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Big Five Personality and Depressive Symptoms: A Self-Determination Theory Perspective on Students' Positive Relationships With Others

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Abstract

This study examines the contribution of social support, self-regulation, and Big Five personality traits in explaining the variance in depressive symptoms among college students based on self-determination theory (SDT). Measures were completed by 235 college students. Results indicated autonomous self-regulation significantly predicted lower levels of depressive symptoms, while controlled self-regulation significantly predicted higher levels of depressive symptoms among the participating students. The informants higher in neuroticism reported significantly more depressive symptoms. However, the strongest predictor of the students' depressive symptoms was the quality of their relationships with others.

Keywords: depression, autonomous self-regulation, social support, college students

In recent decades, depression among college students has become a prevalent phenomenon in many colleges and universities in the United States (Furr, Westefeld,

McConnell, & Jenkins, 2001). As the size of college enrollment increases each year, the number of students being diagnosed with depression also increases (Novotney, 2014). According to a recent national research survey conducted by the American College Health Association (2014), 32.6% of college students (N= 79,266, from 140 schools) reported experiencing depression and 8.1% reported considering suicide within the past 12 months. This study aims to explore the contribution of social support, self-regulation, and personality traits in explaining the variance in depressive symptoms among college students, with the hope to provide an important lens through which counseling professionals can understand the experience of students struggling with depression.

There has been a move in recent years by universities and colleges around the United States to address the importance of social support as a way to minimize the risk of students falling into depression, particularly among students with different personality characteristics (Hefner & Eisenberg, 2009). Recent studies have argued that a supportive environment improved one's psychological well-being through the quality of one's relationship with other people, whereas individuals with low social support often experienced greater symptoms of depression (Wang, Cai, Qian, & Peng, 2014; Williams & Galliher, 2006). Nevertheless, some researchers have pointed out that both personality and self-regulation are relevant factors when looking at how social support predicts depressive symptoms for several reasons (Ryan & Deci, 2000b; Swickert, Hittner, & Foster, 2010).

First, it is important to consider how people with different personality traits vary in the way they forge relationships with others to seek social support (Swickert et al., 2010). In particular, the Big Five has been used as a reliable way to measure individual differences in personality traits. The Big Five personality model is a personality model based on five personality dimensions: *openness*, *conscientiousness*, *extraversion*, *agreeableness*, and *neuroticism* (Goldberg, 1992). The first factor, *openness*, includes traits such as being imaginative, cultured, and curious. *Conscientiousness* includes traits related to dependability, responsibility, and goal directed behavior. *Extraversion* includes traits such as sociability, gregariousness, and expressiveness. *Agreeableness* consists of traits such as courteousness, modesty, and friendliness. Finally, *neuroticism* is marked by the tendency to be tense, anxious, and moody (Goldberg, 1992). For instance, people high in the personality trait of *agreeableness* tend to seek more social support from their peers when they go through a stressful time (Branje, van Lieshout, & van Aken, 2004). Studies have also suggested that various personality dimensions, such as *neuroticism* and *extraversion*, were strongly associated with social support and depressive symptoms (Brown, 1988; Swickert et al., 2010).

Second, although personality characteristics play a vital role in the way people develop relationships with one another, the degree to which a person regulates their sense of self cultivates an active commitment in their relationships with other people (Blais, Sabourin, Boucher, & Vallerand, 1990). According to Ryan and Deci (2000a), Self-Determination Theory (SDT) proposes that self-regulation is determined by the degree to which a person internalizes their behavior based on intrinsic versus extrinsic types of motivation. Intrinsic motivation is characterized by more autonomous activities such as making volitional decisions, in contrast to extrinsic motivation, which is driven by decisions controlled by external forces such as others' expectations. Research in the past found that students experienced greater autonomous self-regulation when they perceived

greater need support from their social environment, which in turn predicted greater psychological well-being and decreased maladaptive behaviors (Niemic et al., 2006).

Third, despite the voluminous research on how personality, self-regulation, or social support influence depressive symptoms, there has been little focus on examining how the joint effects of these three factors predict depressive symptoms among college students and how the variables relate to each other. The main research question asks whether social support, self-regulation, and personality traits would predict depressive symptoms among college students.

To answer this comprehensively, we proposed to answer the following subsequent questions. First, does perceived social support predict lower levels of depressive symptoms among the students? Second, is there a significant relationship between students' self-regulated behaviors and depressive symptoms? Finally, is there a significant relationship between the Big Five personality traits and depressive symptoms among the students?

Method

Participants

Participants were 235 college students recruited from a Northeastern university in the United States (65.4% female; age $M = 19.66$, $SD = 1.99$). Participants volunteering for the study received course credit.

Procedures

Participants were asked to complete a confidential questionnaire including measures of personality, depressive symptoms, relationship quality, and self-regulation. All participants provided their written informed consent before completing the measures. Data were analyzed with SPSS for Windows (version 23).

Measures

Big Five Personality Traits. Thirty adjectives were used to measure the Big Five traits of *neuroticism*, *extraversion*, *conscientiousness*, *agreeableness*, and *openness* (Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; six adjectives per trait). Participants rated the extent to which each attribute or characteristic described their own personality on a 7-point Likert-type scale of 1 (*not at all*) to 7 (*very much*). Internal consistency alphas for *extraversion*, *neuroticism*, *agreeableness*, *conscientiousness*, and *openness* were .67, .79, .72, .71, and .65, respectively.

Center for Epidemiological Studies-Depression (CES-D; Radloff, 1977). Six items from the CES-D were used to assess participants' experience of depressive symptoms during the past month (e.g., "I felt sad"). Responses were made on a 5-point Likert-type scale, ranging from 1 (*not at all*) to 5 (*very much*). The CES-D yielded good internal consistency, with $\alpha = .85$.

Positive Relations with Others (PRO; Ryff & Keyes, 1995). To measure perceived social support, the 6-item Positive Relations with Others scale was used to assess the quality of relations that participants tended to form with others. The scale had good internal consistency reliability ($\alpha = .74$). Each item was rated on a 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores

indicate warm, satisfying, trusting relationships with others, concern for others' welfare, a strong capacity for empathy, affection and intimacy, and an understanding of the nature of give and take in human relationships. Lower scores denote few close and trusting relationships with others and difficulties being warm, open, and concerned about others.

Learning Self-Regulation Questionnaire (SRQ-L). The 12 item SRQ-L measures differences in students' motivation to learn or the self-regulation of learning behaviors, with ratings on a 7-point Likert-type scale ranging from 1 (*not at all true*) to 7 (*very true*). In this study, two subscale scores were derived, for autonomous regulation, reflecting more autonomous motivation ($\alpha = .68$), and controlled regulation, reflecting more pressured motivation ($\alpha = .73$). Three from the twelve items were excluded due to low item-total correlation.

Results

We conducted a bivariate correlation analysis to explore the associations of perceived social support, self-regulation and the Big Five personality traits with depressive symptoms among the college students. Autonomous self-regulation was significantly correlated with *openness* ($r = .16, p < .05$), *conscientiousness* ($r = .17, p < .01$), *extraversion* ($r = .16, p < .05$), and *agreeableness* ($r = .21, p < .01$). On the other

Table 1
Means, Standard Deviations, and Intercorrelations

	Subscales	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9
	Big-Five Personality Traits			-								
1	Openness	3.35	.99	-								
2	Conscientiousness	3.96	.72	.00	-							
3	Extraversion	3.49	.75	.18**	.12	-						
4	Agreeableness	4.00	.58	.04	.41**	.12	-					
5	Neuroticism	3.32	.44	-.01	-.16*	-.24**	-.06	-				
	Self-Regulation											
6	Autonomous	3.92	.70	.16**	.17**	.16*	.21*	.05	-			
7	Controlled	2.92	.71	.02	.11	-.03	.17**	.18**	-.02	-		
	Perceived Social Support											
8	Positive Relationships with Others (PRO)	3.93	.75	.08	.17*	.31**	.26**	-.33**	.19**	.00	-	
9	Outcome Variable Depressive symptoms (CES-D)	2.30	.91	-.09	-.17**	-.22**	-.11	.33**	-.22**	.15*	-.48**	-

Note: * $p < .05$., ** $p < .01$

hand, only *agreeableness* ($r = .17, p < .01$) and *neuroticism* ($r = .18, p < .01$) were significantly associated with controlled self-regulation. Finally, the participating students' positive relationships with others was significantly related to *conscientiousness* ($r = .17, p < .05$), *extraversion* ($r = .31, p < .001$), and *agreeableness* ($r = .26, p < .001$).

As seen in Table 1, the association between positive relationships with others and depressive symptoms was negative ($r = -.48, p < .01$); people who experienced positive interpersonal relations were less likely to endorse depressive symptoms. Autonomous self-regulation was negatively correlated with depressive symptoms ($r = -.22, p < .01$), whereas controlled self-regulation was positively correlated with depressive symptoms ($r = .15, p < .05$). Among the Big Five personality traits, *conscientiousness* ($r = -.17, p < .01$) and *extraversion* ($r = -.22, p < .01$) were negatively correlated with depressive symptoms. Alternatively, *neuroticism* was positively correlated with depressive symptoms ($r = .33, p < .01$). However, the correlation between depressive symptoms and *openness*, as well as that between depressive symptoms and *agreeableness*, were not significant.

Multiple Regression Analyses

This study probed the college students' depressive symptoms by using a three-step hierarchical regression analysis in order to 1) test SDT assumptions according to which individuals are active organisms and that natural developmental tendencies should be supported by the social environment (Ryan & Deci, 2000b), and 2) examine the influence of Big Five personality traits, self-regulation, and perceived positive social support from others in a sequential way. All continuous predictor variables were mean-centered prior to analysis.

In the first step, the Big Five personality traits were entered as covariates (Model 1), given the association between traits and well-being outcomes found in prior research (Cobb-Clark & Schurer, 2012; Costa, & McCrae, 1992); in the second step, autonomous and controlled self-regulation were simultaneously entered in order to examine individual differences in the types of motivation or regulation (Model 2; Ryan & Deci, 2000a); in the final step, students' positive relations with others was entered to investigate the role of individuals' social support (Model 3; Ryff & Keyes, 1995).

As shown in Table 2, the Big Five personality traits entered in the first step were significant covariates, $F(5, 229) = 7.977, p < .001, R^2 = .15$. Big Five personality traits accounted significantly for 15% of the variance in depressive symptoms. The relationships were such that higher levels of extraversion, but lower levels of neuroticism, were associated with fewer depressive symptoms. When autonomous and controlled self-regulation were added in the second step, the prediction model was statistically significant, $F(7, 227) = 7.704, p < .001, R^2 = .19$. In other words, after controlling for the Big Five personality traits, autonomous and controlled self-regulation additionally accounted for 19% variance of depressive symptoms among college students. Autonomous self-regulation mostly predicted lower depressive symptoms among college students. In the final step, the model increased substantially in its predictive power: positive relations with others contributed significantly to the regression model, $F(8, 226) = 12.425, p < .001$ and accounted for 31% of the variation in depressive symptoms among college students. In addition, college students' positive relationships with others appeared to be the most significant predictor of depressive symptoms. Students who

perceived relationships with the people around them as warm, satisfying, and trusting showed less depressive symptoms.

Table 2

Multiple Regression (N=235)

Predictor variables	Model 1			Model 2			Model 3		
	B	SE-B	β	B	SE-B	β	B	SE-B	β
Big-Five Personality Traits									
Openness	-.06	.06	-.06	-.04	.06	-.04	-.03	.05	-.04
Conscientiousness	-.12	.09	-.10	-.10	.08	-.08	-.11	.08	-.09
Extraversion	-.16	.08	-.13*	-.13	.08	-.11	-.03	.07	-.03
Agreeableness	-.05	.11	-.03	-.04	.11	-.02	.08	.10	.05
Neuroticism	.59	.13	.28**	.58	.13	.28**	.36	.13	.17*
Self-Regulation									
Autonomous				-.24	.08	-.18*	-.17	.08	-.13*
Controlled				.14	.08	.11	.15	.07	.12*
Social Connectedness									
Positive Relations with Other (PRO)							-.46	.08	-.38**
R^2	.15**			.19*			.31**		
R^2 Change				.04			.12		
F	7.977			6.128			36.937		

Note: * $p < .05$., ** $p < .01$

Discussion

The aim of this study was to examine the contributions of social support, self-regulation, and personality traits to explain the variance in depressive symptoms among college students. The results showed that students scoring higher in neuroticism reported higher depressive symptoms. This is consistent with past findings (Roelofs, Huibers, Peeters, Arntz, & Van Os, 2008). We also found that both autonomous and controlled self-regulation were significant predictors of depressive symptoms among college students in the final model. The results indicated that autonomous self-regulation (e.g., studying a subject because one values and enjoys it) would be associated with lower levels of depressive symptoms, whereas controlled self-regulation (e.g., studying because one feels pressured or forced to do so) would be associated with higher levels of depressive symptoms. The findings were consistent with past research indicating that autonomous self-regulation was associated with greater enhancement of psychological well-being (Nix, Ryan, Manly, & Deci, 1999). In contrast, controlled types of self-regulation increase people’s vulnerability to fall into depression (McBride et al., 2010).

Additionally, the results of this study provided strong evidence that college students' positive relationships with others was associated with lower risk of depressive symptoms. Consistent with previous findings, the results of this study also found that social connectedness or positive relationships with close peers was associated with improving one's psychological well-being (Lynch, 2013).

College represents an important life transition in which students attempt to navigate a multitude of life decisions and role changes such as financial worries, leaving home, or being independent. For counselors to work effectively with multiple challenges and risks that college students face, it will be helpful to have an increasing awareness of students' personal sources of social support and factors that predict students' well-being (Avey, Luthans, Smith, & Palmer, 2010). Moreover, personality types play an important role in students' attempts to seek social connectedness and support. Personality, motivation, and social relationships represent important personal resources that can serve as students' buffers against depressive symptoms. Awareness of these associations is important for both educators and counseling professionals who work with students.

Depression among college students represents a significant challenge that needs to be addressed. The present research highlighted the importance of social connectedness and social support among college students, even after controlling for the role of Big Five personality traits and student motivation, in understanding the nature of college student depression. Future research might fruitfully explore further the ways in which counseling professionals can help college students either avoid, or at least reduce, their experience of depressive symptoms by helping them understand the possible influences of their own personality, the quality of their motivation for learning, and their personal relationships with others.

There are a number of limitations of this study. First, the data were drawn from a cross-sectional sample. Hence, future studies would benefit from the use of longitudinal or qualitative designs. Second, the sample consisted of a fairly homogenous group. It would be important for future studies to replicate the study among college students from various cultural backgrounds, or from different types of educational institutes.

In sum, as previously noted, prior work in self-determination theory has underscored the importance of satisfaction of the basic psychological needs for autonomy, relatedness, and competence. Scholars are beginning to explore how counselors can make use of this perspective in understanding the implications for client motivation (Lynch, 2013; Ryan, Lynch, Vansteenkiste, & Deci, 2011), as well as treatment and intervention (Lynch, 2014), in particular for depression (Zuroff et al., 2007). Together with the results of the present study, this emerging body of research leads us to suggest that it will be important for counselors working in college- and university-based counseling centers to familiarize themselves with the concept of basic psychological needs. An appreciation for the concept of basic needs will help counselors to assist their student-clients to develop the skills and resources that will help them to satisfy these needs in ways that will reduce or even avoid the symptoms associated with depression, to seek help when it is needed, and, ultimately, to succeed academically.

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