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Distress tolerance, alexithymia and anger as predictors of essential hypertension among patients of the Unth Enugu

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DISTRESS TOLERANCE, ALEXITHYMIA AND ANGER AS PREDICTORS OF ESSENTIAL HYPERTENSION AMONG PATIENTS OF THE UNTH ENUGU.

AN M.Sc. THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTERS OF SCIENCE (M.SC.) HONOURS DEGREE IN CLINICAL PSYCHOLOGY

BY:

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CERTIFICATION

This is to certify that Onyedibe Maria Chidi C, a post graduate student of the Department of Psychology, University of Nigeria, Nsukka with registration number PG/M.Sc-Ph.D/11/59749 has satisfactorily completed the requirement for course and research work, for the award of the Master of Science (M.Sc.) degree in clinical psychology. The work embodied in this thesis is original and has not been submitted in part or full for any other diploma or degree of this or any other university.

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DEDICATION

This study is dedicated to the Almighty God for his overwhelming love, blessings and sustenance throughout this MSc. Programme. He has always been my utmost strength and a loving father all through the programme.

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TABLE OF CONTENTS

LIST OF TABLES

ABSTRACT

This study investigated the relationship between distress tolerance, alexithymia, anger and essential hypertension among patients. Three hundred and ten patients drawn from the Cardiology Units, Surgical out Patients and General Outpatient Department of the UNTH participated in this study. They comprised men (156) and women (153) who were aged 20 – 80 years. Distress Tolerance Scale (Simons & Gaher 2005) was used as a measure of distress tolerance, Toronto Alexithymia Scale (Bagby, Parker, & Taylor, 1994) was used as a measure of alexithymia while Novaco Anger Inventory-Short version (Devilly, 2005) and Anger Expression Scale (Spielberger, Johnson & Jacobs, 1985) were used to measure anger experience and anger expression respectively. Five hypotheses were tested: Distress tolerance will not have a significant relationship with essential hypertension; Alexithymia will not have a significant relationship with essential hypertension; Anger experience will not have a significant relationship with essential hypertension; Anger-in will not significantly predict essential hypertension; Anger-out will not have a significant relationship with essential hypertension. The result of the hierarchical multiple linear regression analysis indicated that distress tolerance was a significant predictor of essential hypertension (β= -.28, t= -.6.26, p<.001). Alexithymia significantly predicted essential hypertension (β= .19, t= 4.41, p < .001), Anger experience was also shown to be a significant predictor of essential hypertension (β= .13, t= 3.22, p < .001). Anger-in was also shown to be a significant predictor of essential hypertension (β= .28, t= 36.89 p < .001). Thus the four hypotheses were rejected. However and anger-out did not have a significant relationship with essential hypertension (β= .02, t= -.62, p<.54). The implications of the findings as well as summary of the findings were discussed.

CHAPTER ONE

INTRODUCTION

Hypertension is one of the major causes of coronary heart disease (CHD) (Grundy, Pasternak, Greenland, Smith, & Fuster, 1999). CHD is a potentially lethal blockage of the arteries that supplies blood to the muscles of the heart and has been noted as one of the leading causes of mortality for both men and women worldwide (Lopez, 1993). Hypertension is common worldwide and is recently regarded as the major health problems confronting people in the contemporary society. According to World Health Organization (WHO 2002), the prevalence of hypertension worldwide is about 1 billion and approximately 7.1 million death per year is attributable to hypertension. The Centre for Disease Control and Prevention (CDC) (2011), in analyzing data from the National Health and Nutrition Examination Survey (NHANES) on the prevalence, treatment, and control of hypertension among U.S. population, indicated that about 1 in every 3 U.S. adults have high blood pressure (HBP). The estimate is that about 68 million people in U.S have HBP and about one out of every seven deaths in the U.S. is attributed to hypertension.

Similarly, hypertension and its complications, such as heart failure, stroke, and renal failure, have been reported in blacks all over the world. In Africa for instance, hypertension is on the increase and is now being widely reported. Some researchers contend that hypertension is the most common cause of cardiovascular disease on the African continent, (Cooper & Rotimi, 1993). It is also a major factor in high adult's mortality in sub-Saharan Africa (World Health Organization, 2002). A study conducted in Kumasi and Accra in Ghana, indicated that hypertensive renal disease is a common complication among people (Plange-Rhule, Phillips, Acheampong, Saggar-Malik, Cappuccio, & Eastwood, 1999; Mate-Kole & Affram, 1990). Similarly, in a study assessing the prevalence, detection, management, and control of hypertension in Ashanti, West Africa, Cappuccio, Micah, Emmett, Kerry, Antwi, and Martin-Peprah et al (2004) found the prevalence of hypertension to be 28.7%, higher in semi-urban

villages and increased with age. They also found that the prevalence of hypertension was higher in men than women. Some other studies of hypertension in Blacks, found that there was a higher prevalence of hypertension in men than women in Nigeria and urban Cameroon, but in rural Cameroon the prevalence was higher in women (Cooper, Rotimi, Ataman, McGee, Osotmehin, & Kadiri, et.al., 1997).

In Nigeria for instance, many studies have been carried out regarding the prevalence of hypertension. Ikeme, (1987) documented the prevalence of hypertension in the cardiovascular clinic of the University College Hospital, Ibadan, as 28%. In the Northern part of the country, Abengowe (1987) reported a prevalence of 10% among adult population. Similar studies at the University of Nigeria Teaching Hospital, Enugu, by Onwubere and Ike (2000) found the prevalence to be 15.2%. Similarly, another study was conducted in Nsukka, South Eastern Nigeria on the prevalence, detection, treatment and control of hypertension by Ekwunife, Udeogaranya, and Nwatu, (2010). They examined, the prevalence of hypertension, awareness, treatment, and control (outcomes) in 756 adult participants (364 men and 392 women) aged 18 years and above. Prevalence of hypertension was found to be 21.1%, with men having higher prevalence of high blood pressure (BP) compared to women. Recently, the theme for this year's (2013) world health day celebration is high blood pressure (hypertension). Marking the occasion, here in Nigeria, the medical doctors and pharmacists, under the aegis of the Nigerian Medical Association (NMA) and Pharmaceutical Society of Nigeria (PSN) have complained bitterly the rising number of hypertension cases in the country with its associated complications such as stroke, heart attack, blindness and kidney failure. The bodies reported that the number of Nigerians living with high blood pressure is estimated at about 56 million.

Blood pressure is the force of blood against the walls of arteries. Normally, blood pressure rises and falls throughout the day. However, when blood pressure stays elevated over time, its termed high blood pressure. Hypertension is the medical term for high blood pressure.

Hypertension or high blood pressure, sometimes called arterial hypertension, is a chronic medical condition in which the blood pressure in the arteries is elevated (Chobanian , Bakris, Black, Cushman, Green, & Izzo, 2003). As a result, the heart is required to work harder than normal to circulate blood through the blood vessels. Hypertension or arterial blood pressure is expressed in four different terms namely, systolic blood pressure, diastolic blood pressure, pulse pressure and mean arterial pressure. However two basic measures of blood pressure are systolic and diastolic. The measures depend on whether the heart muscle is contracting (systole) or relaxed between beats (diastole). Systolic blood pressure is the maximum pressure exerted in the arteries during the systole of the heart, whereas, diastolic BP is the minimum pressure in the arteries during the diastole of the heart (Sembulingam & Sembulingam, 2005). At rest, normal blood is within the range of 100-140mmHg systolic (top reading) and 60-90mmHg diastolic (bottom reading). High blood pressure is said to be present if it is persistently at or above 140/90 mmHg.

The other two measures (pulse and mean arterial pressure) are derived from diastolic and systolic. Pulse pressure is the difference between the systole BP and diastole BP. The range is normally 40mmHg. Mean arterial blood pressure is the average pressure existing in the arteries. It is not the arithmetic mean of systole and diastole BP rather; it is the diastolic pressure plus one third of pulse pressure. In determining mean arterial pressure, the diastolic rather than the systolic are considered. This is because the diastolic period of cardiac cycle is longer (0.53 second) than the systolic period (0.27 second). Normal mean arterial pressure is 93 mmHg. It is derived thus: Mean arterial BP= Diastolic BP+1/3 of pulse pressure i.e., 80+13=93 mmHg. Usually a mean arterial pressure greater than 110mm Hg under resting conditions is considered to be hypertensive; this level usually occurs when the diastolic blood pressure is greater than 90 mm Hg and the systolic pressure is greater than about 135-140 mm Hg.

There are two types of hypertension namely primary or essential hypertension and secondary hypertension. Primary or essential hypertension has no clear underlying cause but appears to be the result of interplay of complex genetic and environmental factors. Research has shown that about 90–97% of hypertension is primary (Carretero, & Oparil, 2000). Secondary hypertension (2-3%) are caused by specific underlying mechanism usually involving other conditions the kidneys, arteries, heart or endocrine system. Since this study is basically on essential hypertension, emphasis will be laid on this phenomenon that have become a major health public concern, in that it affects many people as compared to secondary hypertension.

So many factors has been associated with hypertension by some researcher, such factors like migration from rural area to urban or semi-urban areas (urbanization), malnutrition, which included high intakes of saturated fat, animal protein, sodium, and vitamins A, ageing, cholesterol, triglycerides, high body mass index (BMI) and central obesity (Van Rooyen, Kruger, Huisman, Wissing, Margetts, Venter et al. (2000). Some dietary factors have been also associated to hypertension; such dietary factors include increased salt (sodium) intake and the decrease in fruit and vegetables (potassium), while a higher intake of alcohol products, particularly by men, plays a role. (Seedat, 1996). In addition, psychological factors such as psychological stress and distress (Gasperin, Netuveli, Dias-da-Costa, & Pattussi, 2009); type A behavior pattern (Lyness, 1993 in Carson, Butcher & Minneka, 2000); hostility, depression and anxiety (Yan, Liu, Matthews, Daviglus, Ferguson, & Kiefe, 2003; Steptoe, Brydon, & Kunz-Ebrecht, 2005), have all been associated with hypertension.

Alexithymia and anger have been identified as possible predictors of essential hypertension. (Grabe, Schwahn & Sven Barnow, 2010; Hosseini, Mokhberi, Mohammadpour, Mehrabianfard & Lashak 2011). On the contrary and to the best of the present researcher's knowledge, there are no studies that have explored the relationships between distress tolerance and hypertension. However, related construct such as psychological distress has been associated

with hypertension (Footman, Roberts, Tumanov, & McKee, 2013). If psychological distress could predispose people to develop hypertension, the researcher contends that the ability to tolerate stress (distress tolerance) would be an important factor that could reduce the incidence of hypertension among people.

According to Simons and Gaher (2005), distress tolerance (DT) is "the capacity to experience and withstand negative psychological states" (Pg. 83). In other words distress tolerance refers to a person's ability to tolerate negative emotional states (Linehan, 1993). Distress may be the result of cognitive or physical processes but manifests in an emotional state often characterized by action tendencies to alleviate the emotional experience. There are four dimensions of distress tolerance namely, tolerance, absorption, appraisal and regulation. Tolerance refers to an individual's perception of ability to tolerate stress. Individuals with low (distress) tolerance are expected to report distress as being unbearable or intolerable and that they cannot handle being distressed or upset. Absorption is theoretically defined as the extent to which a person is consumed by negative emotions. If an individual is not able to alleviate negative emotions, persons with low distress tolerance are noted to report being relatively consumed by the experience, indicating that their attention is absorbed by the presence of distressing emotions. More so, that their ability to function effectively is significantly disrupted by the experience of those negative emotions. Appraisal entails an individual's assessment of the tolerability of the distress. Individual appraisal of being distressed is expected to reflect a lack of acceptance of distress, being ashamed of being distressed, and perceiving one's coping abilities as inferior to others. Regulation is theoretically defined as the individual's feeling of urgency to do something to alleviate the negative emotion. Emotional regulation of people with low distress tolerance is expected to be characterized by their enormous efforts to avoid negative emotions, as well as utilizing speedy means of alleviating the negative emotions they experience (Simons & Gaher, 2005; Migliore, 2010).

Alexithymia is another psychological construct that has been associated with hypertension and other psychosomatic illnesses. The relationship between alexithymia and other psychosomatic illnesses including hypertension has been extensively researched in literature in the western world. However, none of these studies associating alexithymia and hypertension has been conducted in Nigerian society. Therefore, since hypertension is one of the common diseases among the blacks particular Nigerians, the present researcher is of the view that alexithymia as a personality construct could equally be associated with hypertension in Nigerian population. Alexithymia is a personality construct that signifies reduced ability to identify and describe feelings, a limited imagination, and externally oriented thinking. The concept of alexithymia was originally introduced in 1973 by Peter Sifneos on the basis of observations made in psychosomatic patients (Sifneos, 1973). He coined the term to describe the lack of emotional skills in psychosomatic patients (Sifneos, 1973). Alexithymia comes from the Greek word *a-* (lack), *lexis-* (word) and *thymos-* (mood, feeling or emotion), alexithymia literally means "without words for emotions".

Alexithymic individuals have difficulty expressing emotions in words; they often confuse physical sensations that often have some relationships with emotion. They have few fantasies and dreams, and their thought content is dominated by details of events in their environment (Kellner, 1990). In the words of Lumley, Gustavson, Partridge, & Labouvie-Vief, (2005), individuals with alexithymia have a restricted fantasy life, poor imagination, limited dreaming, and preference for externally focused thoughts rather than psychological introspection. Some alexithymic individuals may however, seem to contradict these characteristics because some individuals with alexithymia are capable of experiencing chronic dysphoria or manifest outbursts of crying or anger (Krystal, 1988; McDougall, 1985; Taylor, 1997). However, eliciting a response from them about some questions usually reveals that they

lack the ability to describe their feelings sufficiently or seem confused by questions inquiring about specifics of feelings (Taylor, 1997).

Another psychological variable that is of paramount importance in this study is the concept of anger. There has been a considerable amount of empirical studies regarding the relationships between anger and hypertension in western society, but not in the Nigerian society. Therefore the dearth of the study relating anger to hypertension in Nigerian acts as a motivating factor that stirs up the desire to conduct this present research. Anger is one of the basic emotions identified by so many researchers. Emotions play an organizing role in an individual's experience of reality, sense of self, and orientation toward others (Paivio, 1999). Anger refers to as "an unpleasant emotion ranging in intensity from irritation to rage, usually in response to perceived mistreatment or provocation" (Smith, 1992, p. 139). In the broader sense, anger is composed of interrelated elements of cynical beliefs and attributions, angry emotional states, and aggressive or antagonistic behaviors (Martin, Watson & Wan, 2000). In a narrower sense, however, anger is described as the affective experience, which can range from mild annoyance to fury and outrage, and can be differentiated from hostility, which refers to a person's tendency to view the world in a negative, cynical fashion, or aggression, which is used to describe destructive and violent behavior. In addition, anger and aggression seem to go together, but they are in fact distinct. Anger does not necessarily include a desire to destroy or cause personal harm. Most anger is of brief duration and low intensity. An angry person's threshold for aggression is lowered, however, and this may increase the desire to inflict harm on the person annoying them.

In the light of aforementioned psychological construct: distress tolerance, alexithymia and anger arousal and their proposed relationships with some psychosomatic illnesses particularly hypertension in the western world, the study therefore intends to investigate their relationships with essential hypertension in contemporary Nigerian society.

Statements of the Problem

Coronary heart disease (CHD) is one of the leading causes of mortality across the globe and particularly in the Nigerian society. It has also become obvious that hypertension is one of the factors responsible for the development of CHD. As already discussed extensively in this work, hypertension is common worldwide and is the major public health problem confronting people. Owing to the prevalence of essential hypertension, most researchers have tried to establish some psychological and psychosomatic problems that can predispose an individual to develop essential hypertension. In this study therefore the researcher tries to explore some other rare psychological and psychosomatic constructs such as distress tolerance, alexithymia and anger that could possibly be a contributing factor to essential hypertension, this study therefore intends to answer the following research questions:

- Would distress tolerance have any significant relationship with essential hypertension?
- Would alexithymia significantly predict essential hypertension?
- Would anger experience have any significant relationship with essential hypertension?
- Would anger- out have any significant relationship with essential hypertension?
- Would anger- in have any significant relationship with essential hypertension?

Purpose of the Study

The major aim of the study is to determine whether distress tolerance, alexithymia and anger experience and expression could contribute to the development of essential hypertension. Specifically, the study will seek to:

- Determine whether distress tolerance will significantly predict essential hypertension.
- Examine whether alexithymia will have any significant relationship with essential hypertension.
- Determine whether anger experience will have any significant relationship with essential hypertension.

- Examine whether anger- out will significantly predict essential hypertension.
- Determine whether anger- in will have any significant relationship with essential hypertension.

Operational Definition of Terms

Distress tolerance (DT) is defined in this work as an ability of an individual to withstand negative psychological and emotional state, to be measured by distress tolerance scale by Simon and Gaher, (2005). High scores represent high distress tolerance.

Alexithymia: is defined in this work as a personality construct that signifies reduced ability of an individual to identify and describe feelings and externally oriented thinking. It will be measured using Toronto Alexithymia Scale (TAS) by Bagby, Parker and Taylor, (1994).

Anger is described as the affective experience and subjective feelings that differs in intensity, from mild annoyance to fury and outrage as well as individual's proneness to anger. In this work, there are three dimension of anger namely: anger experience, anger-in and anger-out.

Anger experience refers to the degree of provocation or anger people would feel if placed in certain situations to be measured in this work by Novaco, (1975) Anger Inventory - Short Form (NAI-S).

Anger-out: is described in this work as the frequency with which an individual's anger is expressed outwardly towards either other persons or objects to be measured in this work by Anger Expression scale (AX) (Spielberger, Johnson & Jacobs, 1985).

Anger-in: this is described as the tendency to experience anger but only express it inwardly, to be measured in this work by the Anger Expression scale (AX) (Spielberger, Johnson & Jacobs, 1985).

Essential hypertension refers to an enduring increase in blood pressure without any underlying or specific cause. In this study an individual will be considered having high blood

pressure if there is a persistent rise at or above 140/90 mmHg or if the patient was on antihypertensive medication for the treatment of previously diagnosed hypertension. The HBP will be measured with sphygmomanometer and Stethoscope (Accosson made in England).

Systolic blood pressure: This involves the maximum pressure exerted in the arteries during the systole (contraction) of the heart.

Diastolic Blood Pressure: This means the minimum pressure in the arteries during the diastole (relaxation) of the heart (Sembulingam & Sembulingam, 2005).

Pulse pressure: This refers to the difference between the systole blood pressure and diastole blood pressure, with a range which is normally 40mmHg.

Mean arterial blood pressure: This refers to the average pressure existing in the arteries. It is the diastolic pressure plus one third of pulse pressure. Normal mean arterial pressure is 93 mmHg. It is derived thus: Mean arterial BP=Diastolic BP+1/3 of pulse pressure i.e., 80+13=93 mmHg. Usually a mean arterial pressure greater than 110mm Hg under resting conditions is considered to be hypertensive.

Body Mass Index (BMI) is a number calculated from a person's weight and height. It provides a reliable indicator of body fatness for most people and will be used in this study to screen for weight categories that may lead to health problems.

It is derived thus: $BMI = \frac{\text{Weight(kg)}}{\text{Height(m))}^2}$

CHAPTER TWO

LITERATURE REVIEW

I. Theoretical Review of the Key Study Variables

There are different theories that have tried to explain the possible factors that contribute to the development of essential hypertension. However, only the theories that are relevant for this research work will be examined. Such theories include:

1 Psychological stress theory of Lazarus, (1996) and Spielberger, (1972).

2 Reactivity Hypothesis of Turner, (1994).

3 Alexander, (1939)'s Specificity Hypothesis.

Psychological Stress Theory of Hypertension.

As earlier explained hypertension has been conceptualized as a disease with multiple factors including both physiological and psychological factors, resulting from reaction to stressful situations, one major theory that satisfactorily explains the etiology of stress is Richard Lazarus' theory of psychological stress. Lazarus conceptualized stress as a transactional process in which the person and environment are seen in an ongoing relationship of reciprocal action (Lazarus, 1996). According to him, two factors mediate the stress process, appraisal and coping. Appraisal is the cognitive activity in which an individual evaluates threats and challenges of life as challenging, threatening and harmful. On the other hand coping refers to the cognitive and behavioral efforts employed to master, tolerate, or reduce internal or external demands. Cognitive and behavioral efforts are constantly changing as a function of continuous appraisals and re-appraisals of the person-environment relationship. Two ways of coping identified are problem focused coping and emotion focused coping. In problem focused coping, an individual focuses on trying to alter or change the situation that is causing the distress. Whereas emotional coping are geared towards changing the way an individual feels about the stressful situation

rather than trying to proffer change for the situation. In this theory, therefore, Lazarus uses the perspective of the specific person perceived as thinking, feeling person who on continuous basis tries to appraise his or her relationship within the surrounding environment (Lazarus, 1996)

Lazarus theory of psychological stress was modified by Spielberger, (1972) and Spielberger, Johnson, Russell, Crane, Jacobs and Wordern, (1985) who conceptualized stress as a psychophysiological process that consists of three basic elements: the stressor, the perception of the stressor, and an emotional response to the stressor. In Spielberger's conceptualization, "stress involves a sequence of temporally ordered events initiated by situational stressors that are perceived as threatening, ie, frustrating, challenging, or un- fair'. When an event is perceived as harmful or frustrating, it usually results in an emotional response of anxiety, anger, or fear. Appraisal of a stressor is influenced by an individual's attitudes, abilities, and past experiences. The intensity of the emotional reaction will be proportional to the amount of the perceived threat. Concurrent with the emotional response is the biological component of autonomic nervous system arousal, which is shown by increased heart rate and blood pressure. (Spielberger, 1972).

Psychological stress, anger, anger expression style, and coping behaviors have been found to have some relationship with hypertension especially among the black. In a classic work of Harburg, Erfurt, Jausenstein, Chape, Schull and Schork (1973), it was found that anger suppression, when combined with factors such as race, sex, and socioecological stress, created group differences in ''at-risk'' status for hypertension.

At-risk categories ranged from less than 7% (White females residing in low stress areas who expressed their anger openly) to 39% (for Black males, residing in high stress areas who reported regularly suppressing anger). A follow- up study noted that anger-coping style could mediate the otherwise pathologic relationship between life strain (conceptualized as job strain and family strain) and elevated blood pressure. Blacks who were high in either type of life strain

and who suppressed their anger in day- to-day situations (including those involving spouse, children, and employees) had significantly higher diastolic blood pressure compared to Blacks and Whites who did not experience strain and/or who expressed their anger as they experienced it (Gentry, Chesney, Gary, Hall & Harburg, 1982).

Some studies such as Schweritz, Perkins, Chesney, Hughes, Sidney & Manoia (1992) have lend some support to Spielberger's hypothesis that frequently experienced stressors, which result in anger, can result in unhealthy behaviors. Cobb and Rose (1973) found that the annual rate of developing hypertension is 5.6 times greater among air traffic controllers who work under high level of psychological stress, than non-professional pilots. Also Among healthy employed men, job strain (defined as high psychological demands and low decision latitude on the job) is associated with 3.1 times greater odds ratio for hypertension, an increased left ventricular mass index by echocardiography (Schnall, Pieper, Schwartz et al. 1990), and higher awake ambulatory blood pressure (Schwartz, Schnall & Pickering, 1996). This relationship between psychological stress and hypertension has informed the use of stress management therapy (Webb, 2011).

The Reactivity Hypothesis

According to the reactivity hypothesis, when there is an exaggerated cardiovascular response to stress, it may contribute to the long-term development of essential hypertension, or more precisely to the initiation of its development (Turner, 1994). Similarly, Light, (1987) contends that several lines of evidence suggest that high reactors respond to behavioral stressors with inappropriate cardiovascular responses.

The reactivity hypothesis is based on the observations that offspring of hypertensive parents (Falkner, 1991; Fredrikson, Tuomisto, & Bergman-Losman, 1991; Perini, Muller, Rauchfleish, Battegay, Hobi & Buhler, 1990) and borderline hypertensive subjects (Falkner, 1991; Perini et al., 1990; Spence, Manuck, Munoz, Cheung, Huff, Dennis, & Borkowski, et. al.,

1990) show greater circulatory and/or neurohormonal reactivity to mental stress than normotensives. This notion of a hypothesized link between reactivity and hypertension is further supported by the evidence that cardiovascular changes during psychological stressors resemble the pattern of cardiovascular activity observed in borderline hypertension (Turner, 1994). Fredrikson (1991) in his study suggested that a neurogenically mediated hyperactivity to stress is a precursor not a consequence of hypertension.

Some studies have attested to this hypothesis, for example, in an attempt to clarify the predictive value of stress reactivity on later blood pressure, 103 men were originally tested at age 18 to 22. When they were reevaluated ten (10) years later, it was found that high reactors (top 25% on the basis of BP and cardiac responses during both reaction time and cold pressor test) with positive family history of hypertension demonstrated significantly higher SBP and DBP at follow-up (Light, Girdler, Sherwood, Bragdon, Brownley, West, & Hinderliter, 1999). Also In a subgroup of subjects who provided ratings of daily stress, the interactions among positive family history, high daily stress and high stress reactivity were significant in predicting follow-up SBP and DBP, suggesting that stress reactivity as a long-term predictor is modulated by both genetic and environmental factors.

It will be noted that the reactivity hypothesis emphasizes individual differences in response to stress with little attention paid to the nature of stress. Evidence suggests that enhanced reactivity among hypertensive individuals may be related to the nature of stressors. More specifically, mild hypertensive display exaggerated BP reactivity to stress requiring active coping but not passive coping (Fredrikson, 1992; Steptoe, Melville, & Ross, 1984). Tasks involving active coping such as the Stroop Color Word Test (SCWT) elicit predominantly beta-adrenergically mediated cardiac activation (Hjemdahl, Freyschuss, Juhlin-Dannfelt, & Linde, 1984). Moreover, some researchers suggested that certain conditions such as the presence of an

incentive condition (Waldstein, Bachen, & Manuck, 1997) or the level of task difficulty (Callister, Suwarno, & Seals, 1992) also modulate the hemodynamic basis of reactivity.

Alexander (1939)'s Specificity Hypothesis.

Among the prominent methods used in psychosomatic research are those that are concerned with showing that there are characteristics types of personality and emotional conflict which have some relationships with a particular disease (Lewis, 1967). Researchers that are psychoanalytically oriented have found it useful to assume that if emotions were persistently expressed in an inappropriate manner, the resulting chronic psychological tension would lead to increased activity of the autonomic nervous system and in time a structural changes in tissues. Having observed that severe emotions play a very vital role and is indispensable in the development of essential hypertension, Alexander (1939) in using the psychoanalytic method opined that since acute emotions induce hypertension, a pertinent question is: could there be a specific nature of emotion as to the etiology of hypertension. This gave rise to his specificity hypothesis. According to him "The comparative study of a series of cases suffering from essential hypertension indicates that chronic, inhibited, aggressive hostile impulses, which always appear in connection with anxiety, have a specific influence upon the fluctuations of the blood pressure.

Furthermore, it suggests that patients suffering from hypertension have a characteristic psychodynamic structure. This consists in a very pronounced conflict between passive, dependent, feminine, receptive tendencies and over-compensatory, competitive, aggressive hostile impulses which lead to fear and increase a flight from competition towards the passive dependent attitude (Walter, 1934). He contends that some of the Characteristics of patients with hypertension are, however, their inability to relieve freely either one of the opposing tendencies: neither can the individual freely accept the passive dependent attitude or freely express their hostile impulses. This can give rise to a kind of 'emotional paralyses' as a result of the

controversy between the two opposing emotional attitudes. The following assumption could be understood using the result from animal experiment for instance: "In normal animal life, fear and rage find their expression in physical flight or attack, for which the body prepares itself under the influence of these emotions. One important element of this preparation consists in the increased blood pressure. Human beings living in a competitive civilization are equally and perhaps even more permanently exposed to fear and hostile impulses, yet have much less opportunity to give expression to these feelings in physical combat. Social life requires an extreme control of these hostile impulses. A neurotic form of this control is unsuccessful attempts at repression. One of the best founded discoveries of psychoanalysis is that impulses which are inhibited in their expression sustain a chronic tension which is apt to have a permanent or tonic effect upon certain physiological functions. This is the etiological theory of the psychogenic organ neuroses. "An acute elevation of the blood pressure is part of the normal reaction to acute rage and fear" (Alexander, 1939, p. 3). He therefore proposed that a 'chronic' inhibited rage may lead to a 'chronic' elevation of the blood pressure".

Unlike animals, such inhibited rage most often do not finds its natural consummation in physical aggression which is followed by fatigue when the heightened blood pressure returns to normal. Such accumulated and never adequately expressed hostile aggressions are like a foreign body which is the source of a permanent irritation. As a result the individual is constantly in preparation to fight. Typical of this state of apprehensive preparedness is a heightened blood pressure. These hostile impulses are not always permanent on the same level. For instance, In the course of life, during contact with the environment, they become frequently stimulated; at other times they become repressed and retreat from the psychic surface into the deeper layers. This comes to expression in the fluctuations of the blood pressure. "According to this assumption, the typical course of essential hypertension might be described as follows: The maturing individual in the course of his life gradually becomes more and more confronted with

the complex problems of maintaining his or her family's existence, his social position and prestige" (Alexander, 1939, p. 4). In the contemporary civilization "all these tasks unavoidably involve hostile competitive feelings, create fears and require at the same time an extreme control of these hostile impulses. Those who through constitution or through early life experience have acquired a greater amount of inhibitions will handle their aggressions less efficiently than others and will tend to repress them. On account of their inhibitions, they cannot find socially acceptable, legitimate vents for their aggressive feelings, and thus these hostile impulses become accumulated and increase in intensity, and could possibly lead to hypertension. It must also be borne in mind that the neurotic individuals who are more than normally blocked in relieving their hostilities and aggressions usually become inhibited also in many other respects, particularly in sexual expression. All these inhibitions make them, in their struggle for life, less effective, create feelings of inferiority in them, stimulate their envy and increase their hostile feelings toward their more successful, less inhibited competitors. These hostilities again require a greater amount of control and thus lead to greater inhibitions, greater inefficiency, and in turn again stimulate hostile, envious and competitive tendencies. This vicious circle is one of the best known mechanisms revealed by psychoanalytic study of neurotic personalities. The psychoanalytic study of Alexander reveals that the chronic hypertensive patients belong to this group of excessively inhibited, yet at the same time, intensely hostile and aggressive individuals.

Thus the proposition of Alexander (1939) is that hypertension was related to a conflict between the desire to express hostility and the desire to be submissive and passive. This hypothesis fueled a search for suppressed hostility dynamic in the personality of essential hypertension. This specificity hypothesis has been supported by so many studies, for instance the western collaborative group prospective study on ischemic heart disease (Rosenman &

Friedman, 1971) found that men who are type A personality are more likely to develop clinical evidence of coronary heart disease.

However, of more important to the present research is the idea that specific conflicts are related to specific diseases. This notion was proposed by Sifneos and his colleagues at the university of Massachusetts general hospital. They coined the term alexithymia to describe the emotional characteristics of patients suffering from various psychosomatic illnesses. As already explained in chapter one, the core features of alexithymic individuals are well marked difficulty in finding appropriate words to express their feelings. They also have little fantasies and rarely dream and tend to express emotions inappropriately. Some researchers have postulated that the reason for the association between alexithymia and psychosomatic illnesses is that the patient's inability to express emotions appropriately leads to a misdirection of libidinal activity which causes physical damage (Nemiah & Sifneos, 1970; Sifneos, Apfel-Savitz & Frankel, 1977).

Among these three theories reviewed, the theories that this study is anchored on, are Alexander specificity hypothesis and psychological stress theory. This is because the Alexander specificity hypothesis linked the two of the independent variables: anger and alexithymia to essential hypertension. For instance Alexander (1939) specificity hypothesis was looking at the specific emotions or a personality trait that could lead to essential hypertension. According to him, when there are chronic, inhibited, aggressive impulses, there appear to be a corresponding increase or fluctuation of blood pressure. In other words elevation of blood pressure results from an individual reaction to acute rage, fear or chronic suppression of anger. Secondly, alexithymia which is a personality construct that reflects a marked inability to adequately express emotions has been linked to essential hypertension. This inability to express one's emotions could result in building up emotions which could lead to some psychosomatic illness (such as hypertension) as proposed by Nemiah & Sifneos (1970).

Similarly, psychological stress theory as one the theories on which this study is anchored relates psychological distress to essential hypertension. In conceptualizing psychological stress as one of the leading causes of essential hypertension, Spielberger, (1972) and Spielberger, et. al., (1985) contend that stress consists of three basic elements namely stressor, person perception of the stressor and emotional response to the stress. It therefore means that when an individual perceives an event as harmful or threatening, the resultant effect is an emotional response of anger, anxiety or fear. In contrast, distress tolerance which is a reduced ability to tolerate stress could lead to an increase in blood pressure. However, an ability to withstand or tolerate psychological stress could actually act as a buffer in essential hypertension.

II. REVIEW OF EMPIRICAL LITERATURE

Distress Tolerance and Hypertension

There are dearth of studies on the relationships between distress tolerance and hypertension. However, related construct such as psychological distress has been associated with hypertension. If psychological distress could predispose people to develop hypertension, the researcher contends that the ability to tolerate stress (distress tolerance) would be an important factor that could reduce the incidence of hypertension among people. Some researchers have tried to establish a relationship between psychological distress and hypertension. For instance, Footman, Roberts, Tumanov, and McKee, (2013) conducted a study on the comorbidity of hypertension and psychological distress in nine countries in the former Soviet Union. The Nationally representative household survey data was obtained from Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia and Ukraine in 2001 and 2010. The study was analyzed by comparing the levels of psychological distress in people with and without self-reported hypertension. Multivariate regression was used to analyze determinants of psychological distress in hypertensive respondents. The prevalence rate ratios of hypertension were calculated to compare the change in distress between the two

groups. Results of the study indicated that there were significantly higher levels of psychological distress among hypertensive respondents (9.9%) than in the general population (4.9%), and a significant association between the two conditions. Some of the demographics variables that were associated with distress among hypertensive patients include gender (being female), age (above 50), poor economic situation, lower education, poor emotional support and limited access to medical drugs

In a study assessing the impact of psychological distress on the control of hypertension Egan, Kogan, Garber and Jarrett, (1983) found that patients whose hypertension was resistant to treatment have higher psychological distress than the normotensives. The study consists of Thirty-five (35) borderline hypertensive males who entered into a self-management program with biofeedback and cognitive restructuring components. The Symptom Checklist-90 (SCL-90) and the Holmes' Schedule of Recent Events were used to determine if responders and non-responders could be distinguished prior to treatment on the basis of psychological status. Patients whose hypertension was resistant to treatment (diastolic $\geq$ 90 mm Hg) reported significantly greater levels of psychological distress and greater life changes than did controlled patients. Pre-treatment differences could not be explained by compliance or expectation of success. This study suggests that a relationship exists between psychological distress, life changes and the subsequent control of hypertension; this has implications for treatment selection and design for psychologically distressed individuals.

Similarly, WAU, (2011) conducted a research on the relationship of psychosocial stress with essential hypertension in young adults in Banyudono Sub District Boyolali District. In the study, he found that Psychosocial stress had statistically significant relationships with essential hypertension (p-value <0.05). This indicates that psychosocial stress significantly predicted essential hypertension. According him, when stress is experienced repeatedly, it may cause increased blood pressure. Stress can stimulate the nervous system to produce hormones that

raise blood pressure (Chaweewon, Khin, Oranut & Tassanee, 2011). Stress or mental stress (such as feeling depressed, sad, anger, resentment, fear, and guilt) can stimulate the glands making it to release the hormone adrenaline which in turn stimulate the heart to beat faster and stronger, so that the blood pressure will rise.

Alexithymia and Hypertension

The relationships between alexithymia and hypertension has been researched in literature for instance Jula, Salminen, and Saarijärvi, (1999) in their study found that alexithymia is associated with elevated blood pressure independent of sodium and alcohol intake, body mass index, and physical fitness. The study comprised of two hundred and thirty-seven newly diagnosed yet untreated hypertensive men and women, 35 to 54 years of age and 146 normotensive men and women from the city of Turku and 3 neighboring municipalities in southwestern Finland. The inclusion criteria were a systolic or a diastolic blood pressure consistently in the range of 180 to 220 mm Hg or 100 to 120 mm Hg, respectively, as measured within the primary health care. The study was designed to find out whether psychological distress symptoms, anger expression, and alexithymia are associated with elevated blood pressure and whether the possible associations are independent of sodium and alcohol intake, body mass index, and physical fitness. The independent attributes of mean arterial pressure were studied by multivariate regression analyses after combining the subjects in the hypertensive and control groups. Three questionnaires were used: the Brief Symptom Inventory (BSI-37), a 31-item version of the Spielberger State-Trait Anger Expression Inventory (STAXI), and the Toronto Alexithymia Scale (TAS-26). Total scores of the TAS-26 were higher ($P<0.001$) in hypertensive men and women than in their normotensive control subjects. Prevalence of alexithymia was found to be higher among hypertensive men (57%) and women (46%) than among normotensive men (18%) and women (9%). Only 4% of hypertensive men and 5% of hypertensive women but 54% of normotensive men and 73% of normotensive

women were not alexithymic. They found no differences between the study and control groups in psychological distress symptoms, including anxiety, depression, and hostility, or in anger expression. In multivariate regression analyses, higher age, male gender, higher sodium intake, lower physical fitness, and alexithymia were independently and highly significantly ($P<0.01$ for male gender, $P<0.0001$ for other variables) associated with increased blood pressure, explaining altogether 39.5% of the cross-sectional variation in mean arterial pressure. They therefore concluded that alexithymia, that is, poor ability to experience and express emotions, is associated with elevated blood pressure independent of sodium and alcohol intake, body mass index, and physical fitness.

In another study, Waldstein, Kauhanen, Neumann and Katzel, (2002) examined the relationship between alexithymia and cardiovascular risk in older adults. One hundred and two (102) older adults (76% male; 92% women) with age range 53-83 participated in the study. Participants completed a packet of self-report measures having satisfactory psychometric properties. The 26-item Toronto Alexithymia Scale (TAS) (Taylor, Ryan, & Bagby, 1985) was used to assess alexithymia. A two way repeated measures ANOVAs revealed significant main effects of alexithymia group for diastolic blood pressure reactivity ($p<0.05$). Alexithymics displayed significantly greater diastolic blood pressure responses to the mental stress tasks than did non-alexithymics. Simple effects analyses indicated that alexithymics displayed significantly greater SBP ($p<0.05$) and DBP ($p<0.01$) responses to the Anger Recall task than did the non-alexithymics. It was concluded that alexithymics displayed significantly greater blood pressure responses to anger provocation and tended to have a greater percent body fat compared to non-alexithymics.

Similarly, in the study assessing alexithymia, hypertension, and subclinical atherosclerosis in the general population, Grabe, Schwahn and Sven Barnow, (2010) found that

alexithymia as a personality trait, was significantly associated with hypertension. A total of 1168 participants (age <65 years) from the study of health in Pomerania. Alexithymia was assessed with the 20-item Toronto-Alexithymia-Scale (TAS-20). The regression analysis indicated that hypertension had a significant relationship with alexithymia (OR=1.60; 95% CI=1.14–2.25) and with atherosclerotic plaques (OR=1.70; 95% CI=1.14–2.54).

Todarello, Taylor, Parker and Fanelli, (1995) studied the association between alexithymia and essential hypertension in a sample of 114 hypertensive patients using the well-validated twenty-item Toronto Alexithymia Scale. Alexithymia was also assessed in a group of 113 general psychiatric outpatients and in a group of 130 normal adults. A rate of 55.3% of alexithymia was found in the hypertensive group compared with significantly lower rates of 32.7% in the psychiatric group and 16.3% in the normal controls. Interestingly, the hypertensive patients scored significantly higher than the normal adults on all three factors of the TAS-20, not just on the factor assessing difficulty communicating feelings. The results support the view that a high prevalence of alexithymia may be found among patients with disorders that were categorized in the past as "classical" psychosomatic diseases. They therefore hypothesize that there may be a deficit in the cognitive processing and modulations of emotions which may predisposed individuals with alexithymia into a state of heightened sympathetic arousal that are conducive to the development of essential hypertension.

Anger and Hypertension

There are a number of empirical findings that have examined the relationship between suppressed anger (anger-in) and blood pressure. Most of these studies show that systolic blood pressure and diastolic blood pressure increased frequently with individuals who harbor grudges and held in their angry feelings. For instance, Johnson, Nicholas, Schork and Spielbergers, (1987) investigated the associations between blood pressure and various dimensions of the anger expression (anger-in, anger-out) and experience (intensity, frequency) of anger (and

anxiety), among 171 black and 279 white female adolescents, aged 15 and 17 years. They found that all subjects who frequently suppress their anger as measured by the anger expression scale total (Anger-In, or Harburg Anger In/Out) have higher systolic blood pressure. Among black females also, diastolic blood pressure also increased with anger suppression (anger in). On the contrary measure of anger expression did not correlate significantly with diastolic blood pressure for white females. The significant correlations between anger expression/anger-out scores and both systolic blood pressure (SBP) and diastolic blood pressure (DBP) for black females indicates that blood pressures were higher for those black females who refrain from expressing their anger outwardly at people or objects in their environment. In addition, those black females who reported experiencing intense angry reactions (state-anger reaction) in time pressured (TP) situations, as well as intense anger (state anger) reactions while their blood pressures were being measured had higher SBP and DBP. Although neither of the state-anger reaction measures correlated significantly with SBP for white females, those who reported higher scores on all three of the state-anger reaction scales had higher DBP. Black females who reported having a strong disposition to experience intense anger when provoked (Trait Anger/Reaction) had higher DBP.

Similarly the equivalent study was carried a sample of black and white adolescent males who were enrolled in a health science course in Tampa, Florida (Johnson, Spielbergers, Worden & Jacobss, 1986). The participants comprised of 219 black and 270 white male high school sophomores ranging between 15 and 17 year of age who had no previous history of a 'diagnosis' of hypertension. Although they found that a number of personality and traditional risk factors significantly predicted elevated blood pressure for both groups of adolescent males, suppressed anger and weight were the major independent predictors. Among black and white males, those who generally harbored grudges and suppressed their anger (anger-in) had higher systolic blood pressure; diastolic blood pressure was higher only for the white males who

frequently held in their angry feelings. Weight and excessive salt usage significantly predicted both elevated systolic and diastolic pressures for white males, while these variables significantly predicted systolic pressures for black males. These findings indicate that adolescent males who are at increased risk for elevated systolic and diastolic blood pressure can be identified by how often angry feelings are held-in and suppressed.

In a study titled anger expression and suppression among patients with essential hypertension, Hosseini, Mokhberi, Mohammadpour, Mehrabianfard and Lashak, (2011) assessed two hundred (200) patient with essential hypertension. They used one hundred healthy individuals older than 30 years without previous history of arterial hypertension and severe mental disorders as the control group. Both groups were matched in terms of age, gender and level of education. Using the Spielberger questionnaire which measures trait anger, anger in and anger out, they found out that, the trait anger and anger suppression in patients with hypertension were significantly higher than the control group ($P < 0.001$); however, anger out was not significantly different between the two groups ($P = 0.984$).

A meta-analysis of 15 studies was conducted by Schum, Jorgensen, Verhaeghen, Sauro, and Thibodeau, (2003) to investigate the relationship between trait anger, anger expression and ambulatory blood pressure. Overall, the experience of anger was found to be significantly and positively associated with systolic blood pressure ($r_+ = 0.049$), but not reliably associated with diastolic blood pressure ($r_+ = 0.028$). After removing an outlier, the expression of anger was found to have a reliable inverse relationship with diastolic blood pressure ($r_+ = -0.072$). There was however no significant relationship between expression of anger and systolic blood pressure ($r_+ = -0.041$).

In addition, James, Yee, Harshfield, Blank and Pickering, (1986) contend that the effects of anger may be particularly pronounced in individuals with more labile blood pressure. This is supported by the work of Smith & Allred, (1989) who found that individuals with high levels of

anger displayed larger systolic and diastolic blood pressure responses compared to individuals with low hostility.

Summary of Literature Review

Three theories indicating the possible predictors of essential hypertension were reviewed namely: Psychological stress theory of Lazarus, (1996) and Spielberger, (1972), reactivity hypothesis of Turner (1994), and Alexander, (1939) specificity hypothesis.

Psychological stress theories hold that excessive stress can results in the development of hypertension. Perception and appraisal of event as harmful or frustrating usually results in some negative emotional experiences such as anger, anxiety and fear. Appraisal of a stressor is influenced by an individual's attitudes, abilities, and past experiences. Simultaneously with the emotional response comes the biological component of autonomic nervous system arousal, which is most often shown by increased heart rate and blood pressure. Similarly, reactivity hypothesis is of the view that the exaggerated cardiovascular response to stress, may contribute to the long-term development of essential hypertension. This is supported by several researches that tend to indicate that individuals who have high reactivity respond to behavioral stressors with inappropriate cardiovascular responses. Alexander (1939)'s specificity hypothesis, is of the view that some specific acute emotion could give rise to essential hypertension. According to him, chronic, inhibited, aggressive hostile impulses, which always appear in connection with anxiety, have a specific influence upon the fluctuations of the blood pressure. According to the psychoanalytic study of Alexander, an individual who is always prone to excessive inhibition of anger, aggression and hostility and yet at the same time, have the disposition towards expression of such behaviour is capable of developing essential hypertension. Of greater paramount importance to this study regarding Alexander specificity hypothesis is the personality construct of alexithymia. According to some researchers, the reason for the association between alexithymia and psychosomatic illnesses is that the patient's inability to express emotions

appropriately leads to a misdirection of libidinal activity which causes physical damage (Nemiah & Sifneos, 1970; Sineof, et. al., 1977).

In the empirical review, some studies indicating some relationships between the predictor and criterion variables were discussed. As a result of the paucity of studies regarding the relationships between distress tolerance and essential hypertension, the relationships between psychological distress and essential hypertension were explored (Footman, Roberts, Tumanov, & McKee, 2013; Egan, et. al., 1983). Also several studies showing relationships between alexithymia and essential hypertension were discussed (Grabe, et. al. 2010; Waldstein, et. al., 2002; Jula, et. al., 1999). Finally some studies indicating the relationships between anger and essential hypertension were highlighted (Johnson, et. al., 1987; Johnson et. al., 1986; Hosseini, et. al., 2011; Schum et. al., 2003).

Hypotheses

Considering the theories reviewed as well as the empirical findings discussed, the following hypothesis will be tested:

- Distress tolerance will not have a significant relationship with essential hypertension.
- Alexithymia will not have a significant relationship with essential hypertension
- Anger experience will not have a significant relationship with essential hypertension.
- Anger-out will not have a significant relationship with essential hypertension.
- Anger-in will not significantly predict essential hypertension.

CHAPTER THREE

METHOD

Participants

Three hundred and ten volunteered patients drawn from the Cardiology Unit (n=230), Surgical Outpatient (n=50) and General Outpatient Department (GOPD) (n=30) of the University of Nigeria Teaching Hospital participated in this study. They comprised one hundred and fifty-six (156) (50.3%) men and one hundred and fifty three (153) (49.4%) women whose ages ranged from 20 years to 80 years with a mean age of 50.45. As regard their Body Mass Index (BMI), only one patient (0.3%) is underweight (BMI range= 17-18.49), forty-four (44=14.2%) had normal weight (BMI= 18.5-25), one hundred and twenty-nine (129=41%) were considered over weight (BMI= 25.5-27.49) while one hundred and thirty-six (136=43.9%) had their body mass index within the range considered to be obesity (BMI=30 and above). In terms of their educational status 42 (15.5%) patients reported having no formal education, 82 (26.5%) had primary education, 76 (24.5%) had secondary education while 110 (35.5%) had tertiary education. In terms of their occupation 77 (24.8%) were traders, 87 (28.1%) were civil workers, 66 (21.9%) reported that they are skilled workers, 40 (12.9%) were farmers while 40 (12.9%) indicated no particular occupation. In terms of their ethnic affiliation 291 (90.7%) participants were Igbos, 4 (1.2%) were Hausas, 6 (1.9%) were Yoruba's while 9 (2.8%) participants indicated other minor ethnic groups in Nigeria. As regards their marital status, two hundred and thirty-four (75%) of the participants were married, forty-nine (15.8%) were single while twenty-seven (8.7%) were widows and widowers.

Instruments

Five sets of instruments were used in this study namely: Distress Tolerance Scale (Simons & Gaher, 2005), Toronto Alexithymia Scale (TAS-20) (Bagby, Parker, & Taylor, 1994), The Novaco, (1975) Anger Inventory - Short Form (NAI-S), Anger Expression scale (AX) (Spielberger, 1988) and Mercury Sphygmomanometer and Stethoscope.

Though the scales have good psychometric properties according to the developers, the present researchers went further to adapt the scales to suit the Nigerian samples. To that effect, content validity and pilot study were conducted to test their validity and reliability respectively. For the content validity, the scales were given to three experts in the department of psychology to ascertain the content validity of the instrument. For the pilot study, 62 participants were drawn from three hospitals in Nsukka namely: Shanahan hospital, University of Nigeria Medical Center and Good Shepherd Hospital. In addition, because some participants may not be literate enough to respond to the English version of the scales, the scales were translated in both forward and backward direction in native language (Igbo) through the help of two experts in the department of foreign language.

Distress Tolerance Scale (Simons & Gaher, 2005).

Distress tolerance Scale (DTS) was used to measure an individual's ability to tolerate negative emotional states. DTS is a 15- item scale developed by Simons and Gaher (2005). The scale has four clusters namely: tolerance, absorption, appraisal and regulation. Tolerance measures the individual's perceived ability to tolerate distress, absorption (the degree to which an individual is consumed by negative emotions), appraisal (the individual's subjective assessment of the distress as tolerable or intolerable), and regulation (the degree of urgency an individual feels to do something to alleviate the negative emotion (Simons & Gaher, 2005).

However the developers maintain that the DTS is a one factor measure of distress tolerance. The scores range from fifteen to seventy-five with higher scores indicating higher distress tolerance while lower scores indicating lower distress tolerance. Items were rated on a 5-point scale: strongly disagree (5), mildly disagree (4), agree and disagree equally (3), mildly agree (2), and strongly agree (1). In this scale, only Item 6 is scored in a reversed direction. Simons and Gaher (2005) reported reliability coefficient to be (α =.95). For the content validity, some words in two of the item were modified. For example, in items 1 to 6, 8 to 11, 13 and 14,

the word "distressed" was changed to "troubled". While in items 4, 7, 12 and 15, the word "distressed" was changed to "discomfort". This is because the experts were of the opinion that it is not proper to use the word "distressed" which appeared as the scale name (distress tolerance) for the items in the scale. For the pilot study, the present researcher obtained a reliability coefficient of r =.81 with 62 participants.

Toronto Alexithymia Scale (TAS-20) (Bagby, Parker, & Taylor, 1994)

The Toronto Alexithymia Scale was used as a measure of alexithymia. The TAS is a 20-item scale developed by Bagby, Parker, and Taylor, (1994). The TAS-20 has 3 subscales namely: difficulty describing feelings, difficulty identifying feeling and externally-oriented thinking subscale. Difficulty describing feelings subscale is used to measure difficulty describing emotions commonly found among alexithymic individuals. It has five items (5) – 2, 4, 7, 12, 17. Such items include: "It is difficult for me to find the right words for my feelings" (item 2), "I find it hard to describe how I feel about people" (item 11). Difficulty identifying feeling subscale is used to measure difficulty identifying emotions. It has seven (7) items – 1, 3, 6, 11, 9, 13, 14. Sample items are "I am often confused about what emotion I am feeling" (item 1), "I am often puzzled by sensations in my body" (item 7). Externally-oriented thinking subscale measures the tendency of individuals to focus their attention externally. It consists of 8 items – 5, 8, 10, 15, 16, 18, 19, 20. Sample items are: "Being in touch with emotions is essential" (item 10). "I can feel close to someone, even in moments of silence" (item 18). Items are rated using a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Five items were scored in reversed direction (items 4, 5, 10, 18 and 19). The total score ranges from 20 to 100 points with high scores indicating high alexithymia. According to the developers, scores equal or less than 51 indicates non-alexithymia, scores equal or greater than 61 indicates alexithymia, whereas scores of 52 to 60 shows possible alexithymia. The total alexithymia score is the sum of responses to all 20 items, while the score for each subscale

factor is the sum of the responses to that subscale. Together, the TAS-20 demonstrates good internal consistency (Cronbach's alpha = .81). The reliabilities (Cronbach's alpha) of the three factors of TAS-20, difficult identifying feelings, difficult describing feelings and external oriented thinking were .86, .71, and .61, respectively.

Based on the input from the expert regarding the content validity of the scale, some words in two of the item were modified. For instance, in item 7, the word "puzzled" was changed to "confused". For the pilot study, the coefficient reliability of the entire items of alexithymia scale with the present participant is r= .78. While the coefficient reliability for the three subscales with the present sample were r = .71, .56 and .56 for difficulty identifying feelings, difficulty describing feelings and externally oriented thinking respectively.

The Novaco Anger Inventory - Short Form (NAI-S).

The Novaco Anger Inventory - short form (NAI-S), is a 25-item scale adapted from the long form (Novaco, 1975, original 90 items) by Devilly, (2005). The NAI - Long Form – is a measure of the degree of provocation or anger people would feel if placed in certain situations. The NAI scale displays a convergent validity of .46 with the Buss-Durke Hostility Inventory, and .41 with the Aggression subscale of the Personality Research Form (Huss, Leak and Davis, 1993). Items are rated using a 5-point Likert scale ranging from very little (1) to very much (5). Devilly, (2005) found the NAI-S to be a one factor measure that assesses anger. Higher scores indicate high anger arousal and experience. A Cronbach's alpha of the 25 item scale was found to be .96 by Devilly, (2005) using 207 war veterans and their spouses.

Based on the feedback from the expert, a number of the items were modified. For instance, in item 2, the original item was: "Being overcharged by a repair person who has you over a barrel" while the modified item reads: "Being overcharged by a repair person who takes advantage of you". Some words were also modified in the following items: 3, 11, 12, 13, 15, 21

and 25 (see appendix 2). The pilot study with the 62 participants indicated a reliability coefficients (Cronbach alpha) of r= .88.

Anger Expression scale (AX) (Spielberger, Johnson & Jacobs, 1985)

The anger expression inventory is a 16-item measure of anger developed by Spielberger, Johnson and Jacobs, (1985). It contains two subscales: anger-out and anger-in. Anger-out measures contain 8 items that assess the tendency to express angry feelings verbally or via physically aggressive behavior. It measures the frequency with which an individual's anger is expressed outwardly towards either other persons or objects. For example, 'I'll strike out at whatever infuriates me (item 10)'; 'I do things like slam doors' (item 6). Anger-in (8 items) measures the tendency to experience anger but only express it inwardly, for example, 'I tend to harbor grudges that I don't tell anyone about' (item 9). Participants are required to respond in the following response set: Almost Never (1), Sometimes (2), Often (3), Almost Always (4). The sores range from 8 to 32 for each of the subscale with higher scores indicating greater tendency to express or suppress anger. Internal consistency was found to be reasonably high for each of the two subscales .84 and .73 respectively. For the content validity only three words in three of the items were modified. For example, in item 2 the sentence "I keep things in" was modified to "I keep things to myself" other items are: items 3 and 6 (see appendix 2). The reliability coefficients of the scale with the present participant were found to be .61 and .50 for anger-in and anger-out respectively.

Mercury Sphygmomanometer and Stethoscope

Mercury Sphygmomanometer and Stethoscope (Accosson made in England) were employed to measure the blood pressure of the participants. The instrument was used to obtain both their systolic and diastolic blood pressures.

Procedure

The study was approved by the members of the Ethical Committee of the University Teaching Hospital (UNTH) Enugu by issuing ethical clearance to the researcher (see Appendix 1). The following units were used: the cardiology unit, surgical out-patient unit and General outpatient department. In each of the units, the researcher also obtained permission from their respective Heads of the Department which was granted. In these units, the doctors on duty helped to get the current systolic and diastolic measures of the volunteered participants using sphygmomanometer and stethoscope which was recorded on the questionnaire. The researcher, with the help of four research assistants administered the questionnaires to the patients individually in clinical interview. The illiterate patients were sufficiently guided by the researcher and the research assistance in completing the instruments. In addition, the weight (Kg) and height (cm) measures of the participants were assessed by the researcher and the research assistants. This was considered necessary in order to get the body mass index of each of the participants. The total numbers of the copies of the questionnaires distributed were three hundred and forty (340). Out of about two hundred and eighty five (285) patients in the two cardiology units (cardiology units Mondays and Fridays) of the UNTH, two hundred and fifty (250) volunteered patients filled the questionnaires. Nineteen out of the 250 questionnaires were discarded due to incomplete filling, making it 92.4% return rate. In surgical outpatient department, fifty questionnaires were distributed. Six out of the fifty questionnaires were discarded making 88% return rate. In General out Patient Department, thirty questionnaires were distributed and five questionnaires were discarded making 83% return rate. The total number of the questionnaires recovered and used for scoring and analysis were three hundred and ten (310), representing 91% of the number of the questionnaires distributed. It took fifteen days for the researcher to complete the exercise.

Design/ Statistics

The design of this study is cross-sectional design. A hierarchical multiple linear regression was used as statistical package for data analysis. The three independent variables: distress tolerance, alexithymia and anger were regressed on mean artery pressure (MAP) (Diastolic blood pressure + 1/3 Pulse pressure) which served as the dependent variable.

CHAPTER FOUR

RESULTS

The result of the study was analyzed using hierarchical multiple linear regression with enter method and was further summarized in Tables1, Tables 2 and Tables 3. In Table 1, correlation analysis was conducted to test the relationship between the study variables.

Table 1: Descriptive Statistic and Inter-Correlation among Study Variables: Demographics, Distress Tolerance, Alexithymia, Anger and Mean Artery Pressure

iable	Mean	SD	1	2	3	4	5	6	7	8	10	11	12
Kean Artery Pressure	107.87	20.48	-										
;ender	.50	.51	-.15**	-									
ıge	50.45	15.29	.44**	-.19**	-								
ducation	2.82	1.06	-.26**	.02	-.30**	-							
ccupation	2.61	1.33	-.08	.08	-.06	-.00	-						
thnicity	1.14	.58	-.05	.02	-.05	.02	.02	-					
ody Mass Index	3.29	.72	.31**	-.05	-.24**	-.07	.11*.	07	-				
istress Tolerance	42.36	11.16	-.61**	-.05	-.27**	.25**	.19**	.04	-.19**	-			
Alexithymia	55.90	11.62	.54**	-.06	-.22**	-.11*	-.08	-.05	.88**	-.46**	-		
Anger Experience	84.64	18.29	.34**	-.12*	.11*	-.06	-.02	-.04	.13**	-.29**	.25**	-	
Anger- Out	17.48	4.68	-.10	-.03	-.05	-.10	.07	.05	.01	.10	-.06.	16**	-
Anger-In	19.30	5.59	.58**	-.06	-.20**	-.15	-.01	- .03	-.19**	-42**	.42**	.16**	-.19**	-

e: **p<.01. *p<.05

der: male=0, female 1. Education: No formal education.=1, primary 2, secondary=3, tertiary=4. Yes= 1, No=2. upation: trader=1, civil worker=2, skilled worker=3, farmer= 4, others= 5. Ethnicity: Igbo=1, Hausa=2, uba=3, Others=4. BMI: underweight= 1, normal =2, overweight=3, obesity 4.

Table 1 show that distress tolerance, alexithymia, anger experience and anger-in have significant relationships with essential hypertension. The correlation coefficient (r) value for distress tolerance is -.61. It was found to be significant at $p<.01$. The correlation coefficient (r) value for alexithymia is .54 and was significant at $p<.01$. For anger experience, the correlation coefficient (r) value is .34. It was also found to be significant at $p<.01$. Anger-in was also found to be significantly related to essential hypertension. The correlation coefficient (r) = .57, $p<.01$.

Table 1 also shows that some of the demographic variables such as gender, age, education and BMI were significantly related to essential hypertension. Gender had a correlation coefficient (r) value of.-15 and was shown to be significant at $p<.01$. Age had a correlation coefficient (r) value of .44 and significant at $p<.01$. Similarly, the correlation coefficient (r) value of education is.-26 and was also significant at $p<.01$. Body mass index was also shown to be significant. The correlation coefficient (r) value is .31, at $p<.01$.

To further test the hypotheses of this study, hierarchical multiple linear regression analysis was conducted to determine the relationship between distress tolerance, alexithymia, anger and essential hypertension. Probable contaminating effects of the demographic variables, participant's gender, age, education, occupation, ethnicity and body mass index were controlled for in the analysis by extracting their effect first before building the main predictors into the regression model (see Table 2 & 3).

Table 2: Hierarchical Regression Model Summary of the Predictor Variables: Demographics, Distress Tolerance, Alexithymia, and Anger on Essential Hypertension.

Model	R	R^2	Adjusted R^2	Std. error of the estimate	R^2 change	F change	df1	df2	Sig. F change
1	.51	.26	.25	17.77	.26	17.89	6	303	.00***
2	.69	.48	.47	14.94	2.20	127.12	1	302	.00***
3	.74	.54	.53	14.03	.06	41.20	1	301	.00***
4	.75	.56	.54	13.85	.01	8.56	1	300	.01**
5	.75	.56	.55	13.81	.00	3 .29	1	299	.07
6	.79	.62	.61	12.85	.06	46.89	1	298	.00***

NB: ** p<.01, ***p<.001

1. Predictors: (constant), Body Mass Index, Gender, Ethnicity, Education, occupation, Age
2. Predictors: (constant), Body Mass Index, gender, Ethnicity, Education, occupation, Age, Distress Tolerance
3. Predictors: (constant), Body Mass Index, gender, Ethnicity, Education, occupation, Age, Distress Tolerance, Alexithymia.
4. Predictors: (constant), Body Mass Index, gender, Ethnicity, Education, occupation, Age, Distress Tolerance, Alexithymia, Anger experience.
5. Predictors: (constant), Body Mass Index, gender, Ethnicity, Education, occupation, Age, Distress Tolerance, Alexithymia, Anger experience, Anger-out.
6. Predictors: (constant), Body Mass Index, gender, Ethnicity, Education, occupation, Age, Distress Tolerance, Alexithymia, Anger experience, Anger-out, Anger-in.

Table 2 shows that the demographic variables: gender, age, education, occupation and body mass index have a significant relationship with essential hypertension. The variables accounted for a variance of about 26% (R^2 value = .26) in essential hypertension which was significant; $F(6, 303) = 17.89$, $p<.001$.

Table 2 also shows that there was a significant increase in R^2 value and F change statistics, when the main predictor variables: distress tolerance, alexithymia and anger were hierarchically added in the regression model. All the variables except anger-out contributed significantly to the variance in essential hypertension. In the second model, when distress tolerance was added, there was a significant increase in R^2 value ($R^2 = .48$, $p<.001$) which was significant. In the third model, when alexithymia was added to the regression model, there was also a significant increase ($R^2 = .54$, $p<.001$). In the fourth model, when anger experience was added in the hierarchical regression model, it was also found to be significant ($R^2 = .56$, $p<.01$). When anger-out was added, it did not contribute significantly to the model ($R^2 = .56$, $p<.07$). It will be noted that R^2 still remained 56 when anger out was added; but when anger-in was finally added to the model, there was a significant increase in R square ($R^2 = .62$, $p<.001$).

Table 3: Coefficient Table of the Hierarchical Multiple Linear Regression Results for the Main Predictors and Demographic Variables.

Variables	B	β	t	p
Gender	-2.22	-.06	-1.50	.14
Age	.26	.20	4.93	.00***
Education	-1.02	-.05	-1.37	.17
Occupation	.72	.05	1.27	.21
Ethnicity	.10	.00	.08	.94
Body Mass Index	2.94	.10	2.72	.01**
Distress Tolerance	-.51	-.28	-6.26	.00***
Alexithymia	.33	.19	4.41	.00***
Anger Experience	.14	.13	3.22	.00***
Anger- Out	-.10	.02	-.62	.54
Anger-In	1.06	.28	6.85	.00***

Note: ***p<.001. **p<.01. The last model (Model 6) was reported in table 3 above.

The results in Table 3 showed that some of the demographic variables: age and body mass index were significant predictors of essential hypertension. Age was a significant predictor of essential hypertension: $\beta = .20$, $t = 4.93$, $p<.001$. This suggests that the older the age of a person, the greater chances of developing essential hypertension. Body mass index was also found to be a significant predictor of essential hypertension: $\beta = .10$, $t = 2.72$, $p<.01$ suggesting that the higher the body mass index, the greater the chances of developing hypertension.

For the main predictors, the results showed that distress tolerance was a significant predictor of essential hypertension even when the demographic variables had been controlled for: $\beta = -.28$, $t = -6.26$, $p < .001$, showing that the lower the distress tolerance the higher the hypertension. The results also show that alexithymia significantly predicted essential hypertension: $\beta = .19$, $t = 4.41$, $p < .001$. This indicates that the higher the alexithymia, the higher the essential hypertension. Anger experience was also found to be a significant predictor of essential hypertension: $\beta = .13$, $t = 3.22$, $p < .001$ suggesting that the higher the anger experience the higher the essential hypertension. This means that individuals that experience higher levels of anger arousal and experience are more prone to developing hypertension. On the contrary, the results showed that anger-out was not a significant predictor of essential hypertension. The results also show that anger-in was a significant predictor of essential hypertension: $\beta = .29$, $t = 6.85$, $p < .001$ indicating that the higher the anger-in, the higher the essential hypertension. This means that individual who suppress their anger have greater tendency to hypertension.

CHAPTER FIVE

DISCUSSION

The study investigated the predictive value of distress tolerance, alexithymia and anger on essential hypertension among patients of the University of Nigeria Teaching hospital, Enugu. This researcher wanted to contribute to the existing literature concerning the relationships of the three independent variables (distress tolerance, alexithymia and anger) with essential hypertension particularly in Nigeria society. The findings showed that all the predictor variables except anger-out have significant relationships with essential hypertension.

The results show that distress tolerance is a significant predictor of essential hypertension. Table 3 of multiple linear regression indicated that for every one standard deviation decrease in distress tolerance, essential hypertension increased by -.28 (β) of a standard deviation. This implies that the lower the distress tolerance, the higher the essential hypertension. Thus, the first hypothesis which stated that distress tolerance would not have a significant relationship with essential hypertension was rejected. This means that individuals who find it difficult to tolerate psychological stress or distress seem to be more prone to essential hypertension. This findings lends support to the previous research (e.g. Footman, Roberts, Tumanov, & McKee, 2013; Egan, Kogan, Garber & Jarrett, 1983; Wau, 2011) which showed that individuals who experience greater level of psychological distress are more prone to the development of essential hypertension than their counterparts who experience lower levels of psychological distress. When stress is prolonged, it could lead to an increase in high blood pressure. This study is therefore in support that an ability to tolerate psychological distress or stress could reduce the incidence of high blood pressure among people.

The results of the study also showed that alexithymia was a significant predictor of essential hypertension. Table 3 of multiple linear regression indicated that for every one standard deviation increase in alexithymia, essential hypertension increased by .19 (β) of a

standard deviation. This indicates that the higher the alexithymia, the higher the essential hypertension, suggesting that individuals who are alexithymic were more prone to essential hypertension compared to non-alexithymic individuals. Thus, the second hypothesis which stated that alexithymia will not have a significant relationship with essential hypertension was rejected. The findings is in consistent with previous studies (e.g. Todarello, et. al. 1995; Jula, et. al 1999; Waldstein, et. al. 2002; Grabe, et.al. 2010) which found that alexithymia has a significant relationship with essential hypertension. It will be noted that the core features of alexithymia are well marked difficulty in identifying and describing feelings. They also have externally oriented thinking and tend to express emotions inappropriately. This seems to be the reason why alexithymia have significant relationship with psychosomatic illnesses particularly essential hypertension. This was supported by some researchers (eg. Nemiah & Sifneos, 1970, Sifneos, et. al. 1977) who postulated that the reason for the association between alexithymia and psychosomatic illnesses is that the patient's inability to express emotions appropriately leads to a misdirection of libidinal activity which causes physical damage.

The result of the study also showed that anger experience had a significant and positive relationship with essential hypertension. Table 3 of multiple linear regression indicated that for every one standard deviation increase in anger experience, essential hypertension increased by .13 (β) of a standard deviation. This implies that the higher the anger experience, the higher the essential hypertension. Thus, the third hypothesis which stated that anger experience would not have a significant relationship with essential hypertension was rejected. This suggests that people who are exposed to a greater amount of anger experience and arousal are prone to essential hypertension. This is supported by the previous research (Schum, Jorgensen, Verhaeghen, Sauro, & Thibodeau, 2003; & Hosseini, Mokhberi, Mohammadpour, Mehrabianfard & Lashak, 2011) which found that anger experience had a strong relationship with hypertension. The findings regarding anger experience and essential hypertension seems to

be of greater relevant in our contemporary Nigerian society where people are faced with so many challenging and difficult situations that could trigger angry feelings. However, differences in perception of events as threatening or harmful are an important factor in mediating an individual's emotional reactions such as anger arousal to that event.

However, the findings indicated that anger expression (anger-out) did not have any significant relationship with hypertension. Thus the fourth hypothesis which stated that anger out will not have a significant relationship with essential hypothesis was accepted. This is in line with some previous studies that found no significant relationship between anger out and hypertension (Johnson, Nicholas, Schork and Spielbergers, 1987; Schum, Jorgensen, Verhaeghen, Sauro, & Thibodeau, 2003; & Hosseini, Mokhberi, Mohammadpour, Mehrabianfard & Lashak, 2011). It therefore suggests that anger expressed outwardly or openly without aggression seems not to increase the blood pressure as compared to suppressed anger.

In addition, the findings also indicated that anger-in significantly predicted essential hypertension. Table 3 of multiple linear regression indicated that for every one standard deviation increase in anger-in, essential hypertension increased by .29 (β) of a standard deviation. This means the higher the anger-in the higher the essential hypertension. This indicates that individuals who suppress their angry feelings are more prone to the development of essential hypertension compared to their counterpart who expresses their anger out. The finding lends support to the previous studies (Johnson, et. al., 1987; & Hosseini, et al., 2011) which found that anger- in is significantly related to essential hypertension. Anger has been noted by some researchers (e.g. Schneider, Egan, Johnson, Drobney, & Julius, 1986) to elevate blood pressure through the activation of the sympathetic nervous system and the elevations are believed to be very high when anger is experienced but cannot be openly expressed (Hokanson, & Burgess, 1962). More so, Alexander specificity hypothesis upon which this study was

anchored on proposed that when there is persistent and chronic inhibition of hostile and aggressive feelings, it could lead to an increase in high blood pressure.

Implications of the Findings

In a society bedeviled with the menace of hypertension and its related adverse health complications such as heart attack, stroke and heart failure, the study had an important implication to the contemporary Nigerian society. The present findings that distress tolerance, alexithymia, anger experience anger-in (anger suppression) have strong relationship with essential hypertension could be of greater help to the scientific community, especially to medical doctors who have a daily encounter with hypertensive patients. There is need to understand these construct (distress tolerance, alexithymia, anger experience and anger-in) in relation to hypertension. Apart from medical examinations, proper psychological examinations and assessment could help to delve into some psychological factors associated with hypertension. While the researcher is not in any neglecting the importance and benefits of drug treatments, psychological treatment and interventions such as stress inoculation training, bio feedback training, cognitive behavior therapy, and training in progressive deep muscle relaxation could be implored to help patients with hypertension. To this effect therefore, there is need for the medical practitioners and clinical psychologist to collaborate in their effort to bring proper management and bring relief to majority of individuals living with hypertension.

Limitations of the Study

One of the limitation of this study is that the study was carried out in one teaching hospital located in a particular part of the Nigerian geographical location precisely, South Eastern Nigeria where ninety percent (90%) of the patients were Igbos. As a result, generalization of the findings to the entire Nigerian population may be limited. Secondly, because this study was survey in nature, it may not bring out more fact than when it is conducted experimentally where some suggested confounding variable such as use and nature

of drugs is controlled for. Such experimental studies could go a long way to uncover some psychological factors that may be contributing to hypertension.

Suggestions for Future Studies

Future studies should endeavor to extend this area of research to other teaching hospitals located in different geographical location in Nigeria. This will help to create greater percentage of awareness to the psychological correlates of hypertension. Further studies could replicate this work using experimental method where some confounding variables such as drugs or nature of the drugs could be controlled. More so, clinical psychologists who are research oriented could put more effort in finding more psychological variables that are linked to these psychosomatic illnesses prevalent among people.

Summary and Conclusion

The study investigated the relationships between distress tolerance, alexithymia and anger on essential hypertension. All the variables studies except anger-out were found to be significant predictors of essential hypertension. Other demographic variables such as age, and body mass index were also found to be significant predictors of essential hypertension. Since research have shown that psychological variables are important predictors of hypertension as established by the present study, the researcher is of the opinion that collaboration among the medical professional and clinical psychologist would go a long way to abate the danger posed by high rate of mortality attributed to hypertension in the contemporary Nigerian society.

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Appendix 1

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ETHICAL CLEARANCE CERTIFICATE

TOPIC: DISTRESS TOLERANCE, ALEXITHYMIA AND ANGER AS PREDICTORS OF ESSENTIAL HYPERTENSION AMONG HYPERTENSIVE PATIENTS OF IN AND OUT PATIENTS UNTH, ENUGU

BY: **REV. SR. MARIA CHIDI C. ONYEDIBE**

FOR: A DISSERTATION FOR A MASTERS DEGREE Msc IN CLINICAL PSYCHOLOGY OF THE DEPARTMENT OF PSYCHOLOGY, FACULTY OF SOCIAL SCIENCES, UNIVERSITY OF NIGERIA

This research project on the above topic was reviewed and approved by the University of Nigeria Health Research Ethics Committee. This certificate is valid for **one year** from date of issue.

Prof. R.E. Umeh
Chairman Health Research Ethics Committee

Date: 15/10/13

APPENDIX II

SECTION A

Department of Psychology
University of Nigeria
Nsukka

Dear Respondent,

I am a postgraduate student of psychology, University of Nigeria, Nsukka. The purpose of these questionnaires is to serve as part of a research work being undertaken by the researcher. Kindly respond to these questionnaires as truthful and sincerely as possible by ticking (√) on the statements that best express your opinion.

Your cooperation is highly appreciated.

Thank you.

Rev. Sr. Onyedibe Maria Chidi

Personal Data: Please tick (√) in the box below as it applies to you

1 Gender: male ( ) Female ( )

2 Marital Status: Married ( ) Single ( ) Widow(er) ( )

3 Age: _____

4 Educational background: No formal education ( ) Primary: ( ) Secondary ( ) Tertiary ( )

5 Ethnic group: Ibo ( ) Housa ( ) Yoruba ( ) Others (please specify)_____

6 Are you hypertensive? Yes ( ) No ( ). Are you diabetic? Yes ( ) No ( )

7 Are you on anti- hypertensive drugs? Yes ( ) No ( )

8 If yes, how long ago did you take your drugs last? Few hours ago ( ) few days ago ( ) one week ago ( ) few weeks ago ( ) one month ago ( ) more than one month ago ( )

9 Is any of your parent or blood relative hypertensive? Father ( ) Mother ( ), specify_____

10 Have you had any of these related health complication: Stroke ( ), Heart failure ( ), Renal failure ( )

11 How often do you do exercise: None ( ) rarely ( ) Sometimes ( ) Oftentimes ( )

12 How often do you smoke: None ( ) rarely ( ) Sometimes ( ) Oftentimes ( )

13 How often do you take alcohol: None ( ) rarely ( ) Sometimes ( ) Oftentimes ( )
14 Specify your permanent resident: Urban ( ) Rural areas ( )
15 Occupation: Trader ( ) Civil worker ( ) Skilled worker ( ) Farmer ( ) others (please specify)_____

Measures (To be filled in collaboration with the assessor)
1 Blood Pressure measures: Systolic _____ Diastolic _____
2 Pulse measures _____
3 Mean artery pressure _____
4 Body Weight measures _____
5 Height measures _____
6 Waist Circumference _____

SECTION B

DTS

Directions: Think of times that you feel troubled or upset. Select the item from the menu that best describes your beliefs about feeling troubled or upset. Use the following response set:

1. Strongly agree 2. Mildly agree 3. Agree and disagree equally
4. Mildly disagree 5. Strongly disagree

1	Feeling troubled or upset is unbearable to me.	1	2	3	4	5
2	When I feel troubled or upset, all I can think about is how bad I feel.	1	2	3	4	5
3	I can't handle feeling troubled or upset.	1	2	3	4	5
4	My feelings of discomfort are so intense that they completely take over.	1	2	3	4	5
5	There's nothing worse than feeling troubled or upset.	1	2	3	4	5
6	I can tolerate being troubled or upset as well as most people	1	2	3	4	5
7	My feelings of discomfort or being upset are not acceptable.	1	2	3	4	5
8	I'll do anything to avoid feeling troubled or upset.	1	2	3	4	5
9	Other people seem to be able to tolerate feeling troubled or upset better than I can.	1	2	3	4	5
10	Being troubled or upset is always a major ordeal for me.	1	2	3	4	5
11	I am ashamed of myself when I feel troubled or upset	1	2	3	4	5
12	My feelings of discomfort or being upset scare me.	1	2	3	4	5
13	I'll do anything to stop feeling troubled or upset.	1	2	3	4	5
14	When I feel troubled or upset, I must do something about it immediately	1	2	3	4	5
15	When I feel troubled or upset, I cannot help but concentrate on how bad the discomfort actually feels.	1	2	3	4	5

SECTION C

TAS-20

Instruction:

Please read each item below and indicate, using the following rating scale, how best they captured your feelings.

Response options: 1 = strongly disagree, 2= mildly disagree 3= Agree and disagree equally
4 mildly agree 5 = strongly agree

1	I am often confused about what emotion I am feeling.	1	2	3	4	5
2	It is difficult for me to find the right words for my feelings.	1	2	3	4	5
3	I have physical sensations that even doctors do not understand.	1	2	3	4	5
4	I am able to describe my feelings easily.	1	2	3	4	5
5	I prefer to analyse problems rather than just describe them.	1	2	3	4	5
6	When I am upset, I do not know if I am sad, frightened or angry.	1	2	3	4	5
7	I am often confused by sensations in my body.	1	2	3	4	5
8	I prefer to just let things happen rather than to understand why they turned out that way.	1	2	3	4	5
9	I have feelings that I cannot quite identify.	1	2	3	4	5
10	Being in touch with my feelings is essential.	1	2	3	4	5
11	I find it hard to describe how I feel about people.	1	2	3	4	5
12	People tell me to describe my feelings more.	1	2	3	4	5
13	I do not know what is going on inside me.	1	2	3	4	5
14	I often do not know why I am angry.	1	2	3	4	5
15	I prefer talking to people about their daily activities rather than their feelings	1	2	3	4	5
16	I prefer to watch "light" entertainment shows like comedies/dancing, rather than films that emphasizes conflict or horror.	1	2	3	4	5
17	It is difficult for me to reveal my innermost feelings, even to close friends	1	2	3	4	5
18	I can feel close to someone, even in moments of silence.	1	2	3	4	5
19	I find examination of my feelings useful in solving personal problems.	1	2	3	4	5
20	Looking for hidden meanings in movies or plays distracts from their enjoyment.	1	2	3	4	5

SECTION D

NAI (Short Form)

The items on this scale describe situations that are related to anger arousal. For each of the items please rate the degree to which the incident described would anger or provoke you by ticking the appropriate degree of annoyance. Try to imagine the incident actually happening to you, and then indicate the extent to which it would have made you angry.

Response Options: **1) Very Little 2) Little 3) Moderate Amount 4) Much 5) Very Much**

1	You unpack an appliance you have just bought, plug it in, and discover that it doesn't work	1	2	3	4	5
2	Being overcharged by a repair person who takes advantage of you	1	2	3	4	5
3	Being singled out for a correction, while the actions of others go unnoticed	1	2	3	4	5
4	Getting your car stuck in the mud or sand	1	2	3	4	5
5	You are talking to someone and they don't answer you	1	2	3	4	5
6	Someone pretends to be something they are not	1	2	3	4	5
7	While you are struggling to carry a plate of food to your table at a restaurant, someone bumps into you, and the food fell off.	1	2	3	4	5
8	You have hung up your clothes, but someone knocks them to the floor and fails to pick them up	1	2	3	4	5
9	You are hounded by a sales person from the moment you walk into the store	1	2	3	4	5
10	You have made arrangements to go somewhere with a person who backs off at the last minute and leaves you hanging	1	2	3	4	5
11	Being mocked or ridiculed	1	2	3	4	5
12	Your car is stopped at a traffic light, and the person behind you keeps blowing his horn	1	2	3	4	5
13	You accidentally make the wrong kind of turn in a car park. As you get out of your car, someone yells at you, "did you go to driving school at all?"	1	2	3	4	5
14	Someone makes a mistake and blames it on you	1	2	3	4	5
15	You are trying to concentrate, but a person near you is tapping his/her finger on the table.	1	2	3	4	5
16	You lend someone an important book or tool, and they fail to return it	1	2	3	4	5
17	You have had a busy day, and the person you live with starts to complain about how you forgot to do something you agreed to	1	2	3	4	5
18	You are trying to discuss something important with your mate or partner who isn't giving you a chance to express your feelings	1	2	3	4	5
19	You are in a discussion with someone who persists in arguing about a topic they know very little about	1	2	3	4	5
20	Someone sticks his or her nose into an argument between you and someone else	1	2	3	4	5
21	You need to get somewhere quickly, but the car in front of you is driving very slowly (in a narrow road) that you can't overtake.	1	2	3	4	5
22	Stepping on a lump of chewing gum	1	2	3	4	5
23	Being mocked by a small group of people as you pass them	1	2	3	4	5
24	In a hurry to get somewhere, you tear a good pair of trousers / skirt on a sharp object	1	2	3	4	5
25	You use your last card (credit) to make a phone call, but the service was very poor and you could not hear the person, before you could finish saying 'hello', the credit was lost.	1	2	3	4	5

SECTION E

AXS

Instruction: You are required to indicate how you express your angry feelings. Please kindly respond as honestly as you can, as there is no right or wrong answer.

Response Options: 1 = Almost Never, 2 = Sometimes, 3 = Often, 4 = Almost Always

1	I express my anger	1	2	3	4
2	I keep things to myself.	1	2	3	4
3	I frown or thrust my lips out.	1	2	3	4
4	I withdraw from people	1	2	3	4
5	I make sarcastic remarks to others	1	2	3	4
6	I do things like bang doors	1	2	3	4
7	I boil inside but don't show it	1	2	3	4
8	I argue with others	1	2	3	4
9	I tend to harbour grudges that I don't tell anyone about	1	2	3	4
10	I strike out at whatever infuriates me	1	2	3	4
11	I am secretly quite critical of others	1	2	3	4
12	I am angrier than I am willing to admit	1	2	3	4
13	I say nasty things	1	2	3	4
14	I am irritated a great deal more than people are aware of	1	2	3	4
15	I lose my temper	1	2	3	4
16	If someone annoys me, I am apt to tell him or her how I feel.	1	2	3	4

NKEJỊ A

Department of Psychology,
University of Nigeria
Nsụka.

Ezigbo Ozaa,

Abụ m nwata akwụkwọ ogo dị elu, na Ngalaba Psychology Mahadum Naijirịa Nsụka. Ebum n'obi akwụkwọ ajụjụ nchọcha m a bụ iji nyere m aka na nchọcha a zaa ihe ndị a ga-ajụ gị. Biko jiri eziokwu ma wepụta obi zaa ajụjụ ndị a, zaa ha etu i nwere ike site n'ịkanye (√) n'ahịrịokwu ndị kacha kọwapụta uche gị.

A ga-egosi ezi ekele make enyemaka gị.

I meela

Rev. Sr. Onyedibe Maria Chidi

Ihe Mgbasara Onwe: Biko kanye akara (√) n'ime mgbodo a na-eso dịka o si metụta gị

1. Jenda: Nwoke ( ) Nwaanyi ( )
2. Ọnọdụ alumdi na nwunye: Alurum di/nwunye ( ) Nnụrụonwe ( ) Ajadụ nwanyi/nwoke ( )
3. Agbamafọ: Afo ole ka idi _____
4. Ogo agụmmakwụkwọ: Agụghị chaa chaa ( ) ogo praịmarị ( ) ogo sekọndirị ( )
   Ogoo mahadum maọbụ ndịka ya ( )
5. Agbụ: Igbo ( ) Awụsa ( ) Yoruba ( ) Ndi ọzọ (kwuo agbụ ọ bụ kpomkwem) ( )

6 I na enwe obara mgbalielu? Ee ( ) Mba ( ). Ị na-arịa oria shuga? Ee ( ) Mba ( )

7 I na anu ogwu obara mgbalielu? Ee ( ) Mba ( )

8 O buru na I na anu ogwu obara mgbali elu, kedu mgbe I nuru nke ikpeazu: elekele olemole gara aga ( ), ubochi olemole gara aga ( ), otu izu gara aga ( ), izu olemole gara aga ( ) otu onwa gara aga ( ), onwa olemole gara aga ( ).

9 O nwere onye agbụrụ gị nwere ọbara mgbalielu? Kwuo onye o bụ: Nna ( ) Nne ( ) Nwanne nwoke ( ) Nwanne nwanyị ( ) Ndị ọzọ ( )

11. Ugboro ole ka i na-eme ihe mmeghari ahụ, (nke ndi oyibo kporo exercise)? Emeghi m chaa chaa ( ) Na ndaputa ( ) Oge ụfọdụ ( ) Ọtụtụ ugboro ( )

12. Ugboro ole ka ị na-anụụ siga? Anụghị chaa chaa ( ) a na-anụ na ndapụta ( ) Oge ufọdụ ( )
    Ọtụtụ ugboro ( )

13. Ugboro ole ka ị na-aňụ mmanya? anụghị chaa chaa ( ) na-anu na ndapụta ( ) Oge ụfọdụ ( ) otutu ugboro ( )

14. Kwuo kpomkwem ebe ibibi gị: Obodo mepere emepe ( ) n' ime ime obodo ( )

15. Ọrụ aka: Onye mgbere ahịa ( ) Onye ọrụ oyibo ( ) Onye ọruaka ( ) onye ọrụ ugbo ( )
    Ọrụ ndị ọzọ (biko kpoo ha aha) .....

Ntunye (A ga-ejikota aka ọnụ n'idenye ndị a)

1. Ntụnye Nchịchari obara: nke elụ_____ nke ala _____
2. Ntuunye pọọlsụ _____
3. Ndị n'etiti Prezọ akwara _____
4. Ntụtụ arụ ahụ _____
5. Ntutu ogo onye _____
6. Ntụtụ gburugburu ukwu _____

NKEJI B

DTS

Ntụzịaka: Chee oge ọ dị gị ka i nwere nsogbu maobu mgbasaka ahụ: Hota otu n'ime ihe ndi a e depụtara nke nwere ike ịkọwa nkwenye gị banyere mgbe ị nọ na nsogbu maobu mgbakasi ahu. Jiri ihe ndia edeputara gosi nke metutara azịza gị:

1. Ekwesiri m ike (2) Ekwetụrụ m oboere (3) Ekwere m ma jụkwa
4. Ajụtụrụ m obere (5) Ajụrụ m kpamkpam

1	Inwe nsogbu maọbụ mgbakasa ahụ anaghị ekwe m odidi.	1	2	3	4	5
2	Mgbe ọbụla ọ dị ka m nwere nsogbu maọbụụ mgbakasa ahụ, ihe na-abịa m n'obi bụ iche maka ọnọdụ ọjọọ m					
3	Enweghị m ike ịnọkwata oge ọbụla ọ dị m ka m nọ na nsogbu maọbụ na mgbakasa ahụ					
4	Onodu mgbakasị ahụ niile m na-anyịgbu m nke na ha na-enweghara m kpamkpam.					
5	O nweghị ihe dị njọ dika iche na m nọ na nsogbu maọbụ na mgbakasa ahụ.					
6	E nwere m ike ịnabata ọnọdụ nsogbu maọbụ mgbakasa ahụ dị ka ọtụtụ mmadu ndị ọzọ.					
7	Anaghị m anabatanwu ọnọdụ nsogbu maọbụ mgbakasa ahụ.					
8	Aga m eme ihe ọbụla iji zeere nsogbu maọbụ mgbakasa ahụ.					
9	Ọ dị ka ndị ọzọ nwere ike idinwu nsogbu ma obu mgbakasi ahu karia m.					
10	Ịnwe nsogbu na mgakasa ahụ na abụrụ m ihe oke ọdachi.					
11	Ihere onwe m na-eme m ma ọ dị m ka m banyere na nsogbu ma ọ bụ n'ihe mgbakasa ahụ.					
12	Mmetụta onwe m na-enwe banyere nsogbu maọbụ mgbakasa ahụ na-eyi m egwu.					
13	Ọ dighị ihe m enweghị ike ime iji manahụ nsogbu maọbụ mgbakasa ahụ.					
14	Mgbe ọbụla ọ dị m ka m nwere nsogbu maọbụ mgbakasa ahụ, o nweịrị ihe m na-eme ozigbo.					
15	Mgbe m nọ na nsogbu maọbụ nwee mgbakasa ahụ, o dighị ihe ọzọ m pụrụ ime karia itiinye uche n'ihe banyere ọnọdụ ọjọọ a tinyere m nay a.					

NKEJI C

TAS – 20

Ntụziaka: Bịko gụo ihe e deputara n'okpụrụ ma gosipụta etu nke ọbụla sị metụta gi site n'ịhọrọ azịza metụtara ha dika 1. Ajụrụ m kpamkpam (2) Ajụtụrụ m obere (3) Ekwere m ma jụkwa 4. Ekwetụrụ m obere (5) Ekwesiri m ike

1	Otutu mgbe, anaghi m aghota udi mmetuta onwe mu na-enwe.	1	2	3	4	5
2	Ọ na-esiri m ike ịkowapụta ihe na-eme m/etu ahụ dị m.					
3	O nwere out ahụ si eme m, nke na ọbụladi onye dịbịa oyibo enweghịdị ike ighọta.					
4	E nwere m ike ịkọwa ihe na-eme m n'enweghị nsogbu.					
5	Ọ na-akara m mma ịtule maọbụ inyocha nsogbu m karịa ịnọ nnọọ na-akọwa ha.					
6	M nwee mgbakasa ahụ, anaghị m ama ma ọ bụụ iwe na ewe m, egwu n-atu m, ka ọ bụụ ọnụma na-eme.					
7	Etu ahụ si eme m na agbagwojum anya.					
8	Ọ na-akara m mma ị hapụ ihe ụfọdụ ka ha dịrị etu ha dị karịa ịchọ ighọta ihe mere ihe ji diri m etu ọ dị.					

9	Agaghị achọpụtanwu etu ahu si eme m.					
10	Ịghọta ihe na-eme m di oke mkpa.					
11	Ọ na-ahịa m ahụ ịkọwa ihe m metutara m maka ndị mmadụ					
12	Ndị mmadụ na-aka agwa m ka m kọwaa ihe metụtara m.					
13	Amaghị m ihe na-eme n'ime m.					
14	Otụtụ oge amaghị ihe na-akpatara m iwe.					
15	Ọ na-akara m mma ịgwa ndị mmadụ okwu banyere ihe ha na-emegasị n'ụbụchị karịa mmetụtara onwe ha.					
16	Ọ kara m mma ile ụmụ ihe ngosi 'obere' dịka soromchịa/egwu gobugba karịa ihe onyoonyoo na-egosikarị ihe ike maọbụ ihe dị egwu.					
17	Ọ na-ahịa m ahụ igosipụta mmetụtara onwe ime mmụọ m ọbụladị ebe ndị ezigbo enyi m nọ.					
18	Enwere m ike ịbịa mmadụ nso na mmetụtara onwe ime mmụọ m, ọbụladị mgbe m ekwughị ihe ọbụla.					
19	Achọpụtara m na uru, inyocha mmetụtara onwe m bara iji gbo mkpa m.					
20	Ịdị na-enyocha mpụtara dị n'ịjme egwuregwu – onyoonyoo maọbụ egwuruegwu nkịtị na-eme ka e leghara anya n'obịụụtọ a na-enweta site na ndị a.					

NKEJI D

NAI (FỌM MKPIRISI)

Ihe ndị e depụtara ebe a na-ekwu maka ihe metụtara mkpasu iwe. Maka nke ọbụla gosipụtara ogo mkpasụ iwe. Maka nke ọbụla gosipụta ogo mkpasụ iwe ị ga-enwe site n'ịkanye akara ga-egosi ọgọ iwe gị. jisie ike chee n'obi gị na ihe a na-ekwu ebe a metụtara gị ma gosi ka iwe gị ga-aha ma ihe dị etuu ahụ mee.

Họrọ otu site n'aziza ndị a: (i) nwa ntịntị (ii) nwa obere (iii) Obere (iv) nnukwu (v) oke nnukwu

1	Ị kwakasịrị ngwa ihe latriik ị ka zụrụ, kwunye ya, chọputa na ọ naghị arụ ọrụ	1	2	3	4	5
2	Mmadụ inafe gị ego n'ọrụ ọ rụụrụ gị si etu a rugbụo gị.					
3	Ị họrọ naani gị tawa gị uta ma hapụ ndị ọzọ soro mee ihe ahụ ị mere ka ha lawara onwe ha					
4	Ugboala gị ịtọ na pọtọpọtọ maọbụ n'aja.					
5	Ị na-ekwuru mmadụ okwu ma onye ahụ anaghị azaghachi.					
6	Mmadụ ime ka ọ bụ ihe ọ bụghị.					
7	Ka ị na-achọ iburu nrị gị n'ụlọ ebe a na-ere nri, mmadụ akwaburu gi, nri gi akwafuo					
8	Ị gbasara akwa/efe gị, otu onye abịa kotuo ha n'ala ma hapụ ichilite ha.					
9	Ozigbo, I banyere ebe a na-ere ihe, onye na-ere ihe atụkpọ gị ozigbo n'echeghi eche ka ị batachaa.					
10	Gị na mmadụ kwekọrịta ịga otu ebe, ọ fọrọ nwantinti oge ka ụnụ gawa, o kweghizi iso aga, hapụ gị, I maghizi ihe ị ga-eme.					
11	Ịkparị gị maọbụ ị iji gị akpa ihe ọchị.					
12	I kwusiri ugboala gị n'okporo ụzọ, ebe ọkụ na-egosi 'gawa' maọbụ kwusi dị, onye so gị n'azụ na-egburu gị ọpi ụgbọala ya ka ọ na-efefu efefu.					
13	Na ntumadị i tụgharịrị igboala gi n'ụzọ ekwesighị ekwesi n'ọdụ ụgbọala. Ozigbo ị					

	na-apụta n'ụgbọala gị otu onye agbọja gị sị, "Ị gakwara ụlọakwụkwọ ebe a na-azụ ndị ọkwọ ụgbọala?"					
14	Onye ọzọ mehiere ihe ma obodo gị ya.					
15	Ị na-acho itinye uche n'ihe ị na-eme, onye nọdebere gị ana-akụ mkpisiaka ya n'elụ tebul.					
16	Ị gbazinyere mmadụ akwụkwọ dị mkpa maọbụ ihe dị gị mkpa ma onye ahụ ajụ iweghachiri gị ya.					
17	Ị zụghị ike ọrụ n'ụbọchị taa, ozigbo ị na-alota, onye gị nay a bị ebido kpesawa etu i/siri chefuo otu n'ime ihe ndị ị kwetere na ị ga-eme.					
18	Ị na-achọ ka gị na onye ogbo gị maọbụ onye mmekọta gị kparịta nkata dị mkpa, ma ọ naghị enye gị ohere ikwu ka o si dịrị gị.					
19	Gị na mmadụ na-akpa nkata ma onye ahụ gbara isi akwara, na-esi agụgọ n'ihe ọ machaghị nke ọma.					
20	Mmadụ ịsọnye ọnụ n'arụmarụ dị n'etiti gị na onye ọzọ.					
21	O nwere ebe ị na-achọ iru/ịị ga ọsọọsọ mana ụgbọala dị gị n'ịhụ anaghị agbasi ike (ụzọ dịkwa warawara) nke na ị gaghị agbafenwu ya.					
22	Inyakara / ịzọro chiwingọm atara ata n'ụkwụ					
23	Mmadụ olema ole ịkwa gị emu ozigbo ị gafee ha.					
24	ihe pịara ọnụ ịdọka trauza maọbụ skeeti gị ebe ị na-akụ mgbanụ iru ebe ị na-aga n'oge.					
25	I nwere nwa obere kredit iji kpọọ mmadụ n'ekwenti, mana saviis adighị mma nke na ị nweghị ike ịnụ olu onye ị na-akpo. Tupu ị kwuchaa aloo! aloo! Kredit gị agwụ.					

NKEJI E
AXS

Ntụziiaka: A chọrọ ka I gosi etuu i si egosipụta iwe gị. Biko jiri eziokwu niile dị gị n'ọnụ zaa ajụjụ ndị a n'ihi na ọ dighị aziza nke dị mma maọbụ nke dị njọ.
Họrọ nke kwesiri ekwesi 1) Nwaobere ka ya adina chaa 2) Oge ụfọdụ 3) Otutu oge 4) Obere ka ọ bụrụ mgbe niile

1	Ana m egosipụta iwe m	1	2	3	4
2	Ana m ekpuchi ya n'ime m				
3	Ana m agbarụ ihu maọbụ mie ọnụ.				
4	Ana m esi ebe ndị mmadị no pụọ.				
5	Ana m amasara ndị mmadụ njakịrị.				
6	Enwere m ike gụchie uzo ike				
7	Enwere ike obi m na-enye ma aghaghị m egosipụta ya.				
8	Mu na ndị ọzọ na-abanye n'arụmarụ ụka.				
9	Ana m eburu iwe n'obi n'emeghị ka onye ọbụla mara.				
10	Ana m eti wapụta ma ihe ọbụla kpasuo m iwe.				
11	Ana m akọchasị ndi ọzọ na nzizo.				
12	Iwe na-ewe m karịrị etu m nwere ike ikweta.				
13	Ana m ekwucha ma nke a sị ekwuna				
14	Ana m enwe ngbakasị ahụ karịa etuu ndị mmadụ chere.				
15	Ana m ewe iwe okụ.				
16	Mmadụ kpasuo m iwe, ana m agwa onye ahụ ka ọ dị m.				

APPENDIX III

Reliability: Distress Tolerance Scale (DTS)
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	62	82.7
	Excluded[a]	13	17.3
	Total	75	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.807	15

Item Statistics

	Mean	Std. Deviation	N
VAR00001	2.8065	1.34089	62
VAR00002	2.7742	1.20680	62
VAR00003	3.7581	1.11157	62
VAR00004	3.5000	1.41131	62
VAR00005	3.0323	1.41384	62
VAR00006	3.5484	1.16896	62
VAR00007	3.1452	1.31631	62
VAR00008	2.5000	1.35199	62
VAR00009	3.2581	1.24051	62
VAR00010	3.2419	1.30177	62
VAR00011	3.5161	1.35189	62
VAR00012	3.1129	1.30704	62
VAR00013	2.6290	1.36986	62
VAR00014	2.3871	1.10668	62
VAR00015	3.1290	1.36086	62

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	43.5323	88.253	.463	.792
VAR00002	43.5645	87.266	.576	.785
VAR00003	42.5806	89.756	.509	.790
VAR00004	42.8387	86.564	.501	.789
VAR00005	43.3065	88.314	.429	.795
VAR00006	42.7903	97.349	.130	.814
VAR00007	43.1935	97.601	.091	.819
VAR00008	43.8387	90.203	.377	.799
VAR00009	43.0806	86.928	.572	.785
VAR00010	43.0968	84.581	.644	.779
VAR00011	42.8226	86.509	.532	.787
VAR00012	43.2258	90.440	.384	.798
VAR00013	43.7097	88.996	.419	.796
VAR00014	43.9516	94.932	.257	.806

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	43.5323	88.253	.463	.792
VAR00002	43.5645	87.266	.576	.785
VAR00003	42.5806	89.756	.509	.790
VAR00004	42.8387	86.564	.501	.789
VAR00005	43.3065	88.314	.429	.795
VAR00006	42.7903	97.349	.130	.814
VAR00007	43.1935	97.601	.091	.819
VAR00008	43.8387	90.203	.377	.799
VAR00009	43.0806	86.928	.572	.785
VAR00010	43.0968	84.581	.644	.779
VAR00011	42.8226	86.509	.532	.787
VAR00012	43.2258	90.440	.384	.798
VAR00013	43.7097	88.996	.419	.796
VAR00014	43.9516	94.932	.257	.806
VAR00015	43.2097	89.578	.399	.797

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
46.3387	101.703	10.08479	15

Reliability: Toronto Alexithymia Scale

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	61	81.3
	Excluded[a]	14	18.7
	Total	75	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.783	20

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR1	52.7705	127.146	.291	.777
VAR2	52.4098	123.079	.386	.771
VAR3	52.7869	119.570	.503	.763
VAR4	52.9016	124.490	.397	.771
VAR5	52.8525	131.628	.144	.786
VAR6	52.3934	118.676	.549	.760
VAR7	52.7377	125.130	.355	.773
VAR8	52.3443	124.763	.341	.774
VAR9	52.5574	119.084	.568	.759
VAR10	52.5246	128.154	.237	.781
VAR11	52.6393	121.368	.490	.765
VAR12	52.5738	124.315	.414	.770
VAR13	52.6066	123.309	.426	.769
VAR14	52.6557	123.796	.364	.773
VAR15	52.1311	133.716	.066	.791
VAR16	51.8525	133.261	.052	.794
VAR17	52.5246	122.754	.412	.770
VAR18	52.5410	128.886	.224	.782
VAR19	52.9180	129.043	.239	.780
VAR20	52.5082	123.021	.477	.766

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
55.3279	137.224	11.71427	20

Reliability: Alexithymia Subscale: Difficulty Identifying Feelings
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	62	100.0
	Excluded[a]	0	.0
	Total	62	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.712	7

Item Statistics

	Mean	Std. Deviation	N
VAR00014	2.53	1.290	62
VAR00015	2.52	1.423	62
VAR00016	2.94	1.377	62
VAR00017	2.74	1.330	62
VAR00018	2.68	1.303	62
VAR00019	2.69	1.301	62
VAR00020	2.65	1.415	62

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00014	16.21	27.808	.239	.722
VAR00015	16.23	24.407	.447	.673
VAR00016	15.81	24.257	.484	.663
VAR00017	16.00	24.492	.491	.662
VAR00018	16.06	25.930	.384	.689
VAR00019	16.05	24.637	.495	.662
VAR00020	16.10	24.810	.419	.680

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
18.74	32.719	5.720	7

Reliability: Alexithymia Subscale: Difficulty Describing Feelings

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	61	98.4
	Excluded[a]	1	1.6
	Total	62	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.558	5

Item Statistics

	Mean	Std. Deviation	N
VAR00021	2.92	1.418	61
VAR00022	2.43	1.258	61
VAR00023	2.59	1.309	61
VAR00024	2.75	1.234	61
VAR00025	2.80	1.376	61

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00021	10.57	10.749	.322	.501
VAR00022	11.07	11.629	.296	.515
VAR00023	10.90	11.857	.242	.545
VAR00024	10.74	11.930	.270	.529
VAR00025	10.69	9.818	.469	.406

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
13.49	15.754	3.969	5

Reliability: Alexithymia Subscale: Externally Oriented Thinking

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	62	100.0
	Excluded[a]	0	.0
	Total	62	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.555	8

Item Statistics

	Mean	Std. Deviation	N
VAR00026	2.52	1.141	62
VAR00027	2.81	1.226	62
VAR00028	2.68	1.156	62
VAR00029	3.19	1.069	62
VAR00030	3.34	1.366	62
VAR00031	2.79	1.175	62
VAR00032	2.48	1.141	62
VAR00033	2.82	1.094	62

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00026	20.11	18.528	.165	.554
VAR00027	19.82	15.066	.513	.429
VAR00028	19.95	18.047	.210	.540
VAR00029	19.44	17.365	.330	.502
VAR00030	19.29	18.439	.098	.587
VAR00031	19.84	17.875	.221	.537
VAR00032	20.15	16.224	.427	.467
VAR00033	19.81	18.191	.221	.536

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
22.63	21.450	4.631	8

Reliability Novaco Anger Inventory - Short Form (NAI-S)

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	62	95.4
	Excluded[a]	3	4.6
	Total	65	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.879	25

Item Statistics

	Mean	Std. Deviation	N
VAR00001	3.7258	1.21695	62
VAR00002	3.3065	1.27509	62
VAR00003	3.4839	1.11240	62
VAR00004	3.1452	1.06889	62
VAR00005	3.6935	1.12481	62
VAR00006	3.2258	1.41907	62
VAR00007	3.2258	1.40747	62
VAR00008	3.5000	1.27716	62
VAR00009	2.8548	1.34099	62
VAR00010	3.6613	1.34217	62
VAR00011	3.5484	1.26332	62
VAR00012	2.8065	1.26541	62
VAR00013	2.9516	1.32353	62
VAR00014	3.6935	1.37410	62
VAR00015	3.0806	1.10585	62
VAR00016	3.1290	1.23453	62
VAR00017	2.6452	1.14658	62
VAR00018	3.3548	1.11762	62
VAR00019	2.9839	1.07874	62
VAR00020	3.1774	1.18078	62
VAR00021	3.3548	1.18870	62
VAR00022	2.6129	1.06131	62
VAR00023	3.2258	1.10764	62
VAR00024	3.4516	1.22377	62
VAR00025	3.4194	1.10955	62

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	77.5323	221.368	.424	.875
VAR00002	77.9516	217.325	.512	.873
VAR00003	77.7742	224.309	.380	.876
VAR00004	78.1129	217.938	.606	.871
VAR00005	77.5645	219.070	.536	.872
VAR00006	78.0323	218.524	.421	.876
VAR00007	78.0323	219.146	.410	.876
VAR00008	77.7581	214.678	.585	.871
VAR00009	78.4032	223.294	.327	.878
VAR00010	77.5968	212.015	.624	.869
VAR00011	77.7097	217.127	.523	.872
VAR00012	78.4516	226.055	.277	.879
VAR00013	78.3065	222.118	.363	.877
VAR00014	77.5645	221.365	.365	.877
VAR00015	78.1774	222.837	.428	.875
VAR00016	78.1290	216.508	.555	.872
VAR00017	78.6129	222.799	.411	.876
VAR00018	77.9032	220.909	.483	.874
VAR00019	78.2742	225.284	.363	.877
VAR00020	78.0806	214.961	.631	.870
VAR00021	77.9032	220.581	.459	.874
VAR00022	78.6452	228.134	.279	.879
VAR00023	78.0323	230.261	.200	.881
VAR00024	77.8065	219.601	.471	.874
VAR00025	77.8387	219.449	.533	.873

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
81.2581	238.195	15.43355	25

Note: Anger expression scale has two factors: Anger-In and Anger-out

RELIABILITY: ANGER-IN (AXIN)
Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	62	100.0
	Excluded[a]	0	.0
	Total	62	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.610	8

Item Statistics

	Mean	Std. Deviation	N
VAR00001	2.4677	.82418	62
VAR00002	2.2903	.96474	62
VAR00003	2.1129	.83184	62
VAR00004	2.5161	1.03610	62
VAR00005	1.7581	.82354	62
VAR00006	2.0323	.82914	62
VAR00007	2.0484	.87642	62
VAR00008	2.2419	.98656	62

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	15.0000	13.115	.016	.650
VAR00002	15.1774	10.804	.340	.567
VAR00003	15.3548	12.790	.069	.638
VAR00004	14.9516	9.030	.608	.468
VAR00005	15.7097	11.882	.235	.597
VAR00006	15.4355	11.496	.304	.579
VAR00007	15.4194	11.034	.359	.562
VAR00008	15.2258	9.686	.527	.503

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
17.4677	13.892	3.72725	8

Reliability: Anger Out (Axout)

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	62	100.0
	Excluded[a]	0	.0
	Total	62	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.490	8

Item Statistics

	Mean	Std. Deviation	N
VAR00001	3.0000	.74658	62
VAR00002	1.8226	1.01665	62
VAR00003	1.8065	.84618	62
VAR00004	2.2581	.67594	62
VAR00005	2.1613	.90886	62
VAR00006	1.5161	.74089	62
VAR00007	2.1935	.93806	62
VAR00008	2.2903	.98159	62

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
VAR00001	14.0484	9.096	.182	.471
VAR00002	15.2258	7.391	.371	.385
VAR00003	15.2419	7.891	.392	.388
VAR00004	14.7903	9.119	.220	.460
VAR00005	14.8871	9.184	.084	.512
VAR00006	15.5323	8.942	.222	.458
VAR00007	14.8548	8.913	.121	.499
VAR00008	14.7581	8.285	.217	.460

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
17.0484	10.473	3.23621	8

APPENDIX IV

Correlations Among Study Variables

Descriptive Statistics

	Mean	Std. Deviation	N
MEAN ARTERIAL PRESSURE	107.87	20.481	310
GENDER	.50	.507	310
AGE	50.45	15.287	310
EDUCATION	2.82	1.064	310
OCCUPATION	2.61	1.331	310
ETHNICITY	1.14	.577	310
BODY MASS INDEX	3.29	.715	310
DISTRESS TOLERANCE	42.36	11.165	310
ALEXITHYMIA	55.90	11.624	310
ANGER EXPERIENCE	84.64	18.290	310
ANGER EXPRESSION: ANGER OUT	17.48	4.683	310
ANGER EXPRESSION: ANGER IN	19.30	5.590	310

Correlations

		MEAN ARTERIAL PRESSURE	GENDER	AGE	EDUCATION	OCCUPATION	ETHNICITY	BODY MASS INDEX	DISTRESS TOLERANCE	ALEXITHYMIA	ANGER EXPERIENCE	ANGER EXPRESSION: ANGER OUT	ANGER EXPRESSION: ANGER IN
MEAN ARTERIAL PRESSURE	Pearson Correlation	1	-.150**	.437**	-.257**	-.079	-.049	.314**	-.607**	.541**	.343**	-.096	.577**
	Sig. (2-tailed)		.008	.000	.000	.163	.386	.000	.000	.000	.000	.092	.000
	N	310	310	310	310	310	310	310	310	310	310	310	310
GENDER	Pearson Correlation	-.150**	1	-.187**	.018	.079	.017	-.045	.047	-.060	-.117*	-.029	-.063
	Sig. (2-tailed)	.008		.001	.752	.165	.771	.434	.411	.294	.039	.616	.271
	N	310	310	310	310	310	310	310	310	310	310	310	310
AGE	Pearson Correlation	.437**	-.187**	1	-.300**	-.057	-.051	.240**	-.270**	.222**	.113*	-.049	.204**
	Sig. (2-tailed)	.000	.001		.000	.318	.373	.000	.000	.000	.046	.387	.000
	N	310	310	310	310	310	310	310	310	310	310	310	310

EDUCATION	Pearson Correlation	-.257**	.018	-.300**	1	-.004	.015	-.071	.250**	-.107	-.057	-.103	-.145*
	Sig. (2-tailed)	.000	.752	.000		.941	.798	.211	.000	.060	.317	.069	.010
	N	310	310	310	310	310	310	310	310	310	310	310	310
OCCUPATION	Pearson Correlation	-.079	.079	-.057	-.004	1	.016	-.112*	.188**	-.080	-.017	.074	-.096
	Sig. (2-tailed)	.163	.165	.318	.941		.780	.049	.001	.162	.768	.196	.092
	N	310	310	310	310	310	310	310	310	310	310	310	310
ETHNICITY	Pearson Correlation	-.049	.017	-.051	.015	.016	1	-.067	.044	-.045	-.041	.046	-.025
	Sig. (2-tailed)	.386	.771	.373	.798	.780		.243	.436	.429	.473	.419	.660
	N	310	310	310	310	310	310	310	310	310	310	310	310
BODY MASS INDEX	Pearson Correlation	.314**	-.045	.240**	-.071	-.112*	-.067	1	-.192**	.188**	.133*	.009	.198**
	Sig. (2-tailed)	.000	.434	.000	.211	.049	.243		.001	.001	.019	.878	.000
	N	310	310	310	310	310	310	310	310	310	310	310	310
DISTRESS TOLERANCE	Pearson Correlation	-.607**	.047	-.270**	.250**	.188**	.044	-.192**	1	-.463**	-.293**	.099	-.417**
	Sig. (2-tailed)	.000	.411	.000	.000	.001	.436	.001		.000	.000	.083	.000
	N	310	310	310	310	310	310	310	310	310	310	310	310
ALEXITHYMIA	Pearson Correlation	.541**	-.060	.222**	-.107	-.080	-.045	.188**	-.463**	1	.254**	-.057	.423**
	Sig. (2-tailed)	.000	.294	.000	.060	.162	.429	.001	.000		.000	.317	.000
	N	310	310	310	310	310	310	310	310	310	310	310	310
ANGER EXPERIENCE	Pearson Correlation	.343**	-.117*	.113*	-.057	-.017	-.041	.133*	-.293**	.254**	1	.164**	.163**

	Sig. (2-tailed)	.000	.039	.046	.317	.768	.473	.019	.000	.000		.004	.004
	N	310	310	310	310	310	310	310	310	310	310	310	310
ANGER EXPRESSION: ANGER OUT	Pearson Correlation	-.096	-.029	-.049	-.103	.074	.046	.009	.099	-.057	.164**	1	-.195**
	Sig. (2-tailed)	.092	.616	.387	.069	.196	.419	.878	.083	.317	.004		.001
	N	310	310	310	310	310	310	310	310	310	310	310	310
ANGER EXPRESSION: ANGER IN	Pearson Correlation	.577**	-.063	.204**	-.145*	-.096	-.025	.198**	-.417**	.423**	.163**	-.195**	1
	Sig. (2-tailed)	.000	.271	.000	.010	.092	.660	.000	.000	.000	.004	.001	
	N	310	310	310	310	310	310	310	310	310	310	310	310

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

```
FREQUENCIES VARIABLES=GENDER AGE EDUCATION OCCUPATION ETHNICITY MARITALSTATUS
BMI    /NTILES=4    /STATISTICS=MEAN    /ORDER=ANALYSIS.
```

APPENDIX V

Hierarchical Multiple Linear Regression Analysis for Distress Tolerance, Alexithymia and Anger as predictors of Essential Hypertension

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE[a]	.	Enter
2	DISTRESS TOLERANCE[a]	.	Enter
3	ALEXITHYMIA[a]	.	Enter
4	ANGER EXPERIENCE[a]	.	Enter
5	ANGER EXPRESSION: ANGER OUT[a]	.	Enter
6	ANGER EXPRESSION: ANGER IN[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: MEAN ARTERIAL PRESSURE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.511[a]	.262	.247	17.773	.262	17.886	6	303	.000
2	.693[b]	.480	.468	14.935	.219	127.120	1	302	.000
3	.737[c]	.543	.531	14.030	.063	41.198	1	301	.000
4	.745[d]	.556	.542	13.857	.013	8.560	1	300	.004
5	.749[e]	.560	.546	13.805	.005	3.292	1	299	.071
6	.788[f]	.620	.606	12.853	.060	46.892	1	298	.000

a. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE

b. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE

c. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA

d. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA, ANGER EXPERIENCE

e. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA, ANGER EXPERIENCE, ANGER EXPRESSION: ANGER OUT

f. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA, ANGER EXPERIENCE, ANGER EXPRESSION: ANGER OUT, ANGER EXPRESSION: ANGER IN

ANOVA[g]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33899.409	6	5649.901	17.886	.000[a]
	Residual	95714.654	303	315.890		
	Total	129614.063	309			
2	Regression	62253.284	7	8893.326	39.872	.000[b]
	Residual	67360.779	302	223.049		
	Total	129614.063	309			
3	Regression	70362.982	8	8795.373	44.681	.000[c]
	Residual	59251.080	301	196.847		
	Total	129614.063	309			
4	Regression	72006.781	9	8000.753	41.665	.000[d]
	Residual	57607.282	300	192.024		
	Total	129614.063	309			
5	Regression	72634.107	10	7263.411	38.114	.000[e]
	Residual	56979.956	299	190.568		
	Total	129614.063	309			
6	Regression	80381.181	11	7307.380	44.231	.000[f]
	Residual	49232.882	298	165.211		
	Total	129614.063	309			

a. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE

b. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE

c. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA

d. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA, ANGER EXPERIENCE

e. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA, ANGER EXPERIENCE, ANGER EXPRESSION: ANGER OUT

f. Predictors: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA, ANGER EXPERIENCE, ANGER EXPRESSION: ANGER OUT, ANGER EXPRESSION: ANGER IN

g. Dependent Variable: MEAN ARTERIAL PRESSURE

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	76.459	7.626		10.026	.000
GENDER	-3.005	2.036	-.074	-1.476	.141
AGE	.436	.073	.325	6.006	.000
EDUCATION	-2.751	.997	-.143	-2.759	.006
OCCUPATION	-.479	.767	-.031	-.624	.533
ETHNICITY	-.516	1.756	-.015	-.294	.769

	BODY MASS INDEX	6.237	1.467	.218	4.251	.000
2	(Constant)	118.488	7.414		15.982	.000
	GENDER	-3.171	1.711	-.079	-1.854	.065
	AGE	.316	.062	.236	5.111	.000
	EDUCATION	-.904	.854	-.047	-1.059	.290
	OCCUPATION	.818	.654	.053	1.251	.212
	ETHNICITY	-.112	1.476	-.003	-.076	.939
	BODY MASS INDEX	4.543	1.242	.159	3.658	.000
	DISTRESS TOLERANCE	-.930	.082	-.507	-11.275	.000
3	(Constant)	85.301	8.674		9.834	.000
	GENDER	-2.936	1.607	-.073	-1.826	.069
	AGE	.281	.058	.210	4.813	.000
	EDUCATION	-1.099	.803	-.057	-1.369	.172
	OCCUPATION	.737	.615	.048	1.198	.232
	ETHNICITY	.050	1.387	.001	.036	.971
	BODY MASS INDEX	3.844	1.172	.134	3.281	.001
	DISTRESS TOLERANCE	-.704	.085	-.384	-8.264	.000
	ALEXITHYMIA	.503	.078	.286	6.419	.000
4	(Constant)	74.166	9.374		7.911	.000
	GENDER	-2.449	1.596	-.061	-1.534	.126
	AGE	.282	.058	.210	4.888	.000
	EDUCATION	-1.145	.793	-.059	-1.444	.150
	OCCUPATION	.640	.608	.042	1.052	.294
	ETHNICITY	.135	1.370	.004	.099	.921
	BODY MASS INDEX	3.615	1.160	.126	3.117	.002
	DISTRESS TOLERANCE	-.653	.086	-.356	-7.613	.000
	ALEXITHYMIA	.474	.078	.269	6.075	.000
	ANGER EXPERIENCE	.134	.046	.120	2.926	.004
5	(Constant)	78.168	9.596		8.146	.000
	GENDER	-2.530	1.591	-.063	-1.590	.113
	AGE	.274	.058	.205	4.765	.000
	EDUCATION	-1.362	.799	-.071	-1.705	.089
	OCCUPATION	.689	.606	.045	1.136	.257
	ETHNICITY	.254	1.366	.007	.186	.853
	BODY MASS INDEX	3.682	1.156	.129	3.185	.002
	DISTRESS TOLERANCE	-.632	.086	-.345	-7.328	.000
	ALEXITHYMIA	.469	.078	.266	6.028	.000
	ANGER EXPERIENCE	.152	.047	.136	3.248	.001
	ANGER EXPRESSION: ANGER OUT	-.317	.175	-.073	-1.814	.071
6	(Constant)	59.644	9.335		6.389	.000
	GENDER	-2.221	1.482	-.055	-1.499	.135
	AGE	.264	.054	.197	4.926	.000
	EDUCATION	-1.021	.746	-.053	-1.369	.172
	OCCUPATION	.716	.565	.047	1.268	.206
	ETHNICITY	.100	1.273	.003	.079	.937
	BODY MASS INDEX	2.942	1.082	.103	2.719	.007
	DISTRESS TOLERANCE	-.514	.082	-.280	-6.261	.000

ALEXITHYMIA	.332	.075	.188	4.411	.000
ANGER EXPERIENCE	.140	.044	.125	3.219	.001
ANGER EXPRESSION: ANGER OUT	-.103	.166	-.023	-.619	.536
ANGER EXPRESSION: ANGER IN	1.056	.154	.288	6.848	.000

a. Dependent Variable: MEAN ARTERIAL PRESSURE

Excluded Variables[f]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	DISTRESS TOLERANCE	-.507[a]	-11.275	.000	-.544	.851
	ALEXITHYMIA	.438[a]	9.779	.000	.490	.926
	ANGER EXPERIENCE	.269[a]	5.616	.000	.308	.964
	ANGER EXPRESSION: ANGER OUT	-.098[a]	-1.972	.049	-.113	.972
	ANGER EXPRESSION: ANGER IN	.476[a]	10.923	.000	.532	.921
2	ALEXITHYMIA	.286[b]	6.419	.000	.347	.767
	ANGER EXPERIENCE	.152[b]	3.522	.000	.199	.894
	ANGER EXPRESSION: ANGER OUT	-.048[b]	-1.140	.255	-.066	.961
	ANGER EXPRESSION: ANGER IN	.347[b]	8.310	.000	.432	.805
3	ANGER EXPERIENCE	.120[c]	2.926	.004	.167	.880
	ANGER EXPRESSION: ANGER OUT	-.046[c]	-1.152	.250	-.066	.961
	ANGER EXPRESSION: ANGER IN	.293[c]	6.994	.000	.374	.746
4	ANGER EXPRESSION: ANGER OUT	-.073[d]	-1.814	.071	-.104	.921
	ANGER EXPRESSION: ANGER IN	.293[d]	7.100	.000	.380	.746
5	ANGER EXPRESSION: ANGER IN	.288[e]	6.848	.000	.369	.719

a. Predictors in the Model: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE

b. Predictors in the Model: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE

c. Predictors in the Model: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA

d. Predictors in the Model: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA, ANGER EXPERIENCE

e. Predictors in the Model: (Constant), BODY MASS INDEX, GENDER, ETHNICITY, EDUCATION, OCCUPATION, AGE, DISTRESS TOLERANCE, ALEXITHYMIA, ANGER EXPERIENCE, ANGER EXPRESSION: ANGER OUT

f. Dependent Variable: MEAN ARTERIAL PRESSURE

APPENDIX VI

Frequencies for the Demographics

Statistics

		GENDER	AGE	EDUCATION	OCCUPATION	ETHNICITY	MARITAL STATUS	BODY MASS INDEX
N	Valid	310	310	310	310	310	310	310
	Missing	11	11	11	11	11	11	11
Mean		.50	50.45	2.82	2.61	1.14	1.33	3.29
Percentiles	25	.00	39.00	2.00	1.75	1.00	1.00	3.00
	50	.00	52.00	3.00	2.00	1.00	1.00	3.00
	75	1.00	62.00	4.00	4.00	1.00	1.00	4.00

Frequency Table

GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MALE	156	48.6	50.3	50.3
	FEMALE	153	47.7	49.4	99.7
	2	1	.3	.3	100.0
	Total	310	96.6	100.0	
Missing	System	11	3.4		
Total		321	100.0		

AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	19	2	.6	.6	.6
	20	2	.6	.6	1.3
	21	2	.6	.6	1.9
	22	1	.3	.3	2.3
	23	3	.9	1.0	3.2
	24	7	2.2	2.3	5.5
	25	8	2.5	2.6	8.1
	26	1	.3	.3	8.4
	27	1	.3	.3	8.7
	28	3	.9	1.0	9.7
	29	2	.6	.6	10.3
	30	15	4.7	4.8	15.2
	31	2	.6	.6	15.8
	32	4	1.2	1.3	17.1

33	5	1.6	1.6	18.7
35	1	.3	.3	19.0
36	5	1.6	1.6	20.6
37	4	1.2	1.3	21.9
38	6	1.9	1.9	23.9
39	5	1.6	1.6	25.5
40	9	2.8	2.9	28.4
41	6	1.9	1.9	30.3
42	4	1.2	1.3	31.6
43	5	1.6	1.6	33.2
44	3	.9	1.0	34.2
45	10	3.1	3.2	37.4
46	5	1.6	1.6	39.0
47	4	1.2	1.3	40.3
48	6	1.9	1.9	42.3
49	6	1.9	1.9	44.2
50	9	2.8	2.9	47.1
51	4	1.2	1.3	48.4
52	6	1.9	1.9	50.3
53	3	.9	1.0	51.3
54	7	2.2	2.3	53.5
55	15	4.7	4.8	58.4
56	9	2.8	2.9	61.3
57	13	4.0	4.2	65.5
58	4	1.2	1.3	66.8
59	5	1.6	1.6	68.4
60	13	4.0	4.2	72.6
61	2	.6	.6	73.2
62	12	3.7	3.9	77.1
63	3	.9	1.0	78.1
64	1	.3	.3	78.4
65	16	5.0	5.2	83.5
66	5	1.6	1.6	85.2
67	2	.6	.6	85.8
68	10	3.1	3.2	89.0
69	5	1.6	1.6	90.6
70	8	2.5	2.6	93.2
71	2	.6	.6	93.9
72	3	.9	1.0	94.8
75	4	1.2	1.3	96.1
76	1	.3	.3	96.5
77	3	.9	1.0	97.4
78	2	.6	.6	98.1
80	1	.3	.3	98.4
81	1	.3	.3	98.7

	82	1	.3	.3	99.0
	83	1	.3	.3	99.4
	85	2	.6	.6	100.0
	Total	310	96.6	100.0	
Missing	System	11	3.4		
Total		321	100.0		

EDUCATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NO FORMAL EDUCATION	42	13.1	13.5	13.5
	PRIMARY EDUCATION	82	25.5	26.5	40.0
	SECONDARY EDUCATION	76	23.7	24.5	64.5
	TERTIARY EDUCATION	110	34.3	35.5	100.0
	Total	310	96.6	100.0	
Missing	System	11	3.4		
Total		321	100.0		

OCCUPATION

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	TRADER	77	24.0	24.8	24.8
	CIVIL WORKER	87	27.1	28.1	52.9
	SKILLED WORKER	66	20.6	21.3	74.2
	FARMER	40	12.5	12.9	87.1
	OTHERS	40	12.5	12.9	100.0
	Total	310	96.6	100.0	
Missing	System	11	3.4		
Total		321	100.0		

ETHNICITY

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	IBO	291	90.7	93.9	93.9
	HOUSA	4	1.2	1.3	95.2
	YORUBA	6	1.9	1.9	97.1
	OTHERS	9	2.8	2.9	100.0
	Total	310	96.6	100.0	
Missing	System	11	3.4		
Total		321	100.0		

MARITAL STATUS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	MARRIED	234	72.9	75.5	75.5
	SINGLE	49	15.3	15.8	91.3
	WIDOWE(ER)	27	8.4	8.7	100.0
	Total	310	96.6	100.0	
Missing	System	11	3.4		
Total		321	100.0		

BODY MASS INDEX

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	UNDER WEIGHT	1	.3	.3	.3
	NORMAL WEIGHT	44	13.7	14.2	14.5
	OVERWEIGHT	129	40.2	41.6	56.1
	OBESITY	136	42.4	43.9	100.0
	Total	310	96.6	100.0	
Missing	System	11	3.4		
Total		321	100.0		