

Cognitive Distortions and Depression among Undergraduate Students

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Abstract

Dysfunctional thoughts manifest themselves in regular moods of depression. This study explored the relationship between cognitive distortions and depression among undergraduate students. The study also examined the influence of students' personal characteristics (gender, age, and educational level) on cognitive distortions and depression. A total of two hundred undergraduate students from the University of Ghana responded to both Beck's Depression Inventory (BDI) and the Automatic Thoughts Questionnaire (ATQ). Analyses of data reveal a positive and significant relationship between cognitive distortions and depression. However, no relationship was found between age and cognitive distortions and depression. Again, there was no gender difference in depression and cognitive distortions. Finally, there was a significant impact of educational level on depression but not on cognitive distortions. The findings of the study are discussed.

Keywords: Cognitive distortions, depression, undergraduate students, age, gender, and educational level

1. Introduction

Many students preoccupy themselves with dysfunctional thoughts such as “No matter how hard I study, I cannot get high grades in most courses,” “I cannot stand this anymore,” “I should be perfect in anything I do”, “Everyone I encounter should like me,” “My friends are successful because of luck but I am not,” and “My life is not going the way I wish it.” Interestingly, a great number of people, especially in our society today, persistently engage in such thought processes without being aware. Such thought patterns do not necessarily conform to reality. These thoughts are what are referred to by a number of cognitive-behavioural therapists as irrational thoughts, illogical thoughts, maladaptive thoughts or cognitive distortions (Ellis & Harper 1975; Ellis, 1996; Beck, 1991; Beck, 1995; Beck & Rector, 1998). These thoughts create emotional distress such as depression and behavioral dysfunctions that often require therapeutic intervention (Simon, 1992; Williams & Garland, 2002).

Cognitive theorists and therapists have focused their attention on how cognitive distortions result in a number of psychological disorders such as depression. Studies strongly establish a strong relationship between negative thinking and depression (Abela & D'Alessandro, 2002; Alatiq, Crane, Williams, & Goodwin, 2010; Ingram, Nelson, Steidtmann & Bistricky, 2007). According to Burns (1989), cognitive distortions are exaggerated irrational thoughts identified in cognitive therapy and its variants, which supposedly perpetuate certain psychological disorders. Cognitively distorted thinkers are usually preoccupied with their inner thoughts and tensions. They usually hold negative or pessimistic view of self, the world and the future. They have a maladaptive belief system that serves as a framework for their understanding and appreciation of issues. They are self-focused and may be extremely self-critical and self-conscious. Such persons experience feelings of worthlessness and low self-esteem that make them become depressed. They see themselves as inadequate and believe that others view them this way. They dread the future and are convinced they are doomed to failure. Often, they ask, “Why should I even bother?” or “What's the use in trying.” When these attitudes and feelings intensify, the risk for suicidal behaviour may increase (Burns, 1989; Boury, Treadwell & Kumar, 2001).

Depression describes a spectrum of mood disturbance ranging from mild to severe and from transient to persistent (Peveler, Carson, & Rodin, 2002). Depressive symptoms are continuously distributed in any population but are judged to be of clinical significance whenever they interfere with normal activities and persist for at least two weeks, in which case a diagnosis of a depressive illness or disorder may be made. The diagnosis depends on the presence of two cardinal symptoms of persistent and pervasive low mood and loss of interest or pleasure in usual activities (Peveler et al., 2002). Negative thought patterns result in depression in many people. A lot of people suffering from various forms of depression exhibit thought patterns that appear largely negative and detrimental to healthy psychological lifestyle (Simon, 1992). Depressive people are usually not conscious of their thought patterns and are also not aware of its implications on their psychological health (Esbensen & Benson, 2007). The lack of consciousness may result in a cyclical effect of negative thought processes and depression.

Ellis (1987, 1996, 1997) argued that irrational thoughts often play a key role in many mental disorders. He developed an approach known as Rational-Emotive Therapy (RET) which he called an A-B-C approach, referring to the three steps involved in creating disturbed responses: (A) – an activating event, which is some type of stimulus such as criticism from a

boss or a failing grade; (B) – the belief system, which is the person’s interpretation of the activating experience; and (C) – the emotional consequence the person experiences. Ellis claimed that unless we stop thinking about events, we will automatically go from A (the activating event) to C (the emotional consequence). We fail to see that step B (the belief system) actually creates the consequent emotion. Receiving a failing grade on an exam does not cause the emotion of depression. It is step B (the belief that “I must be perfect or I am worthless”) that is the culprit.

Beck (1979, 1991, 1995) and Beck and Rector (1998) believed that underlying dysfunctional beliefs and thoughts do serve as a diathesis for the occurrence of depressions. In the view of Beck (1979, 1991, 1995) depressed individuals engage in illogical thinking and that this underlies their difficulties. Such individuals hold unrealistically negative beliefs and assumptions about themselves, the future, and the world. Beck contended that people cling to these illogical ideas and assumptions no matter what happens. Such distorted thinking leads individuals to experience negative moods – which in turn, increase the probability of more negative thinking. Beck (1979) postulated a negative cognitive triad which was made up of thoughts about the self (internal), one’s surroundings (global), and about one’s future (stable). This cognitive triad plays a role in a person’s experience of depression. Moreover, just like Ellis, Beck also devised a therapy for depression known as Cognitive Behaviour Therapy (CBT) which involves efforts to change underlying maladaptive cognitions in depressed patients.

Beck’s theoretical postulations have been subjected to empirical tests by some scholars. McIntosh and Fischer (2000) scrutinized Beck’s Cognitive Triad and discovered that there was no clear separation of negative thoughts, and that there was actually a singular one-dimensional negative view of the self. They therefore suggested that the components of the triad are not discrete factors but are rather commonly saturated by a single dominant factor, which they termed ‘Self-Relevant Negative Attitude.’ According to these researchers, retaining all three areas of the triad as separate dimensions is not necessary for representing the latent structure of depressive cognition within Beck’s framework. Tanaka, Uji, Hiramura, Chen, Shikai and Kitamura (2006) found evidence in support of Beck’s cognitive theory that individuals who endure negative self-schemas (dysfunctional attitudes) are more likely to exhibit automatic thoughts consisting of negative schemata of oneself and one’s world while experiencing depression. In their examination of the relationships between depression, automatic thought, and dysfunctional attitude among Japanese university students, a structural equation model revealed that depression was predicted predominantly by automatic thought, which was in turn predicted by dysfunctional attitude.

Boury, Treadwell and Kumar (2001) monitored student’s negative thoughts with the Beck’s Depression Inventory (BDI) and gave an overview of Beck’s ideas. Their results showed that BDI scores significantly correlated with the number of automatic thoughts, number of core beliefs, and different types of core beliefs across different time periods. Boury et al. (2001) observed that depressed individuals often misinterpreted facts and experiences in a negative fashion. They limited their focus to the negative aspects of situations, thus feeling hopeless about the future. They discovered a direct relationship between negative thoughts and severity of depressed symptoms, thus providing evidence to support Beck’s assumption that negative thought content characterizes depression. Abela and D’Alessandro (2002) also maintained that individuals with dysfunctional attitudes are likely to show increases in depressed mood following the occurrence of negative events. In their study, dysfunctional attitudes predicted increases in depressed mood. The relationship between dysfunctional attitudes and increases in depressed mood was mediated by negative views of the future but not by negative views of the self.

Alatiq, Crane, Williams and Goodwin (2010) investigated cognitive patterns among individuals who had recovered from a depressive episode and observed that compared to uni-polar and healthy control groups, remitted bipolar group displayed greater self-catastrophic beliefs, beliefs related to negative responses from other people when in elevated mood and beliefs related to the response style to activation and elevation. Williams and Garland (2002) also predicted that what people think about affect what they do and how they feel generally. By examining the negative content of thought in depression for patients with anxiety disorders, they established that common thinking themes are an increased perception of danger and threat combined with a decreased perception of their own ability to cope with that danger. According to them, the content of thoughts associated with guilt is derived from a perception that the individual has broken his or her own idiosyncratic rules of what is fair and just. Individuals in such situations often act in ways that confirm their beliefs, sometimes setting themselves up to fail (Williams & Garland, 2002).

Earlier researchers have consistently demonstrated a strong link between cognitive distortions and depression (e.g., Abela & D’Alessandro, 2002; Alatiq et al., 2010; Boury et al, 2001, Tanaka et al., 2006). Some of these researchers (e.g. Boury et al, 2001, Tanaka et al., 2006) investigated the relationship using student populations. However, the focus of these researchers has been restrictive on cognitive distortions and depression. Our current study, however, provides extensive analyses on the relationship between cognitive distortions and depression through systematic examination of the personal characteristics of

our subjects. It is our belief that some personal characteristics may act to influence the rate of cognitive distortions and depression among people. The inclusion of such variables in the study will serve a useful purpose of broadening our understanding on the relationship between cognitive distortions and depression. The current study was therefore carried out to investigate the relationship between cognitive distortions and depression among students and how their personal characteristics such as age, gender, and education influence both cognitive distortions and depression. Consequently, the researchers predicted a positive relationship between cognitive distortions and depression. With regard to personal characteristics, the researchers predicted a positive relationship between age and depression and between age and cognitive distortions; the researchers again predicted higher levels of cognitive distortions and depression among female students than among male students. Finally, the researchers predicted a significant influence of students' level of study on cognitive distortions and depression.

2. Method

2.1 Population

The population for this study was undergraduate students of the University of Ghana, Legon. The population had a wide range of characteristics and a varied socio-cultural experiences and orientations. A relevant characteristic of the population is the increasingly demanding academic pressures that add to individual student's stressors as well as extracurricular activities. This has a greater propensity to unleash depression in those with pessimistic interpretation of their situation.

2.2 Participants

Two hundred students were conveniently selected as respondents for the study. There was an equal number of males ($n=100$) and females ($n=100$). The respondents were students selected from four levels of undergraduate studies namely, level 100 ($n=90$), level 200 ($n=30$), level 300 ($n=36$) and level 400 ($n=44$). The ages of the participants ranged from 18 years to 35 years ($M=21.27$, $SD=2.258$). In terms of religious affiliation, most of the participants were Christians ($n=182$), a few Muslims ($n=16$), and Traditionalists ($n=2$). (See table 1).

2.3 Measures

The Beck's Depression Inventory (BDI; Beck, Steer, & Brown, 1996) was used as measure of depression. The BDI assesses the intensity of depression in terms of 21 symptom-attitude categories. Total scores range from 0 to 63. Each of the 21 items has four alternatives graded from 0 (low depression) to 3 (maximum depression) and respondents are supposed to select the alternative of each item that best describes their feeling. Robinson, Shaver and Wrightsman (1990) have reported a statistically significant split-half correlation between even and odd BDI items of 0.73 and a Cronbach's alpha reliability of 0.92.

The Automatic Thoughts Questionnaire (ATQ) developed by Hollon and Kendall (1980) was used to measure cognitive distortions. The ATQ measures the frequency of automatic negative thoughts associated with depression. It identifies the covert self-statements usually reported by depressives as being representatives of the kinds of their cognitions. The respondents were asked to rate the frequency with which they recall experiencing 30 different thoughts during the previous week. Frequency ratings were made on a five-point scale. Total scores ranged from 30 (little or no distortions) to 150 (maximum distortions). Hollon and Kendall (1980) reported both a split-half, odd-even correlation coefficient of 0.97 and an alpha coefficient of 0.96. They found that ATQ scores reliably discriminated between depressed and non-depressed subjects ($F_{(1,27)} = 43.48$, $p < 0.001$).

3. Statistical Analyses of Data

The Pearson Product-Moment Correlation Coefficient (Pearson r), the independent-samples t test, and the one-way analyses of variance (ANOVA) test were used to analyze the research data. These are parametric tests with higher statistical power and useful for analyzing data on the interval scale. The researchers appropriately chose these tests for the data analyses because all the dependent variables in the study were measured on the interval scale, thus satisfying the assumption underlying their use. The Pearson r test was used to find the correlation between cognitive distortions, depression and age among the participants (see table 2). The independent t test, on the other hand, was used to compute the significant differences in scores on cognitive distortions and depression among male and female participants (see table 3). The one-way ANOVA test was also used to test the influence of the respondents' educational levels on depression and cognitive distortions (see table 4).

4. Results

Table 1: Demographic Distribution of Participants

Demographic Variables	Male (n = 100)	Female (n = 100)	Total (n = 200)
Age	Mean (SD) 21.81 (2.48)	Mean (SD) 20.72 (2.04)	Mean (SD) 21.27 (2.26)
Academic Levels			
Level 100	39	51	90
Level 200	19	11	30
Level 300	23	13	36
Level 400	19	25	44
Religious Affiliation			
Christianity	92	90	182
Islam	6	10	16
Tradition	2	0	2

Table 2: Correlation Analysis of Depression, Cognitive Distortions and Age

Variable	1	2	3
1. Cognitive Distortions	-		
2. Depression	0.70*	-	
3. Age	-0.03	-0.06	-

* Correlation is significant at 0.01 level (1-tailed test)

The results of the study reveal a significant positive relationship between depression and cognitive distortions ($r = 0.70, p < 0.01$). However, there was no significant relationship between age and cognitive distortions ($r = -0.03, p > 0.05$), and between age and depression ($r = -0.06, p > 0.05$). (See table 2).

Table 3: Gender Differences in Cognitive Distortions and Depression

Variable	Male n=100	Female n=100	t	df	p
	Mean (SD)	Mean (SD)			
Cognitive Distortions	45.42 (11.53)	46.35 (14.59)	0.50	198	0.617
Depression	7.49 (6.11)	8.82 (7.02)	1.43	198	0.154

The findings of the study further reveal no significant gender difference in cognitive distortions ($t_{(198)} = 0.500, p > 0.05$) and depression ($t_{(198)} = 1.430, p > 0.05$). In other words cognitive distortions among males (M=45.42, SD=11.526) was not significantly different from cognitive distortions among females (M=46.35, SD=14.588). Similarly, depression among males (M=7.49, SD=6.108) was not significantly different from depression among females (M=8.82, SD=7.016). (See table 3).

Table 4: The influence of Educational Levels on Depression and Cognitive Distortions

Variables	Level 100 n=90	Level 200 n=30	Level 300 n=36	Level 400 n=44	F	p
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)		
Cognitive Distortions	45.57 (13.28)	48.60 (14.55)	48.50 (15.22)	42.55 (8.84)	1.90	0.131
Depression*	8.34 (6.24) ^a	11.20 (7.43) ^b	8.69 (7.53)	5.25 (4.68) ^{ab}	5.42	0.001

*Tukey ($p < 0.05$)

^aA significant mean difference between Level 100 and Level 400

^bA significant mean difference between Level 200 and Level 400

The analyses of variance reveal no significant difference in educational levels on cognitive distortions ($F_{(3,196)} = 1.898, p > 0.05$). This means that a participant's educational level had no significant impact on his or her level of cognitive distortions. However, a significant difference was found in educational levels in relation to students' depression ($F_{(3,196)} = 5.422, p < 0.001$). The Tukey HSD multiple comparisons of means reveal lower depression among level 400 students (M=5.25,

SD=8.69) than among level 100 (M=8.34, SD=6.235) and level 200 students (M=11.20, SD=7.434) ($p < 0.05$) but no difference with level 300 students (M=8.69, SD=7.532) ($p > 0.05$). (See table 4).

5. Discussion and Recommendations

The mutual relationship between cognitive distortions and depression has been confirmed among the student population. Consistent with our prediction, a significant positive relationship was found between cognitive distortions and depression. As postulated by Ellis (1961, 1987, 1997), Beck (1991), Beck (1995), Brewin (1996) and Abdullah et al. (2011), the results of the study confirmed the existence of a positive and significant relationship between cognitive distortions and depression. As observed in the study, the respondents' scores on BDI positively and significantly correlated with their respective scores on ATQ. This means that high level of cognitive distortions is predictive of high level of depression. In the same way, high level of depression may be predictive of high level of cognitive distortions. Thus, the study offers a clear understanding of the mutual relationship between depression and cognitive distortions.

The first finding of the study corroborates findings obtained by earlier researchers that dysfunctional thoughts positively predict depression (Abela & D'Alessandro, 2002; Alatiq et al., 2010; Boury et al, 2001, Tanaka et al., 2006). This same view was held by Ingram et al., (2007) who established that the kind of association between depression and negative cognition and dysfunctional attitudes is strong. The results of the study evidently portray that depressive moods are more likely to be observed in individuals who think negative or who hold irrational beliefs and assumptions. Such beliefs and assumptions have a role to play in the psychological and physical health of the individual. Depression really occurs when people develop a dispositional view of situations and circumstances in habitually negative and biased ways, leading them to habitually experience negative feelings and emotions.

It has also been argued that depressive feelings may themselves elicit negative thoughts in people (Simon, 1992). Depressed individuals often misperceive their world, and constantly engage in irrational or maladaptive thoughts which, in turn, contribute to their depression. It is based on this process that many therapists have conceived the relationship between depression and cognitive distortions as mutual and cyclical (Beck, 1995; Ellis, 1996, 1997).

Although a strong positive relationship was found between depression and cognitive distortions, contrary to prediction, there was no significant relationship between age and level of depression and no significant relationship between age and level of cognitive distortions. These findings are contrary to the findings of Mirowsky and Ross (1992) which established a significant relationship between age and depression. Their findings indicated lowest level of depression among middle aged people, a rise in depression in early adulthood and a further rise in late life. The reasons for differences in findings may be attributed to the lack of appreciable age range of participants. The ages of the participants for this study ranged from eighteen (18) years to thirty-five (35). However, the distribution was skewed towards the left tail, implying that most of the participants were of the younger age. The age intervals were not large enough to reflect differences in depression among the students. In other words, it would have been necessary to obtain an older age of forty (40) years and above in addition to the younger ages of the university students in order to increase the probability of observing a significant relationship between age and depression as well as between age and cognitive distortions.

Moreover, the study revealed no gender difference on cognitive distortions and depression. In other words, the predictions that females will be more cognitively distorted and more depressed than males were not supported by the results of the study. This suggests that among the student population, females do not necessarily differ from males on depression and cognitive distortions. This finding is in agreement with the research findings of Nolen-Hoeksema (1990). Whilst some researchers quote a female-male ratio of 3:1 for depression (Klerman & Weissman, 1989; Wetzel, 1994), others quoting a female-male ratio of 4:1 for major depression, although with variations in ethnicity and culture (Sileo, 1990) but equal ratio for both sexes on manic depression (Sileo, 1990), in a cross-cultural studies on depression, Nolen-Hoeksema (1990) reported a mean of 2:1 female-male ratio of depression in developed countries but no significant findings of female-male difference on depression in developing countries. The understanding is that gender differences in depression are a function of culture. Ghana being a collectivistic and a developing country, it is not strange to have found no significant female-male difference in depression. With respect to the lack of a significant difference between males and females on scores of cognitive distortions, a possible reason is that the university environment engages students of both genders on intellectual discourse which has a greater propensity of shaping their mindsets and general conceptions of events and, as a result, disabusing their minds on irrational or dysfunctional thoughts. The equal impact of learning on both genders, therefore, is more likely to explain why there was no significant gender difference on cognitive distortions.

Additionally, the results of the study revealed that students in higher educational level (final year) are less depressed than students in lower educational level (levels 100 & 200). This observation suggests certain specific conditions or factors associated with various educational levels may be eliciting depression in students in lower levels. Perhaps, first and second year students may be facing some adjustment difficulties or may be experiencing excessive academic workload relative to their earlier experiences in high school. Such factors are likely to unleash high level of stress among first and second year students which may make them become depressed. Final year students, on the other hand, may have learnt how to accommodate such stressful situations through useful coping strategies. This explanation, though plausible, needs to be ascertained further through empirical investigation. It may therefore be a hasty conclusion that higher levels of education reduce one's level of depression and lower levels of education increase one's level of depression, though the current study appears to confirm such conclusion.

Finally, the study revealed no significant influence of educational level on cognitive distortions. This implies that students in higher and lower educational levels engage in the same kind of interpretation of events around them. The equal levels of cognitive distortions among students of different levels illustrate the significant role of university education in shaping the mindset of students. The study has shown that even first year university education is sufficient enough to make students become more rational and more logical in their thinking.

Although the study has produced interesting findings, it is important to indicate some of the limitations that the researchers encountered. Firstly, it must be noted that this is a survey research that sought to establish relationship among variables using students' self-reports as well as the differences between variables. Variables that have the potential of confounding the relationships were not controlled and thus have the likelihood of producing a misleading effect. The conclusions drawn in this study therefore are largely correlational and descriptive. The study will therefore not support any attempt to make causal inferences from the findings, especially in the situation where our design had not permitted us to control the possible influence of extraneous variables. Secondly, because the sampling method used was a non probability one, it failed to ensure that every member of the population had an equal chance of being part of the sample, and therefore the interpretation must be done with caution.

Regardless of the above weaknesses identified in the study, it offers some useful recommendations moving forward. It is recommended that individuals experiencing irrational thinking patterns replace their irrational thoughts with more positive thoughts in order to improve their psychological health. Based on the positive relationship found between cognitive distortions and depression, the researchers again recommend that people who persistently suffer depressive symptoms should seek clinical intervention for an examination of their thought patterns to find out the extent to which they engage in dysfunctional thoughts in order to benefit from a treatment regimen. Such individuals could be helped to learn how to restructure their cognition by substituting their irrational thoughts with more positive and realistic thoughts. Moreover, clinicians or patients who are unable to treat depression through medication should resort to cognitive therapeutic treatment option. The use of cognitive behavioral therapy will be particularly useful in ensuring more effective and relatively permanent treatment of depression. Furthermore, future researchers should consider the possibility of using designs that will support the establishment of causal relationship under strict control of extraneous variables. Finally, the following recommendations are made for the purpose of consideration in future studies:

First, for the purpose of testing the influence of educational level on depression and cognitive distortions, it is suggested that larger samples should be used for the various educational levels. Second, there is also the need to select sample with a wide age range that will allow a researcher to clearly identify any significant relationship of age with cognitive distortions and depression. This could be achieved by the inclusion of both middle aged and old aged adults in a single study. Third, in order to effectively explore female-male differences on depression and cognitive distortions, future research should be designed to include non-student population in the study. This is due to the fact that the non-student population, unlike the student population, is exposed to different forms of conditions in the real world. Usually, females experience more severe forms of such conditions. This is especially true due to the advent of modernity which challenges women in Ghana or in collectivistic cultures to add industrial activities or business duties to household chores. This may result in female-male differences in depression. Finally, since both depression and cognitive distortions are known to exist in Ghana, it is recommended that future researchers direct attention to testing the effectiveness and applicability of the various forms of cognitive therapies to treatment of depression in Ghana. A positive result from such a study would have the potential of arousing people's interest and trust in cognitive therapies in treating depression.

Conclusion

The findings of this study have established that there is a positive relationship between cognitive distortions and depression and that educational level has an influence on depression but not on cognitive distortions. The relationship observed between cognitive distortions and depression should be understood as mutual and cyclical. This implies that in as much as cognitive distortions may predict depression, depression may also predict cognitive distortions in an individual and this process is usually continuous unless cognitive intervention is sought. Whereas the lack of significant relationship between age and cognitive distortions or between age and depression may be due to the lack of adequate variation in ages of participants, the lack of significant gender difference in both depression and cognitive distortions and the lack of significant influence of educational level on cognitive distortions illustrate the equal benefits of university education to both males and females in all academic levels. In other words, university education helps to shape people's minds and make them adopt a more rational approach to thoughts and action.

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