

Big-Five Personality Factor as Correlates of Coping Among Patients with Diabetes Mellitus in Federal Teaching Hospital Abakaliki, Nigeria

Okeke, Afamefuna O.

afam210@gmail.com

Department of Psychological Medicine, Ebonyi State University, Abakaliki Nigeria.

Igwe, Monday N.

mondayigwe@yahoo.com

Department of Psychological Medicine, Ebonyi State University, Abakaliki Nigeria.

Abstract

This study examined the role of big-five personality factor on coping among patients with diabetes mellitus (DM) in Federal Teaching Hospital Abakaliki. A total of 202 patients with DM from Federal Teaching Hospital Abakaliki were recruited. The instruments used in the study were 44-item big-five personality inventory and 30 item personal function index. The design of the study was **correlational design and hierarchical multiple regression** was adopted as the statistical tool to test the hypotheses. The results indicated that personality trait (big five trait) significantly predicted coping in the following manner, extroversion significantly predicted coping among the participants at $\beta = .21$; $t = 17.41$, $P < .05$, agreeableness significantly predicted coping at $\beta = -.67$; $t = -11.12$, $P < .05$.

1. Introduction

Diabetes mellitus (DM) is a heterogeneous metabolic disease characterized by chronic hyperglycemia and impaired metabolism of carbohydrates, fats and protein [2]. It is consequently caused by defects in insulin secretion or function [2]. There are three main types of diabetes mellitus according to World Health Organization [48] The Type 1 DM results from the body's failure to produce enough insulin. This form was previously referred to as insulin-dependent diabetes mellitus (IDDM) or Juvenile diabetes. The second type is Type 2 (DM) which begins with insulin resistance, a condition in which cells fail to respond to insulin properly. As the disease progresses, a lack of insulin may also develop. This form was previously referred to as "non insulin-dependent diabetes mellitus" (NIDDM) or "adult-onset diabetes, Gestational diabetes, is the third main form and occurs when pregnant women without a previous history of diabetes develop high blood glucose level. For the purpose of this study all

Conscientiousness significantly predicted coping at $\beta = .22$; $t = 10.08$, $P < .05$. Neuroticism significantly predicted coping at $\beta = -.07$; $t = -2.31$, $P < .05$. Finally, openness significantly predicted coping among diabetics at $\beta = .89$; $t = 13.37$, $P < .05$.

In conclusion, the findings showed that personality factor (big – five personality factors) are among the significant predictors of coping among patients with diabetes mellitus attending diabetic clinic with openness as the most potent positive predictor. Therefore psychotherapists should map out ways of boosting the personality traits of patients with diabetes mellitus through the use of psychological skills and techniques to ensure an appropriate coping

Keywords;

Diabetes Mellitus, Big-five Personality, Coping

the three types of diabetes mellitus will be considered without any disintegration.

In the year 2000 it was estimated that 171 million people in the world were with diabetes and this is projected to increase to 366 million by 2030. This increase in prevalence is expected to be more in the Sub-Saharan Africa and India [49]. In Africa, the estimated prevalence of diabetes is 1% in rural areas, up to 7% in urban sub-Saharan Africa, and between 8-13% in more developed areas such as South Africa and in population of Indian origin [37]. The prevalence of diabetes in Nigeria varies from 0.65 % in rural (North) to 11% in urban Lagos (South) [14] and data from World Health Organization (WHO) suggest that Nigeria has the greatest number of people living with diabetes in Africa. This does not imply that Nigeria as a country has the highest global rate of prevalence but has the highest number of people with this disorder when compared against her large population [49]



According to American Diabetes Association, diabetes can only be managed and the main goal of diabetes management is, as far as possible to restore carbohydrate metabolism to normal state. To achieve this goal, individuals with an absolute deficiency of insulin require insulin replacement therapy, which is given through injections or insulin pump. Insulin resistance, in contrast, can be corrected by dietary modifications and exercise. Other goals of diabetes management are to prevent or treat the many complications that can result from the disease itself and from its treatment.[3]

To paraphrase Chawla et al, many people think that diabetes treatment is very straightforward, once the right amount of medication or insulin has been determined. Unfortunately, management is much more complicated than this. Diabetes is a disease that is managed primarily by a complicated regime of self-care behavior. The management of diabetes includes following a daily routine of medication or insulin usage, self-testing of blood glucose levels many times per day, as well as specific diet and exercise. All of these tasks may be performed daily in a highly coordinated fashion.[14]

Chawla et al further noted that Diabetes self care is difficult for a number of reasons. For example, the demands of diabetes self management can be overwhelming. Ideally, when people learn new and complicated routines, they try out new behaviors in a gradual way, eventually making them part of a new routine, but with diabetes the individual must quickly learn a large number of new behaviors and they must begin performing them all and at once. In general, research shows behavior changes occur best when simple changes are made first and change occurs gradually over time. However, the individual with diabetes has to try to manage all of the factors simultaneously in a right way.[14].

In addition to behavioral demands of diabetes, there are emotional and social problems that can arise. Diabetes may often be perceived as a burden. It may be hard to accept the disease and feelings of depression (feeling overwhelmed), anxiety (fear of complications or hypoglycemia) and frustration (with demands of self care or medical system) may be common [45]. According to Steven et al many individuals who do not have diabetes find it difficult to understand the needs of someone with diabetes. Even if they mean well, those without diabetes often act in ways that may not be supportive. For example, friends or relatives may encourage a person with diabetes to eat something they shouldn't because

“once can't hurt”. Well meaning mothers and aunts may prepare calorie – rich foods for their diabetic children, not realizing the harm they are doing.

Steven et al further noted that Psychosocial issues may exert substantial influence on glycemic control in diabetic patients. Psychological factors (e.g stress, anxiety, depression e.t.c) have been shown to increase the risks of poor glycemic control, brittle diabetes (hard to control type 1 DM), and diabetic ketoacidosis. [45]

Diabetes presents a significant challenge and stress for diabetics and those around them. Considering the stress that is associated with diabetes regimen or behavioural management of diabetes mellitus, coping can be difficult and there is need for researchers to understand coping as a variable and to focus on those psychological factors that can influence coping with diabetes. Bearing this in mind the present study is aimed at finding out the role personality play in coping among diabetic patients.

Due to individual differences, people respond to or cope with perceptions of threat, harm, stress and loss in diverse ways. Coping is often defined as efforts to prevent or diminish threat, stress, harm, and loss, or to reduce associated distress. Some prefer to limit the concept of coping to voluntary responses [16]. Others include automatic and involuntary responses within the coping construct [44]. Of course, distinguishing between voluntary and involuntary responses to stress is not simple; indeed, responses that begin as intentional and effortful may become automatic with repetition.

The process of coping involves two components, appraisal and coping [30]. Appraisal is the act of perceiving a stressor and analyzing one's own ability to deal with the stressor. Appraisal can be made in three different conditions: when we have experienced a stressor, when we anticipate a stressor and when we experience a chance for mastery or gain [30]. Once we appraise a stressful situation we must decide how we will respond or cope with the stressor, either choosing to master it, reduce it or tolerate it. The coping style we engage in is ultimately determined by whether we believe we have the resources to resolve the stressor. There appears to be three main coping styles that people employ when attempting to resolve or remove a stressor: problem-focused coping, emotion-focused coping and avoidant coping.[30]



Problem-focused coping involves altering or managing the problem that is causing the stress and is highly action focused. Individuals engaging in problem-focused coping focus their attention on gathering the required resources (i.e. skills, tools and knowledge) necessary to deal with the stressor. This involves a number of strategies such as gathering information, resolving conflict, planning and making decisions [31].

Emotion-focused coping can take a range of forms such as seeking social support, acceptance and venting of emotions [10]. Although emotion-focused coping styles are quite varied they all seek to lessen the negative emotions associated with the stressor, thus emotion-focused coping is action-orientated [1].

The third main coping style is avoidant coping. Avoidant coping can be described as cognitive and behavioural efforts directed towards minimizing, denying or ignoring dealing with a stressful situation [27]. Although some researchers group avoidant coping with emotion-focused coping, the styles are conceptually distinct [27]. Avoidant coping is focused on ignoring a stressor and is therefore passive, whereas emotion-focused coping is active [27]. However, among diabetics, the adoption of a particular coping style may be anchored on some psychological factors. Such factors may include but not limited to personality dispositions.

Like we noted earlier that due to individual differences people respond to or cope with perceptions of threat, harm, stress and loss in diverse ways these diverse ways is what makes us whom we are (personality). Personality by definition is a dynamic and organized sort of characteristic possessed by a person that uniquely influences his or her cognitions, motivations and behaviors in various situations [28]. It can also be defined as the characteristic pattern of behavior and modes of thinking that determine a person's adjustment to the environment [4]. Personality type on its own is referred to as the psychological classification of different types of people [8]. In this study, the five components of big five personality (extroversion, neuroticism, agreeableness, conscientiousness and openness) were examined with regards to their roles on coping among diabetics.

The first of the five factors is extraversion. As is true of several traits, extraversion has different emphases in different measures. Sometimes it is based on assertiveness, spontaneity and energy. Sometimes it is based in dominance, confidence, and agency [18], sometimes in a tendency toward happiness. Extraversion is often thought of as implying sociability [6].

The second factor, neuroticism, concerns the ease and frequency with which a person becomes upset and distressed. Moodiness, anxiety, and depression reflect higher neuroticism. Measures often include items or facets pertaining to hostility and other negative feelings, but they are dominated by vulnerability to experiences of anxiety and general distress. Neuroticism has been linked to the avoidance temperament discussed above [12]-[21]. The third factor is agreeableness, agreeable people are friendly and helpful [29], empathic [23], and able to inhibit their negative feelings [24]. Agreeable people get less angry over others' transgressions than do less agreeable people [36], and this seems to short-circuit aggression [36]. At the opposite pole is an oppositional or antagonistic quality. People low in agreeableness use displays of power to deal with social conflict [22].

The most commonly used label for the fourth factor is conscientiousness, although this label does not fully reflect the qualities of planning, persistence, and purposeful striving toward goals that are part of it [20].

The fifth factor, most often called openness to experience, is the one about which there is most disagreement on content [17]. Some measures (and theories) imbue this factor with greater overtones of intelligence, terming it intellect [41]. It involves curiosity, flexibility, imaginativeness, and willingness to immerse oneself in atypical experiences [34].

Even prior to coping, personality influences the frequency of exposure to stressors, the type of stressors experienced, and its appraisals [47].

For instance, neuroticism as an aspect of personality, predicts exposure to interpersonal stress, and tendencies to appraise events as highly threatening and coping resources as low [25]. Conscientiousness predicts low stress exposure [32], probably because conscientious persons plan for predictable stressors and avoid impulsive actions that can lead to financial, health, or interpersonal problems. Agreeableness is linked to low interpersonal conflict and thus less social stress [5]. Extraversion, conscientiousness, and openness all relate to perceiving events as challenges rather than threats and to positive appraisals of coping resources [42]. Unsurprisingly, high neuroticism plus low conscientiousness predicts high stress exposure and threat appraisals, and low neuroticism plus high extraversion or high conscientiousness predicts low stress exposure and threat appraisals [25].



Based on the above enumerations, it can be deduced that different postulations have been made based on personality traits as correlates of coping. However, such postulations are mainly foreign based and as such reliable panacea to the factors militating against coping among diabetics in Abakaliki, Nigeria may not be proffered based on such foreign postulations. In a bid to fill this perceived research lacuna, this study came into reality.

1.2. Hypotheses

1. Extroversion will significantly predict coping among patients with Diabetes Mellitus.
2. Agreeableness will significantly predict coping among patients with diabetes mellitus.
3. Conscientiousness will significantly predict coping among patients with diabetes mellitus.
4. Neuroticism will significantly predict coping among patients with diabetes mellitus.
5. Openness will significantly predict coping among patients with diabetes mellitus.

3.METHOD

3.1 Participants

A total of two hundred and two (202) patients with diabetes mellitus from Federal teaching hospital Abakaliki served as participants in the study. One hundred and nine (54.0%) were males while 93 (46.0%) were females. The participants were selected through convenience sampling technique. These patients had been diagnosed with diabetes mellitus by a consultant endocrinologist.

3.2.Instruments

Two instruments were used in the study. They included 44-item Big-5 personality inventory by John, Donahue and Kentle (1991) and Personal Function Index that measures coping with 30 items by Kohn, O'Brien-Wood, Pickering and Decicco (2003). The scales on big five personality and coping were also based on five point likert format ;(1) strongly agree, (2) agree, (3) neutral, (4) strongly disagree, (5) disagree.

3.3.Validity/Reliability

The original psychometric property of Personal Function Index was provided by Kohn et al (2003)

using Canadian samples, he reported a construct validity of .71 with summed rating scale (SRSA Kolin 1998), predictive validity coefficient of .52 with situational response inventory (SRI Kohn et al 1997) and a concurrent validity coefficient of -.43 with Beck's Anxiety Inventory (BAI Beck et al 1988). Using cronbach alpha reliability coefficient, he obtained .90 and also .90 using three weeks test re-test method. Umeh (2004) provided the properties for Nigerian sample. He reported a concurrent validity of .10 and .18 with extroversion and openness subscales of Big Five Inventory respectively. John et al (1991) provided the original psychometric properties of BFI, they reported a convergent validity coefficient of .75 and .85 with big-five instrument authored by costa & Mc crae (1992) & Goldberg (1992) respectively. Using cronbach alpha, a reliability coefficient of .80 was obtained and .85 using three months test re-test reliability method. Umeh (2004) provided the properties for Nigerian sample. He reported a divergent validity coefficients reported with university maladjustment scale (kleinmuntz, 1961) are Extroversion .05, Agreeableness .13, Conscientiousness .11, Neuroticism .39, openness.24..

3.4. Procedure

A formal permission was obtained from Ethical Committee of Federal Teaching Hospital Abakaliki. Subsequently, questionnaires were given to the participants on the days of their clinic visitation. Some of the patients filled the questionnaire and returned it same day while some that came late for their clinic were allowed to go home with the questionnaires and return on next clinic day. Two nurses were employed and trained on how to assist with the distribution and collection of the questionnaires and the data collection lasted for 4 months. Out of 250 questionnaires distributed only 202 were utilized, 30 were not returned and the remaining 18 questionnaire were not properly filled and as such were discarded.

3.5.Design/ Statistic

The research was survey while the design was correlational design. Based on the research design and the nature of hypotheses, hierarchical multiple regression was adopted as the statistical tool to test the hypotheses using SPSS version 20.

4. Results

Table 1: summary table of hierarchical multiple regression on big five factors as predictors of coping.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig
		B	Std. Error	Beta		
1	(Constant)	2.54	.92	.	2.75	.01
	Extroversion	1.19	.07	.21	17.41	.00
	Agreeableness	-2.70	.24	-.67	-11.12	.00
	Conscientiousness	1.15	.11	.22	10.08	.00
	Neuroticism	-.17	.07	-.07	-2.31	.02
	Openness	3.50	.26	.89	13.37	.00

A Dependent Variable: coping

5.1. Discussion

This study investigated the role of personality (big-five factor) on coping among diabetic patients in Federal Teaching Hospital Abakaliki. Out of two hundred and two patients that participated in this study, 109 (54%) were males and 93 (46%) were females. The ages of the participants ranged from 18 to 60 years with a mean age of 32.50 and standard deviation of 11.6. The result of this study further indicated that personality trait predicted coping among diabetic patient. The present findings is in line with the findings of Connor & Simth [15], who focused on big five personality traits in a meta-analysis of data from 165 adults, adolescent and middle – childhood samples and concluded that personality is a strong predictor of coping. Also, Mimics et al, (2013) investigated the association between the big five personality trait and coping among 1140 adults in various institutions and relations in Hungary and concluded that personality trait is a strong predictor of coping. In this study the five factor of the big five personality inventory that was considered are openness to experience, extroversion, conscientiousness, agreeableness and neuroticism. It was ascertained that openness to experience, extroversion and conscientiousness are positive predictors of coping among diabetic patients while agreeableness and neuroticism are the negative predictors of coping among diabetic patients which implies that agreeableness and neuroticism moves in

opposite direction, that is to say that a patient with more trait of neuroticism and agreeableness tends to cope negatively while a patient with a lower trait of the above mentioned personality trait will cope positively. The explanation of the different findings of this study can be attributed to the characteristics or temperament of the factors of the big five personality as explained below.

Openness to experience as the most potent positive predictor of coping among diabetic patients involves the tendency to be imaginative, creative, curious, flexible, attuned to inner feelings, and inclined toward new activities and ideas [29]. These tendencies may facilitate engagement coping strategies that require considering new perspective, such as cognitive restructuring and problem solving, but may also facilitate use of disengagement strategies such as wishful thinking. [11]

Extroversion as the second positive predictor of coping as grounded in an approach temperament, involves sensitivity to reward, positive emotions, sociability, assertiveness, and high energy [43]. Strong approach tendencies and assertiveness should provide the energy required to initiate and persist in problem solving [33]-[47], positive effect should facilitate cognitive restructuring; and an orientation toward others and access to a social network should facilitate coping. [11]



Conscientiousness as the third positive predictor of coping among diabetes patients implies persistence, self discipline, organization, achievement orientation, and a deliberative approach [12]. The planful, disciplined properties of this trait should facilitate problem solving and make disengagement less likely [33]-[47]. The strong attention regulation capacity underpinning conscientiousness should predict success at cognitive restructuring, which requires a capacity to disengage from powerful negative thoughts. [19]

Agreeableness as the first negative predictor of coping among diabetic patients involves high levels of trust and concern for others [12]. Because those high in agreeableness tend to have strong social networks agreeableness may predict coping [9]-[46].

Neuroticism as the second negative predictor of coping among diabetic patients reflects tendencies to experience fear, sadness, distress, and physiological arousal [43]. Given this vulnerability to distress, neuroticism should lead to disengagement from threat. Disengagement may be reinforced through short-term relief of distress which may reduce motivation to return to the stressor, thus minimizing engagement coping [33]. Furthermore, the mere presence of intense emotional arousal can interfere with the use of engagement strategies that require careful planning. Negative affect should also make positive thinking and cognitive restructuring difficult.

Finally, Carver & Connor-Smith noted that given exposure to stressors, personality can be expected to influence coping responses in several ways [11]. Lazarus in his cognitive phenomenological theory of psychological distress suggested that our personality influences the appraisal process and consequently the coping style we choose [30]. Individuals with optimistic and positive personalities are more likely to appraise a stressful situation more positively and consequently engage in a pro-active coping style [7]. In contrast, more fearful individuals are more likely to appraise a stressful situation as negative and underestimate their ability to deal with the stressor. This leads them to choose a more passive coping style [7]. Therefore, stress is not caused solely by the situation or by personality characteristics, but by the interaction between the two [38].

5.1. Limitations

The respondents may have given opinions that did not actually represent their situations. Also the relatives of these patients may have interfered with the opinions of the respondents as they were allowed

to fill the questionnaires at home. Findings should therefore not be generalized and interpreted with caution.

5.3. Conclusion

The findings showed that personality factor (big – five personality factors) are among the significant predictors of coping among patients with diabetes mellitus attending diabetic clinic. The findings also isolated openness as the most potent predictor of coping among predictor variables examined.

5.4 Recommendations

The study recommended that psychotherapists should map out ways of boosting the personality traits of patients with diabetes through the use of psychological skills and techniques to effect an appropriate coping.

6. Acknowledgment

We thank all the patients who willingly consented to participate in this study

7. References

- [1] Admiraal, W. F., Korthagen, F. A. J., & Wubbels, T. (2000). Effects of student teachers' coping behaviour. *British Journal of Educational Psychology*, 70(1), 33-52.
- [2] American Diabetes Association Standards of Medical Care in Diabetes. *Diabetes Care* 2005; 28 (Supp 1): S4-S36.
- [3] American Diabetes Association Standards of Medical Care in Diabetes. *Diabetes Care* 2006; 29 (Supp 1): S8-S34
- [4] Atkinson, R.C & Hilgard, E.R. (1983). *Introduction to psychology* (8th ed.). New York: Harcourt.
- [5] Asendorpf, J. B., & Wilpers, S. (1998). Personality effects on social relationships. *Journal of Personality and Social Psychology*, 74, 1531-1544.
- [6] Ashton, M. C. (2002). What is the central feature of extraversion?: Social attention versus reward sensitivity. *Journal of Personality and Social Psychology*, 83(1), 245-251.
- [7] Ball, S., Smolin, J., & Shekhar, A. (2002). A psychobiological approach to personality: examination within anxious outpatients. *Journal of Psychiatric Research*, 36(2), 97-103.
- [8] Bambara, E. (2006) *A textbook on Personality theories; an introduction* 7th edition
- [9] Bowling N, Beehr T, Swader W. 2005. Giving and receiving social support at work: the roles of personality and reciprocity. *J. Vocat. Behav.* 67:476-89



- [10] Carver, C., Scheier, M., & Weintraub, J. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267-283.
- [11] Carver, C & Connor-Smith, J (2010). *Personality and Coping*
- [12] Caspi A (2005) *Personality Development: Stability and Change Annual Review of Psychology* Vol. 56: 453-484) DOI: 10.1146/annurev.psych.55.090902.141913
- [13] Caspi A, & Shiner RL. 2006. Personality development. In *Handbook of Child Psychology*, Vol. 3. Social, Emotional, and Personality Development, series ed. W Damon, R Lerner, vol. ed. N Eisenberg, pp. 300-65. New York: Wiley. 6th ed.
- [14] Chawla k, Kalra, S & Kalra. B. Role of Psychology in diabetes Management. *The Internet Journal of Endocrinology*. 2009 Volume 6 Number 1.
- [14] Chinenye S. & Young E (2011), State of diabetes care in Nigeria: A Review. *The Nigerian Health Journal*, vol 11, No 4.
- [15] Connor-Smith JK, Flachsbarth C. (2007). Relations between personality and coping: a meta analysis. *Journal of Personality and Social Psychology*. 93:1080-107
- [16] Compas BE, Connor-Smith JK, Jaser SS. (2001). Temperament, stress reactivity, and coping: implications for depression in childhood and adolescence. *J. Clin. Child Adolesc. Psychol.* 33:21-31
- [17] Costa, P. T., & McCrae, R. (1985). *The NEO Personality Inventory Manual*, Odessa, Florida Psychological Assessment Resources.
- [18] Depue RA, Collins PF. (1999). Neurobiology of the structure of personality: dopamine, facilitation of incentive motivation, and extraversion. *Behav. Brain Sci.* 22:491-517
- [19] Derryberry D, Reed MA, Pilkenton-Taylor C. 2003. Temperament and coping: advantages of an individual differences perspective. *Dev. Psychopathology*. 15:1049-66
- [20] Digman JM, Inouye J. 1986. Further specification of the five robust factors of personality. *J. Personal. Soc. Psychol.* 50:116-23
- [21] Evans DE, Rothbart MK. 2007. Developing a model for adult temperament. *J. Res. Personal.* 41:868-88
- [22] Graziano, (1996) Perceiving interpersonal conflict and reacting to it: The case for agreeableness. *Journal of Personality and Social Psychology*, Vol 70(4)
- [23] Graziano WG, Habashi MM, Sheese BE, Tobin RM (2007) Agreeableness, empathy and helping a person x situation perspective *J Pers Soc Psychol*. Oct;93(4):583-99. PMID: 17892333
- [24] Graziano, W. G., & Eisenberg, N. H. (1999). Agreeableness: A dimension of personality. In R. Hogan, J. Johnson, & S. Briggs (Eds.), *Handbook of personality psychology* (pp. 795-824). San Diego, CA: Academic Press.
- [25] Grant S, Langan-Fox J. (2006). Occupational stress, coping, and strain the combined/interactive effect of the Big Five traits. *Personal. Individ. Differ.* 41:719-32
- [26] Grant S & Langan-Fox J. (2007) *Personality and the Occupational Stressor-Strain Relationship: The Role of the Big Five*. *Journal of Occupational Health Psychology*. 12: 20-33.
- [27] Holahan, C. J., Holahan, C. K., Moos, R. H., Brennan, P. L., & Schutte, K. K. (2005). Stress Generation, Avoidance Coping, and Depressive Symptoms: A 10-Year Model. *Journal of Consulting and Clinical Psychology*, 73(4), 658-666.
- [28] John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The Big Five Inventory--Versions 4a and 54*. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.
- [29] John OP, Srivastava S. (1999). The Big Five trait taxonomy: history, measurement, and theoretical perspectives. In *Handbook of Personality: Theory and Research*, ed. LA Pervin, OP John, pp102-38. New York: Guilford.
- [30] Lazarus, R. S. (1966). *Psychological Stress and the Coping Process*. New York: McGraw-Hill
- [31] Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.
- [32] Lee-Baggeley D, Preece M, DeLongis A. (2005). Coping with interpersonal stress: role of Big Five traits. *J. Personal.* 73:1141-80
- [33] Lengua LJ, Sandler IN, West SG, Wolchik SA, Curran PJ. (1999). Emotionality and self-regulation, threat appraisal, and coping in children of divorce. *Dev. Psychopathol.* 11:15-37
- [34] McCrae RR. (1996). Social consequences of experiential openness. *Psychol. Bull.* 120:323-37
- [35] Meier, B.P. & Robinson, M. D (2004). Why the Sunny Side Is Up. *Associations Between Affect and Vertical Position*. *Psychological Science*, 15(4), 243-247.
- [36] Meier BP, Robinson MD, Wilkowski BM. (2006). Turning the other cheek: agreeableness and the regulation of aggression-related primes. *Psychol. Sci.* 17:136-42
- [37] Motala, A. A. (2002). Diabetes trends in Africa. *Diabetes Metab. Res. Rev.*, 18: S14S20. doi10.1002/dmrr.284
- [38] Montgomery, C., & Rupp, A. A. (2005). A Meta-analysis for Exploring the Diverse Causes and Effects of Stress in Teachers. *Canadian Journal of Education*, 28(3), 458-486.
- [39] Muraven, M., Gagne', M., & Rosman, H. (2008). Helpful self-control: Autonomy support, vitality, and depletion. *Journal of Experimental Social Psychology*, 44, 573-585.
- [40] Nicholas A. (2013), Healthy adolescents knowledge of diabetes mellitus in south south Nigeria. Dept of internal medicine Delta State University Teaching Hospital Oghara. *Orient Journal*



of medicine vol 25 (3-4)

[41] Peabody D, Goldberg LR. (1989). Some determinants of factor structures from personality-trait descriptors. *J. Personal. Soc. Psychol.* 57:552-67

[42] Penley JA, Tomaka J. (2002). Associations among the Big Five, emotional responses, and coping with acute stress. *Personal. Individ. Differ.* 32:1215-28

[43] Rothbart M.K & Hwang J (2005). Temperament and the development of competence and motivation In A.J. Elliot & C. S Dweck (Eds). *Handbook of competence and motivation* (pp 167- 184), New York Guilford press.

[44] Skinner E.A & Zimmer-Gembeck, M.J (2007) Adolescents coping with stress development and diversity. *Prevention Researcher* 15, 3-7

[45] Steven L. B. ; Dreelin, E. ; Moore, S.(2005) Integration of clinical psychology in the

comprehensive diabetes care team. *American journal of roentgenology* DOI:

10.2214/ajr.182.3.1820705

[46] Tong, E.M.W.. (2004). Social support and personality among male police officers in Singapore. *Personality and Individual Differences*, 36, 109-123.

[47] Vollrath M. (2001). Personality and stress. *Scand. J. Psychol.* 42:335-47

[48] World Health Organization (2013): Definition, Diagnosis and Classification of Diabetes Mellitus and its Complications: Report of a WHO Consultation.

[49] Wild S, Roglic G, Green A, Sicree R, King H (2004) Global prevalence of diabetes, *Diabetes Care* V 27:1047-1053