Contagion of suicidal symptoms as a function of assortative relating and shared relationship stress in college roommates

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Abstract

Vulnerable people may become socially contiguous via assortative relating, and thus simultaneously susceptible to the effects of shared life stress. To test this possibility, 138 undergraduates and their roommates completed questionnaires on suicidality and stress. Consistent with an assortative relating process, roommates who chose to room together were more similar on a suicide index than were roommates who were assigned to room together. Stress in the roommate relationship amplified similarity in roommates’ suicide levels. Results were consistent with the view that shared stress simultaneously affects the suicidality of people whose contiguity was pre-arranged by an assortative relating process.

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1. Introduction

Consider the following case illustration reported by Berman and Jobes (1991): Darlene, age 15, ingested 30 Naldecon tablets after hearing that her “best friend” had attempted suicide (by overdose) earlier in the day. Darlene had shown signs of a depressive disorder, including insomnia, weight loss, and suicide ideation, for 3 weeks since problems began developing with her boyfriend. One of her presenting problems was that she had no friends (p. 101).

On the one hand, Darlene seems a clear example of “imitative” or “contagious” suicide—she overdosed just hours after her friend’s overdose. On the other hand, Darlene had experienced depression (including suicidal ideation) as well as other suicide risk factors (e.g. relationship problems; social isolation) even before her friend’s suicide attempt. Several explanations are possible: Darlene may have frankly imitated her friend and may not have attempted suicide if her friend had not; her friend’s attempt may have been a unique stressor that activated Darlene’s
suicidality when other, less unique stressors may not have; her friend’s attempt may have been just one of a class of serious stressors that could potentiate Darlene’s suicidality; her friend’s and Darlene’s attempts may have been reactions to a common stressor (e.g. a fight between them); or, her friend’s and Darlene’s attempts may represent a kind of coincidence—the result of two vulnerable people who, having sought each other out, are reactive to the same general social environment.

Suicides do appear to cluster, leading to the impression that contagion or imitation may play a role. For example, a substantial increase in suicides has been detected following the suicides of Marilyn Monroe (Phillips, 1985) and Freddie Prinze (Berman, 1987), and after television news stories about suicide (Phillips & Carstensen, 1986). After the suicide of musician Kurt Cobain, suicide rates did not appear to increase, although calls to crisis lines did (Jobes, Berman, O’Carroll, & Eastgard, 1996). In addition, there have been well-publicized reports of clusters of suicides occurring in response to an initial suicide. For example, Brent, Kerr, Goldstein, and Bozigar (1989) reported the case of a high school in which two completed suicides and seven attempted suicides occurred within an 18-day period. Important in the present context, these researchers found that those involved in the cluster were highly likely to have pre-existing vulnerability (e.g. current or past diagnosis of mood disorder).

Despite these compelling findings, there is some reason to question whether contagion or imitation actually occurs. For example, Davidson, Rosenberg, Mercy, Franklin, and Simmons (1989) reported no differences in exposure to suicidal stimuli between a group of adolescents who attempted suicide as compared to a group of matched control adolescents (but see Clark, 1989). Kirch and Lester (1986) reported no clustering of suicides from the Golden Gate Bridge. King, Franzese, Gargan, and McGovern (1995) found no evidence for suicide contagion among adolescents during acute psychiatric hospitalization, when exposure to suicidal peers was quite high. And even assuming the effect exists, there are alternative explanations that deserve attention. The purpose of this paper is to evaluate one such explanation (Joiner, 1999).

It is possible that two phenomena jointly contribute to the appearance of suicide imitation or contagion. First, through assortative relating, people who possess similar qualities or problems, including suicide risk factors, may be more likely to form relationships or to form similar interests. If so, people who are vulnerable to suicide may cluster well before the occurrence of any overt suicidal stimulus (i.e. suicide clusters may be, in a sense, pre-arranged). A cluster reported by Robbins and Conroy (1983) is very consistent with this view, although it should be noted that Brent et al. (1989) found that close friends of suicide victims experienced less suicidality than others.

In addition to assortative relating, a second consideration is that the suicidal act of a friend (or an admired person) may be one of a class of serious stressors that may potentiate the suicidality of vulnerable people. It is possible that any severe stressor may play a role in instigating suicidal acts. In summary, the view suggested here is that an important source of suicide contagion is that a cluster of vulnerable people, pulled together via assortative relating, undergo a shared stressor—a stressor which may be, but need not be, the suicidal act of a friend. Note that, in this view, imitation or contagion is not operative; rather, contiguous individuals—whose contiguity derives in part from similarity-based mutual attraction—become simultaneously suicidal in response to a shared stressor (not necessarily in response to each others’ suicidality; Joiner, 1999). A report by Haw (1994) on a cluster of suicides in London is very consistent with this perspective. She found
no evidence of contagion, but did conclude that contributors to the cluster included: (a) a common tie to the same psychiatric unit (cf. assortative relating); and (b) a period of uncertainty regarding the hospital’s future and attendant turnover of senior medical staff (cf. shared stress).

The following hypotheses were derived to test this view among a sample of college students and their roommates. First, regarding assortative relating, it was predicted that students’ suicidal symptoms would be more similar to their roommate’s symptoms if they chose to live with their roommate (rather than being assigned to live with their roommate by a housing agency). Support for this hypothesis would suggest an assortative process wherein at-risk or symptomatic people are more likely to seek one another out (i.e. choose to live together) than would be expected by chance (e.g. by assignment). Second, it was hypothesized that roommate relationship stress—a shared stressor—would amplify the relation between students’ and roommates’ suicidal symptoms. Support for this prediction would suggest that the suicidality of a “pre-arranged cluster” (in this case the roommate pair) may be activated by a stress that has little to do with the suicidal behavior of a friend (cf. Haw, 1994).

2. Method

2.1. Participants and procedure

138 participants (86 women; 52 men) were drawn from Introductory Psychology classes at a large state university in the US. All participants brought a same-gender, non-relative roommate to the experimental session. The sample contained 90 roommate pairs who chose to room together, as well as 48 pairs who were assigned to each other through the university housing agency (except for matching on the basis of smoking preference, such assignments are random). Participants received class credit for their participation. If roommates were enrolled in Introductory Psychology, they too received credit; if roommates were not enrolled, they did not receive any direct benefit (participants were highly motivated to convince roommates to attend, because the experiment completely satisfied their research participation requirement, which was substantial).

Upon arrival at the session, target participants and their roommates were informed that they would be filling out questionnaires about their personal views, feelings, and attitudes, as part of an ongoing project on health, behavior, and social relationships. Full informed consent was obtained; questionnaires were completed; and targets and roommates were debriefed. All participants—targets and roommates—completed the same questionnaire, the relevant aspects of which are discussed next.

3. Materials

Beck depression inventory suicide item (BDI; Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1987): The BDI is a self-report inventory of depressive symptoms. Its 21 items are each rated on a 0–3 scale with higher scores corresponding to more severe depressive symptoms. Item 9 assesses suicidal thoughts and intentions (e.g. a score of 0 is assigned to those endorsing the following statement: “I don’t have any thoughts of harming myself;” a score of 3 is assigned to those endorsing the following statement: “I have definite plans about committing suicide”).
Insofar as this index of suicidality contains one item, its reliability and validity are at issue. Regarding reliability, the item’s 5-week test–retest correlation in a similar data set (Joiner, Alfano, & Metalsky, 1992) was 0.42 (N = 523, p < 0.001). This is similar to the 5-week test–retest coefficient of 0.36 reported for a clearly reliable and valid self-report suicide index (the suicide subscale of the Hopelessness Depression Symptom Questionnaire; Metalsky & Joiner, 1997). In a data set on clinically suicidal young adults (see Rudd et al., 1996), the 6-month test–retest coefficient for the BDI suicide item was 0.35 (N = 250, p < 0.001), similar to the 6-month test–retest coefficient of 0.28 (N = 250, p < 0.01) for the clinician-rated Modified Scale for Suicidal Ideation in the same data set. Test–retest for the BDI suicide item appears to be adequate and similar to clearly reliable and valid measures of suicidality.

Regarding validity, the correlation between BDI Item 9 and the Hopelessness Depression Symptom Questionnaire suicide subscale is 0.70 (Metalsky & Joiner, 1997). Similarly, the correlation between the BDI suicide item and the clinician-rated Modified Scale for Suicidal Ideation was 0.65 (N = 250, p < 0.001). Thus, despite this measurement limitation, there is reason to believe that this index is both reliable and valid.

**Negative life events questionnaire (NLEQ; Saxe & Abramson, 1987):** The NLEQ was developed specifically for use with college students and includes several categories of negative life events (e.g. school, family, friends, roommates, etc.). Consistent with the hypothesis that shared relationship stress may accentuate the similarity between roommates’ suicidality, NLEQ items relevant to the roommate relationship were used. There were 8 such items (e.g. “Found out that roommate has been criticizing you behind your back;” “Fight or disagreement with roommate”). Items were rated on a 0–4 scale (0 = “never present”; 4 = “always present”) on how frequently they had occurred during the past 5 weeks. Scores for each scale were also computed using a dichotomous criterion (0 = event absent; 1 = event present). Results were similar to those using the 0–4 scale. The procedure of focusing only on selected NLEQ items is similar to that used in several other studies (e.g. Joiner & Schmidt, 1995).

The general scale is reliable (e.g. Saxe & Abramson, 1987) and valid (e.g. Alloy & Clements, 1992; Metalsky & Joiner, 1992). Coefficient alpha in the present sample for NLEQ-Roommate Items was 0.87 among targets and 0.84 among roommates, indicating that the items comprise an internally consistent index of relationship stress.

### 4. Results

Means, standard deviations, and intercorrelations are presented in Table 1. Among the entire sample, there was a significant correlation between targets’ and roommates’ levels of suicidality (r = 0.17, p < 0.05). As will be seen, however, this relationship was stronger among those who chose to room together than among those assigned to room together. Targets’ report of relationship stress was related to roommates’ reports (r = 0.38, p < 0.05), as would be expected. Interestingly, choice/assignment status was associated with reports of relationship stress in one case (r = 0.19, p < 0.05 for correlation involving roommate’s report of stress; see fifth row of Table 1), but not in the other case (r = –0.02, p = ns, for correlation involving target’s report of stress; see fifth row of Table 1). This indicates that “choice” and “assignment” pairs experience roughly similar amounts of relationship stress, although the significant correlation involving
The roommate’s report of stress suggests that, if there is a difference, choice pairs experience slightly more stress than assignment pairs. Table 2 presents means and standard deviations of all measures among choice vs. assignment pairs.

4.1. Evidence for an assortative process

It was predicted that students’ suicidal symptoms would be more similar to their roommate’s symptoms if they chose to live with their roommate (rather than being assigned to live with their roommate by a housing agency). To examine this prediction, correlations between targets’ and roommates’ suicide scores were computed separately for choice vs. assignment pairs. Consistent with prediction, the correlation between roommates’ suicidality was greater in choice ($r = 0.25$, $p < 0.05$) than in assignment ($r = -0.04$, $p = ns$) pairs, and the difference between these correlations was statistically significant ($z = 1.68$, $p < 0.05$; one-tailed test; see Cohen & Cohen, 1983, p. 51). These results are consistent with an assortative process wherein those who seek each other out (cf. choose to room together) report more similar suicidality than a control group (i.e. those who were assigned together).
4.2. Does shared relationship stress accentuate convergence of roommates’ suicidality?

It was predicted that roommate relationship stress would accentuate the relation between students’ and roommates’ suicidal symptoms, such that those with more stress display more convergence of symptoms. To examine this hypothesis, a regression equation was constructed, as follows. First, roommates’ suicidal score was used as the dependent variable. Second, targets’ suicidal score was used as a predictor, as was targets’ report of relationship stress. Finally, the interaction between the predictors (i.e. targets’ suicide score and targets’ report of relationship stress) was entered into the regression equation.\(^1\) If, as predicted, relationship stress accentuated the correlation between roommates’ suicide scores, the interaction between relationship stress and one member’s suicide score will emerge as a significant predictor of the other member’s suicide score.

As can be seen in Table 3, this was, in fact, the finding. The interaction between relationship stress and one member’s suicide score served as a significant predictor of the other member’s suicide score (pr = 0.35, t[86] = 3.47, p < 0.001).

To graphically demonstrate the form of this interaction, following Cohen and Cohen (1983, pp. 323, 419), scores were computed by inserting specific values for predictor variables (i.e. 1 standard deviation above and below the mean) into the regression equation (see, e.g. Joiner (1995) for a similar procedure). The results are depicted in Fig. 1.

As can be seen there, consistent with prediction, the only students who evinced above-average suicide scores were those whose roommates also obtained high suicide scores and whose relationships were stressful (see left upper portion of figure). Notably, consistent with the present

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\(^1\) Insofar as the relation between roommates’ suicide scores existed in the choice but not the assignment group, the regression analysis was conducted only among the choice group.

Also, it is very important to note that the same pattern of results emerged from the regression analysis, regardless of whether target or roommate suicide score was used as the dependent variable, and regardless of whether target or roommate relationship stress score was used as a predictor.
view, there was no correspondence between pairs’ suicide scores in the absence of relationship stress (e.g., see the right lower portion of the figure).

5. Discussion

"Contagious" or "imitative" suicide is an intriguing and disturbing phenomenon, with implications for behavioral, psychological, and sociological research, as well as for practice and prevention guidelines. Understanding the phenomenon’s mechanism is crucial, because, among other reasons, such understanding will guide suicide prevention and education efforts. The mechanism for suicide contagion is often attributed to frank imitation, or relatedly, to a disinhibition of one person’s suicidality by another’s, the latter’s behavior interpreted by the former as attention-winning and problem-solving. Documented occurrences of suicide clusters, both in response to media reports of a celebrity’s suicide and to a suicide of a friend or loved one, are consistent with the mechanism implicit in the terms imitative and contagious suicide.

However, other potential mechanisms are also consistent with the occurrence of suicide clusters. The purpose of this paper was to articulate an alternative mechanism (following Joiner, 1999), and to empirically test attendant hypotheses. It was argued that vulnerable individuals may experience suicidal symptoms in response to an array of severe stressors, including but not limited

Fig. 1. Roommates’ scores on the BDI suicide item as a function of the interaction between targets’ scores on the BDI suicide item and targets’ reports of relationship stress.
to the suicidal behavior of a friend, loved one, or admired celebrity. Other such stressors may include non-suicide deaths, relationship loss, and failure. Furthermore, it was argued that vulnerable people are not randomly distributed in the population, but rather, may be likely to form relationships with each other via an assortative process. If it exists, this assortative process would "pre-arrange" suicide clusters, which then may be activated by any number of severe stressors which affect the members of the cluster.

Two hypotheses were derived from this perspective, and tested among a group of college undergraduates and their roommates. First, regarding assortative relating, it was predicted that roommate pairs who chose to room together would be more similar to one another on a suicide index than would roommate pairs who were assigned to room together. Second, it was hypothesized that stress in the roommate relationship would amplify similarity in roommates’ suicide levels, consistent with the view that shared stress (not necessarily related to anyone’s suicidality) may simultaneously affect the suicidality of cluster members (in this case, roommate pairs). Both of these hypotheses were empirically supported.

Before further discussing the study’s implications, it is important to note some of the study’s limitations. First, the assessment of suicidality was not ideal, in that a one-item index was used. Results should be interpreted with this caution in mind. However, it should be recalled that there is substantial reason to believe that the index possesses adequate reliability and validity. Furthermore, to the extent that the measure does possess reliability and validity problems (and it was argued that these problems are minimal), such problems are not likely to artificially inflate chances of hypotheses being supported (e.g. such problems should not differentially affect correlations among choice vs. assigned participants). Second, the levels of suicidality in this study are mild, and it remains for future work to demonstrate that the current findings apply across the range of symptom severity. Third, the findings were from undergraduates living with a roommate who agreed to also participate in the study; care should be taken in generalizing the results beyond this specific sample. Fourth, the process whereby vulnerable people seek each other out was only tangentially examined (i.e. similarity on a suicide index). It should be noted that "pre-arranged clusters" may come to be via numerous processes. One interesting possibility is the self-verification motive studied by Swann and colleagues (e.g. Swann, 1990). These researchers have shown that people seek out relationship partners who are likely to provide self-confirming feedback, even if such feedback is negative. In an effort to satisfy needs for self-confirmation, a vulnerable person may seek out someone similar (e.g. someone critical of self and others). In this context, it is also worth noting that, in addition to relating to others assortatively, people may identify with or admire celebrities assortatively as well. The model outlined here may apply to possible contagion effects following celebrity suicides, in that people may be assortatively admiring (rather than assortatively relating to) particular celebrities. Finally, for clarity’s sake, it is not claimed that one person’s suicidal behavior is unrelated to that of another. Indeed, the suicide attempt, or worse, the completed suicide of a loved one is arguably the most severe negative life event. The view presented here is that there are also other severe negative life events which may similarly and simultaneously affect individuals who had previously clustered.

To the degree that the current results do apply to the range of suicidal symptom severity (and they may not), these results have potential implications for practice and prevention efforts. The possibility that suicide clusters are pre-arranged, and that any severe stressor may activate the suicidality of cluster members, may alter education, intervention, and prevention protocols. As
one example, psychotherapists and counselors (e.g. at schools) should routinely assess for severe stress in the lives of patients, particularly of those known to be at risk for suicide (e.g. have voiced suicide plans; have previously attempted; have co-morbid mood and anxiety disorders; cf. Joiner, Rudd, & Rajab, 1997; Joiner, Walker, Rudd, & Jobes, 1999). Such stress may include a variety of events, including relationship dissolution, the non-suicide death of an admired person, and so on. Furthermore, practitioners whose patient population derives from a fixed social system (e.g. a school; the military; a corporation) may consider the possibility that close friends of a suicidal patient may themselves be at risk (consideration of this possibility must of course be balanced by obvious concerns for the confidentiality of patient and others). Such knowledge may guide assessment efforts in the event that other members of the “cluster” access services.

In summary, it is possible that the terms imitative and contagious suicide imply mechanisms for suicide clustering that actually are not operative. Suicidality may not be transmitted from one person to another, via imitation for example. Rather, it may be that vulnerable people become socially contiguous via assortative relating, and thus are simultaneously susceptible to the effects of shared life stress.

References


