VULNERABILITY TO ANXIETY AMONG MEDICAL STUDENTS: COUNSELING AND SELF ESTEEM LEVELS AS PREDICTORS

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ABSTRACT

This study examined impact of counseling and self-esteem levels on anxiety among medical students. Three hundred and fourteen (314) students who were randomly selected from the population of medical students in Ebonyi State University, Abakaliki, comprising 152 males and 162 females participated in the study. Their ages ranged from 16 to 34 years. Three instruments were used for data collection; Counseling Rating Scale, Rosenberg Self-esteem Scale, and State Trait Anxiety Inventory. Result of hierarchical multiple regression indicated that counseling was a negatively significant predictor of anxiety among medical students (β -5.32, t = -5.83, p <.001); accounting for 10% variance in explanation of anxiety among medical students. Self-esteem (β = -30, t = -5.59 p < .001) was equally a negative significant predictor of anxiety among medical students; accounting for 8% variance in the explanation of anxiety among medical students. A practical implication of the findings indicates that medical students who receive insufficient counseling and have low self-esteem build up anxiety which in turn affect their life and academic performance. Limitations of the study were stated and suggestions made to guide further studies.

Keywords: Anxiety, Counseling, Self Esteem Levels

INTRODUCTION

Medical students are particularly prone to stress due to the transitional nature of college life (Mostafa, Tarek, Sahoo, Sami, Mohamed, Nasser, Adulhadi, & Abdullah, 2013). For example, many medical students move away from home for the first time and need to develop entirely new social contacts and are expected to take responsibility for their own needs. They may have difficulty adjusting to more rigorous academic expectations and the need to learn to deal with individuals of differing cultures and beliefs. According to researchers Mao, Zhang, Liu, Zhu, He, & Wang (2019), determinants of anxiety include individual factors, social and economic factors, and environmental factors. Severe stress reactions may therefore result as a nature of their appraisal and response toward the change manifesting from anxieties posed by these challenges. Therefore, assessment of anxiety among medical students is an area of great research interest, with a look at similar studies done earlier.

Anxiety which can cause mental health problems among medical students represents an important and growing public health concern, requiring remedy (Mostafa,

et. al., 2013). Among university students (medical students inclusive) anxiety has been observed to range from 30-49% (Al-Gelban, 2007; Kessler, Berglund, Borges, Nock, & Wang, 2005) with risk factors such as gender, birth order, history of relative loss, and family history of chronic disease (Kessler, Berglund, Borges, Nock, & Wang, 2005). Mean prevalence of anxiety was 27.22% among medical students (Mao, Zhang, Liu, Zhu, He, & Wang 2019). The level of anxiety might interfere with everyday functioning like studies, daily activities, and social life of medical students. Hence, it is a major predictor of academic performance (McCraty, 2007; McCraty, Dana, Mike, Pam & Stephen, 2000). Students with higher level of anxiety achieve a lower academic performance (McCraty, 2007) and greater anxiety is associated with poorer academic achievement (problems with memory, attention & reasoning) (Luigi, Francesca, Maria, Eleonora, Valentina & Benedetto, 2007). Study by Tsegay, Shumet, Damene, Gebreegziabhier and Ayano (2019) showed a significant association between anxiety and medical students, having poor grade point average, being the first year, excessive course load, oral examination, lack of study plan, poor social support, moderate social support, and having psychological distress. Hence, problematic test anxiety, which is found to be common among medical students, deserves more attention. Addressing anxiety among medical students becomes important as researchers Abolghasemi, Mehrabizadeh-Honarmand, Najarian, and Shokrkon, (2004) indicated that people with moderate anxiety can manage their problems and be successful in life. Anxiety is one of the most widely experienced emotions defined as a displeasing feeling of uneasiness, nervousness, apprehension, fear, concern or worry (Barlow, 2002; Karatas, Alei & Aydrin, 2013, Lenka, & Knant, 2012). Criteria for the normality or abnormality of anxiety are determined by its cause and intensity (Barker, 2009). Indeed, moderate anxiety can motivate people to manage their problems and be successful in their life (Abolghasemi, Mehrabizadeh-Honarmand, Najarian, & Shokrkon, 2004). Nonetheless, anxiety might also escalate in disorders, which are the most common class of psychological disorders. Its disorders are present in almost all cultures (Demyttenaere, Bruffaerts, Posada-Villa, Gasquet, Kovess, Lepine, *et al.,* 2004) and estimates show that they are experienced by about 32% of people during their life time (Kessler, *et al.,*, 2005). Yilmaz and Ocakci (2010) found that 77.2% of the students experienced a mild level and 19.6% experienced a moderate level of anxiety. Study conducted by Wong, Cheung, Chan, Ma and Tang (2006) in a sample of university students across 10 universities in Hong Kong revealed that 41% of students experienced moderate levels of anxiety. Hence, there is evidence of anxiety vulnerability or predisposition among students such as medical students.

Anxiety by itself is not a disease or illness but turns into disorder when it interferes with normal life style. Anxiety disorders persist only because the underlying factors that cause them are not properly addressed. This is why those who take medication as their only form of treatment generally remains on medication long time or find themselves going on and coming off and over again, unless the underlying factors are properly addressed, anxiety will almost always persist or return (Bystritsky, Khalsa, Cameron, & Schiffman, 2013). One of the most common psychological problems for which people (such as medical students) seek help is anxiety (Islam, Akter, Sikder, & Griffiths, 2020). Through research, major advances have been made in understanding the causes of anxiety. The different forms it takes and how the problems perpetuate in turn have led to the development of more targeted ways of helping sufferers, one of which is counseling. Till date, counseling

has proven to be an effective way of helping clients (students inclusive) with anxiety problem (Pakan, 2015). Counseling is one form of treatment, in which talking to a counselor can help medical students cope with their problems, like helping them understand the causes of anxiety and coping techniques. Although the most commonly prescribed counseling practice is cognitive behavioral therapy (CBT). Cognitive behavioral therapy as indicated by Beck (1976) seeks to help one manage his or her problems by enabling them to recognize how their thoughts affect both their feelings and behaviour. CBT which is a counseling technique combines two approaches; examining one's thought and the way he or she behaves. This helps to break any overwhelming problems down into smaller more manageable tasks.

Counseling has been seen to play a significant role in reducing anxiety. Counseling is defined as an interactional relationship between the counselor and counselee designed to facilitate the personal development of information leading to effective decision making and awareness of self (Denga & Ali, 1983). The goal of counseling is to help individuals, otherwise called counselee overcome of their present and future problems. Counseling helps people including medical students to respond to their mixed emotions about life challenges in healthy ways. Counselors assist medical students to learn how to handle stress in order to reduce anxiety and improve their self-esteem levels and also to establish healthy mental attitudes to facilitate personal, professional or academic growth (Anxiety and Depression Association of America 2018). According to Velayudhan, Gayatrideri and Bhattacharjee (2010), in their research on the efficacy of behavioral intervention in reducing anxiety and depression among medical students which aim was to determine to what extent the medical students were able to cope with their anxiety and depression with the help of counseling services. The result of the findings indicated that anxiety and depression among the students reduced after counseling. Male and female students in the experimental group showed decrease in the levels of anxiety and depression; whereas the control group, which did not get the benefit of counseling, continued to have the same levels of anxiety and depression. Similarly, Ei-Wahab and Eita (2015) in their earlier study found a significant positive difference before and after intervention groups.

The relationship between self-esteem and anxiety has only rarely been studied (Ekeng & Bassey, 2018; Roberts, 2006). Self-esteem might serve as a protective factor, as a moderator, mediator or simply a result of emotional wellbeing or difficulties (Lee & Hankin, 2009; Restifo, Akse, Valle Guzman, Benjamin & Dick, 2009; Myers, 2013). Self-esteem level at the extreme high and low ends of spectrum can be harmful. Hence, it is the best to strike a balance somewhere in the middle. Low self-esteem has been associated with anxiety symptoms and somatic complaints, while high self-esteem has been considered as an important buffer against anxiety (Millings, Buck, Montgomery, Spears, & Stallard, 2012; Morley & Moran, 2011; O'Brien, Bartoletti, & Leitzel, 2006). In support Reiss, (1991) showed that individual with high level anxiety sensitivity have a tendency to avoid incidence that may reveal perceptions related to anxiety. Cross-sectional research studies have reported correlations of medium of high statistical power between self-esteem and anxiety (Lee & Hankin, 2009; Ntemsia, Triadafyllidou, Papageorgiou, & Roussou, 2017). Although Mustafa, Melonashib, Shkembib, Besimic, & Fanajb (2015) reported no significant differences in self-esteem levels among the students; much of the available researches suggests that high self-esteem may have positive consequences for the well-being and success of the individual and that low self-esteem may be a risk factor for negative outcome (Sowislo &

Orth, 2013). According to Ryan and Deci (2000) in self-determination theory, the conditions that are supportive of three needs (competence, autonomy & relatedness) foster behavior that is self-determined or motivated by personal choice rather than external control. Although, various studies have discussed anxiety among students, yet it has been done on interrelationships existing among counseling, self-esteem and anxiety levels among medical students. Thus, this current research is an attempt to fill this gap in the literature.

Hypothesis
1. Lack of counseling will significantly play a role on anxiety predisposition among medical students.
2. Low self-esteem level will significantly play a role on anxiety predisposition among medical students.

Method

Participants
Three hundred and fourteen (314) volunteers who were undergraduate medical students participated in the study. They comprised one hundred and fifty-two males (152) and one hundred and sixty-two females (162) of varied age groups, religion, ethnic groups, year of study and marital status. Participants' ages ranged from 16 years to 34 years with a mean age of 21.79. Participants were drawn from three departments in college of medicine, Ebonyi State University, Abakaliki using multi-stage sampling technique including cluster and simple random sampling of odd and even numbers. In this case, each department forms a cluster and in each department, simple random sampling of odd and even numbers were applied to select the classes or students' levels. The departments include: medicine and surgery, anatomy and medical laboratory departments.

Instruments

Three instruments were used in this study. They are: Counseling Rating Scale, Rosenberg Self-Esteem Scale (RSE) and State Trait Anxiety Inventory (STAI).

Counselling Rating Scale (Strong, 1968).
The counseling rating scale developed by Strong (1968) is an 11 item instrument intended in the present study to measure medical student's counseling rating abilities and perception. It equally assesses their view of counseling. It is a five point Likert type scale. Response options ranges from 0 = Never True, 1 = Rarely True, 2 = Sometimes True, 3 = Often True, 4 = True, 5 = Always True. Some items include; "I get upset with myself for having feelings that don't make sense''; "I think about things that have happened in the past or what will happen in the future instead of thinking about things that are happening now''. Scores on the instrument ranged from 0 to 55. Higher scores of 30 and above on the scale indicates that an individual has high counseling rating ability, and pull through in the presence of difficulties and challenges; individuals with lower scores have low counseling rating ability and may not succeed in challenging situations (Strong 1968). The total scores on all the items were used as indicator of counseling impact in the present research. However, Strong (1968) reported a Cronbach Alpha coefficient range of .77 to 94. This implies that the result provided strong support for internal consistency reliability of the instrument. Validation study of the instrument (Epperson & Pecnik, 1985) yielded .63 to .89 with a median of .82. For the present study, the researchers subjected the instrument to a pilot study test, and found a reliability coefficient of .76, indicating that the scale is reliable and a good measure of counseling rating.

Rosenberg Self-Esteem (RSE) (Rosenberg, 1965)
The Rosenberg Self-Esteem was used to measure self-assessment attitudes of medical students. The scale consists of 10

items, which offer four possible answers choices on a Likert-type scale. A total score ranging from 10 to 40 is possible. Higher score in the scale is an indication of higher self-esteem in an individual. The RSE has displayed good reliability and discriminant validity (Harter, 1983; Wylie, 1974). In addition, preliminary results have demonstrated that the French translation of the RSE (Vallieres & Vallerand, 1990) displays internal consistency (alpha ranges from. 70 to. 89), construct validity and temporal stability (test-retest correlation r = 0.84, p < 0.001). The Cronbach Alpha reliability co-efficient of the Rosenberg Self-esteem scale after factor analysis using principal component analysis was 0.92 showing good internal consistency using Nigerian sample.

State Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, Lushene, Vagg, and Jacobs (1983)

The STAI is a validated 20-item self-report assessment device which includes separate measures of state and trait anxiety among medical students. The STAI was developed by Spielberger, Gorsuch, Lushene, Vagg, and Jacobs (1983); and has been adapted in more than 30 languages for cross-cultural research and clinical practice (Sesti, 2000). Various reliability and validity tests have been conducted on the STAI and have provided sufficient evident that the STAI is an appropriate and adequate measure for studying anxiety in research and clinical settings (Sesti, 2000). McIntyre, and McIntyre (1995) validated the STAI for Portuguese communities. Several items on the STAI were reversed coded (items 1, 2, 5, 8, 11, 16, 19, 20). It is recommended for studying anxiety in research and clinical settings. The stability of the STAI scales was assessed on male and female samples of high school and college students for test-retest intervals ranging from one hour to 104 days. The magnitude of the reliability co-efficient decreased as a function of interval length. For the Trait-anxiety scale the coefficients ranged from .65 to .86,

whereas the range for the state-anxiety scale was .16 to 62. This low level of stability for the state-anxiety scale is expected since responses to the items on this scale are thought to reflect the influence of whatever transient situational factors exist at the time of testing. According to Omoluabi (1988), the coefficient reliability for both STAI 1 and STAI 2 were found to be .61 and .86 respectively. Convergent co-efficient reliability for STAI1 was shown to be .69, .43 for both males and females respectively; while that of STAI 2 was .35, .51 for both males and females. Also, cut off norm for Nigerian males and females for both STAI 1 and STAI 2 were shown to be 33.59 and 33.54 respectively.

The demographic variables or characteristics which give more detailed information about the participants were measured and coded in the following format. Gender was coded as male = 1 and female = 2; Marital status was coded as single = 1 and married = 2; Year of study was coded as 100 level = 1, 200 level = 2, 300 level = 3, 400 level = 4, 500 level = 5 and 600 level = 6; Religion was coded as Christian = 1, Muslim = 2, Traditional = 3, and Others = 4; while Ethnic group was coded as Igbo = 1, Hausa = 2, Yoruba = 3, and Other = 4.

Procedure

The researchers obtained permission from the class representatives of the various classes that participated in the study. Rapport was created with participants before administering the questionnaire to participants that volunteered to participate in the study. Participants were given necessary information and training they needed to know about the questionnaire, the research and the researchers. Participants were also informed that their responses will be treated with utmost confidentiality; and that participation in the study was voluntary. This is to avoid violation of ethical principle which recommends that participation in research should be voluntary without force or coercion to participants. The questionnaire was

distributed by the researchers in the various departments. Afterwards, the researchers collected the questionnaire after the participants had filled them correctly. One hundred and twenty (120) questionnaire were distributed in each department making a total of three hundred and sixty (360) questionnaire. Three hundred and thirty (330) questionnaire were returned. Before analysis, data obtained from participants were properly checked for errors. In all, 314 properly filled questionnaire were used for data analysis.

Design and Statistics

A cross-sectional survey design was adopted and hierarchical multiple regression was used to test the research hypotheses with the aid of SPSS version 20 for the data analysis. Data obtained from participants were analyzed by computing the means, standard deviations, and correlations among the study variables. Thereafter, to test the hypotheses, multiple regression was conducted in which anxiety was the dependent variable.

Results

Table 1: Means, standard deviations, and correlations for demographic variables, counselling, and self-esteem impacts on anxiety

SN	Variable	M	SD	1	2	3	4	5	6	7	8	9
1	Anxiety	52.91	8.21	-								
2	Age	21.79	3.68	-.13**	-							
3	Religion			.001	-.01	-						
4	Ethnic Group			.02	.21***	-.01	-					
5	Year of Study	3.28	1.49	-.05	.25***	-.01	.01	-				
6	Marital Status			-.05	.45***	-.01	.16**	.21***	-			
7	Gender			.06	-.16**	.06	.07	-.02	.02	-		
8	Counseling	22.67	7.07	-.33***	-.19***	.01	.02	-.06	-.06	.01	-	
9	Self-Esteem	27.30	3.79	-.35***	-.11*	.09	-.04	-.09	-.09	-.06	.23***	-

Note: * = p< .05, ** = p< .01; *** = p< .001

Correlation results indicated that anxiety among medical students was significantly associated with age (r = -.13, p< .01), counseling (r = -.33, p< .001), and self-esteem (r = -.35, p< .001). Age was significantly related to ethnic group (r = .21, p< .001), year of study (r = .25, p< .001), marital status (r = .45, p< .001), gender (r = -.16, p< .01), counseling (r = -.19, p< .001), and self-esteem (r = -.11, p< .05). Ethnic group was significantly related to marital status (r = .16, p< .01). Year of study was significantly related to marital status (r = .16, p< .01). Counseling was significantly related to self-esteem (r = .23, p< .001).

Table 2: Showing the prediction of anxiety by control variables, counselling, and self esteem

	R	R2	R2Δ	B	Beta(β)	T
Model 1						
Age	.15	.02	.02	-.31	-.14	-2.07*
Religion				-.12	-.002	-.04
Ethnic Group				.85	.05	.83
Year of Study				-.11	-.02	-.33
Marital Status				.50	.01	.20
Gender				.54	.03	.57
Model 2						
Counselling	.35***	.12***	.10***	-.37	-.32	-5.83***
Model 3						
Self-Esteem	.45***	.20***	.08***	-.64	-.30	-5.59***

Note: * = p< .05, ** = p< .01; *** = p< .001

Regression result showed that amongst the control variables, only age (β = -.14, t = -2.07, p<.05) significantly predicted anxiety among medical students. But religion (β = -.002, t = -.04), ethnic group (β = .05, t = .83), year of study (β = -.11, t = -.33), marital status (β = .01, t = .20), and gender (β = .03, t = .57) were not significant predictors of anxiety among medical students. Counseling entered in model two of the equation was a significant negative predictor of anxiety among medical students (β = -.32, t = -5.83, p< .001). It accounted for 10% variance in the explanation of anxiety among medical students ($R^2\Delta$ = .10, p< .001). This implies that reduced level of counseling appears to increase anxiety among medical students. Self-esteem (β = -.30, t = -5.59, p< .001) was a significant negative predictor of anxiety among medical students. It accounted for 8% variance in the explanation of anxiety among medical students ($R^2\Delta$ = .08, p< .001). This implies that students with lower self-esteem

are more likely to report prevalence of anxiety.

Discussion

This study examined the predictive roles of counseling and self-esteem levels in vulnerability to anxiety among medical students. The regression result in table two showed that counseling was a significant negative predictor of anxiety among medical students. The first hypothesis tested is that counseling will significantly predict vulnerability to anxiety among medical students. The finding confirmed the first hypothesis as counseling was found to be a negative significant predictor of anxiety among the medical students. The finding is consistent with previous empirical studies (e.g., Velayudhan, *et al.*, 2010) study on efficacy of behavioral intervention in reducing anxiety and depression among medical students which indicated that anxiety and depression among medical students reduced after counseling. Also, Ei-Wahab and Eita

(2015) study on the impact of counseling on self-esteem and anxiety among nursing students, found a statistically significant positive difference before and after intervention groups. The findings supported the humanistic theory of Maslow and Rogers which showed that therapists help clients to achieve their highest potential.

The finding also supports cognitive theory of Aaron Beck (1976) which showed an external link to help with a number of mental illness including anxiety and other psychological disorders.

The second hypothesis tested states that self-esteem levels will significantly predict vulnerability to anxiety among medical students but the result of the findings indicated that self-esteem was a significant negative predictor of anxiety among medical students. The findings confirmed the second hypothesis because self-esteem was found to be a significant predictor of anxiety among medical students. The finding is consistent with previous empirical studies of Ntemsia, *et al.,* (2017) on self-esteem and anxiety level of students of Athens Greece and found that students who scored high in anxiety also had lower self-esteem; but inconsistent with Mustafa *et al.,* (2015) study on anxiety and self-esteem among university students; which indicated no significant differences in self-esteem levels among the students. The finding supports self-determination theory by Deci and Ryan (2000) which showed that the conditions that are supportive of three needs (competence, autonomy & relatedness) will foster behavior that is self-determined or motivated by personal choice rather than external control. It is in support of Reiss expectancy model of fear by Reiss (1991) which showed that individual with high level anxiety sensitivity have a tendency to avoid incidence that may reveal perceptions related to anxiety. The finding supports the present study which indicates that decrease in counseling appears to increase anxiety, and that medical students with higher self-

esteem are less likely to report having anxiety.

Implications of the Study

The findings have some practical implications among medical students given that when students are already under stress or anxious, talking to them about counseling and trying to know the cause of their problem often lowers stress on the students, so there is need for medical students to be counseled, otherwise it will lead to additional burden on them. Also, students with lower self-esteem develop more anxiety than the higher self-esteem students. A student with low self-esteem will always find it difficult expressing himself or herself openly and seek help that will enable him/her work hard to be the best in his or her class, if possible the best in the whole school. So, it gives them sleepless nights resulting to anxiety. People with moderate anxiety can manage their problems and be successful in life (Abolghasemi *et al.,* 2004). Likewise, if students have extreme or lower anxiety he or she will not perform well academically and otherwise, whether the persons have high self-esteem or not but with moderate anxiety students will perform well in all ramifications. This study advocates for conducive environment for learning and also the provision of necessary learning materials and laboratory equipment so as to reduce the amount of stress and tensions experienced by medical students in the course of their studies. Similarly, the study advocates for policies and programs that enable medical students develop and utilize high self-esteem in achieving high records in their educational pursuits. Group and individual counseling should be introduced as part of the training curricular for medical students, as it will help discover those that are prone to anxiety and for quick help to be given to them.

Limitations of the Study

This present study has several limitations, one of which is that data related to other variables that may have a mediating

effect on the students' anxiety, counselling and self-esteem levels such as their family background including the socio-economic and educational level of their families, their personality etc., were not obtained. Secondly, the sample size for this study is small which would have limited generalization of the findings. In order words, larger sample size may be necessary to allow for more generalization of results and possible conclusions. Constraints in data collection limited the study following poor knowledge of some participants in responding to questionnaire. Also, there is difficulty in getting some students to participate in the study as there was no financial rewards for participation, hence some questionnaire were not returned after filling them.

Recommendations

The present study recommends that (a) Counselling services should be broadly integrated as part of the major training programmes for medical students. Intermittent refresher courses on latest counseling programmes should also be given practicing medical doctors and other health professionals in hospitals to reduce different levels of anxiety which they are confronted with on daily basis in their places of work, and specifically, in the intensive care and accident and emergency units (b) Programmes and activities that build self-esteem should also be constantly enhanced in the training curriculum of medical students as well as conferences for practicing medical doctors to enhance their proficiency on the job.

Suggestions

In view of the above mentioned limitations, the researcher made the following suggestions for further or future researches. Future researchers interested in this dependent variable should consider other demographic variables such as family background, socio-economic status, personality etc. Larger sample size is necessary to enhance more generalization and conclusions. Sample size involving

medical students of different institutions and regions or cultures can be used for better generalization of findings. A follow-up in the same sample of students would be useful, in other to obtain more objective data about the stability of their self-esteem and its relationship with their academic performance and anxiety.

Conclusion

This study provided evidence that anxiety was significantly related to age, counseling and self-esteem. The control variable age, was a significant predictor of anxiety among the participants. The findings of this research have proven that medical students who have higher self-esteem experience less anxiety than those with low self-esteem. Therefore, further researches should investigate the cause of high self-esteem among students. The study also indicated that counseling decreases the level of anxiety. Since age significantly predicted anxiety, it means that people who are immature by age experience more stress than medical students who are more mature by age.

References

Abolghasemi, A., Mehrabizadeh-Honarmand, M., Najarian, B., & Shokrkon, H. (2004). The effectiveness of therapeutic methodology of stress inoculation training and systematic desensitization in test anxiety students. *Journal of Psychology, 8*(29), 3-21.

Al-Gelban, K. S. (2007). Depression, anxiety and stress among Saudi adolescent school boys. *Journal of Research in Society to Promote Health, 127*(1), 33-37.

Anxiety and Depression Association of America (ADAA) (2018). *Helpful Guide to Different Therapy Options.* Retrieved March 20, 2019 from https://adaa.org/finding-help/treatment/therapy.

Barker, V. (2009). Older adolescents' motivations for social network site use: The influence of gender, group identity, and collective self-esteem. *Cyberpsychology & Behavior, 12*(2), 209-213. DOI: 10.1089/cpb.2008.0228

Barlow, D. H. (2002). Unraveling the mysteries of anxiety and its disorders from the perspective of emotion theory. *American Psychologist, 55*, 1247-1263.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders.* International Universities Press.

Bystritsky, A., Khalsa, S. S., Cameron, M. E., & Schiffman, J. (2013). Current diagnosis and treatment of anxiety disorders. *P&T 3*(1), 30-57.

Demyttenaere, K., Bruffaerts, R., Posada-Villa, J., Gasquet, L., Kovess, V., Lepine, J. P., *et al.,*. (2004). Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization world mental health surveys. *JAMA. 291*(21), 2581- 90.

Denga, D. I., & Ali, A. (1983). *An introduction to research methods and statistics in education and social sciences (3rd ed).* Calabar: Rapid Educational Publishers.

Ei-Wahab S. D., & Eita, L. H. (2015). Impact of counseling on self-esteem and anxiety levels among nursing students. *Journal of Nursing Education and Practice 5*(6), 106-113

DOI: https://doi.org/10.5430/jnep.v5n6p106

Ekeng, E. B., & Bassey, B. A. (2018). Test anxiety, self-esteem and academic performance among secondary school students in Cross River State, Nigeria. *International Journal of Education and Evaluation, 4*(9), 18-27

Epperson, D. L., & Pecnik, J. A. (1985). Counselor rating form-short version: Further validation and comparison to the long form. *Journal of Counseling Psychology, 32*, 143146.

Harter, S. (1983). Developmental perspectives on the self-system. In E. M. Hetherington (Ed.), *Handbook of child psychology* (pp. 275-385). New York: John Wiley.

Islam, S., Akter, R., Sikder, T., & Griffiths, M. D. (2020). Prevalence and factors associated with depression and anxiety among first-year university students in Bangladesh: A cross-sectional study. *International Journal of Mental Health and Addiction* https://doi.org/10.1007/s11469-020-00242-y

Karatas, H., Alei, B. & Aydin, H. (2013) Correlation among high school senior students' test anxiety, academic performance and points of university entrance exam. *Educational Research and Reviews, 8*(13), 919-926.

Kessler, R. C·, Berglund, P., Borges, G., Nock, M., & Wang, P. S. (2005). Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990-1992 to 2001-2003. *The Journal of the American Medical Association, 25; 293*(20), 2487-95. DOI: 10.1001/jama.293.20.2487

Lackovic-Grgin, K. (2000). Insecure attachment, dysfunctional attitudes, and low self-esteem predicting prospective symptoms of depression and anxiety during adolescence. *Journal of Clinical Child and Adolescent Psychology, 38*, 219-231.

Lee, A., & Hankin, B. L. (2009). Insecure attachment, dysfunctional attitudes, and low self-esteem predicting prospective symptoms of depression and anxiety during adolescence. *Journal of Clinical Child Adolescent Psychology, 38*(2), 219-31. doi: 10.1080/15374410802698396.

Lenka, S. K., & Knant, R. (2012). A study of academic anxiety of special need's children in special reference to hearing impaired and learning disabled. *International Journal of Multidisciplinary Research, 2*(2),64-72.

Luigi, M., Francesca, D., Maria, D. S., Eleonora, O., Valentina, G. D., & Benedetto, V. (2007). The role of anxiety symptoms in school performance in a community sample of children and adolescents. *BMC Public Health 7*, 347. Doi: 10.1186/1471-2458-7-347.

Mao, Y., Zhang, N., Liu, J., Zhu, B., He, R., & Wang, X. (2019). A systematic review of depression and anxiety in medical students in China. *BMC Medical Education, 19*, 1-13. https://doi.org/10.1186/s12909-019-1744-2

McCraty, R. (2007). *When anxiety causes your brain to jam, use your heart*. Institute of Heart Math. Heart Math Research Center, Institute of Heart Math, Boulder Creek, CA.

McCraty, R., Dana, T., Mike, A., Pam, A., & Stephen, J. (2000). *Improving test-taking skills and academic performance in high school students using heart math learning enhancement tools*. Heart Math Research Center, Institute of HeartMath, 1-4.

McIntyre, T., & McIntyre, S. (1995). *State trait anxiety inventory (STAI)*. Research Version. University of Minho, Braga, Portugal.

Millings, A., Buck, R., Montgomery, A., Spears, M., & Stallard, P. (2012). School connectedness, peer attachment, and self-esteem as predictors of adolescent depression. *Journal of Adolescence, 35*, 1061-1067.

Morley, T., E., & Moran, G., (2011). The origins of cognitive vulnerability in early childhood: Mechanisms linking early attachment to later depression. *Clinical Psychology Review, 31*, 1071-1082.

Mostafa, A., Tarek, T. A., Sahoo, S., Sami, A. M., Mohamed, A. S., Nasser A. Q., Abdulhadi, A., & Abdullah, A. S. (2013). Depression and anxiety among Saudi university students: Prevalence and correlates. *The Arab Journal of Psychiatry 24*(1), 1-7

Mustafaa, S., Melonashib, E., Shkembib, F., Besimic, K., & Fanajb, N. (2015). Anxiety and self-esteem among university students: Comparison between Albania and Kosovo. *Procedia - Social and Behavioral Sciences, 205*, 189 – 194

Myers, D. (2013). *Psychology, 10 ed*. New York: Worth Publishers.

Ntemsia, S., Triadafyllidou, S., Papageorgiou, E., & Roussou, K.

(2017). Self-esteem and anxiety level of students at the technological educational institute of Athens – Planning of interventions. *Health Science Journal, 11*, 3.

O'Brien, E. J., Bartoletti, M., & Leitzel, J. D. (2006). Self-esteem, psychopathology and psychotherapy. In M. Kernis, *Self-esteem issues and answers: A source book of current perspectives*. New York: Psychology Press.

Omoluabi, F. P. (1988), Psychophysiological patterns of anxiety in the development of psychopathology. University of Lagos School of Postgraduate Studies Phd Thesis and Dissertation Abstracts, 458pp.

Pakan, J. A. (2015). *Counseling to reduce stress and anxiety: A mixed methods study*. Counselor Education Capstone. 3.http://digitalcommons.brockport.edu/edc_capstone/3

Reiss, S. (1991). Expectancy model of fear, anxiety, and panic. *Clinical Psychology Review, 11*, 141-153.

Restifo, K., Akse, J., Valle Guzman, N., Benjamin. C., & Dick, K. (2009). A pilot study of self-esteem as a mediator between family factors and depressive symptoms in young adult university students. *Journal of Nervous Mental Disorder 197*, 166–71.

Roberts, J. E. (2006). Self-esteem from a clinical perspective. In M. H. Kernis (Ed.), *Self-esteem issues and answers: A sourcebook of current perspectives* (pp. 298 – 305). New York, NY: Psychology Press

Rosenberg, M. (1965). Society and the adolescent self-image. Princeton, NJ: Princeton University Press

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *The American Psychological Association, Inc. 55*(1), 68-78 DOI: 10.1037110003-066X.55.1.68

Sesti, A. (2000). State trait anxiety inventory in medication clinical trials. *Quality of Life Newsletter, 25*, 15–16.

Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin, 139*, 213-240.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the state-trait anxiety inventory.* Consulting Psychologists Press: Palo Alto, CA, USA.

Strong, S. R. (1968). Counseling: An interpersonal influence process. *Journal of Counseling Psychology, 15*(3), 215–224. https://doi.org/10.1037/h0020229

Tsegay, L., Shumet, S., Damene, W., Gebreegziabhier, G., & Ayano, G. (2019). Prevalence and determinants of test anxiety among medical students in Addis Ababa Ethiopia. *BMC Medical Education, 19*, 1-10. https://doi.org/10.1186/s12909-019-1859-5

Vallières, E. F., & Vallerand, R. J. (1990). Traduction et validation canadienne-française de l'Échelle de l'Estime de Soi de Rosenberg [French-Canadian translation and validation of Rosenberg's Self-

Esteem Scale]. *International Journal of Psychology, 25*(3), 305–316. https://doi.org/10.1080/00207599008247865

Velayudhan, A., Gayatrideri, S., & Bhattacharjee, R. R. (2010). Efficacy of behavioural intervention in reducing anxiety among medical students. *Psychological Journal of industrial Psychiatry 190*, 41-6.

Wong, J. G. W. S., Cheung, E. P. T., Chan, K. K. C., Ma, K. K. M., & Tang, S. W. (2006). Web-based Survey of Depression, Anxiety and Stress in First-Year Tertiary Education Students in Hong Kong. *Australian N Z Journal of Psychiatry, 40*(9), 777-82. DOI: 10.1080/j.1440-1614.2006.01883.x

Wylie, R. C. (1974). *The self-concept: A review of methodological considerations and measuring instruments*. Lincoln, NE: University of Nebraska Press.

Yılmaz, M., & Ocakçı, A. F. (2010). Bir kız öğrenci yurdunda kalan üniversite öğrencilerinin anksiyete düzeylerinin belirlenmesi [Determination of the anxiety level of university students one dormitory located]. *Maltepe Üniversitesi Hemşirelik Bilim ve Sanatı Dergisi, 3*(1), 16-23.