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## Basic psychological needs, suicidal ideation, and risk for suicidal behavior in young adults

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### Abstract

This study examined associations between the satisfaction of basic psychological needs of autonomy, competence, and relatedness with current suicidal ideation and risk for suicidal behavior. Two logistic regressions were conducted with a cross-sectional database of 440 university students to examine the association of need satisfaction with suicidal ideation and risk for suicidal behavior, while controlling for demographics and depressive symptoms. Suicidal ideation was reported by 15% of participants and 18% were found to be at risk for suicidal behavior. A one standard deviation increase in need satisfaction reduced the odds of suicidal ideation by 53%, OR (95% CI) = 0.47 (0.33-0.67), and the odds of being at risk for suicidal behavior by 50%, OR (95% CI) = 0.50 (0.37-0.69). Young adults whose basic psychological needs are met may be less likely to consider suicide and engage in suicidal behavior. Prospective research is needed to confirm these associations.

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In 2009, suicide was the 3<sup>rd</sup> leading cause of death among individuals 15 to 24 and the 2<sup>nd</sup> leading cause among those 25 to 34 (Centers for Disease Control and Prevention, 2012). The years of potential life lost in young adults represents significant losses to individuals, family and friends, as well as society. To inform prevention efforts in this population, researchers have started to examine protective factors that may reduce risk of suicidal ideation, suicide attempts, and suicide (Hirsch, Conner, & Duberstein, 2007; Hirsch, Wolford, Lalonde, Brunk, & Parker-Morris, 2009; Hirsch & Barton, 2011; Lamis, Ellis, Chumney, & Dula, 2009). Few studies have examined protective factors from the purview of a theory of human motivation, such as Self Determination Theory (Deci & Ryan, 1980; Ryan & Deci, 2002). Such theories suggest that individuals whose basic psychological needs are met may be less likely to consider and be at lower risk for suicidal behavior (e.g., suicide attempts and suicide) (Britton, Patrick, & Williams, 2011; Britton, Williams, & Conner, 2008).

Self-Determination Theory (SDT; Deci & Ryan, 1980; Ryan & Deci, 2002) is an organismic theory that addresses the interaction between individual and environmental influences on human functioning and development. According to SDT, people are growth-oriented organisms that are intrinsically motivated to pursue and overcome challenges, and actualize their potential. However, SDT acknowledges that social-environmental influences can support or thwart people's natural tendency towards growth and development. SDT posits that three universal and basic psychological needs - for autonomy, competence, and relatedness - must be met in order for individuals to successfully pursue their innate interests and overcome the challenges they face (Deci & Ryan, 2000). People need to perceive themselves as *autonomous* and to experience their behavior as self-directed and congruent with their values and beliefs. They also need to have a sense of *competence* and believe that they can achieve their goals and excel in the activities they engage in. In addition, people are inherently social and require a sense of *relatedness* or acceptance and caring from others to remain motivated and engaged.

A sub-theory of SDT, Basic Psychological Needs (BPN) theory, proposes that the universal and basic psychological need for autonomy, competence, and relatedness are also directly associated with individuals' sense of wellbeing (Deci & Ryan, 2000). Research suggests that autonomy and competence are positively associated with indicators of physical and psychological wellbeing. In a meta-analysis using 184 data sets, higher levels of perceived autonomy and competence predicted higher levels of healthy behaviors (e.g. healthy eating, exercising), greater vitality, improved quality of life, greater satisfaction with life, fewer unhealthy behaviors (e.g., smoking, alcohol abuse), and lower levels of depression and anxiety (Ng et al., 2012). People who perceive themselves as autonomous and competent therefore have better physical and mental health, which seems antithetical to the suicidal state. When their psychological needs are undermined, people have poorer physical and mental health, increasing their risk for negative outcomes such as suicide ideation and behavior. Thus, people who perceive that their basic psychological needs are supported are expected to be less likely to think about and engage in suicidal behavior.

The idea that psychological needs play a critical role in the development of suicidal thoughts and behavior provides the foundation for many theories of suicidal behavior (Joiner, 2005; Shneidman, 1996; Van Orden et al., 2010). Research shows that constructs related to these three basic psychological needs are associated with suicide-related outcomes, further supporting the importance of examining their relation with suicidal thoughts and behavior. Constructs related to autonomy and competence such as locus of control, are associated with suicidal ideation and attempts in multiple populations including young adults (Beautrais, Joyce, & Mulder, 1999; Boor, 1979; Froyd & Perry, 1985). Burdensomeness, which is presumably associated with a low sense of competence (Joiner, 2005; Van Orden, Lynam, Hollar, & Joiner, 2006; Van Orden, Witte, Gordon, Bender, & Joiner, 2008), and deficits in problem solving have been found to be associated with suicidal ideation and attempts in a variety of populations including young adults (Dixon, Heppner, & Rudd, 1994; Schotte & Clum, 1982; Schotte & Clum, 1987). There are also numerous findings supporting the association of low relatedness and higher rates of suicidal ideation and attempts (de Catanzaro, 1995; Groholt, Ekeberg, Wichstrom, & Haldorsen, 2000), and suicide in a

variety of populations (Boardman, Grimbaldeston, Handley, Jones, & Willmott, 1999; Johansson, Sundquist, Johansson, & Bergman, 1997). A recent study of college students found that a higher order construct of 'need satisfaction' (i.e., a composite score for all three needs considered together) and each basic need separately moderated the relationship between negative life events and suicidal ideation (Rowe, Walker, Britton, & Hirsch, in press).

The importance of psychological needs is also consistent with current thinking about the pathways through which social support could improve physical and mental health, thereby reducing risk for suicidal thoughts and behavior. Berkman and colleagues proposed one pathway whereby psychosocial factors increase positive health behaviors such as adherence to medical treatments, help-seeking behavior, maintaining a healthy diet, and exercising, resulting in improved health (Berkman, Glass, Brissette, & Seeman, 2000). This would suggest that individuals in environments that support autonomy, competence, or relatedness may be more likely to engage in healthy behavior that reduces their depression, hopelessness, and other factors that may increase their risk for suicidal thoughts and behavior. However, they also posited a direct 'psychological pathway' whereby constructs including self-efficacy, coping effectiveness, and wellbeing directly influence health outcomes. Although not specifically stated by Berkman and colleagues, the hypothesis regarding a psychological pathway is consistent with the concept of psychological needs that must be satisfied to foster health. A direct influence on health presumes that people have needs for autonomy (i.e., self-efficacy), competence (i.e., coping effectiveness) and relatedness, just as they have needs for food, water, and shelter.

Building upon previous research, this study examined the associations of basic need satisfaction with current suicidal ideation and risk for suicidal behavior in young adults. Given previous findings, we hypothesized that the satisfaction of basic needs would lower the odds of suicidal ideation and risk for suicidal behavior. Because individual needs are highly correlated but may have differential associations with each outcome (Johnston & Finney, 2010), exploratory analyses were also conducted for each individual need.

## Methods

### Participants and Procedure

Participants in this study were 440 undergraduates recruited through General Psychology courses who received course credit for their participation. Of the 440, 312 (71%) were female and 402 (91%) were White, non-Hispanic, with a mean age (SD) of 21.01 (6.10). After signing a statement of informed consent detailing the purpose, procedures, and goals of this study, participants completed a packet of self-report measures. All responses to suicide-related questions were screened for imminent suicide risk by study investigators, to determine if immediate intervention was needed (Joiner, Walker, Rudd, & Jobes, 1999). After study completion, all participants were debriefed and provided telephone numbers for local mental health services. An Institutional Review Board approved the project.

## Measures

**Suicidal Ideation**—Current suicidal ideation was measured with item #9 from the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). The item was dichotomized to measure suicidal ideation (1 = “I have thoughts of killing myself but I would not carry them out” or “I would like to kill myself” or “I would kill myself if I had the chance”) and no suicidal ideation (0 = “I don't have any thoughts of killing myself”). Validity for the BDI-II suicidal ideation item is well established (Beck & Steer, 1991; Beck, Brown, & Steer, 1997).

**Risk for Suicidal Behavior**—Risk for suicidal behavior was assessed with the Suicidal Behaviors Questionnaire Revised which has been validated with young adults (SBQ-R; Osman et al., 2001). The SBQ-R is comprised of 4 items (“Have you ever thought about or attempted suicide?”, “How often have you thought about killing yourself in the past year?” “Have you ever told someone that you were going to commit suicide, or that you might do it?”, “How likely is it that you are going to commit suicide some day?”). Each item is scored with item-specific responses, ranging from 1-3 to 0-6. As recommended for non-clinical samples, a cutoff of 7 or higher was used to indicate risk for suicidal behavior. Internal consistency for the SBQ-R was adequate ( $\alpha = 0.78$ , one-sided 95% CI  $\geq 0.75$ ).

**Basic Psychological Needs**—Psychological needs were assessed with the Basic Psychological Needs Scale (BPNS, Johnston & Finney, 2010), a 16-item self-report questionnaire that consists of three subscales assessing autonomy (3 items; e.g., “I feel like I can pretty much be myself in my daily situations.”), competence (6 items, 3 reverse score; e.g., “Most days I feel a sense of accomplishment from what I do.”), and relatedness (7 items, 2 reverse scored; e.g., “I really like the people I interact with.”), that has been validated with young adults. The BPNS is scored on 7-point likert scale with higher scores reflecting greater need support or fulfillment. Scores on the three scales were averaged and summed and a grand mean was calculated (Gagne, 2003). Internal consistency was good for the full scale ( $\alpha = 0.89$ , one-sided 95% CI  $\geq 0.88$ ), good for the relatedness ( $\alpha = 0.84$ , one-sided 95% CI  $\geq 0.82$ ) subscale, and acceptable for the autonomy ( $\alpha = 0.74$ , one-sided 95% CI  $\geq 0.71$ ) and competence ( $\alpha = 0.71$ , one-sided 95% CI  $\geq 0.67$ ) subscales.

**Depressive Symptoms**—Depressive symptoms were assessed with the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) a 21-item measure of cognitive and affective components of depression over the past two weeks. The BDI-II uses a four point likert scale with higher scores indicative of increasingly severe symptoms. The BDI-II has well-established validity and reliability (Beck et al., 1996; Beck, Steer, Ball, & Ranieri, 1996; Steer, Ball, Ranieri, & Beck, 1997), and has been shown to be valid in young adults (Robinson & Kelley, 1996). Prior to scoring, the suicidal ideation item was removed to prevent confounding with the outcomes. Internal consistency was excellent ( $\alpha = 0.91$ , one-sided 95% CI  $\geq 0.90$ ).

## Statistical Analyses

Univariate analyses were used to examine independent associations with suicidal ideation and risk for suicidal behavior. Two multivariate logistic regressions were conducted, the

first predicted current suicidal ideation and the second predicted risk for suicidal behavior. All variables were entered in the multivariate regression models using forced entry. Variables included were standard demographic variables (i.e., gender and age), depressive symptoms to ensure that they did not explain the results (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Konick & Gutierrez, 2005; Van Orden et al., 2008), and the basic needs. Basic needs and depression scores were converted to z-scores to improve interpretation. The Hosmer Lemeshow goodness-of-fit statistic was used to evaluate model fit (Hosmer & Lemeshow, 1989), and odds ratios with 95% confidence intervals were derived using the method of maximum likelihood. Exploratory univariate and multivariate logistic regressions were conducted for each individual need, using the same procedures described above.

## Results

**Suicidal Ideation**—Of the 440 participants, 65 (15%) reported current suicidal ideation. In univariate analyses, basic need satisfaction was associated with suicidal ideation (Table 1). The multivariate model for suicidal ideation provided adequate fit,  $X^2(8) = 2.56, p = 0.96$ . A one standard deviation increase in need satisfaction decreased the odds of suicidal ideation by 53%, OR (95% CI) = 0.47 (0.33-0.67), and a one standard deviation increase in depressive symptoms more than doubled the odds of suicidal ideation, OR (95% CI) = 2.25 (1.63-3.11).

In exploratory univariate analyses, autonomy, competence, and relatedness were associated with suicidal ideation (Table 2). The multivariate model examining autonomy and suicidal ideation provided adequate fit,  $X^2(8) = 5.74, p = 0.68$ . A one standard deviation increase in perceived autonomy reduced the odds of suicidal ideation by 45%, OR (95% CI) = 0.55 (0.40-0.76), and a one standard deviation increase in depressive symptoms more than doubled the odds of suicidal ideation, OR (95% CI) = 2.54 (1.85-3.47). The multivariate model examining the association between competence and suicidal ideation provided adequate fit,  $X^2(8) = 6.69, p = 0.57$ . A one standard deviation increase in perceived competence decreased the odds of suicidal ideation by 54%, OR (95% CI) = 0.46 (0.31-0.68), and a one standard deviation increase in depressive symptoms more than doubled the odds of suicidal ideation, OR (95% CI) = 2.24 (1.60-3.11). The multivariate model examining relatedness and suicidal ideation also provided adequate fit,  $X^2(8) = 4.23, p = 0.84$ . A one standard deviation increase in perceived relatedness reduced the odds of suicidal ideation by 38%, OR (95% CI) = 0.62 (0.45-0.84), and a one standard deviation increase in depressive symptoms more than doubled the odds of suicidal ideation, OR (95% CI) = 2.65 (1.94-3.60).

**Risk for Suicidal Behavior**—Of the 440 participants, 80 (18%) scored 7 or above on the SBQ-R indicating risk for suicidal behavior. In univariate analyses, basic need satisfaction was associated with increased risk for suicidal behavior (see Table 3). The multivariate model for risk for suicidal behavior provided adequate fit,  $X^2(8) = 13.66, p = 0.09$ . A one standard deviation increase in need satisfaction reduced the odds of being at risk for suicidal behavior by 50%, OR (95% CI) = 0.50 (0.37-0.69), and a one standard deviation increase in depressive symptoms increased the odds of being at risk for suicidal behavior by 59%, OR (95% CI) = 1.59 (1.20-2.10).

In exploratory univariate and multivariate analyses, autonomy, competence, and relatedness were associated with risk for suicidal behavior (Table 2). The multivariate model examining autonomy and risk for suicidal behavior provided adequate fit,  $X^2(8) = 6.30, p = 0.61$ . A one standard deviation increase in perceived autonomy reduced the odds of being at risk for suicidal behavior by 33%, OR (95% CI) = 0.67 (0.51-0.88), and a one standard deviation increase in depressive symptoms increased the odds of being at risk for suicidal behavior by 87%, OR (95% CI) = 1.87 (1.44-2.44). The multivariate model examining competence and risk for suicidal behavior provided adequate fit,  $X^2(8) = 7.03, p = 0.53$ . A one standard deviation increase in perceived competence reduced the odds of being at risk for suicidal behavior by 51%, OR (95% CI) = 0.49 (0.35-0.68), and a one standard deviation increase in depressive symptoms increased the odds of being at risk for suicidal behavior by 56%, OR (95% CI) = 1.56 (1.17-2.08). The multivariate model examining relatedness and suicide attempts also provided adequate fit,  $X^2(8) = 5.93, p = 0.66$ . A one standard deviation increase in perceived relatedness reduced the odds of being at risk for suicidal behavior by 42%, OR (95% CI) = 0.58 (0.44-0.76), and a one standard deviation increase in depressive symptoms increased the odds of being at risk for suicidal behavior by 79%, OR (95% CI) = 1.79 (1.38-2.32).

## Discussion

This study examined the association of the basic psychological needs of autonomy, competence, and relatedness with current suicidal ideation and risk for suicidal behavior in a young adult sample. Our primary hypothesis was supported as total need satisfaction was associated with lower odds of suicidal ideation and risk for suicidal behavior. Exploratory analyses provided further support, suggesting that the satisfaction of the needs for autonomy, competence, and relatedness were also independently associated with lower odds of suicidal ideation and risk for suicidal behavior.

These findings add to a growing literature using BPN theory to better understand the factors that reduce risk for suicidal ideation and suicidal behavior in young adults. BPN theory posits that the satisfaction of the basic psychological needs for autonomy, competence, and relatedness are associated with an increased sense of wellbeing that presumably lowers risk for suicidal thoughts and behavior. Previous findings show that support of these basic needs serve as a buffer between negative life events and suicidal ideation (Rowe, Walker, Britton, & Hirsch, in press). These findings support that satisfaction of these basic needs provides protection against suicidal ideation, and suggest it may also protect against suicidal behavior. This advancement is critical as previous investigations have focused solely on suicidal thoughts.

If they are replicated in prospective studies, these findings may have important implications for the prevention of suicidal thoughts and behavior in young adults. Interventions based on SDT principles are associated with increased engagement in healthy behaviors such as smoking cessation and diabetes management (Williams et al., 2006; Williams, McGregor, Zeldman, Freedman, & Deci, 2004; Williams, McGregor, King, Nelson, & Glasgow, 2005; Williams et al., 2006; Williams, Niemiec, Patrick, Ryan, & Deci, 2009). Prospective studies supporting the associations between basic psychological needs and suicidal ideation and



suicidal behavior would support the application of interventions that are congruent with BPN theory such as motivational interviewing to suicide prevention (Britton et al., 2011; Britton, Conner, & Maisto, 2012; Britton et al., 2008).

A number of limitations must be considered when interpreting these findings. Data were cross-sectional, preventing causality and directionality from being established. For example, need satisfaction may reduce risk for suicidal ideation, but suicidal thoughts could also negatively impact an individual's sense of autonomy, competence, and relatedness. Potentially important contributors to suicidal thoughts and behavior in young adults, such as alcohol and drug use, were not available for analysis and should be included in future studies. Data were collected from a sample of predominantly white, female undergraduate students, reducing generalizability.

Nonetheless, this study suggests that satisfaction of basic psychological needs may lower the odds that young adults consider or engage in suicidal behavior. These findings also support the notion that SDT-based constructs such as supporting or thwarting the satisfaction of basic psychological needs, autonomy, intrinsic motivation, and goal pursuit and attainment, may have important implications for understanding and preventing suicidal thoughts and behavior in this population (Bureau, Mageau, Vallerand, Rousseau, & Otis, 2012; Deci & Ryan, 2000). Future research utilizing prospective designs should examine the associations among the basic psychological needs, possible mechanisms (i.e., help seeking, treatment engagement, intrinsic motivation, vitality), and suicidal ideation and behavior in young adults.

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**Table 1**  
**Basic psychological needs and suicidal ideation in young adults (N = 440)**

	Non-Ideators N = 375		Ideators N = 65		Univariate Analyses OR (95% CI)		Multivariate Analysis OR (95% CI)	
	M (SD)	N (%)	M (SD)	N (%)				
Female	273 (73%)		39 (60%)		0.56 (0.32-0.97)		0.61 (0.32-1.18)	
Age	21.10 (6.38)		20.49 (4.16)		0.98 (0.93-1.03)		0.97 (0.92-1.02)	
Depression <sup>a</sup>	1.97 (2.05)		5.25 (3.41)		3.10 (2.33-4.12)		2.25 (1.63-3.11)	
BPNS <sup>a</sup>	5.54 (0.81)		4.50 (0.88)		0.31 (0.23-0.43)		0.47 (0.33-0.67)	

<sup>a</sup>Converted to z-scores in univariate and multivariate analyses

**Table 2**  
**Individual psychological needs and suicidal ideation in young adults (N = 440)**

	Non-Ideators		Ideators		Univariate Analyses OR (95% CI)	Autonomy Multivariate Analysis OR (95% CI)	Competence Multivariate Analysis OR (95% CI)	Relatedness Multivariate Analysis OR (95% CI)
	N = 375	M (SD)	N = 65	M (SD)				
Female	--	--	--	--	--	0.61 (0.32-1.16)	0.56 (0.29-1.07)	0.60 (0.31-1.13)
Age	--	--	--	--	--	0.97 (0.92-1.03)	0.97 (0.92-1.02)	0.95 (0.90-1.01)
Depression <sup>a</sup>	--	--	--	--	--	2.54 (1.85-3.47)	2.24 (1.60-3.11)	2.65 (1.94-3.60)
Autonomy <sup>a</sup>	5.60 (1.02)	4.47 (1.21)	0.39 (0.29-0.51)	0.55 (0.40-0.76)	--	--	--	--
Competence <sup>a</sup>	5.24 (0.92)	4.14 (0.93)	0.30 (0.21-0.41)	--	--	0.46 (0.31-0.68)	--	--
Relatedness <sup>a</sup>	5.78 (0.90)	4.89 (1.05)	0.44 (0.34-0.57)	--	--	--	--	0.62 (0.45-0.84)

<sup>a</sup>Converted to z-scores in univariate and multivariate analyses

**Table 3**  
**Individual psychological needs and risk for suicidal behavior in young adults (N = 440)**

	Low Risk N = 360		High Risk N = 80		Univariate Analyses OR (95% CI)		Multivariate Analysis OR (95% CI)	
	M (SD)	N (%)	M (SD)	N (%)				
Female	258 (72%)		54 (68%)		0.82 (0.49-1.38)		0.98 (0.55-1.76)	
Age	20.98 (6.41)		21.16 (4.45)		1.00 (0.97-1.04)		1.00 (0.96-1.05)	
Depression <sup>a</sup>	2.04 (2.17)		4.35 (3.32)		2.22 (1.74-2.82)		1.59 (1.20-2.10)	
BPN <sup>a</sup>	5.54 (0.79)		4.69 (1.02)		0.39 (0.30-0.52)		0.50 (0.39-0.69)	

<sup>a</sup>Converted to z-scores in univariate and multivariate analyses

**Table 4**  
**Individual psychological needs and risk for suicidal behavior in young adults (N = 440)**

	Low Risk N = 360		High Risk N = 80		Univariate Analyses OR (95% CI)	Autonomy Multivariate Analysis OR (95% CI)	Competence Multivariate Analysis OR (95% CI)	Relatedness Multivariate Analysis OR (95% CI)
	M (SD) N (%)		M (SD) N (%)					
Female	--	--	--	--	--	0.95 (0.54-1.68)	0.91 (0.51-1.62)	0.98 (0.55-1.74)
Age	--	--	--	--	--	1.00 (0.96-1.04)	1.00 (0.96-1.05)	0.99 (0.95-1.04)
Depression <sup>a</sup>	--	--	--	--	--	1.87 (1.44-2.44)	1.56 (1.17-2.08)	1.79 (1.38-2.32)
Autonomy <sup>a</sup>	5.58 (1.02)	4.78 (1.32)	0.51 (0.40-0.65)			0.67 (0.51-0.88)	--	--
Competence <sup>a</sup>	5.24 (0.90)	4.33 (1.08)	0.38 (0.28-0.50)			--	0.49 (0.35-0.68)	--
Relatedness <sup>a</sup>	5.79 (0.88)	4.98 (1.09)	0.46 (0.36-0.58)			--	--	0.58 (0.44-0.76)

<sup>a</sup>Converted to z-scores in univariate and multivariate analyses