers. While many suicide attempts occur among children who have mental health difficulties known to caregivers, sometimes the act of attempting suicide itself is the first indication that a youth is struggling and in need of mental health services. While the strain associated with caring for children with serious emotional and behavioral problems has been shown among parents and caregivers (Brannan & Heflinger, 2001; Brannan et al., 1997; Brannan et al., 2003; Taylor-Richardson et al., 2006), little is known about the ways that caregivers are differentially affected when children engage in suicidal behavior. The current study focused on understanding the degree and type of strain experienced by caregivers with a child who had attempted suicide using a large and diverse sample of children participating in federally funded systems of care programs.

Analyses were conducted to disentangle caregiver perceptions of strain from family life and youth functional impairment to clarify the degree to which youth suicidal behavior posed strain for parents over and beyond what would be expected based on these factors. Results indicated that youth suicide attempts were associated with significant strain among caregivers. In particular, caregivers of youth who were entering treatment with a history of any (one or more) suicide attempts reported significantly greater demands placed on their personal time, work time, and finances (objective strain) compared to caregivers of nonsuicidal youth. Perceptions of family life and reports of youth functional impairment were also related to strain, and differed as a function of youth suicidal behavior. Nonetheless, even after considering differences in youth impairment and family functioning, there were differences with regard to objective strain between the reports of caregivers of nonsuicidal youth and caregivers of youth with suicide attempts. This underscores the fact the relationship between youth suicidal behavior and objective indicators of caregiver strain cannot be totally explained by differences in family life or overall youth impairment, and that youth suicidal behavior poses a unique or specific set of strains or burdens for caregivers.

In addition to demands on time and finances, caregivers of youth with one suicide attempt also endorsed higher levels of worry, guilt, and fatigue (subjective internalizing strain) in both unadjusted models and models adjusted for family life and youth functional impairment. Caregivers of youth with repeat attempts similarly reported higher levels of subjective internalizing strain in analyses unadjusted for family life and youth functional impairment. This pattern of findings highlights the impact that even a single youth suicide attempt has on the lives of caregivers. Clinically, this strain can affect interactions between caregivers and youth who have made suicide attempts, for example, by reducing the caregiver's ability to monitor and set appropriate limits or have age-appropriate expectations for youth. Caregiver feelings of guilt and worry may also encourage avoidance of conflict for fear of triggering additional suicidal behavior in the youth, even when caregiver confrontation or limit-setting is appropriate.

Despite the significant emotional, physical, and financial demands reported by caregivers of suicidal youth in this sample, there were no differences among caregivers in levels of anger, resentment, or embarrassment (subjective externalizing strain) in the model that was

unadjusted for family life and youth functional impairment. Indeed, after adjusting for differences in these variables, the reported subjective externalizing burden experienced by caregivers of youth who have made multiple attempts actually appeared lower than that of other caregivers. Although this latter finding may have been partially attributable to the strong relationship between externalizing strain and the covariates of family life and youth impairment, the pattern of results nonetheless dovetails with research by Wagner and colleagues (2000) indicating that anger was not experienced as often as feelings of caring and sadness by parents immediately following youth suicide attempts.

Putting these findings in context, it should be acknowledged that youth suicide attempt history was not the strongest correlate of caregiver strain. Indeed, despite the fact that the differences on average between the caregivers of youth with and without suicide attempts in family life were not large in magnitude, perceptions of family life were strongly associated with caregiver strain, particularly subjective externalizing strain. The differences between caregivers of youth with and without suicide attempts appeared to be relatively larger in reported youth functional impairment. Moreover, consistent with prior research (Angold et al., 1998), youth functional impairment was easily the strongest covariate of caregiver strain. This suggests that at least some of the differences in strain among caregivers of youth with and without suicide attempts were due to covarying risk factors and severity of disorder and impairment. With this consideration, it is notable that differences between caregivers of suicidal and nonsuicidal youth in indicants of objective strain were found even after controlling for factors such as family life and youth impairment. In considering these findings, it should be acknowledged that there is likely to be a great deal of heterogeneity among caregivers in how they react to suicidal behavior, not only at entry into treatment, but over time. A useful focus of future research would be to better understand the various trajectories associated with caregiver reactions to youth suicidal behavior, and how these patterns of reaction in turn affect youth treatment and adjustment following their suicide attempts.

Limitations

There are several important issues to keep in mind when interpreting findings from this study. First, suicide attempt history was based on caregiver report in response to two structured interview questions, and the validity of these reports was not assessed in the study. Given evidence that caregivers are not always aware of suicidal behavior among children (Foley et al., 2006), it is possible that participant suicide attempts were missed. In addition, because the term *suicide attempt* was not defined for caregivers, it is possible that some caregivers reported self-harming behavior that was not associated with at least some intent to die (inflating the rate of suicide attempts in the current sample). Regardless of how it was defined by parents, however, it is clear that parental perception of youth suicidal behavior was related to caregiver strains. Second, the timing of the suicide attempt(s) in regards to entry into services and the assessment of caregiver strain is not definitely known, limiting our ability to draw conclusions about the recency of youth suicidal behavior and caregiver strain. Third, the children in this sample were receiving services from a federally funded system of care, and the results may not generalize to other clinical or community samples. In addition, it is important to note that data from most (89.5%) subjects receiving services in the system of care study were included in the current study, resulting in a sample that was largely representative of the greater sample. However, this sample of children differed from those who were excluded (did not have available data) in that our sample was more likely to have a biological parent as the primary and participating caregiver (78.6% versus 69%). Thus, the current findings should be generalized with caution to families with caregivers who are other than biological parents. Finally, the current study is cross-sectional and unable to disentangle correlation and causation. It is, therefore, difficult to address whether caregiver strain occurred before, or as a result of,

suicidal behavior among the children in this sample. Longitudinal studies are needed to better understand the relationships among these variables.

Implications

With the above caveats, results from this study of children entering system of care services highlight the personal and economic strain experienced by caregivers when children attempt suicide, and underscore the need for strategies to better support caregivers. Caregivers play a crucial role in finding appropriate services, participating in treatment (particularly when suicidal behavior occurred in reaction to family difficulties), and in monitoring safety. It is commonplace in clinical settings for caregivers to be asked to function in these supportive roles, yet very few studies have explored how suicidal behavior among children affects the emotional health of parents and other guardians. The current findings, as well as results from research with relatives of youth and adult suicide attempters (Kjellin & Ostman, 2005; Wagner et al., 2000), show that caregiver health and functioning may be compromised following a loved one's suicide attempt.

Given the integral role that caregivers play in recovery and prevention, it is possible that caregivers of suicidal children would benefit from interventions that facilitate expression, understanding, and acceptance of the difficult emotions common in the wake of a child's suicide attempt. To use an analogy, it has long been said on the airline carriers, "In the event of an emergency in the cabin, passengers should adjust their own oxygen masks before helping those next to them." The implication is that people cannot effectively help others unless they attend to their own needs. In order to be effective under such circumstances, caregivers need to recognize the effects that youth suicidal behavior has had on them, and should be willing to seek support or intervention as needed.

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TABLE 1

Sample Characteristics of Caregiver Strain and Family Life Questionnaires and the Columbia Impairment Scale (Adjusted Means and Standard Errors) by Suicide Attempt History

	Suicide Attempt History		
	None (n = 1,667)	One (n = 119)	Multiple (n = 139)
Caregiver Strain ¹			
Subjective Internalizing Strain ⁺	3.68 (0.02)	4.01 (0.08)	3.98 (0.08)
Subjective Externalizing Strain	2.48 (0.02)	2.64 (0.09)	2.47 (0.09)
Objective Strain ⁺	2.71 (0.03)	3.25 (0.10)	3.19 (0.09)
Family Life ^{2*}	33.81 (0.17)	32.71 (0.64)	32.48 (0.60)
Youth Functional Impairment ³⁺	23.94 (0.25)	27.44 (0.94)	28.56 (0.89)

¹ Adjusted means were generated from the MANCOVA of suicide attempt and caregiver strain (without the inclusion of FLQ and CIS as covariates)

² Adjusted means were generated from the ANCOVA models of suicide attempts and FLQ

³ Adjusted means were generated from ANCOVA models of suicide attempts and CIS.

⁺ Pairwise comparisons indicate significant differences between no versus one, and no versus multiple suicide attempts

^{*} Pairwise comparisons indicate a significant difference between no versus multiple attempts, and a marginal difference between no versus single attempts