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## The moderating role of emotion regulation on the relationship between depression and suicidal ideation among students

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### Abstract

The study examined the moderating role of emotion regulation in the relationship between depression and suicidal ideation among university undergraduates. Participants in the study comprised 536 undergraduates (286 males and 217 females) drawn from University of Nigeria Nsukka. Emotion regulation is comprised of two strategies: Cognitive reappraisal and expressive suppression. Center for Epidemiologic Studies Depression Scale (CES-D), Suicidal Ideation Attributes Scale (SIDAS), and Emotion Regulation Questionnaire (ERQ) were the scales used to collect data from the participants. Hayes regression-based PROCESS macro was used to analyze the data. Results showed that depression predicted suicidal ideation ( $B = .63, t = 4.34, p >.001$ ), indicating that for everyone unit rise in depression, suicidal ideation increases by .63 unit. Both cognitive reappraisal and expressive suppression did not predict suicide ideation. However, cognitive reappraisal moderated the relationship between depression and suicidal ideation such that depression predicted suicidal ideation for those with low cognitive reappraisal ( $B = .28, t = 4.91, p <.001$ ), moderate cognitive reappraisal ( $\beta = .14, t = 3.45, p <.01$ ), but not for those with high cognitive reappraisal ( $B = .00, t = .06, p = .950$ ). Expressive suppression also moderated the relationship between depression and suicidal ideation such that depression did not predict suicidal ideation for those with low expressive suppression ( $B = -.64, t = -1.15, p = .250$ ), moderate expressive suppression ( $\beta = .08, t = 1.92, p = .055$ ), but depression predicted suicide ideation for those with high expressive suppressive ( $B = .027, t = 3.937, p <.000$ ). Findings suggested that behavioral interventions that target adopting healthy emotion regulation skills and proper management may help curtail suicide ideation, especially for those with high symptoms of depression.

**Keyword: Emotion regulation, Depression, Suicide Ideation, Undergraduates**

**Introduction**

Suicide is the deliberate act of killing oneself (World Health Organization [WHO], 2019), and it is a significant public health issue all over the world with about one million people dying by suicide globally every year (WHO, 2015). About 85% of the world's suicide occurs in low and middle-income countries (WHO, 2014) and a high incidence of suicide ideation in developing countries has been reported in a recent study (Fayyaz & Beg, 2019). In Nigeria, suicides accounted for about 1-4% of deaths based on discoveries in medicolegal autopsies (Akhiwu, Nwosu, & Aligbe, 2000; Etebu & Nwosu, 2003). Presently, it has attracted rapid interest in African media (see, Dzokoto, Barnett, Osei-Tutu, & Briggs, 2018) and is of significant concern in the educational sector, particularly in the universities (Nwankwo, 2018; Ohia, 2018). Nigeria lost about 80 people mostly undergraduates to suicide in the year 2018 (Ohia, 2018). Life in the university marks a transitional period for students and some of them may move away from family and homes for the first time. During this period at school, students must learn to navigate the challenges of adult life (American Association of Suicidology, 2015; Nwankwo, 2018). Indeed, studies have shown that youths attending college or university report more suicidal ideation than their peers outside the college (Mortier et al., 2018). Pereira and Cardoso (2015) explained that this could be due to the critical transition students go through during their academic life, which in turn exposes them to more stress and challenges (as compared to their peers). The difficulties faced by some individuals during this critical stage of life may be so overwhelming, therefore result in injurious thoughts, such as suicide ideation.

Suicide ideation is the thought or consideration of killing oneself (Esfalin, Yasama, & Alavi, 2015; Nock et al., 2016). There is need to examine the psychological factors associated with suicide ideation among undergraduate students in Nigeria. Mental health problems such as depression are potent risk factors for suicide (American Foundation for Suicide Prevention, 2015; Centers for Disease Control, CDC; 2015; National Institute of Mental Health, 2015; World Health Organization, 2015). Depression is mostly characterized by low mood, loss of interest in normally pleasurable activities, and weight fluctuations or appetite disturbance regardless of dieting. Other symptoms of depression include changes in psychomotor

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activity, insomnia or hypersomnia, loss of energy or fatigue, feelings of worthlessness or inappropriate guilt, loss of concentration, and recurrent thoughts of one's own death/suicide planning or suicide attempts (American Psychological Association, 2013). The judicial punishment as was stated in the Nigeria Penal Code, Chapter 27, Section 327: "Any person who attempts to kill himself is guilty of a misdemeanor and is liable to imprisonment for one year", is not a sufficient solution because the suicide attempters may have died.

The hopelessness theory of suicide (Abramson, Metalsky, & Alloy, 1989) is based on the assumptions that overwhelming negative thoughts and feelings are what leads an individual to develop depression and later suicide ideation and individual eventually die by suicide. Suicidal ideation is a function of the hopeless cognition about an individual's unchangeable negativity concerning the person's situation so that no matter what one does, the negative situation will never change. Earlier postulations by Beck (1985) discussed the relevance of modal processing in hopelessness cognition to provide a further understanding of suicidality. Modal processing is the role of personality and integration into suicidal behavior through five cognitive schema modes which include cognitive system, affective system, motivational and behavioral system, physiological system, and finally the conscious control system, (Rudd, Joiner, Rajab, 2001) elaborated on modal processing as apply to suicidal behavior. Cognitive systems contain suicidal thoughts and beliefs. The behavioral system involves behavior that promotes suicidality such as planning and preparing for suicide. The affect system involves negative or flat affect such as sadness or depression while the physiological system involves suicidal-related physiological arousal. The modal processing approach in the hopelessness theory of suicide implies that when one of these schemas modes is activated, the effect will spread to other schemas and activate them as well. So as individuals begin to develop hopeless cognitions, they will begin to experience depressed affect, physiological changes, and most importantly, they will begin to behave in ways that propagate suicidal ideation (Beck, 1985)

A systematic review of empirical studies has shown that depression is a major contributing factor to suicide and suicidal behaviors among students (Yu-Hang, Zhou-Ting, Med, & Qian-

Ying, 2017). Researchers have recorded a high prevalence of suicidal behaviors among Nigerian undergraduates due to depression among students in colleges of education (Oladele & Oladele, 2016). However, Pompili (2019) reported that most patients who died through suicide were not depressed, suggesting that there was no strong association between suicide and major depression. The present study aims to examine the relationship between depression (independent variable) and suicide ideation (dependent variables) among students, more importantly, the study has the major aim of seeking to understand if emotion regulation (cognitive reappraisal and expressive suppression) serves as a moderator between depression and suicide ideation. The exploration of moderation is important to clearly show for whom and when depression may lead to suicide ideation. This direction may clarify the inconsistent findings on the link between depression and suicide ideation.

Although interpersonal factors such as depression may be found to be significantly associated with suicide ideation, intrapersonal variables may moderate the association between depression and suicide ideation (Lockman & Servaty-Seib, 2016). A moderator is a qualitative or quantitative variable that affects the direction and/or strength of the relationship between independent variables (predictor) and dependent (criterion) variables (Baron & Kenny, 1986). Therefore, emotion regulation is proposed as a moderator of the relationship between depression and suicidal ideation among undergraduates. Emotion regulation is the process by which a person consciously or unconsciously influences the occurrences, experiences, expression, duration, and magnitude of emotion (Gross, 1998). Some individuals are unable to regulate their emotions effectively, they tend to have negative feelings and maintain a negative mood (Aliche, Ifeagwazi, Chukwuorji, & Eze, 2018; Kally, 2013).

The emotion regulation process model (Gross & John, 1998) identified two emotion regulation strategies: cognitive reappraisal, and expressive suppression. Cognitive reappraisal is described as an effort to reinterpret an emotion-causing situation in a way that changes its significance and emotional impact (Gross & John, 2003). Cognitive reappraisal helps to reduce negative feelings by adjusting the way affective experiences are perceived or assessed. Individuals experiencing anxiety at a job interview, for example, an

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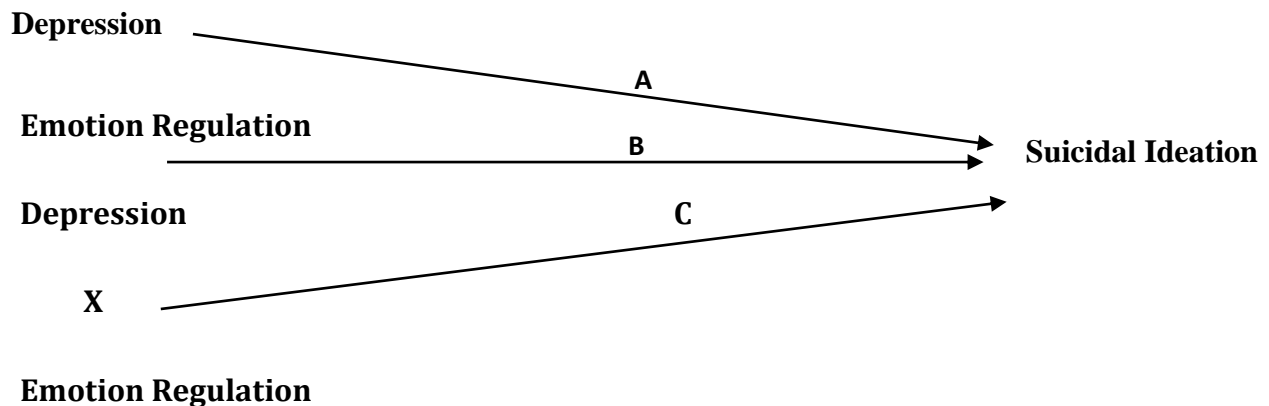
attempt to reframe the stressful situation as a learning experience. Expressive suppression, by contrast, is an attempt to conceal, hinder, or lessen ongoing emotion-expressive behavior. For example, students presenting their seminar papers may try to conceal their anxiety by breathing slowly and trying to appear confident. Cognitive reappraisal (which is referred to as an antecedent-focused strategy, Gross, 1998) is used before an emotional response is completely produced or triggered (Gross & Thompson, 2007; Ochsner et al., 2004), and focuses on altering the influence of emotion-generating indications. Expressive suppression is a response-focused technique that later works in the process of emotional development and attempts to change the behavioral manifestation of the emotion after feeling it (Gross, 2002; Gross & John, 2003).

Using self-report tests from the Emotion Regulation Questionnaire, Richmond, Hasking, and Meaney (2017) found that while depression had a significant impact on self-injurious behaviors among university students, increased use of cognitive reappraisal had a larger effect on suicide risk reduction than the use of expressive suppression. Similarly, Forkmann et al. (2014) found that greater use of expressive repression and decreased use of cognitive reappraisal increased suicidal ideation significantly. Difficulties in controlling emotions were associated with an increased risk of making a suicide attempt in the past year, over and above the impact of depressive symptoms (Pisani, Wyman, Petrova, Schmeelk-Cone, Goldston, Xia, & Gould, 2013). Cognitive re-evaluation was associated with a lower risk of suicidal behavior among Asian students (Ong & Thompson, 2019).

A recent study in Nigeria by Amazue, Ozor, Chukwuorji, Ifeagwazi, and Onu (2019) reported that cognitive reappraisal was negatively related to suicide ideation and expressive suppression was positively related to suicide ideation. Tests of moderation hypotheses indicated that high cognitive reappraisal attenuates the positive relationship between mental pain and suicide ideation, while high expressive suppression potentiates the positive relationship between mental pain and suicide ideation. Among soldiers in Israel, emotion regulation of mental pain moderated the link between mental pain and suicide ideation, such that soldiers with high mental pain and low regulation of mental pain exhibited higher suicidal ideation (Shelef, Fruchter, Hassidim, & Zalsman, 2015). In another study among German students, positive mental health moderated the impact of

depression on suicidal ideation among German students (Teismann, Forkmann, Brailovskaia, Siegmann, Glaesmer, & Margraf, 2018). The present study examines whether cognitive reappraisal and expressive suppression would be associated with suicide ideation in a sample of Nigerian undergraduate students. There is a limited search on emotion regulation as a moderator of the relationship between depression and suicidal ideation among university students. Hence this study further explores whether emotion regulation moderates the association between depression and suicide ideation among Nigerian students. The knowledge from this research may guide intervention on how to curtail and prevent suicidal behavior among university students.

The conceptual model in this study will be composed of an independent variable (depression), moderator (emotion regulation – cognitive reappraisal and expressive suppression), and a dependent variable (suicide ideation) as illustrated in figure 1.



*Figure 1: Conceptual model of the aim of the present study*

### Hypotheses

Five hypotheses were proposed in this study: (1) Depression will be positively associated with suicidal ideation (2) Cognitive reappraisal will be negatively associated with suicidal ideation (3) Cognitive reappraisal will moderate the relationship between depression and suicidal ideation. (4) Expressive suppression will be positively associated with suicidal

ideation. (5) Expressive suppression will moderate the relationship between depression and suicidal ideation.

## **Method**

### **Participants**

Participants in this study consisted of 536 undergraduates (225 males and 310 females) drawn from University of Nigeria Nsukka. The age range of the participants was 18 to 30 years (Mean age = 21.46, *SD* = 8.46 years). Their ethnic groups were: Igbo (450), Hausa (30), Yoruba (40), and others (16). Five hundred and ten were Christians while 26 were Muslims. The participants were all single (never married) students.

### **Instruments**

Three instruments were used for data collection. They are: Center for Epidemiologic Studies Depression Scale (CES-D) by Radloff (1977), Suicidal Ideation Attributes Scale (SIDAS; Van Spijker et. al., 2014), and Emotion Regulation Questionnaire (ERQ; Gross & John, 2003)

The Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977) is a 20 item scale. Radloff (1977) obtained a split-half correlation of .90 for the patient's group and 8.5 for the community sample. Scoring of the CES-D is by summing the participant's response record of the frequency/duration of occurrence of each symptom on a 4-point scale which ranges from 0 rarely to 3 (that is, the response format is rarely = 0, sometimes=1, often = 2 and always = 3). Reverse scoring is used to calculate the rating of four positively worded items. The overall scores are summed with a total score ranging from 0 to 60. Higher scores indicate significant elevations in depressive symptomatology (Radloff, 1977). Among a Nigerian sample, Okafor (1997) reported a split-half reliability index of .85. In a recent study to validate the CES-D among Nigerian University students (50.4% of females, *Mage* =

22.10 years), Kokou-Kpolou et al. (2020) conducted confirmatory factor analyses (CFAs) shown that the one-dimensional structure of CES-D was tenable.

Emotion Regulation Questionnaire (ERQ; Gross & John, 2003) is a 10-item questionnaire that assessed the habitual use of the two emotion regulation strategies namely, cognitive reappraisal and expressive suppression. Cognitive reappraisal items are six in number (e.g., when I am faced with a stressful situation, I will make myself think about it in a way that makes me stay calm) while expressive suppression is four items (e.g., when I am feeling negative emotion, I make sure not to express them) in number. Items are scored on a 5-point Likert scale of strongly disagree, (1), disagree (2), neutral (3), agree (4), strongly agree (5). A high score on each dimension indicates greater adoption of a particular strategy of emotion regulation. Both the cognitive reappraisal subscale (Cronbach  $\alpha = .75$  to  $.82$ ) and emotion suppression subscale (Cronbach  $\alpha = .68$  to  $.78$ ) have shown very good internal consistency and three month test-retest reliability ( $r = .69$ )(Kulkarni, 2010). A previous study in Nigeria had obtained acceptable internal consistency reliability for the emotional regulation questionnaire subscale (Chukwuorji, Ifeagwasi & Eze, 2017). The responses in the current research yielded Cronbach  $\alpha =$  of  $.82$  (cognitive reappraisal) and  $.77$  (expressive suppression).

Suicidal Ideation Attributes Scale (SIDAS; Van Spijker et al., 2014) was used to measure the severity of suicidal thoughts. It is a 5-item scale that measures frequency, controllability of suicidal thought, closeness to attempt, level of distress associated with the thought, and interference with daily activities. Van Spijker and colleagues (2014) validated the scale using an online sample of Australian adults ( $N = 1352$ ). Responses are measured on 11 – point scale (0 – 10), and items are coded so that a higher total score reflects more severe suicidal thoughts. Total scores range from 0 to 50. Scores  $\geq 21$  indicated a high risk of suicidal behavior (Van Spijker & colleagues (2014). The scale response format ranges from 0 = Never to 10 = Always. The SIDAS has high internal consistency (Cronbach  $\alpha = 0.91$ ), and good convergent validity with the Columbia-Suicide Severity Rating Scale (C-SSRS) frequency item ( $r = .61$ ), duration item ( $r = .58$ ), controllability items ( $r = .44$ ) (Van Spijker et al., 2014), and robust psychometric properties in non-western cultures (e.g., Han et al., 2017). Amazue et. al., (2019) validated the suicidal ideation attributes scale (SIDAS) in



Nigeria by correlating it with the two scales of emotion regulation questionnaire (Gross & John, 2003). As expected, SIDAS scores correlated negatively with cognitive reappraisal ( $r = -.30, p < .001$ ), and positively with expressive suppression ( $r = .61, p < .001$ ) which was evidence of divergent and convergent validity, respectively. They also reported the internal consistency reliability coefficient of Cronbach  $\alpha = .94$  for SIDAS.

### **Procedure**

The study was conducted among undergraduates of University of Nigeria, Nsukka. Before the commencement of the study, the researcher got an approval letter from Psychology department, Nnamdi Azikiwe University, Awka. The researcher and research assistants approached the students in their classrooms and explained the purpose of the study to the students. They were assured of the confidentiality of their responses. The instruments were then administered to those who willingly indicated an interest in participating in the study. The questionnaires have an introduction in a letter format explaining and soliciting students' consent to answer the questions. Both the distribution and collection of the instruments were done on the same day by the researcher and research assistants. They were also provided with the contact of the researchers to assist participants who might seek further professional help after participating in the study.

### **Design and Statistics**

The study adopted a correlation design. Pearson's correlation was used to establish a relationship between demographic and major variables of interest. The Hayes (2018) regression-based PROCESS macro for SPSS was used to establish whether emotion regulation moderates the relationship between depression and suicide ideation. The PROCESS approach allows the inclusion of demographics variables as covariates in the same model. The PROCESS option is appropriate for the analysis because it uses bootstrapping for statistical inferences where normality and homoscedasticity are required (Hayes, 2018). It appears to be the gold standard in a test of conditional effects such as moderation hypotheses (Barrie et al., 2016; Chukwuorji et al., 2018; Mefoh et al., 2018).

## Results

**Table 1: Descriptive and correlation statistics of the demographic variables, emotion regulation (cognitive appraisal and expressive suppression), depression, and suicide ideation.**

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5
1 Gender	-	-	-				
2 Age	21.47	2.49	-.05	-			
3 Cognitive Reappraisal	20.86	5.98	.01	.02	-		
4 Expressive Suppression	10.58	5.25	-.04	-.00	-.69***	-	
5 Depression	34.16	8.46	.05	.01	-.37***	.43***	-
6 Suicidal Ideation	9.99	9.47	-.01	-.04	-.59***	.62***	.33***

**Note:**  $N = 536$ , \*\*\* $p < .001$ . Gender was coded 1 = female, 2 = male.  $M$  = Mean,  $SD$  = Standard Deviation.

Table 1 indicated that neither gender nor age was significantly related to any of the variables in the study. Cognitive reappraisal correlated negatively with expressive suppression ( $r = -.69$ ,  $p < .001$ ), depression ( $r = -.37$ ,  $p < .001$ ), and suicidal ideation ( $r = -.59$ ,  $p < .001$ ). It was also found that expressive suppression correlated positively with depression ( $r = .43$ ,  $p < .001$ ) and suicidal ideation ( $r = .62$ ,  $p < .001$ ). Depression was positively correlated with suicidal ideation ( $r = .33$ ,  $p < .001$ ).

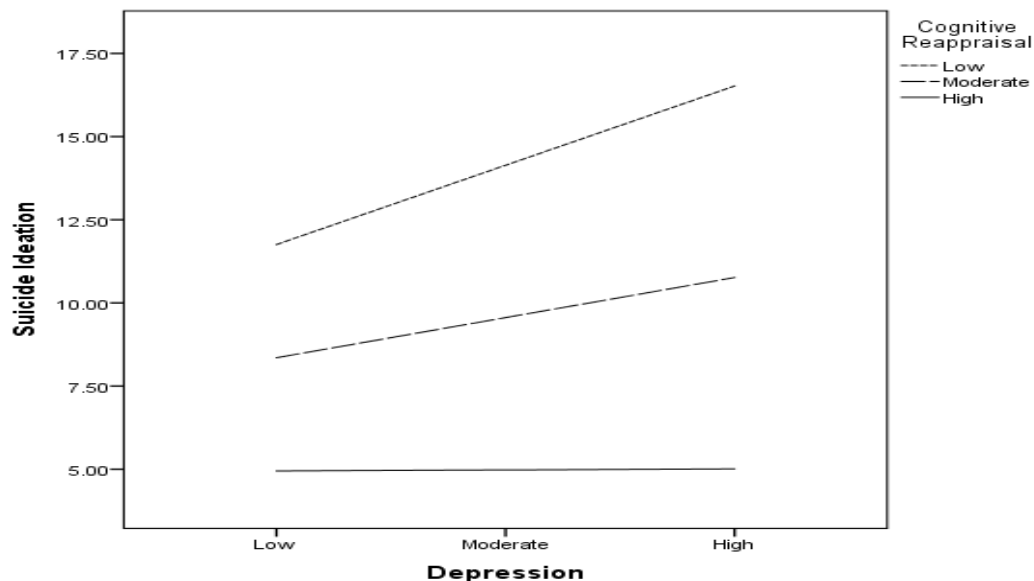
**Table 2: Hayes PROCESS Macro result for Moderating role of cognitive reappraisal on depression and suicidal ideation.**

Variables	<i>B</i>	<i>SE</i>	<i>t</i>	95% <i>CI</i>	$\Delta R^2$	$\Delta F$
				<i>LLCI</i> <i>ULCI</i>		
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Depression	.63	.14	4.34***	-.34	.911		
Cognitive Reappraisal (CR)	.03	.26	.11	-.48	.54		
CR X Depression	-.02	.01	-3.51***	-.04	-.01	.01	12.29***

**Note:** \*\*\* $p < .001$ ;  $B$  = Regression Coefficient;  $SE$  = Standard Error;  $t$  = population  $t$  value;  $p$  = Probability Level; LLCI and ULCI = Lower and Upper Limit Confident Interval;  $\Delta R^2$  Adjusted R square.

Result in Table 2 showed that depression predicted suicidal ideation ( $B = .63$ ,  $t = 4.34$ ,  $p = >.001$ ), indicating that for everyone unit rise in depression, suicidal ideation increases by .63 unit. Cognitive Reappraisal (CR) did not significantly predict suicidal ideation ( $B = .03$ ,  $t = .11$ ,  $p = .914$ ). Interaction of depression and cognitive reappraisal was significant for suicidal ideation ( $B = -.02$ ,  $t = -3.51$ ,  $p < .001$ ), indicating that cognitive reappraisal moderated the relationship between depression and suicidal ideation. The slope of the interaction (see Figure 1) demonstrated that depression predicted suicidal ideation for those with low cognitive reappraisal ( $B = .28$ ,  $t = 4.91$ ,  $p < .001$ ), moderate cognitive reappraisal ( $\beta = .14$ ,  $t = 3.45$ ,  $p < .01$ ), but not for those with high cognitive reappraisal ( $B = .00$ ,  $t = .06$ ,  $p = .950$ ). The  $R^2$  for the model was .38, indicating that depression and cognitive reappraisal explained 38% of the variance in suicidal ideation. The  $F$  statistics was significant,  $F(3, 531) = 107.00$ ,  $p < .001$ .



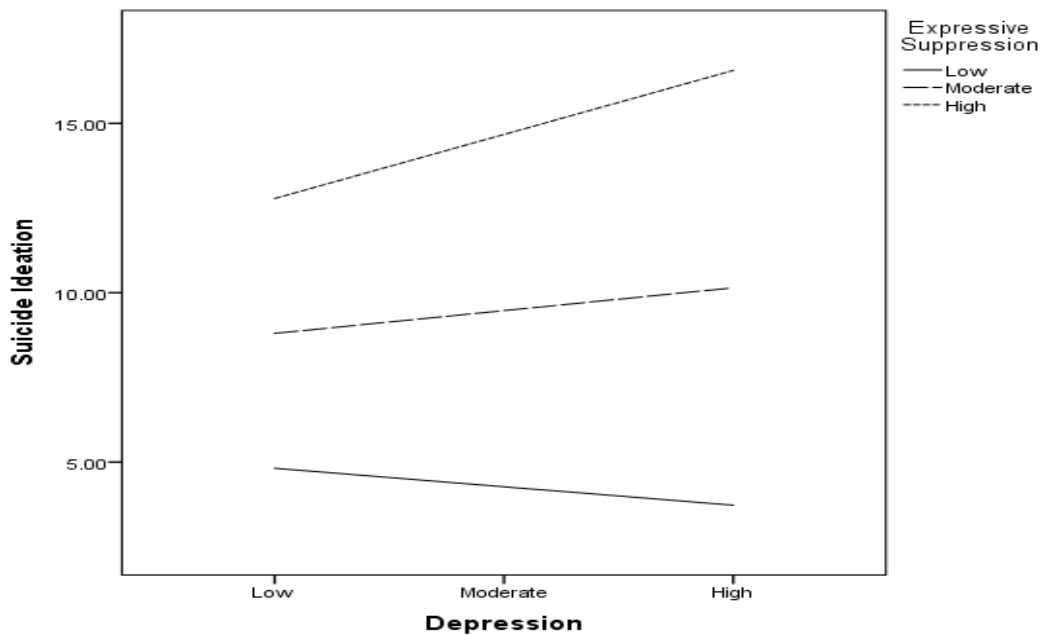
**Figure 1: Interaction slope showing the moderating effect of cognitive reappraisal on depression and suicidal ideation.**

**Table 3: Hayes PROCESS Macro result for Moderating role of expressive suppression on depression and suicidal ideation.**

Variables	<i>B</i>	<i>SE</i>	<i>t</i>	95% <i>CI</i>		$\Delta R^2$	$\Delta F$
				<i>LLCI</i>	<i>ULCI</i>		
Depression	-.21	.09	-2.47**	-.38	-.04		
Expressive suppression (ES)	.06	.27	.21	-.47	.58		
Ex X Depression	.03	.01	3.94***	.01	.04	.02	15.49***

**Note:** \*\*\* $p < .001$ . *B* = Regression Coefficient; *SE* = Standard Error; *t* = population *t* value; *p* = Probability Level; *LLCI* and *ULCI* = Lower and Upper Limit Confident Interval;  $\Delta R^2$  Adjusted R square.

Result in Table 3 showed that depression predicted suicidal ideation ( $B = -.21$ ,  $t = -.47$ ,  $p = >.001$ ), indicating that for every one unit rise in depression, suicidal ideation increases by  $-.21$  unit. Expression suppression (ES) did not significantly predict suicidal ideation ( $B = .06$ ,  $t = .21$ ,  $p = .837$ ). Interaction of depression and expressive suppression was significant for suicidal ideation ( $B = -.03$ ,  $t = 3.94$ ,  $p < .000$ ), indicating that expressive reappraisal moderated the relationship between depression and suicidal ideation. The slope of the interaction (see Figure 1) demonstrated that depression did not predict suicidal ideation for those with low expressive suppression ( $B = -.64$ ,  $t = -1.15$ ,  $p = .250$ ), moderate expressive suppression ( $\beta = .08$ ,  $t = 1.92$ ,  $p = .055$ ), but depression predicted suicide ideation for those with high expressive suppressive ( $B = .027$ ,  $t = 3.937$ ,  $p < .000$ ). The  $R^2$  for the model was .41, indicating that depression and expressive suppression explained 41% of the variance in suicidal ideation. The  $F$  statistics was significant,  $F(3, 531) = 122.59$ ,  $p < .001$ .



*Figure 1: Interaction slope showing the moderating effect of expressive suppression on depression and suicidal ideation.*

## Discussion

The central aim of this study was to examine whether emotion regulation can moderate the relationship between depression and suicidal ideation. The direct associations of depression and emotion regulation with suicidal ideation were also examined. The first hypothesis stated that depression will be positively associated with suicidal ideation. The result showed that depression predicted suicidal ideation among undergraduates. The result of the study was in line with the first hypothesis and even DSM-V states the possibility that suicidal behavior may exist at all times during a major depressive episode. Some researchers have also recorded a high prevalence of suicidal behaviors among Nigerian undergraduates and depression predicting suicide ideation among undergraduates (Yu-Hang, Zhou-Ting, Med, & Qian-Ying, 2017). Though some researchers observed that most patients who die through suicide are not depressed (Pompili (2010), but in this study, it was established that depression predicted suicide ideation. Depressed

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persons are often characterized by feelings of hopelessness, meaninglessness, and worthlessness. These negative symptoms are most likely to precipitate suicide ideation.

The second hypothesis which stated that cognitive reappraisal will be negatively associated with suicide ideation was not confirmed because cognitive reappraisal (CR) did not significantly predict suicidal ideation. According to Gross and John (2003), cognitive reappraisal helps to reduce negative feelings by adjusting the way affective experiences are perceived or assessed. In their study, they also found that those who engage primarily in cognitive reappraisal are more likely to share their emotions (both positive and negative) with others and to keep strong relationships with other people and this will help them to share their pains and difficulties with friends, but it wasn't so in this study. Research has documented that cognitive reappraisal intervention was successfully used to prevent suicidal behavior in middle-aged and old adults hospitalized in the hospital (Dimitris et al., 2018), but this study did not find any significant association between cognitive reappraisal and suicidal ideation. Though one similar study in Nigeria indicated that cognitive reappraisal was negatively associated with suicide ideation among nursing students (Amazue et al., 2019). Perhaps, the prediction of suicide ideation by cognitive reappraisal is not generally applicable for all samples. However, the finding should not be overstretched as more research will be needed to replicate the findings.

The moderating role of cognitive reappraisal on the relationship between depression and suicide ideation was tested in hypothesis 3. The interaction of depression and cognitive reappraisal was significant for suicidal ideation, indicating that cognitive reappraisal moderated the relationship between depression and suicidal ideation. The slope of the interaction demonstrated that depression predicted suicidal ideation for those with low cognitive reappraisal. This simply entails that the lower students use cognitive reappraisal in relating with people in their environment, the more likely depression will predict suicide ideation because the cognitive appraisal they apply in interacting with people in their environment was low. In moderate use of cognitive reappraisal, students may still have little issue with having suicide ideation because the level of cognitive appraisal may still not be enough to trigger suicidal ideation. For those with high cognitive reappraisal, their

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suicidal level was not significant meaning that when students engage in using high or great cognitive appraisal in relating with people they may not have suicidal ideation. Greater use of cognitive reappraisal may reduce the intensity of depression, thus decreasing the likelihood that undergraduates will have suicide ideation, while low and moderate levels of cognitive reappraisal may increase the intensity of depression, thus increasing the likelihood that students will have suicide ideation. This finding is consistent with previous literature (e.g., (Amazue et al., 2019) indicating that cognitive reappraisal is a potent moderator variable.

The fourth hypothesis which stated that expressive suppression will be positively associated with suicidal ideation was not confirmed. Individuals who engaged in expressive suppression tend to have less social support, poor coping skills, greater avoidance of social situations, and lack of close social relationships (John & Gross, 2004). Expressive suppression significantly predicted and increased suicidal ideation in the study conducted by Forkmann, Forkman, Scherer, Böcker, Pawelzik, Gauggel, and Glaesmer (2014), but in this study expressive suppression did not predict suicide ideation. The reason for the result of this study may be that participants with expressive suppression may be hiding their feelings without filling the correct expression. The findings should not be overstretched as more research will be needed to replicate the findings.

The moderating role of expressive suppression was tested in hypothesis five where it was hypothesized that expressive suppression will moderate the relationship between depression and suicidal ideation. The interaction of depression and expressive suppression was significant for suicidal ideation, indicating that expressive suppression moderated the relationship between depression and suicidal ideation. The slope of the interaction demonstrated that depression did not predict suicidal ideation for those with low and moderate expressive suppression. This simply entails that the lower students use expressive suppression in relating with people in their environment the more likely depression will not predict suicide ideation because the expressive suppression they apply in interacting with people in their environment was low. The moderate use of expressive suppression among the students indicates that students may still not have an issue with

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having suicide ideation because the level of expressive suppression may not be enough to trigger suicide ideation but for those with high expressive suppression. Their suicidal level was very significant meaning that when students engage in using high or great expressive suppression in relating with people they may have suicide ideation. In other words, high and low levels of expressive suppression regulated the relationship between depression and suicide ideation among undergraduates. The result suggests that greater use of expressive suppression may increase the intensity of depression, thus increasing the likelihood that undergraduates will have suicide ideation, while low and moderate levels may decrease the intensity of depression, thus may decrease the likelihood that students will have suicide ideation. The higher the presence of expressive suppression, the higher increase the depression which may, in turn, increase the likelihood of students contemplating suicide and there may be increased vulnerability to suicide ideation among undergraduates.

#### *Implications of the Findings*

Based on the findings of this present study, administrators in various Universities in Nigeria need to be more conscious relating to the fact that some students are having suicide ideation due to the inability to regulate their emotions. Since the present study established the fact that depression is associated with suicide ideation and that the levels of moderation are implicated in the finding, the university administrators should consider providing not only access for students to consult a psychologist in various universities but also enforce it as part of their rules and regulation to get a report from their school psychologist before enrolling to another academic year, this will help observe and assess the student's psychological status and devise means of helping them. Those students that have suicide ideation may be placed on three months therapeutic assessments depending on the nature of their complaint. This will help in reducing the number of students that get involved in suicidal behavior and as well as help in regulating their emotions. There will also be a need to periodically conduct seminars that will educate and address the psychological need of these students. Universities in Nigeria may deem it necessary to include topics that will not only educate the students on suicide prevention but topics that will specifically address and educate the students on better ways to deal with psychological



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challenges to avoid escalating into problems that will endanger their lives. Furthermore, caution should be taken towards addressing students that failed some courses repeatedly and those that are having issues in presenting their project work. Management should also be careful and be diplomatic in the way they shortlist students that will be withdrawn from university for failing exams beyond the level the school can place on academic probation.

The finding of this study could be applied in therapeutic and clinical settings, and even in organizations. Therapists, psychologists, guidance counselors, or school psychologists may apply the knowledge gotten from this present study to various cases like individuals going through domestic violence, rape victims, drug addicts, kleptomania, and other kinds of psychological difficulties individuals may be victim, and it will help the therapist to carry out a proper assessment, diagnosis, and management of the client. This knowledge will significantly aid the treatment plan and processes. The knowledge of this study will help students especially those faced with severe stress, depressed students to have knowledge of emotion regulation strategies and seek a psychologist that will manage their cases so as not to escalate to severe problems that will endanger their lives. Lastly, policymakers should through this study repeals the anti-suicide laws and focus on how to treat and reinstate undergraduates who are victims already.

#### *Limitations of the Study and Suggestions for Further Study*

The study adopted a cross-sectional design and can not be free from the weaknesses of such a common bias. The use of cross-sectional, non-experimental designs limits the ability to draw causal inferences. The sample size used in this study may tend to limit generalization. Longitudinal research that investigates the trajectories of suicide ideation from students' entry into Universities to their graduation is worthwhile and maybe more informative for policy formulation. Further research should seek grant to organize a larger sample that will include several universities for more valid generalization. The study examined only depression and emotion regulation strategies as capable of predicting suicide ideation among the respondents, thus other factors such as family dysfunction, low self-esteem, anxiety, personality traits, identity development, culture, economic status, and so on were neglected, whereas they may be capable of predicting suicide ideation among

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undergraduates. Since the present study was able to predict suicide ideation at 38% variance for cognitive reappraisal and 41% for expressive suppression, maybe other variables may do better in predicting suicide ideation and moderating the variables.

### **Conclusion**

Emotion regulation strategies (cognitive reappraisal and expressive suppression respectively) moderated the relationship between depression and suicide ideation in this study and the result also indicated that depression has a significant and positive association with suicide ideation. Furthermore, this present study revealed that emotion regulation strategies are implicatively responsible for only a 38% and 41% variance (cognitive reappraisal and expressive suppression respectively) in suicide ideation. This implies that other psychological and emotional factors rather than emotion regulation may be predictors and moderating factors in suicide ideation. With the outcome result of this study, health professionals and suicidal therapists should be aware that apart from emotion regulation strategies other variables are to be studied to help in proper assessment, diagnoses, and management of suicide ideation victims.

Government should establish and equip psychological centers in all the universities so that students who have suicide ideation will be managed and all psychological cases presented by students should be addressed properly. Universities may organize seminars on the dangers of suicide ideation, through this means, students will be trained on how to manage suicide ideation and remain stable. Awareness should be properly created in all the states in Nigeria since both high and low moderation levels are implicated in the study findings and victims should also be managed and monitored as an urgent case. There will be a cogent need that families of the suicide ideation victims should be trained on emotion regulation strategies to understand and manage the victims, the symptoms and side-effects of suicide ideation, and learn effective communication and problem-solving skills to monitor victims. However, guidance will help victims maintain a healthy and good relationship. According to Rigg (2000), family members could be supportive of victims by addressing systematic disruption in relationships. Through the guidance and assistance of a suicide therapist, victims may adopt positive skills, that will help in reducing their suicide

behavior and manage those physical, social, and psychological problems that may lead to suicide ideation and suicide.

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