

Original research

## Exploring the conceptual overlap of the cognitive and affective theories of suicide

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**Abstract:** The cognitive and affective theories of suicide were reviewed to find if they overlap conceptually. The purpose of this study was to find if these two theories could be combined to create a more holistic theory. The two theories overlapped in accounting for the variance in suicide ideation at a statistically significant level. Scales, each measuring one aspect of the two theories, were compared as a whole to see if they account for the same or different variance in suicidal ideation. The two theories primarily overlapped accounting for 41% of the variance in suicide ideation scores with 31% of variance overlapping, where  $p < .001$ . Each theory adds a small amount of new understanding to how suicide manifests but primarily measures the same variance in suicidal ideation.

**Keywords:** Suicide, Suicidology, Risk Factors, Psychache, Cognitive Theory of Suicide, Affective Theory of Suicide, Hopelessness.

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Before jumping off the Golden Gate Bridge to his death, John T. Doyle left a suicide note which only read, "Absolutely no reason except I have a toothache," (Libman, 1987, p. 1). According to the World Health Organization (2008), approximately one million people died by suicide in 2000, with the major contributors to suicide being depression and other complex psychological factors. Although a toothache was not listed as one of those factors, for John T. Doyle, his affective and cognitive state must have been contributors to his decision to jump. Understanding the basic cognitive risk factors, such as suicide ideation (Ranieri et. al., 1987; Rudd, Joiner, & Rajab, 1996), help further the base of knowledge of the psychological risk characteristics of suicide. To find a workable solution to suicide, all the pieces, socio-cultural, behavioral, affective, and cognitive, need to be

understood (Shneidman, 1985, 1987).

The purpose of the current research was to bridge two working theories of suicide, the affective theory of psychache and the cognitive theory of depression, by logically connecting the individual pieces that make up the theories. The intention of this research was to see if these theories would, in college students, show a seamless connection of thwarted psychological needs and stressors to the components of psychological pain and cognitive errors (i.e., distorted thinking) as related to suicidal ideation.

There are two main views regarding primary precursors to suicide: 1) thwarted psychological needs (Shneidman, 2001) and 2) stress to a person who is vulnerable to being easily overwhelmed by stressors (Beck, 1967). If these two perceived causational steps are related, it could bring together two prominent theories, psychache (i.e., mental pain or unbearable psychological pain) as suicide and the cognitive theory of depression, together into a more holistic viewpoint of suicide.

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### *Cognitive Theory of Depression*

In the cognitive theory, there are three factors that interlock to cause a type of depression that can lead to suicide, schemas, the cognitive triad, and cognitive errors in the cognitive theory of depression (Beck, 1974; Rush & Beck, 1978).

### *Schemas*

Of these three parts, a schema is a consistent way of interpreting the world given a set of situations. Schemas are the best explanation to why different people facing identical complex situations have dissimilar conclusions (Beck, 1970). Schemas are thought patterns that organize personal experiences by channeling them into cognitive structures and attitudes. In the theory of depression, schemas form negative and dysfunctional attitudes that may be rigid, dichotomous, and irrational views of the world (Beck & Rush, 1978). Wenzel, Brown, and Beck (2009) propose schemas account for the large range of differing thought patterns between people with suicidal thoughts. Maladaptive schemas can range harshly from person to person due to the pervasive and unconditional nature. One schema, "I am not loveable" could be actively differently from another's schema, "Unless I please others constantly, I do not deserve love," (Schmidt & Joiner, 2004).

### *The cognitive triad*

The cognitive triad describes the person's negative way of interpreting the future, the world, or the one's-self as tainted beyond repair (Clark, Beck, & Alford, 1999). This is the view of oneself as defective or unworthy, the interpretation of ongoing experiences negatively, and the negative hopeless view of one's own future (Beck & Rush, 1978) This is supported by research that there is a tendency to have global, stable attributions about negative events (Joiner, 2000; Joiner & Rudd, 1995). The cognitive triad has been strongly supported as the key mediator between depression and suicidality in adults (Beck et al., 1985, 1989; Ellis, Green, Allen, Jobes, & Nadorff, 2012).

### *Cognitive errors*

Lastly, cognitive errors are the systematic errors, disrupted thinking, or cognitive distortions of reality of the depressed person's thinking (Beck & Rush, 1978). For example, when the cognitive error of selective abstraction is used, the individual will take details out of context and proceed to view the quality of one's life on the basis of a single element (Beck & Rush, 1978). Beck, Rush, Shaw, and Emery (1979) outlined seven specific types of cognitive

errors typically found in the depressed population. Although quantifying the severity and the type of the cognitive error is important for treatment (Kuyken, Padesky, & Dudley, 2009), quantifying cognitive errors has not yet been functionally possible to measure until recently (Covin, Dozois, Ogniewicz, & Seeds, 2011).

### *The cause of depression in the cognitive theory*

The cause of cognitive depression is theorized as a stress-diathesis (Mann, Wateraux, Haas, & Malone, 1999) where stress can be anything from childhood trauma to psychiatric illness. Diathesis is simply the personal vulnerability towards suicide, hopelessness, and depression. Depression is thought to occur when the person's levels of stress overcomes the person. The determinant of what level of stress is necessary to overwhelm the person is referred to by diathesis (Metalsky & Joiner, 1992).

### *The Affective Theory of Psychache*

Shneidman's (1993) psychache theory of suicide departs from Beck's (1967, 1987) cognitive models because psychache is not defined by cognitions but by a subjective ability to tolerate and feel psychological pain. Primarily through self-report measures, evidence has supported that psychache is at least of equal importance as depression and hopelessness for statistically predicting suicide risk while still being distinct from those two variables (Delisle & Holden, 2009; Troister & Holden, 2010, 2013). Edwin S. Shneidman theorized that every suicide was an answer to a problem (Jobes & Nelson, 2006). The problem would always have three aspects: 1) press- the person's interactions and genetic makeup, 2) psychache- psychological pain from the world, and 3) perturbation-from the pain feeling a shrinking of available options to avoid pain (Shneidman, 1993). By this model, Shneidman's (1996) theory of suicide as psychache saw suicide's purpose to be the avoidance of a problem with three components: press, pain, and perturbation.

### *Press*

Press, or pressure, to Shneidman (1993), is how the inner and outer worlds impinge on, move, and are positively or negatively interpreted by the person. Press felt in a suicidal person comes from the stress of the world as the result of unmet psychological needs. Press is essentially the stress from the outside world causing a person to feel internally compressed or entrapped (Shneidman, 1993). For example, a person who just learned he or she has a terminal illness would have considerable press. The press refers to both the

feeling associated news as well as the actual news itself.

#### *Psychological pain*

Pain as part of this model refers to the unbearable psychological pain of psychache seen as the product of thwarted psychological needs. Psychache is referred to as the hurt and mental anguish that becomes exceedingly agonizing for the person. The all-encompassing darkness of the pain becomes a totalitarian force in the person's ability to make choices free from the pain. The mental anguish of psychache is the kind of pain that points the person to logically conclude a cessation of consciousness is better than living with the current level of misery and hurt.). Recent evidence shows that psychache can be a strong predictor of suicide ideation, attempts, and completion (Lester, 2000; Keefer, Holden, and Gillis, 2009; Olié, Guillaume, Jausse, Courtet, & Jollant, 2010).

In the affective theory, psychache is the final deciding factor for suicide viewed as a release of this pain (Shneidman, 1993).

#### *Perturbation*

Lastly, part of Shneidman's (1993) theory of psychache as suicide is the emphasis of perturbation as the reduction and constriction of the individual's perception of choices. This model views the suicidal individual's perception of choices to eventually reducing their available options down to only one choice, suicide. It is the feeling that the world is solid and rigid. Perturbation leads the person to conclude her or she has an ever-smaller range of inflexible and painful options. When considering the suicidal individual's view that their perception of available choices is being reduced, it is important to consider the type and severity of the perturbed view of limited choices (Holden & DeLisle, 2006; Shneidman, 1999).

#### *Causes for the affect theory of psychache*

Shneidman (1996) summarizes the cause of psychache as many unmet basic psychological needs. After quantifying these needs, researchers of psychache have been able to verify these unmet needs significantly correlate with psychache in college students (Delisle, 2007; Flamenbaum & Holden, 2007; Troister & Holden, 2012). As further evidence to the usefulness of considering unmet needs, Van Orden et al. (2010) were able to construct the interpersonal theory of suicide by purposefully condensing of Shneidman's five primary needs down to two primary elements to every suicide, thwarted belongingness and

perceived burdensomeness (Joiner, 2005, p. 38), which has had strong empirical research to back the effectiveness of this model (Baumeister & Leary, 1995; Ribeiro, Bodell, Hames, Hagan, & Joiner, 2013; Joiner et al., 2002; Silva, Chu, & Joiner, 2014; Silva et al., 2015).

#### *Overlap of Cognitive Model and Affective Model of Psychache*

Although Shneidman's psychache model emphasizes the affective rather than Beck's cognitive factors as central to suicidality, the theories do have considerable overlapping ideas.

#### *Unmet needs and the stress-diathesis*

Conceptually, unmet needs as the cause of psychache and the stress-diathesis as the cause of depression are nearly identical. For example, any unmet need can be considered a stressor, such as an unmet need to feel affection or belonging could be viewed as a stressor of loneliness while the diathesis is the person's vulnerability towards feeling loneliness and to respond in behaviorally and cognitively maladaptive ways, such as never socializing.

As an example, affectively one's need for achievement may be characteristically high. As a consequence, that individual feels like a failure. Their psychological need for achievement has been unmet. Similarly, in the stress-diathesis, one person may be stressed by his or her lack of achievement in life. The person may have a diathesis for easily feeling stressed by lack of achievement or distressing moments revolving around personal failure. Even if the person solved world hunger, the individual's diathesis towards stress around personal failure may be so strong that this great achievement would be not be enough to relieve that individual's stress around personal failure. In both cases, the person is under duress because of an internal characteristic revolving around a sense of accomplishment.

#### *Perturbation and cognitive errors*

As part of Shneidman's (1993) theory of psychache as suicide, he places an emphasis on perturbation as the reduction of the individual's perception of choices, eventually reducing options down to only one choice, suicide. An example is the cognitive error of selective abstraction, which takes details out of context and views life as a whole on the basis of the single element (Beck & Rush, 1978; Beevers & Miller, 2004; Flett, Hewitt, & Heisel, 2014) carries many of the same elements as perturbation of the person's perception.

As an illustration, a person may feel that they have no choice but to go through life feeling unbearable

pain. Discouraged by this constant pain, the person will eventually become perturbed, only seeing one choice, suicide. Equally, the same person can be viewed through the cognitive lens as having a cognitive error that can be reduced down to the thought, "Life is nothing but unbearable pain." For the same person, the affective and cognitive viewpoints simply have different nomenclature used for the same concept.

#### *Press and schemas*

Functionally, press is similar to schemas in the cognitive theory. As a consequence of the world impinging and pushing the person, press, causing stress, schemas and negative thought patterns are activated (Beck et al., 1979).

In the sense that a schema is a stable pattern of processing events, such as "Since I was bad at this, it is more evidence that I'm a complete failure" (Beck & Rush, 1978), press is also the view, real or imagined, that the world is impinging on the person making them stressed or view themselves, the world, and the future in the light of a small life events. This, in principle, is the same as the schema as press is forces from the world that help or hinder the person attain a fundamental need, as a schema is an interpretation of those forces.

As an example, a person who spots a friend randomly walking down the street may greet that person. The friend may walk past without acknowledging the greeting. Press, in this situation, is the force of being ignored by the friend. It can also be viewed the person may activate the schema that they feel they are embarrassing to be seen with in public. Both explanations of the same scenario reach the same conclusion through nearly identical methods of viewing internal commentary.

### **The Present Study**

This study was designed to assess participants' severity on each aspect of the cognitive and affective theory that was then compared to their measured suicide ideation. It was expected that:

Hypothesis 1: Unmet psychological needs and the stress-diathesis would correlate.

Hypothesis 2: Press and schemas would correlate.

Hypothesis 3: Perturbation and cognitive errors would correlate.

Hypothesis 4: Psychache and cognitive triad would correlate.

Hypothesis 5: Unmet psychological needs and the stress-diathesis would overlapped with the three aspects of each theory, press, psychache, perturbation, the cognitive triad, schemas, and cognitive errors as a whole including how they relate to suicidal ideation.

Hypothesis 6: Together, the six aspects of the theories would be a better predictor of suicidal ideation than any single aspect or one theory alone.

### **Method**

#### *Participants*

The sample consisted of 427 undergraduate students (334 females, 92 males, 1 agender) from a university in the Northwest US after 47 participants were removed for leaving greater than 90% of the questions left unanswered or for completing the questionnaires in under 10 minutes. Participants were from psychology courses as a predominately female population.

### **Measures**

#### *Demographic questionnaire*

A basic questionnaire was administered to assess participant demographic information. Questions also included information about if the participant had previously attempted suicide. Within the demographic questionnaire, press was measured using a single question, "Rate external pressures and stressors in your life" on a 5-point Likert-type scale where 1 is low pressure and 5 is high pressure.

#### *Interpersonal Needs Questionnaire*

(INQ; Van Orden, 2009; Van Orden, Cukrowicz, Witte, & Joiner, 2012) The interpersonal theory questionnaire focuses on the sum of 5 unmet psychological needs critical to suicidality into 2 areas, thwarted belongingness and perceived burdensomeness (Joiner, 2005). The INQ is a 15-item scale on a Likert-type scale of 1 (Not at all true for me) to 7 (Very true for me). The INQ has shown good validity and correlates moderately with scales measuring depression and suicidal ideation. Internal consistency coefficients were found for the areas of thwarted belongingness and perceived burdensomeness where the Cronbach's alphas were .85 and .89, respectively (Van Orden, Witte, Gordan, et al., 2008). The INQ had an excellent internal reliability for the current study with a Cronbach's alpha of .93.

#### *Cognitive Distortion Scale*

(CDS; Covin et al., 2011) The CDS is a 20-item self-report questionnaire that measures the person's use of the 10 common cognitive distortions in depression in the areas of interpersonal relationships and achievement. The questions describe a cognitive error, then provide examples of how the error could be used in an interpersonal relationship and a scenario where personal achievement is involved. The participants are then

questioned how often they estimate they use of that version of thinking. Answers are measured on a 7-point Likert-type scale of 1 (never) to 7 (all the time), with a possible range of 20 to 140. The measure shows good validity correlating with measures of depression, anxiety, and dysfunctional attitudes in past research. The Cronbach's alpha at the scale's developmental study was .85. The CDS showed excellent internal consistency with a Cronbach's alpha of .92 in the current study.

#### *The Brief Core Schema Scales*

(BCSS, Fowler et al., 2006) The BCSS is a 24-item self-report questionnaire concerning beliefs about the self and others. The scale has a 5-point Likert-type scale scored from 0-4. The BCSS score was an average from items measuring negative-self, positive-self, negative-others, and positive-others. The scale measured positive and negative evaluations of the self and others as negative or positive schemas exist within a person. The scale has shown good validity and has been shown to correlate with scales measuring anxiety, depression, grandiosity, self-esteem, and paranoia. The alpha coefficients for the study were .78 and .84 for positive self and positive others, respectively, in its developmental study of a non-clinical population while it there was an Cronbach's alpha of .86 and .88 for negative self and negative others, respectively. The BCSS showed good internal consistency with Cronbach's alpha coefficients for each subscale < .80 in the current study.

#### *Negative Life Events Questionnaire*

(NLEQ, Metalsky & Joiner, 1992). The NLEQ is a 64-item self-report scale designed specifically for the use with college students. The questions are intended to measure the amount of stress the participant is under and how well they are coping with that stress. Questions fall into various categories that may be a cause of stress on the typical college student such as work, school, roommate, and romantic partner. The scores are measured on a 5-point scale ranging from 1 (Never) to 5 (Always) and 5 dichotomous yes-no questions. The 5 dichotomous questions were scored where "no" was a 1 on the scale and "yes" was scored as if it were a 5 scale. Scores can range from 64 to 330 with the higher score translating to greater feelings of stress. The validity of the INQ has been demonstrated in past research on effects of stress towards vulnerability (Hankin, Abramson, Miller, & Haefffel, 2004; Seeds & Dozois, 2010). The coefficient alpha of .96 shows the excellent internal reliability with this measure in the current study and .82 in a past study.

*The Psychache Scale* (Holden et al., 2001) is a 13-item measure of the intensity of psychache on a 5-point scale with a range of total possible scores of 13 to 65. This scale is the most common way to assess for psychache in a research setting. The scale of possible answers range from 1 (Never) to 5 (Always) for questions 1 through 9. For questions 10 through 13, the scale changes to 1 (Strongly Disagree) to 5 (Strongly Agree). The scale has shown excellent validity in past studies by correlating with scales of sexual abuse, depression, hopelessness, self-injury, suicidal ideation, suicide attempts, and perturbation. The scale has shown to have reliable coefficient alpha of .94. The Psychache Scale had Cronbach's alpha of .96 in the current study.

*Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996)* The BDI-II assess the individual's negative thoughts about themselves, the future, and the world. Although the scale was designed to measure depressive symptoms, it has items that are evaluative of the cognitive triad. The BDI-II standardized 21-item self-report questions are rated on a 4-point scale, ranging from 0 to 3 given the past 2 weeks. The items consist of questions about the symptoms of depression such as sadness, crying, and loss of pleasure. The BDI-II had excellent internal reliability with a Cronbach's alpha of .95 in the current study and a coefficient alpha of .91 the past.

*Scale for Suicide Ideation (SSI; Beck et al., 1979)* The SSI is a 19-item self-report questionnaire intended to measure the intensity and frequency of suicidal intent and thought. The answers are rated on a 3-points scale, ranging from 0 to 2, with questions regarding suicidal preparation, thoughts on feelings on ending their life, and desire for any attempt to end their life. The scale has been shown to be valid by correlating between common measures of self-harm and through comparing scores of those with clinical depression to 90 patients hospitalized for suicide ideation. The coefficient alpha has been shown to be .90 in the past. The range of possible scores is 19-57, with the Cronbach's alpha of .84 for the current study.

*Reasons for Attempting Suicide Questionnaire (RASQ; Holden & DeLisle, 2003; Holden & McLeod, 2000)* The RASQ is a 14-item self-report scale to measure perturbation by assessing the possible motivations for suicide. The questions are categorized into 2 areas, internal perturbations and manipulative motivations. The 5-point Likert-type scale ranges from 1 (completely disagree) to 5

(completely agree. The range of the scale goes from 14 to 70. The scale has good validity correlating moderately with scales of hopelessness, depression, suicidal desire, and psychache. The scale has had coefficient alphas of .80 and .70 for the areas of internal perturbation and manipulative motivations, respectively (Holden & DeLisle, 2003). The internal reliability was excellent where the Cronbach's alpha was .91 for the current study.

### Procedure

Instructors during the during the Fall 2015 academic period informed their students that they could choose to participant in research for extra credit. The students were given instructions on how to sign up for studies and the amount of extra credit they could receive. The participants signed into SONA, a cloud-based subject pool software system, which allowed participants to select from various studies available to take anonymously Table 1

#### *Descriptive Statistics*

Demographic	Frequency	Percent of Sample
<b>Sexual Orientation</b>		
Heterosexual	403	94%
Homosexual	6	1%
Bisexual	12	3%
Pansexual	4	1%
Orientation; Not Listed	2	0%
<b>Race</b>		
White	331	78%
Black or African American	19	4%
American Indian	11	3%
Chinese	8	2%
Filipino	14	3%
Vietnamese	7	2%
Race, Not Listed	77	18%
One or More Races	40	9%
<b>Diagnosis</b>		
Any Diagnosis	219	51%
Anxiety	90	21%
Depression	77	18%
PTSD	9	2%
OCD	8	2%
Drug or Alcohol Addiction	8	2%
Eating Disorder	7	2%
Bipolar or Manic Depression	5	1%

Note. PTSD = Post Traumatic Stress Disorder. OCD = Obsessive Compulsive Disorder. Any Diagnosis = Any diagnosis selected or written in as officially given by a mental health provider.

Consisting of 9% of the sample, 37 participants, indicated they had attempted suicide in the past themselves with 1.8 average attempts. Means,

online. The software then hyper-linked to the study hosted at qualtrics.com. Participants were shown the information sheet first. After this, participants were presented part 1 of 2 of the demographic questionnaire. To reduce priming effects, the order was as follows: INQ, CDS, BCSS, NLEQ, The Psychache Scale, BDI-II, SSI, and RASQ. Lastly, participants were presented part 2 of 2 of the demographic questionnaire. The study took approximately 40 minutes to complete. Participants received research credit points in their undergraduate classes for their participation.

### Results

The mean age of participants was 20.47 years (range 18-55;  $SD = 5.07$ ). Consisting of 41% of the sample, 175 students, indicated that someone close to them had completed or attempted suicide (See Table 1).

standard deviations, and range for each scale used are presented in Table 2.

Table 2

*Descriptive Statistics for Study Variables*

Variable	Mean	Standard Deviation	Range Minimum	Range Maximum
SSI	24.02	4.81	19	46
INQ	52.47	7.94	15	82
NLEQ	120.54	35.13	64	299
CDS	81.25	19.49	29	138
BCSS	87.61	12.80	46	120
BDI	13.55	11.91	0	57
ACHE	23.81	11.12	13	64
RASQ	26.18	11.00	14	61
Pressures	2.79	1.22	1	5

Note. SSI = Scale for Suicide Ideation; INQ = Interpersonal Needs Questionnaire; NLEQ = Negative Life Events Questionnaire; CDS = Cognitive Distortion Scale; BCSS = the Brief Core Schemas Scale; BDI = Beck Depression Inventory-II; ACHE = Psychache Scale; RASQ = Reasons for Attempting Suicide Questionnaire.

*Correlations*

As expected, many of the constructs of the affective and cognitive theories of suicide correlated with each other (See Table 3). Between the two theories, the two concepts that correlated the most were psychache and the cognitive triad, as measured by the psychache scale and the BDI

( $r = .81, p < .001$ ). There was a positive correlation between the SSI and the questions, "Have you ever attempted to end your life?" and "Has someone(s) close to you ever attempted or completed suicide?" ( $r = .40, p < .001$ , and  $r = .20, p < .001$ , respectively).

Table 3

*2-Tailed Pearson Correlations of Variables*

	SSI	INQ	NLEQ	CDS	BCSS	BDI	ACHE	RASQ	Press
SSI	-								
INQ	.536**	-							
NLEQ	.388**	.549**	-						
CDS	.210**	.383**	.390**	-					
BCSS	-.432**	-.688**	-.496**	-.435**	-				
BDI	.539**	.652**	.573**	.471**	-.653**	-			
ACHE	.582**	.622**	.500**	.384**	-.649**	.807**	-		
RASQ	.390**	.371**	.470**	.325**	-.343**	.432**	.425**	-	
Press	.234**	.297**	.259**	.263**	-.317**	.423**	.426**	.229**	-

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

Note. SSI = Scale for Suicide Ideation; INQ = Interpersonal Needs Questionnaire; NLEQ = Negative Life Events Questionnaire; CDS = Cognitive Distortion Scale; BCSS = Brief Core Schema Scales; BDI = Beck Depression Inventory-II; ACHE = Psychache Scale; RASQ = Reasons for Attempting Suicide Questionnaire.

As the first hypothesis states, unmet psychological needs, as measured by the INQ, and the stress-diathesis, as measured by the NLEQ, correlated significantly between the INQ and NLEQ, ( $r = .15, p = .003$ ). Consistent with the second hypothesis, Press correlated positively with the BCSS at a statistically significant level where  $r = -.32, p < .001$ . As anticipated by the third hypothesis, perturbation, as measured by the RASQ, and

cognitive errors, as measured by the CDS, had a positive correlation at a statistically significant level where  $r = .32, p < .001$ . As stated by the fourth hypothesis, psychache, as measured by the psychache scale, and the cognitive triad, as measured by the BDI-II, had a positive correlation greater than any other two scales where  $r = .81, p < .001$ .

### Regression Model

As expected by the fifth hypothesis, unmet psychological needs and the stress diathesis overlapped with the other three aspects of the cognitive and affective theory and suicidal ideation. The INQ and NLEQ as the first block within the hierarchical multiple regression analysis were statistically significant standard coefficients as they related to suicidal ideation where,  $\beta = .142, t(424) = 6.92, p < .001$  and

$\beta = .158, t(424) = 8.00, p < .001$ , respectively. There was an average correlational strength between the scales used in the affective theory and the cognitive theory of  $r = .44$ .

As anticipated by the sixth hypothesis, the six aspects of the theories were a better predictor of suicidal ideation than any single aspect or one theory (See Table 4).

Table 4

### Coefficients of Cognitive and Affective Theory Combined in Hierarchical Multiple Regression Analysis by Block

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			LB	UB
<b>Block 1 Theory Precursors</b>							
(Constant)**	.469	.077		6.12	.000	.318	.619
INQ**	.142	.021	.297	6.92	.000	.102	.182
NLEQ**	.158	.020	.344	8.00	.000	.119	.197
<b>Block 2 Theory Totals</b>							
(Constant)**	.839	.139		6.04	.000	.566	1.112
INQ**	.094	.020	.198	4.78	.000	.056	.133
NLEQ	.036	.023	.078	1.59	.112	-.008	.081
CDS**	-.038	.012	-.145	-3.21	.001	-.061	-.015
BCSS	-.042	.025	-.088	-1.66	.099	-.092	.008
BDI	.052	.032	.115	1.62	.107	-.011	.114
ACHE**	.102	.020	.344	5.01	.000	.063	.141
RASQ**	.043	.014	.134	3.03	.003	.015	.070
Pressures	-.006	.009	-.031	-.737	.462	-.024	.011

a. Dependent Variable: SSI

\*\* - Significant at the 0.01 level.

\* - Significant at the .05 level.

Note. LB = Lower Bound; UB = Upper Bound; SSI = Scale for Suicide Ideation; INQ = Interpersonal Needs Questionnaire; NLEQ = Negative Life Events Questionnaire; CDS = Cognitive Distortion Scale; BCSS = Brief Core Schema Scales; BDI = Beck Depression Inventory-II; ACHE = Psychache Scale; RASQ = Reasons for Attempting Suicide Questionnaire.

A hierarchical multiple regression analysis was used in order to parse out the predictive variables of the cognitive and affective theories of suicide. The dependent variable in both blocks was the SSI measuring suicidal ideation. In theory, the initial precursors include the unmet psychological needs as well as a stress-diathesis and were placed in the first block of two blocks. The second block was the theoretical consequences of these initial

precursors, press, negative schemas, perturbation, cognitive errors, psychache, and the cognitive triad.

This test was completed 3 separate times, once with only the scales related to the cognitive theory, once with only the scales related to the affective theory, and once with all the scales from both theories (See Table 5)

Table 5

*Hierarchical Multiple Regression Analysis of Theories of Suicide*

Theory	Block	R	R <sup>2</sup>	R <sup>2</sup> <sub>adj</sub>	R <sup>2</sup> <sub>chg</sub>	F <sub>chg</sub>	df1	df2	p
Cognitive and Affective Theories									
	1	0.486	0.236	0.233	0.236	65.436	2	423	0.000
	2	0.644	0.415	0.403	0.178	21.161	8	417	0.000
Cognitive Theory									
	1	0.388	0.151	0.149	0.151	75.355	1	425	0.000
	2	0.570	0.325	0.314	0.175	18.061	6	419	0.000
Affective Theory									
	1	0.347	0.121	0.119	0.238	58.189	1	424	0.000
	2	0.625	0.390	0.385	0.270	62.065	4	421	0.000

Note. Dependent Variable = Suicidal Ideation

The results of the hierarchical multiple regression analysis suggests that a significant proportion of the total variance in suicidal ideation can be predicted by the combined use of the cognitive and affective theories of suicide where  $R^2 = .42$ ,  $F(8,417) = 36.91$ ,  $p < .001$ . Additionally, the cognitive theory alone where  $R^2 = .33$ ,  $F(6,419) = 28.84$ ,  $p < .001$  was a worse predictor than the affective theory alone where  $R^2 = .39$ ,  $F(4,425) = 67.38$ ,  $p < .001$  but they were better predictors when both theories were used to predict suicidal ideation. Approximately 33% of the variation in suicidal ideation was predicted by cognitive theory, 39% by the affective theory, and 42% by both theories combined. As hypothesized, the small change in predictive power from combining the two theories suggests that there is a large percentage of overlap between the two theories. Based off of the analysis, 30% of the predictive powers from the affective and cognitive theories overlap. This leaves only a small proportion of the variation explained by the theories that does not coincide with the other theory, 9% from the affective theory and 2.5% from the cognitive theory. The small part of the variance from each theory that cannot be explained by the other theory suggests the constructs in each theory coincide a majority of the time.

Upon the review of the scales' betas it was found that nearly all the scales were statistically significant without much variation in the standardized coefficients' betas. This would suggest that one theory or scale is not completely superior at accounting for the variance or scores of suicidal ideation.

### Discussion

The purpose of this study was to determine whether two theories of suicide could be conceptually combined to produce a deeper

understanding of suicide. More precisely, if the cognitive and affective theories of suicide have similarities, it would open the possibility of creating better safety plans, risk assessments, and improved emergency response interventions from the deeper understanding of suicide.

### Overview of Findings

The first hypothesis was regarding the overlap of unmet psychological needs in the affective theory and the stress-diathesis in the cognitive theory. The correlation between the scale measuring unmet psychological needs and the stress-diathesis was statistically significant, the NLEQ and INQ. This would suggest there was a positive relation between college-aged student's feelings of unmet psychological needs and the stress-diathesis. The second hypothesis concerned the correlation between press and schemas. The negative correlation between the scale used for schemas, BCSS, and the single question used to measure press was statistically significant. The BCSS correlated significantly with the single question of how much press a person is experiencing. This means that press and schemas could be thought of as the same concept and might be measured as such. The third hypothesis addressed the association between perturbation and cognitive errors. The measurement for the cognitive errors, the CDS, and for perturbation, the RASQ, correlated positively. This indicates that there is a relationship between the two constructs in the college aged population. The fourth hypothesis concerned the correlation between psychache and the cognitive triad. The psychache scale and the BDI-II were positively correlated, which suggests that there is a relationship between the two independent constructs.

The fifth hypothesis addressed the theories' precursors of unmet psychological needs and the

stress diathesis correlating to the theory's consequences of press, psychache, perturbation, the cognitive triad, schemas, and cognitive errors as a whole. The analysis supports that most of the theorized precursors could lead to the theorized consequences as they relate to suicidal ideation. The correlational data suggests there is some relationship between them as well. While they may not be similar in every aspect, as they relate to suicidal ideation the overlap makes them functionally identical in real world application of either theory. This could mean that the theories are correct in the order in which they present the precursors and consequences. Functionally, the data would suggest that the best interventions may work primarily with these precursors in the college population. More research is needed to find the how the causal properties of the theories interact and how targeted interventions and preventative measures could be best focused for the general populous and clinical samples.

The sixth hypothesis addressed that the theories together would be a better predictor of suicide ideation than any single aspect or one theory alone. The main method which this theory was tested was through a hierarchical multiple regression analysis with suicide ideation as the dependent variable. Although they did not overlap considerably when only using the precursors of each theory, this difference was negated when all aspects of each theory were combined. This may suggest that although the precursors to each theory themselves may not overlap it is accounted for later by the variance in other measures. The further evidence for this proposal is that the precursors do not correlate very strongly with each other but do correlate strongly with some of the other aspects within the other theories. Although some constructs had more statistical power, the variation from scale to scale was to great enough to suggest one construct is not completely superior at accounting for the variance in suicidal ideation. Furthermore, it suggests that combining these two theories could lead to better outcomes overall when put into practice. The knowledge that these two theories could be related in several different aspects means that other theories should be reviewed on how they overlap conceptually. This, and future studies, can then support the creation of having a unified theory of suicide.

#### *Limitations*

There were several limitations of this study including the nature of the population sample. The participants were generally homogeneous in relation to demographic variables, such as race, as well due to further sampling issues. Because of

this, there is a clear understanding of only a specific demographic of people, female college-aged students.

A further limitation is that only suicidal ideation was measured, which does not directly translate to suicidal intent, plans, or future attempts. This may have created a data set that is not as meaningful or directly oriented with the theories' intended target. Further, because of the correlational nature of the data, it could further be that overlap of the two theories is due to some artifact or unknown third variable which is causing these two theories to be similar. Protective factors against suicide were not factored into the calculations as well, which can better help determine how the theories in question come into play being weighed against protective aspects in the mind of a suicidal individual. For example, there was little assessment of avoidance, attachment, or close relationships, which can be important factors to consider for assessing suicidality in college students (Hope, 2009).

Many of these issues could have been addressed through changing the sample to include those in clinical setting and the general populous in more than one location throughout the US. More of the limitations could have been addressed through follow-up data collection at specific intervals such as 3 months, 6 months, and a year. In order to address the limitation of only measuring suicidal ideation, further analysis could have included more direct data about suicidal traits and aspects such as intent or plans.

#### *Conclusion*

This study found that the cognitive and affective theories of suicide overlap conceptually. By scrutinizing each aspect of both theories as it relates to the other theoretically and statistically, it was found that the two theories have considerable similarities. Although the two theories are similar, they still give some additional depth to the understanding to suicide individually. This suggests combining the theories into one that incorporates all aspects would be of benefit. Future research should focus first on addressing the limitations mentioned in this study. Once these concerns are able to be weighted appropriately, clinicians and researchers should seek to further find how other theories of suicide overlap conceptually. The focus of this research would primarily be concerned with the ways in which each theory contributes to a further understanding of suicide.

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