Original Research

Thwarted Needs And Suicidality: A Comparison Of Two Theoretical Models

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Abstract: The aim of the present study is to compare the needs proposed by the interpersonal-psychological theory of suicide (IPTS) and the suicide as psychache (SAP) theory in their ability to predict lethal suicidal behavior. Utilizing a sample of 38 suicide notes from both fatal and non-fatal suicides, graduate student raters examined the presence of the thwarted needs proposed by both theories. None of the needs proposed by SAP, nor their average, were significantly related to suicide lethality. The needs proposed by the IPTS (i.e., perceived burdensomeness and thwarted belongingness) were marginally predictive of suicide lethality.

Keywords: suicide, suicide notes, thwarted needs, lethality

In 2014, suicide claimed 42,773 lives in the US, making it the 10th leading cause of death overall and the third leading cause of death in the young (Drapeau & McIntosh, 2015). Estimates also indicate that over one million suicide attempts are made annually in the United States. With these numbers in mind, it is crucial that research continues to explore the motivations and emotions associated with suicide. Multiple theories have already been developed in an attempt to explain suicidal behavior. However, this study will focus its attention on two such theories: the Interpersonal-Psychological Theory of Suicide (IPTS; Joiner, 2005; Van Orden, et al., 2010) and Shneidman's Suicide as Psychache (SAP) theory (Shneidman, 1996; 1999; 2005). Although the IPTS and SAP are both prominent in the field of suicide research, neither study has ever been compared for their ability to predict suicidal behavior.

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The IPTS, developed by Joiner and his colleagues (Joiner, 2005; Van Orden et al., 2010), proposes that suicidal behavior occurs when three elements are present: thwarted belonging, perceived burdensomeness, and the acquired capability for suicide. Thwarted belonging is a perceived, or actual, lack of strong social ties, feelings of loneliness, and feeling as though one does not belong. Perceived burdensomeness is a feeling as though one is a burden on those around them and feeling that others would be better off without them. Finally, the acquired capability for suicide is the ability to enact lethal self-harm. Self-injury is hard, especially fatal self-injury, and only through exposure to pain does one become habituated to the fear of that pain and of death. Once habituated, a person is at increased risk of suicide. Only when these three elements are present is a person at increased risk of death by suicide.

However, the IPTS is not the only theory of suicide that discusses the role of thwarted needs. The SAP, which preceded the development of the IPTS, was put forth by Shneidman (1996; 1999; 2005) and

based on Murray's (1938) theory of personality. The SAP stipulates that suicidal behavior, at least in Western cultures, is caused by psychological pain, which Shneidman calls psychache. Psychache is caused by the deprivation of vital needs and these needs are drawn directly from Murray's (1938) theory of personality. These needs include the need to be affiliated (similar to the need to belong) and the need for aggression. When psychache becomes unbearable, suicide will occur (Shneidman, 2005).

These theories were chosen for analysis for a number of reasons. These two theories both discuss thwarted or deprived needs, with the SAP theory discussing a large number of potential thwarted needs and the IPTS focused on two specific needs (perceived burdensomeness and thwarted belonging). Furthermore, no study, until now, has compared the effective of the IPTS and SAP in predicting lethal suicidal behavior. Given the importance of having a solid theoretical backing to explain a behavior, it is of vital importance that competing theories be evaluated in an effort to establish which are most helpful in explaining the phenomena of suicide.

The use of suicide notes in studying suicidal behavior has a long history in suicidology (e.g., Shneidman & Farberow, 1957; Osgood & Walker, 1959). In a large sample of suicide victims in Japan, Kuwabara, and colleagues (2006) found a note-writing incidence rate of over 30 percent and found few differences between those who wrote a note and those who did not. Those who lived alone were more likely to be female and use more lethal methods of suicide. In a defense of the use of suicide notes in the study of suicide, Leenaars (2002) discussed the importance of suicide notes in understanding the suicidal mind and getting a glimpse at the motivations behind suicide. While suicide notes have their limitations, they provide a unique glimpse at what motivates a suicide.

In the present study, we aim to determine which theory is more predictive of death by suicide using a sample of suicide notes from attempted and completed suicides. We hypothesize that the IPTS theory will be more predictive of death by suicide than will SAP. The IPTS is explicit in its focus on lethal or near-lethal suicide, while the SAP is a general theory focusing on all suicidal behavior. Given this, it is expected that the IPTS will be better at distinguishing lethal suicide notes from non-lethal notes. This study investigates the elements of the IPTS and SAP through the use of suicide notes, which are commonly employed in suicidology (e.g., Joiner et al., 2002; Pettit et al., 2002; Gunn & Lester, 2012).

Methods

Participants

Suicide Notes' Authors. Forty suicide notes collected by a police officer from a town in Arizona were obtained. Two notes were discarded from the analysis reported in this paper because the writers of these notes made no suicide attempts. Prior research has been published using this sample (e.g. Joiner et al., 2002; Pettit et al., 2002; Handelman & Lester, 2007).

Graduate Student Raters. Two students were selected from the graduate program in psychology at Rutgers, The State University of New Jersey (Camden Campus), to serve as raters. Both raters were recruited via an email sent to the first-year graduate students explaining the opportunity to partake in the study for a small monetary incentive (a $50 gift-card for each rater). The raters were blind to the purpose of the study and were not familiar with the theories of suicidal behaviors. We felt that the use of graduate students would increase the likelihood of accurate ratings due to more experience with psychological studies. Graduate students have been used as raters for suicide notes in prior research (e.g., Joiner et al., 2002). Raters were blind to the conditions of the study and were not informed which notes were accompanied by completed or attempted suicides. By keeping the raters blind to the specific goals of the study we hoped to limit the likelihood of biasing the ratings. No more than two raters are commonly utilized in research studies involving suicide notes (e.g. Leenaars, DeWilde, Wenckstern, & Kral, 2001; Gunn & Lester, 2012). Raters were Caucasian, one woman (age 23) and one man (age 24).

Materials

Rating Instrument. The rating instrument for this study was adapted from Shneidman's Psychological Pain Assessment Scale (PPAS; Shneidman, 1996; 1999) and the criteria used to assess thwarted belonging and perceived burdensomeness in Gunn and Lester (2012). Leenaars and Lester (2004; 2005) found that the PPAS had high test-retest reliability and modest validity. However, initial pilot testing in our lab of the PPAS section of the rating scale revealed that raters would rate the degree to which the need was present. Because the PPAS is specifically meant to test the degree to which these needs are being thwarted, or unfulfilled, the words "as thwarted" were added to the end of every item. Raters in the pilot test indicated that this made the rating process easier and served as a reminder that scoring was based on the need being thwarted (the presence of or reference to the need did not meet the rating criteria). This change was therefore made to the wording of the PPAS in order to make

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the scale better suited to be used for rating the suicide notes.

Procedures

Due to the large number of ratings for each note, the rating process was done over the span of one week (Monday-Friday). Each session was approximately two hours long. The first session was used to train the raters on the rating process and to introduce them the scales. For training, notes were drawn from Leenaars (1988) and were not included in the analysis of the current study. The remaining four sessions were used to rate the notes being examined in this study. Discrepancies in the ratings were discussed and resolved by the raters themselves. The researcher was present and only intervened in discussing these discrepancies when absolutely necessary (i.e., when no agreement could be reached).

During each of the latter four sessions, raters were given copies of ten of the forty suicide notes and a copy of the rating instrument for each. The notes were presented in a randomized order (i.e., non-lethal and lethal notes were drawn at random) that was the same for each rater. Raters were asked to read through the suicide notes carefully and were informed that they could look back at the notes at any time throughout the rating process. This was done to increase the accuracy of the ratings, as raters could rely on the content of the note rather than their memory of it.

Following the rating sessions, inter-rater reliability was assessed using Krippendorf's alpha. While several methods were available for assessing inter-rater reliability, Krippendorf's alpha was chosen because it is effective for use with relatively small sample sizes and because, unlike correlational techniques, it takes as its criterion 1 to 1 agreement not simply relative agreement; it is sensitive to rank order. Table 1 shows the results of the Krippendorf's alpha analyses. As can be seen, across the whole of the questionnaire there was insufficient agreement (as measured against a criterion of alpha = .70 or higher). Due to this, it was necessary to meet again and resolve all discrepancies across the ratings. Both raters and the researcher met again, two weeks after the conclusion of the original rating session, and went through each rating scale on which there was a discrepancy, and its corresponding note, in the same order they had originally rated them, in three two-hour sessions. As with the initial training session, raters were asked to discuss their discrepancies amongst themselves and resolve them. The researcher adjudicated disagreements only when no resolution could be reached between both raters. The resolution process typically began with each rater (starting with the one with the highest rating)

explaining the rationale for the rating he or she gave. The vast majority of the time, one rater would then concede to the argument of the other, but a few times (7.3% of cases) a longer discussion was needed in which both raters would make their point for why they gave the rating they gave. The majority of the time this happened, one of the raters would concede to the argument of the other, however on several occasions it was necessary for the researcher to adjudicate disagreements (.79%).

Statistical Analysis

All analyses were executed using IBM SPSS Statistics 19. Although SPSS does not have the option to run Krippendorf's alpha, macros were obtained for the purposes of assessing inter-rater reliability from an online source (http://www.afhayes.com/). Several of the analyses involved the removal of predictors that had very high p values. In order to be consistent throughout, the cutoff for the removal of a predictor was if the p value exceeded .35. This cutoff allowed us to remove predictors from the models that were not highly related to suicide lethality, and thereby afforded us the clearest picture of what was predictive of suicide lethality.

Results

The mean age for the sample of 38 authors was 36.9 years (SD = 14.1). Of the 38 authors, 20 completed suicides (M = 37.4 years, SD = 14.3) and 18 attempted suicides (M = 36.3 years, SD = 14.2). There were 18 women and 20 men in the full sample. No data were collected on ethnicity. Of the note-writers, 15 (39.5%) used a gun, 8 (21.1%) took pills, 4 (10.5%) used hanging, 2 (5.3%) used a razor, 1 (2.6%) used car exhaust, 1 (2.6%) drank Drano and cut their wrists, 1 (2.6%) used the smoke from a charcoal fire in an enclosed space, 1 (2.6%) used a car wreck, and 5 (13.2%) were unknown. Table 1 shows the results of our test of inter-rater reliability. Prior to analyses, raters met again and resolved all discrepancies. Final rating agreement was 100 percent.

Table 1: Results of Krippendorf's Alpha Assessment of Inter-Rater Agreement

Variable Name	α	95% C.I.	
		Lower	Upper
The need to achieve difficult goals as thwarted	.15	-.19	.48
The need to be loved by another person as thwarted	.70*	.48	.89
The need to belong or to be affiliated as thwarted	.51	.21	.77
The need to overcome opposition as thwarted	.11	-.21	.39

The need to be free of social confinement as thwarted	-.02	-.51	.45
The need to make up for past failures as thwarted	.54	.32	.75
The need to defend the self against others as thwarted	-.11	-.46	.23
The need to influence and control others as thwarted	.36	-.03	.72
The need to receive attention from others as thwarted	.34	-.02	.65
The need to avoid pain or injury as thwarted	.29	-.01	.55
The need to avoid shame or humiliation as thwarted	.32	-.07	.68
The need to protect the author's psychological space as thwarted	.05	-.29	.37
The need to nurture or take care of another person as thwarted	.32	.03	.58
The need to keep things or ideas in good order as thwarted	.23	-.10	.54
The need to enjoy sensuous experiences as thwarted	-.02	-.53	.44
The need to be taken care of by another person as thwarted	.52	.22	.78
The need to understand certain hows and whys as thwarted	.41	.10	.68
The need to belittle the self as thwarted	-.21	-.74	.29
The need to admire, support, or emulate a superior as thwarted	.00	-1.00	.00
The need to act for fun as thwarted	.25	-.19	.66
The need to exclude, banish, jilt or expel another person as thwarted	.22	-.42	.75
The author was experiencing a thwarted need to be in a relationship with someone	.74*	.56	.90
The author was experiencing a feeling of being disconnected from others	.43	.14	.67
The author was experiencing a feeling of isolation from other people	.27	-.06	.59
The author was experiencing a feeling of isolation from other people	.57	.17	.90
The author felt he or she was a burden on others	.78*	.63	.91
He or she felt that others would be better off without the author	.54	.26	.79

*indicates acceptable levels of inter-rater agreement

Cronbach's alpha was utilized to test the internal consistency of the rating scales. The PPAS consisted of 18 items and had acceptable internal consistency (α = .77) while the IPTS sub-scale consisted of 6 items and had poor internal consistency (α = .53). However, upon closer inspection of the IPTS sub-scale, we found that the IPTS sub-scale's poor internal consistency was a byproduct of it being made up of two theoretically different elements. When the sub-scale was divided into the IPTS's two elements, the thwarted belonging sub-scale (α = .75) had acceptable internal consistency and the perceived burdensomeness sub-scale (α = .94) had excellent internal consistency.

In order to test the hypothesis that the IPTS needs would be more predictive of fatal suicide than the SAP needs, several logistic regressions were run predicting suicide lethality. In the first logistic regression, the Average Shneidman Need Index (the average rated intensity across all needs) and the IPTS Need Index (the interaction score, calculated by multiplying the thwarted belonging index by the perceived burdensomeness index) were entered into the logistic regression predicting suicide lethality. We averaged the Shneidman needs because under the SAP not all needs must be present for psychache to occur. The deprivation of a single need can lead to psychache, and through psychache to suicide. However, the IPTS scores were made into an interaction score, because IPTS explains suicidal behavior through the presence of both thwarted belonging and perceived burdensomeness. Both must be present for the motivation for suicide to exist. The results of this analysis can be seen in Table 2. The model was not significant, $X2$ (2, N = 38) = 3.55, p = .17 indicating that the model that included both predictors was unable to distinguish non-lethal suicide notes from lethal suicide notes. However, as can be seen from Table 2, the IPTS Needs Index was marginally significant (p = .08) in predicting suicide lethality and was associated with a 1.72 times increase in the likelihood of the note having been written by a lethal suicide, consistent with our hypotheses.

The second logistic regression examined the ability of thwarted belonging and perceived burdensomeness, two elements of the IPTS, to predict suicide lethality. In this logistic regression the Thwarted Belonging Index (the averaged score across all thwarted belonging items) and the Perceived Burdensomeness Index (the averaged score across all perceived burdensomeness items) were entered into the logistic regression predicting suicide lethality. The results of this logistic regression can be seen in Table 3. The model was not significant, $X2$ (2, N = 38) = 4.04, p = .13, indicating that the model was not able to distinguish non-lethal suicide notes from lethal suicide notes. However, the Perceived Burdensomeness Index was marginally significant (p = .10), indicating that perceived burdensomeness was associated with a 1.84 times increase in the likelihood that the note was written by a lethal suicide.

The results of the final logistic regression used to test the hypothesis of this study can be seen in Table 4. This model used the IPTS Needs Index and the highest thwarted Shneidman need rating to predict suicide lethality. This model was significant, $X2$ (2, N = 38) = 4.92, p = .09, indicating that the model was able to distinguish non-lethal suicide

notes from lethal suicide notes. As can be seen, the IPTS Index was marginally significant (p =.06) at predicting suicide lethality and was associated with a 1.78 times increase in the likelihood of the note being

written by a lethal suicide. This once again showed partial support for the hypothesis of this study.

Table 2: Logistic Regression Predicting Suicide Lethality with Average Shneidman Needs Index and IPTS Needs Index from Ratings

	B	S.E.	Wald	Df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Average Shneidman Needs Index	-1.27	1.38	.85	1	.36	.28	.02	4.19
IPTS Needs Index	.54	.31	3.00	1	.08†	1.72	.93	3.18

†p<.10
*p<.05
**p<.01

Table 3: Logistic Regression Predicting Suicide Lethality with Thwarted Belonging Index and Perceived Burdensomeness Index from Raters

	B	S.E.	Wald	Df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Thwarted Belonging Index	.64	.55	1.31	1	.25	1.89	.64	5.58
Perceived Burdensomeness Index	.61	.38	2.66	1	.10†	1.84	.88	3.84

†p<.10
*p<.05
**p<.01

Table 4: Logistic Regression Predicting Suicide Lethality with Highest Shneidman Ratings and IPTS Needs Index from Raters

	B	S.E.	Wald	Df	p	Odds Ratio	95% C.I. for Odds Ratio	
							Lower	Upper
Computed Shneidman Score Indicating Highest Thwarted Need Rating	-.53	.37	2.03	1	.15	.59	.9	1.22
IPTS Index	.58	.31	3.50	1	.06†	1.78	.97	3.26

†p<.10
*p<.05
**p<.01

Discussion

The purpose of this study was to compare two theories about the role of thwarted needs in suicidal behavior. Specifically, we hypothesized that the Interpersonal-Psychological Theory of Suicide would be more predictive of completed suicide than attempted suicide and that it would be more successful in predicting completed suicide than would the SAP.

None of the needs, neither Shneidman's nor Joiner's, were found to be related to lethality based solely on the Pearson correlations. However, the results of the more precise and informative logistic regressions were more promising. There was a trend for the IPTS Needs Index to be associated with an increased likelihood of the note being written by a lethal (rather than nonlethal) suicide. In addition, when the IPTS needs were examined individually, it was found that the Perceived Burdensomeness Index was marginally significant in predicting lethality and was associated with an increased likelihood of the note being written by a lethal suicide. However, given that none of the models were significant, but that the predictors were, we caution interpretations based solely on these results.

What is a potential explanation for why perceived burdensomeness was found to be predictive while thwarted belonging was not? This finding may be a byproduct of using suicide notes to investigate this theory. Suicide notes, written typically to another person, may make the presence of certain themes more common than others. For example, because the notes are typically written to another person, the authors may be more motivated to write about how the other person will be "better off without them." In contrast, explaining to the person they are writing to that they do not feel as though they belong, or that they are lonely may not be as present, because they are in fact writing to another person and not necessarily expressing how they feel in this regard. In a recent essay (Yang & Lester, 2011), it was argued that suicide notes, while potentially giving insight into suicidal behavior, may also represent a way of presenting the self to significant others. Given this argument, perhaps the authors of suicide notes are more prone to portray themselves as doing something beneficial to their significant others rather than portraying themselves as being lonely, or as having poor relationships.

Of particular concern is the finding that one of the perceived burdensomeness items, feeling that others would be better off without them, was not significantly related to lethality, though it was in the predicted direction. This finding contradicts that of Joiner et al. (2002), in which the authors measured perceived burdensomeness by the degree to which each passage implied the idea that "my loved ones I will be better off when I'm gone." On the other hand, one of the perceived burdensomeness items of this study evaluated the degree to which the note implied that (at the time the author wrote the note) he or she felt that others would be better off without the author." While Joiner and colleagues (2002) focused on "loved ones" our wording focused instead on "others." Additionally, while Joiner focused on the idea being implied we focused on specifically at the time the author had written the note. These differences may explain the non-significant relationship of this item and lethality in this study. If we had focused on whether they were a burden solely on their loved ones, and allowed for interpretation about a time other than when the note was being written, perhaps our raters would have replicated the results of Joiner et al. (2002). However, as the IPTS does not stipulate that the perceived burden has to be on a loved one, the wording we used is still a valid, and previously used, means of testing this theory (Gunn, Lester, Haines, & Williams, 2012). It is also important to note, that while ours was not significant, both correlations, that of this study and of Joiner et al., were similar, pr = .26, pr = .33, respectively.

There are several limitations that must be taken into consideration when examining the results of this study. Perhaps the most obvious limitation was the decision to use lethality as our dependent variable. Although previous research has examined some of the variables with lethality as the outcome variable (e.g., Joiner et al., 2002), the use of lethality as an outcome variable may have affected the results of this study. Perhaps the failure of Shneidman's needs to predict suicide lethality can be due to the fact that the needs are present in both fatal and non-fatal suicidal behavior. By using lethality, we fail to address this concern. Additionally, when lethality is used as the dependent variable, there is always the problem of suicidal intent. It is possible that some of those who survived their attempt were in fact highly suicidal, while those who died by theirs were less so. Consider the case of woman A, who takes an overdose of medication at 4:45pm to teach her husband a lesson, fully expecting him to return home at 5:00pm and save her. However, traffic delays his return and she dies as a result. Now, consider the case of a woman B who jumps off the Golden Gate Bridge (a suicide hotspot in the US and a highly fatal drop) but survives, but with significant trauma and damage to her body. Woman A is a lethal suicide, while woman B is a non-lethal; however the intent to die was much more present in woman B. Due to this, the use of lethality as a dependent variable is often a limitation. Future research should compare both theories outside of the contexts of lethality.

Another limitation of this study was the use of suicide notes, which are not always present with suicidal behaviors. Extant research has found that between 10-30% of those who die by suicide leave a note, with most estimates indicating around 20% (Ho, Yip, Chiu, Halliday 1998). However, regardless of the small percentages of those who leave notes, previous research has shown that those who leave notes are similar to those who do not (Callanan & Davis, 2009) and others have shown some differences in note leaving by sex and age (Heim & Lester, 1990). Suicide notes are often one of the few windows into the suicidal mind that are left to us; however they are subject to several limitations. Furthermore, finding that certain thwarted needs are present does not necessarily mean that the others are not. It could be the case that certain thwarted needs are often themes in suicide notes (e.g., perceived burdensomeness) while other thwarted needs are present in the development of suicidal behavior but are not present in the notes (e.g., thwarted belonging), especially if the notes are in fact written to portray the self in a favorable way (Yang & Lester, 2011). Finally, by examining suicide notes, we lack a control with which to compare them. Future research may be able to utilize such controls to determine if the thwarted needs are a product of suicidal behavior or an accompanying psychopathology. For example, a comparison of the letters of someone who died by suicide with someone who had depression with the absence of suicidal intent would allow us to theorize about what thwarted needs are associated with the suicidal behavior and which are a product of the psychopathology. Given the fact that suicidal behavior is rare, even among those with a diagnosed mental illness, it would be beneficial to learn more about what specific predictors are relevant to suicidal behavior among those with a diagnosed mental illness, so that assessment and prevention can be implemented more effectively. Prospective studies could compare depressed patients with high suicide risk (e.g., determined by psychological assessment of risk factors or physiological measures such as serotonin metabolites in cerebrospinal fluid) with those with low suicide risk (Asberg, Traskman, & Thoren, 1976; Mann, Malone, Sweeney, Brown, Linnoila, Stanley, & Stanley, 1996).

An additional limitation is the relatively small sample of notes. While previous research (e.g., Joiner et al., 2002) has utilized this same sample of notes, the small number of notes (n=38) may have affected the results. In fact, given the number of marginal findings, a larger sample of notes may lead to more robust findings. Inter-rater reliability was also generally poor. After the initial rating sessions, raters had to undergo two additional sessions of disagreement resolution. However, while this may be considered a limitation, it may also be viewed as beneficial to this study. By having both raters meet again and go over the rating scales and the notes in more detail, they were able to reach 100% agreement. Due to this, the dataset that was utilized for the final analyses was the product of a lot of deliberation and discussion on the part of both raters.

Several of the current findings can be discussed in terms of their implications. While the majority of the results regarding the IPTS were only marginally significant, they did implicate the role of these needs in suicidal behavior over those of Shneidman's theory. However, an important caveat of this is that Shneidman's PPAS was developed to assess thwarted needs among suicidal persons and was given to them directly. The raters in the present study described having difficulties getting from the notes whether or not the needs were thwarted. As the scale was developed to be administered to suicidal persons and was adapted to be used by raters, this may not have been an adequate means of testing this theory.

The IPTS results do suggest implications for assessment and treatment. If a clinician is working with a patient who perceives the self to be a burden on those around them (especially loved ones), this may be a sign that individual is at increased risk of suicide and in need of more immediate treatment or intervention. Marginal support was shown for our hypothesis, however we must urge caution in interpretation of these findings as they were only trending towards significance. However, regardless of this the present study represents the first comparison of the IPTS and SAP.

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