

Behavioral Contagion Reconsidered: Self-Harm Among Adolescent Psychiatric Inpatients: A Five-Year Study

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Abstract

Objective: The objective of this study was to examine the occurrence of behavioral contagion among inpatient adolescent psychiatric patients in terms of past self-harm related behaviors. Our goal was to isolate persistent self-harm behavior from self-harm behavior that could be considered truly contagious.

Method: We employed 5 years retrospective cohort study design in order to compare the occurrence of self-harm as inpatients among those with and without histories of self-harm behavior.

Results: Our results indicate that the spontaneous occurrence of self-harm among inpatients without a history of self-harm is very low. While there appears to be a group that exhibits self-harm as inpatients, the tendency in this group is more towards a reduction of the intensity or a cessation of self-harming behavior.

Conclusions: Contagious self-harm does not appear to be a problem among inpatients with long stays on psychiatric treatment units. The overall tendency among inpatient adolescent psychiatric patients, especially those among those with histories of self-harm behavior is away from self-harming behavior.

Introduction

Parents of adolescents, as well as treating professionals fear behavioral contagion. In this study we have examined the construct of behavioral contagion in order to address the concerns of King et al in 1995, regarding the possible influence of greater admission duration, and in order to compare our results with those of Taiminen et al (1998). We describe the occurrence of deliberate self-harm on an inpatient adolescent psychiatric treatment unit in relation to the presence or absence of similar past behavior.

Roberts et al (1997) in response to the closure of a day treatment program, are quoted as saying "There was contagion of the day-patients by the inpatient population" that "caused the day patients to become less functional". Taiminen et al (1998) reported that naive inpatients - e.g. those that have not previously exhibited self-destructive behaviors - are at risk to develop such maladapted behaviors. Yet, these authors have either provided no empirical support for their conclusions or they have focused only on events of deliberate self-harm without providing a concurrent basis of comparison. In 1989 Rosen et al published a detailed report on the ecology of contagious self-harm in a program for disturbed adolescents concluding that "it is important to refrain from making cause and effect statements"

and "it is neither possible nor accurate to say that one patient causes another to commit self-mutilation".

Brent (1989) has reported an outbreak of suicides and suicidal behavior following one suicide at a high school, whereas King (1995) prospectively examined contagion of suicidality among hospitalized adolescents, finding little evidence to support the notion of contagion. Comparing the results of these studies is confounded by the fact that the settings were different. Paying attention to the differences between settings and the nature of the relationships that develop among adolescents in different settings may help to explain the disparate findings of some studies about contagion.

Peer networks differ between hospital and high school settings. For example, the phenomena known as 'cluster suicide' and 'cluster suicidal behavior' are complex and occurrences appear to require the interaction of a special set of social circumstances as reported by Davies and Wilkes (1993). These social circumstances include factors such as life events, poor family relationships and, in particular, well-established, close-knit, though maladaptive, peer networks, such as those found on occasion in high school settings. Hospital settings, however, provide adolescents with a different, more controlled environment.

King et al (1995) studied an inpatient sample with an average length of stay of about 25 days with the finding that contagion was not a serious problem. Although they raised the concern that treatment programs of longer duration may provide circumstances in which contagion may take place more readily. Taiminen et al (1998) did indeed conclude that the contagion of deliberate self-harm was a problem in their sample of hospitalized adolescents who had an average stay of 91 days.

Methods

Setting

The setting of the study was an inpatient psychiatric assessment and treatment unit for adolescents at the Foothills Provincial Hospital in southern Alberta, Canada. This open unit had 15 beds at the time of the study and cared for both voluntary and involuntary patients between the ages of 12 and 18 years of age.

Subjects

The sample consisted of 198 adolescents between the ages of 12 and 18 years. The sample came from consecutive admissions over a five-year period between 1983 and 1988. We

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focused on this period because the average length of admission was long enough to address the issue of contagion during hospital stays that were greater than 21 days and comparable in duration to length than those reported by Taiminen et al (1998). There were no completed suicides during the course of the study.

Source of Data and Coding Procedures

The data were gathered routinely in the form of behavioral profiles. In addition to the variables sex, age, history of sexual abuse, presence of a diagnosed learning disability, past substance abuse, and length of stay, the behavioral profiles provided data related to self-harm occurring both prior to and during the course of admission. Deliberate self-harm included suicidal ideation, gestures, attempts and self-destructive behavior without expressed suicidal intent (e.g., self-mutilation). The data were extracted from the subjects' histories, daily progress notes and discharge summaries. Each event was rated as none meaning not observed, mild or extreme. A rating of mild was given to events that were situational or transient and had little chance of resulting in real harm or death, such as superficial wrist cutting or scratching. A rating of extreme was given for persistent self-harm, including a preoccupation with suicidality and for events that were potentially life threatening, such as deep cutting or lethal overdose.

The data set used in this study was obtained from behavioral profiles routinely completed for each adolescent on admission and at the time of discharge from the treatment program. These data were routinely collected at the time of admission and discharge for the purpose of providing annual summary statistics for the treatment program. Each adolescent's primary professional caregiver, or an associate familiar with the case, provided the information coded on each data sheet. Independent cross-referencing of this information with relevant information from the subject's medical chart ensured accuracy and completeness. Information documented in the chart and case notes was substituted if a discrepancy arose. Those who completed and cross-referenced the behavioral profiles were blind to the use of the patient information in this study. Data taken from the histories and the admission interviews on each chart were coded as past maladaptive behaviors, whereas similar data taken from the case notes and discharge summaries reflected inpatient maladaptive behaviors. To be coded, behaviors required the documentation of suicidal ideation, intent or a wish to die, otherwise self-destructive behaviors were coded as self-harm without expressed intent.

Analysis

The main objective of the analysis was to compare the presence or absence of past self-harm and subsequent inpatient self-harm behaviors. The sexes were considered separately. For the purpose of comparison, the specific groupings of behavior reflecting past and inpatient suicidal behaviors were summarized as frequencies and percentages. Collapsing data into simpler tables allowed for fewer tests of significance with relative risks and their confidence intervals providing the basis of comparison.

Results

Demographic Characteristics of the Subjects

There were 127 males (mean age = 14.89, Std. Dev. = 1.28) years and 71 females (mean age = 14.77, Std. Dev. = 1.17) in the sample. Age ranged between 12 and 18 years. The average length of stay was 95.76 (Std. Dev. = 56.87) days for males, ranging from 1 to 337 days. For females, the average length of stay was 79.82 and ranged from 3 to 254 days.

Demographic measures of interest beyond past self-harm included history of sexual abuse, learning disability, and substance abuse. More females (n = 28/71; 39%) than males (n = 14/127; 11%) had a history of sexual abuse, while more males (n = 25/127; 19%) than females (n = 6/71; 8%) had a history of learning disability. However, similar proportions of males (n = 36/127; 28%) and females had a history of substance abuse (n = 22/71; 31%).

Overall, deliberate self-harm decreased for both males and females (Table 1). More females exhibited these self-harm behaviors in the past.

Table 1 shows the differences in the frequency of the particular types of past and inpatient self-harm among males and females. In each category for males, the numbers of the inpatient groups exhibiting none of these behaviors increased and the numbers in the extreme groupings decreased dramatically. The number of males who exhibited self-harm without suicidal intent increased slightly. Those accounting for this increase came from the six males in the category with "extreme self-harm without intent prior to admission". This represented the overall trend of individual category changes. Similar to the males, the numbers of the female inpatients exhibiting none of these behaviors increased in each category (Table 1). As well, the numbers in the extreme and mild groupings decreased with the greatest decreases in the extreme category of each self-harm behavior.

Collapsing the data into two groups that reflected the presence or absence of any self-harm behavior allowed comparison of the changes between past behaviors and behaviors observed during admission. Table 2 shows that 28 of 51 males (55%) with past behavior behaviors exhibited self-harm behavior as inpatients, while only three of 76 males (4%) without past self-harm behaviors exhibited self-harm behavior as inpatients. The risk ratio among males representing the occurrence of inpatient self-harm behavior, given no past self-harm behavior, was 0.03 (Std. Error = 0.02; 95% confidence interval [0.01, 0.12]), meaning that males who were behaviorally naive (e.g., no past self-harm behaviors) were significantly less likely to exhibit self-harm behavior as inpatients.

Table 2 also shows that 25 of 47 females (53%) with past self-harm behaviors exhibited self-harm behavior as inpatients. Again, only three of 24 females (12%) without past self-harm behaviors exhibited self-harm behavior as inpatients. The risk ratio representing the occurrence of inpatient self-harm behavior, given no past self-harm behavior, was 0.13 (Std. Error = 0.09; 95% confidence interval [0.03, 0.48]), meaning that females who were behaviorally naive were less likely to exhibit self-harm behavior as inpatients.

Emergence of Self-Harm Among Naive Subjects

Table 3 shows intensity of the specific behaviors of the three males and three females who were without past self-harm and exhibited self-harm as inpatients. Only one male exhibited

extreme self-harm without suicidal intent, while the remainder exhibited mild suicidal ideation, suicidal gestures or both.

Discussion

Studies that have examined behavioral contagion often focus on those who synchronously exhibit deliberate self-harm without providing a comparison group. By using a comparison group, our results have shown a decrease in the incidence of inpatient self-harm among those who exhibited past self-harm behaviors, although the past behaviors were the strongest predictors of inpatient behaviors. These results are similar to the results of King et al (1995) who examined self-harm in subjects over the course of a comparatively shorter admission to an inpatient adolescent psychiatric unit. Like King et al, we report that contagion was not a significant problem when considered against the background of an overall decrease in deliberate self-harm. Unlike King et al, we did not observe an increase in the level of inpatient suicidal ideation, though this may reflect differences in the methods of measurement. For instance, King et al used a self-report instrument to tap suicidal ideation, whereas our results reflect the documentation of stated suicidal ideation. We did observe an increase in mild self-harm without suicidal intent among males, however, movement from the group with extreme self-harm accounting for this increase.

About half of the males and the females who exhibited self-harm in the past exhibited one or more self-harm behaviors while in hospital, providing the opportunity for contagion to take place. If contagion is a problem on long-term treatment units where there is more time to develop close-knit peer relationships, then we would have expected more than six of the group previously naive with respect to self-harm behaviors to exhibit deliberate self-harm as inpatients. Yet, the occurrence of self-harm among behaviorally naive subjects (i.e., those without past self-harm behaviors), was relatively rare for the inpatient group. Indeed, the observed rates among those reporting no past self-harm were similar to the rates observed in samples of males and females drawn from the general population as reported by Joffe et al (1988). The observed rate of self-harm appears also to have been rare in the study of Taiminen et al (1998). However, this study reported that two subjects in a sample of 51 subjects were involved in contagious acts of deliberate self-harm. In the present study we have reported that six naive subjects of 198 exhibited mostly mild forms of maladaptive behavior as inpatients. While these proportions of the total sample are similar, Taiminen et al did not report the proportion of the sample of who did not have a history of past self-harm behaviors.

Including comparison groups of those who did not exhibit past or inpatient self-harm has provided a framework for understanding the degree to which behavioral contagion may take place. Our study shows that a portion of individuals persist in the expression of self-harm after admission for treatment, though, on the whole, less intensely than in the past. These individuals exhibited self-harm before admission, therefore, they cannot be said to have "caught" these behaviors while in hospital, as they would a cold or flu. We hope that these findings will help to dispel the concerns of the parents who must admit their children to psychiatric units for treatment and pro-

vide a balanced perspective for the professional caregivers who are invested in the notion of behavioral contagion.

Limitations of the study are inherent in the design include the following: A retrospective chart review, the lack of a standardized diagnostic assessment of past behaviors, and the lack of a measure of interrater reliability among chart reviewers. While each of these limitations potentially detract from the measurement of clinical phenomena, during the study period, each adolescent admitted to the inpatient unit underwent more or less the same type of assessment. Furthermore, standards were in place to ensure a level of care that included documentation standards. Finally, each chart was examined twice in order to complete each data sheet as accurately as possible. Hence, we feel confident that our results are accurate.

In summary, the admission of high-risk individuals to an inpatient unit is cause for concern. Professional caregivers are required to attend to both the high-risk individual's needs and the group's needs within the treatment milieu. We concur with Taiminen (1998), for example, in their suggestion that concentration on a unit of adolescents with borderline personality disorder should be avoided, who, in any case, are better treated in an outpatient setting. In future studies about contagion or the influence of past behavior on inpatient behavior, it will be important to include Axis I and II diagnoses as covariates of analyses or predictors of potential contagion or persistent self-harm. Another factor influencing group behavior may include the magnitude of patient turnover on a unit. For example, a low but steady turnover that pays attention to the quality of the milieu is perhaps a more stable and therapeutic environment compared to a unit with a high admission rate. This facilitates the maintenance of a strong, close-knit, working group of patients. Ideally, the newcomer is indoctrinated into a unit culture that mentors achieving therapeutic goals. This is a particularly important issue for adolescent inpatient groups as described by O'Brien and Wilkes in 1997.

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Table 1: Frequency and intensity of past and inpatient self-harm behaviors among males and females.

Males				
Type of Self-Harm	Occurrence	None	Mild	Extreme
Ideation	Past	83 (65.4%)	29 (22.8%)	15 (11.8%)
	Inpatient	103 (81.1%)	21 (16.5%)	3 (2.4%)
Gesture	Past	102 (80.3%)	12 (9.5%)	13 (10.2%)
	Inpatient	115 (90.5%)	11 (8.7%)	1 (0.8%)
Self-Harm without intent	Past	102 (80.3%)	15 (11.8%)	10 (7.9%)
	Inpatient	108 (85%)	16 (12.6%)	3 (2.4%)
Attempt	Past	110 (86.6%)	5 (3.9%)	12 (9.5%)
	Inpatient	122 (96%)	4 (3.2%)	1 (0.8%)
Females				
Ideation	Past	33 (46.5%)	27 (38%)	11 (15.5%)
	Inpatient	49 (69%)	18 (25.4%)	4 (5.6%)
Gesture	Past	41 (57.8%)	21 (29.5%)	9 (12.7%)
	Inpatient	58 (81.7%)	12 (16.9%)	1 (1.4%)
Self-Harm without intent	Past	46 (64.8%)	17 (23.9%)	8 (11.3%)
	Inpatient	52 (73.2%)	15 (21.2%)	4 (5.6%)
Attempt	Past	44 (62%)	20 (28.1%)	7 (9.9%)
	Inpatient	62 (87.32%)	9 (12.68%)	0 (0.00%)

Table 2: Changes in the self-harm behavior of males and females.

Males	Self-harm Inpatient Behaviors		
Past Self-harm Behaviors	No	Yes	Total
No	73	3	76
Yes	23	28	51
Total	96	31	127
Females	Self-harm Inpatient Behaviors		
Past Self-harm Behaviors	No	Yes	Total
No	21	3	24
Yes	22	25	47
Total	43	28	71

Table 3: Intensity of self-harm as inpatients given none in past.

Sex	Ideation	Gesture	Attempt	Self-Harm without intent
female	Mild	None	None	None
female	Mild	None	None	Mild
female	None	Mild	None	Mild
male	Mild	Mild	None	None
male	Mild	None	None	None

Table 4: Multivariable model predicting inpatient maladapted behavior.

n =198						
Inpatient Self-harm Behavior	Odds Ratio	Standard Error	z	p <	90% CI	Log Likelihood
Past Self-harm Behavior	19.41	9.92	5.80	0.000	7.13, 52.9	-87.0
Learning Disability	2.72	1.59	1.71	0.087	0.87, 8.53	
Past Sexual Abuse	2.30	0.96	1.99	0.047	1.01, 5.22	