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THE APPLICATION OF THE NEO-PI-R IN THE ERITREAN CONTEXT

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A dissertation submitted to the Faculty of Humanities, University of the Witwatersrand, Johannesburg in fulfillment of the requirements for the Degree of Master of Arts (Psychology)

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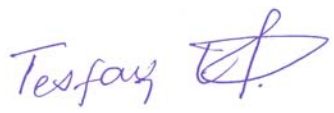
ABSTRACT

The five-factor model (FFM) of personality has established itself as the predominant model of personality trait structure (Digman, 1990). The NEO-PI-R has been used as one of the most useful FFM measures. Its reliability and validity has been approved through out the world and this study sought to explore the utility of the NEO-PI-R in the Eritrean context as well by translating the NEO-PI-R English version into Tigrigna language. Reliability and validity analyses were considered and an effort was also made to establish Eritrean norms. The descriptive statistics, norms and reliability co-efficients obtained in this study were not exactly similar to the USA sample, and this was not surprising having cultural difference, however, it was quite satisfactory as a pioneer study in Eritrean context. The scree plot showed that five factors could be extracted in this study. These findings lend support to an extent to the cross-cultural applicability of the instrument. In addition evidence of face, and content validity explorations indicated that this instrument was valid across cultures. Further evidence from inter-group comparisons across variables like age, gender, and level of education supports this argument. However, since the sample size and composition were problematic, there was question in the norming. As a whole the study suggested that NEO-PI-R could make a contribution in the Eritrean context as an initial personality assessment instrument.

DECLARATION

I declare that this dissertation is my own, unaided work. It is being submitted for the degree of Master of Arts (Psychology – by research) at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other university.



T.B. Teferi (Mr.)

_____ day of _____, 2004.

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CHAPTER 1: CONTEXUALISING PERSONALITY

This chapter outlines the relevant literature review by focusing on the definition of personality, the different theories of personality namely psychodynamic approach, cognitive-social theories, humanistic theories, and finally trait or dispositional theory of personality.

1.1. INTRODUCTION

The term personality is derived from the Greek word *persona*, which refers to the mask worn by an actor in a play (Schultz & Schultz, 1998). From its derivation, then personality refers to the overt or visible characteristics that are displayed in public (Schultz & Schultz, 1998). However, as applied by different psychologists, personality is not only limited to the different roles played by a person rather it incorporates all of the behaviors and thoughts, which characterize the uniqueness of the individual (Aiken, 1997). Kline (1993) noted that the term personality has many meanings in psychology, i.e. there are as many definitions of personality as there are theorists. For instance Gordon Allport (1936) defined personality in terms of 4,000 traits and provided 50 meanings. Pervin (1993,p.3) defined personality as "those characteristics of the person that account for consistent patterns of behavior". Similarly McMartin (1995,p.3) defined personality "as the distinctive characteristics of the person – characteristics that consistently manifest themselves in different situations". Funder defined personality as "an individual characteristic pattern of thoughts, emotions, and behavior together with the psychological mechanisms –hidden or not –behind those patterns" (Funder, 1997 cited in Triandis, 2001,pp.908).

However, as a working definition the study agreed with the definition given by Aiken (1997): Personality is the sum total of all the qualities, traits, and behaviors that characterizes a person's individuality and by which together with his or her physical attributes, the person is recognized as unique. This broad definition encompasses not only affective characteristics, such as temperament traits, attitudes, and values but also cognitive characteristics (abilities, achievement etc.) and even psychomotor variables, such as the characteristic way in which people walk, talk, and express themselves non verbally.

1.2. THEORIES OF PERSONALITY

Many descriptions of personality were recorded in many ancient writings and memorabilia, which were dated back thousand years ago. For example Schultz & Schultz (1997) cited the writings of many ancient civilizations that included references to personality. Aiken (1997) described that myths, stories, religious texts, philosophical treatises from ancient Greek, China, and others were prevailed with the descriptions of personalities and abilities of some heroes and other famous individuals. Besides, many of the ancient descriptions were based on pseudoscientific systems including astrology, numerology, palmistry, physiognomy, phrenology and graphology.

The modern history of personality assessment was begun with the intention of studying individual differences in abilities, temperament, and other characteristics. Sir Francis Galton was the first pioneering Victorian gentleman-scientist who conducted research on the individual difference. Charles Darwin's writings on the evolution of species difference stimulated him to focus on the hereditary evolution of general mental ability. Galton was also trying to measure emotions by means of changes in hearts and pulse rate. He was assessing optimism, good temper, and other characteristic traits using rating scales and by observing people in different social contexts. Much of the translations and revisions of the Binet-Simon Scales have been used for extensively in research on adult personality and for clinical diagnosis of psychological disorders in adults. For instance Wechsler Adult and Child Intelligence Scales have been used extensively in clinical and educational settings to determine the presence of cognitive and personality characteristics and adjustment problems (Aiken, 1997).

However, it was only since 1930s that the study of personality became formalized and systematized among American psychologists through the work of Henry Murray and Gordon Allport. Following these theories journals were founded, books of personality appeared and related courses started to be given by some universities (Schultz and Schultz, 1998 & Laher, 2001) and finally these led to the development of current theories.

There are many theories of personality but it is not possible to discuss all personality theories in detail. It was only possible to set out the main points of the most influential theories and that have shown the different perspectives and approaches of these theories (Kline, 1993). For convenience in this study theories of personality were classified into four main categories, which differ from each other on their theoretical perspective. First Freud's model of psychodynamic thinking about personality will be discussed. Then cognitive-social approaches, which integrate behaviorist and cognitive principles, will be considered. Next humanistic theorists who focus namely on the way people wrestle with fundamental human concerns such as mortality and meaning in life will be discussed. Finally trait theorists, who describe personality using every day language, will be incorporated.

1.2.1. Psychodynamic Approach

Freud was responsible for developing the first inclusive theory of personality in 1880.This approach was first developed from the clinical practices of Sigmund Freud and later adopters of this orientation. It is concerned namely with emotional conflicts aroused by changing events of everyday life, especially those that cause over reactions to unpleasant events. Freud's theory of psychodynamic estimates that psychological forces like wishes, fears, and intentions determine behavior. When several of these motives collide, conflict arises, and a person's behave on the balance of these forces. From Freud's perspective the mind can be divided into three mental processes such as conscious, preconscious, and unconscious. Conscious mental processes consist of rational, goal-directed thoughts at the center of awareness. On the other hand pre-conscious mental processes are not conscious but could become conscious at any point. Unconscious mental processes are irrational, organized along associative lines rather than by logic and they are inaccessible to Consciousness because they have been repressed, that is, kept from Consciousness so as to avoid emotional distress (American Psychoanalytic Association, 1998).

According to Freud sex and aggression are viewed as the basic human motives and his developmental model is based on a series of psychosexual stages, namely oral, anal, phallic, latency, and genital stages. Problematic experiences during these stages can lead to fixations-prominent conflicts and concerns that are focused on wishes from a particular period or

regression, in which issues from a past stage resurface. Moreover, Freud's structural model distinguished among id (the reservoir of sexual and aggressive energy), superego (conscience), and ego (the rational part of mind that must some-how balance desires, reality, and morality). Freud's structural model distinguishes among id, ego, and superego. Psychodynamic approach usually assesses personality using the life history and projective method, such as the Rorschach inkblot test and Thematic Apperception. As a whole the psychodynamic perspective has contributed a number of fundamental insights into unconscious processes, defenses, conflicts, and so forth; however, it is weaker in its empirical base than are other theories (Freud, 1949).

1.2.2. Cognitive-Social Theories

Cognitive-social theories presented the first comprehensive alternative to psychodynamic theories of personality. This was first developed in the 1960s; and is well known by several names, including social learning theory, cognitive-social learning theory, and social cognitive theory. Cognitive- social theories developed from behaviorist and cognitive roots. According to the behaviorist perspective, personality consists of learned behaviors and emotional reactions that are relatively specific and tied to particular environmental stimuli. These behaviors are selected through operant conditioning on the basis of their rewarding or aversive consequences (Mischel, 1993).

Cognitive-social theories share the behaviorist belief that learning rather than instinct, conflict, or defense is the basis of personality and that personality dispositions tend to be relatively specific and shaped by their consequences. However, they also focus on beliefs, expectations, and information processing. According to these approaches personality reflects a constant interplay between environmental demands and the way the individual processes information about the self and the world. In contrast to psychoanalytic approach this approach believes that people are not driven by their inner forces, rather people's actions will happen if they act in a particular ways, and the degree to which they believe they can attain their goals (Mischel, 1993).

From the perspective of cognitive theories several conditions must be met for a behavior to occur, i.e. encoding, personal values, expectancies, competencies, and self-regulation in personality. The schemas people use to encode and retrieve social information play an important role in personality. Personal values refer to the importance individuals attach to various outcomes or potential outcomes. Expectancies are expectations relevant to desired outcomes. Behavior-outcome expectancy is a belief that a certain behavior will lead to a particular outcome. Self- efficacy expectancies are people's beliefs about their ability to perform actions necessary for producing a desired outcome. Competences are skills and abilities used for solving problems. Self-regulation means setting goals, evaluating ones own performance, and adjusting one's behaviors flexibly to achieve these goals in the context of ongoing feedback. Cognitive-social theories view personality solving to attain goals. As a whole cognitive-social theory can explain a wide spectrum of behavior and has considered empirical support, however, it tends to be overly rational and to assume that people can report on the most important aspects of their personality (Mischel, 1993).

1.2.3. Humanistic Theories

During the 1950s and 1960s, an approach to personality emerged known as humanistic psychology, which developed as an alternative to psychoanalyses and behaviorism. Humanistic psychology asserts the importance of free will, abandons the view that environmental and genetic variables determine all behaviors and questions that are applicable to a scientific method of human psychology. Humanistic psychology to personality holds that each individual is an active, creative force or self that seeks expression, development, and growth. Thus according to this approach the aim of a psychologist should not be to search for unconscious process or environmental contingencies but to understand how individuals experience themselves, others, and the world as whole and to help them conceptualize their potential (Ryckman, 2000).

In the same way existential personality theories stress the importance of subjective experience and the individual's quest for meaning in life. Chief among the problems human beings face is existential dread; the recognition that life has no absolute value or meaning, and that death is inevitable. According to existentialists the ways in which people handle

issues of meaning, mortality, and existential dreads are central aspects of personality. As whole, humanistic and existential theories contribute to the understanding of some fundamental aspects of personality, like the quest for meaning. However, they tend to be as comprehensive as other approaches (Ryckman, 2000).

1.2.4. Trait / Dispositional Theories

Trait theories of personality have been largely derived from the words people use to classify themselves and others in their every day lives- adjectives like shy, open, friendly. Traits are emotional, cognitive, and behavioral tendencies that constitute underlying dimensions of personality in which individuals vary. According to Gordon Allport who developed the trait approach to personality, the concept of trait has two separate but complementary meanings. On the one hand, trait is an observed tendency to behave in a particular way. On the other hand, a trait is an inferred underlying personality disposition that generates this behavioral tendency (Ryckman, 2000).

This approach seeks to arrive at a manageable small set of trait descriptors that can encompass the diversity of human personality. They try to discover relationship among traits and specific behaviors (Pervine, 1993). There are different trait theories, which study the dimensions of personality based on the given trait. However, the study is limited to focus on the Eysenck's theory and the five-factor model of personality, which are among the most dominant ones.

1.2.4.1. Eysenck's Personality Theory

Hans Eysenck developed one of the best –researched trait theories. He distinguished traits and types. A trait is a group of correlated habits where as a type is a group of correlated traits. On the basis of thousands of studies he identified three overarching psychological types. Extraversion-introversion, Neuroticism–emotional stability, and psyhoticism-impulse. Extraversion refers to a tendency to be sociable, active, and willing to take risks. Introverts, who score at the low end of Extraversion scale, are characterized by social inhibition, seriousness and caution. Neuroticism defines a continuum from emotional stability to emotional instability. It is closely related to the construct of negative affect. People high in

Neuroticism report feeling anxious, guilty, tense, and moody, and they tend to have low self-esteem. Psyhoticism is an oddly named scale whose opposite pole is impulse control. People high on psyhoticism are empathic and able to control their impulses (Revelle, 1995).

1.2.4.2. Traits Theories and The Emergence of Five-Factor Model of Personality

For the last 50 years the domains of personality attributes had been successfully analyzed, not just once but by many competent and independent investigators and all of them came to the same conclusion i.e. the domain could be adequately described by five super ordinate constructs. This has become one of the prominent models in contemporary psychology. This theory incorporates five different variables into a conceptual model for describing personality. These five different factors are often referred to as the Big 5. This theory is also considered among the newest model developed for the description of personality and is considered among the most practical and applicable models available in the field of personality psychology (Digman, 1990).

The effort to study personality structure was stimulated by two German psychologists, Klages in 1926 and Baumgarten in 1933. Klages made a careful analysis of language to assist him in the understanding of personality. This initiation stimulated McDougll's to study personality and to examine personality terms, based in German Language (Digman, 1990). As Digman (1990) pointed out even though the work of Baumgarten had little effect on the German psychologists, but it at least influenced Allport and Odbert who were examining the German language to find some traits of personality starting from 1936. Allport (1936) began by compiling a list of some 18,000 words from Webster's unabridged dictionary that could be used to distinguish one person from another. Many of these words denote similar characteristics, and they collapsed the entire list into fewer and fewer traits. Allport regarded traits as the basic building blocks of psychological organization, serving to integrate what would otherwise be dissimilar stimuli and responses. He defined traits as neuropsychic structure having the capacity to render many stimuli functionally equivalent behavior or generalized action tendencies (Allport, 1936).

Raymond Cattell reduced these to just 16 factors and 8 second-order factors, such as warm, emotionally stable, intelligent, cheerful, suspicious, imaginative, sensitive, and tense. To select these key traits, he basically based on factor –analytic studies of peer ratings of college students and later he extended it to be evaluated using both questionnaire and objective test realms. This approach was accepted for its objectivity to organize the thousands of terms in the English language, which were used to describe individual differences (Digman, 1990).

Fiske began a replication of early ratings studies of Cattell. Even though the findings of Fiske appeared to have little effect on the development of personality structure, he is the one who suggested that personality was composed of only five factors based on the 21 Cattell's bipolar scales (Digman, 1990). Toward the end of the 1950s Tupes and Christle reported that five-factors appeared to account for the observations remarkably well and they realized Cattell's earlier work based on correlation and Fiske's work could be categorized into terms of five factors such as surgency, agreeableness, dependability, emotional stability, and culture. However, their study was dominated by the findings of Cattell and Eysenck for many years (Digman, 1990).

Further Norman in 1963, Borgatta in 1964 and Smith in 1967 based on the reports of Tupes & Christle, devised a set of behavior descriptors for peer ratings to reflect the five factors obtained by Tupes & Christle. Through a series of studies Borgatta found five stable factors namely, assertiveness, likeability, emotionality, intelligence and responsibility, similarly Smith in 1967 found evidence for the five factors using a set of Cattell's studies for the peer ratings (Digman, 1990).

In addition in the last 20 years there has been also a rapidly increasing interest in the five-factor model of personality structure. For example Goldberg based on lexical analysis noted the "robustness" of the model and argued that individual differences could be generalized into big five dimensions. Goldberg formulated a set of 50-self-ratings scales, comprising of 10 facets for each of the five-trait dimensions .He considered this scale as "standard markers of the Big Five". Goldberg further noted that the five major dimensions of the rating field could provide a framework for many theoretical organizations of personality concepts

including the views of Cattell, Norman, Eysenck, Guilford, Osgood, and Wiggins (Goldberg, 1990).

Digman and Takemoto-Chock in 1975 also reanalyzed the trait studies based on ratings and reported the robustness of the five-factor solution of the rating domains and supported five-factor findings by Fiske, Tupes and Christle as an impressive theoretical structure. Hogman in 1983 also reviewed the findings of the previous trait organization and came up with six major dimensions of personality structures by splitting Extraversion dimension into sociability and activity (Digman, 1990).

Finally the sum of all these past steps provided foundation for the NEO FFM, which was developed by McCrae and Costa. McCrae and Costa in 1976 initially started with three-factor model obtained from Cattell's variables The first two factors, Neuroticism and Extraversion, which were well established in trait theory research, but the third factor which is Openness to Experience was less congruent and more controversial (Digman, 1990). It was not until 1985 Costa and McCrae decided to add two new dimensions by factor analyzing number of items from existing Openness to experience scales so as to fit their paradigm to the Big Five model. The final result of Costa and McCrae were two self-report, paper and pencil questionnaires (the NEO Personality Inventory- NEO-PI-R, and its shorter version the NEO Five Factor Inventory-NEO-FFI (Costa & McCrae, 1992b). Thus we can say that due to the emergence of these easily administered self-report measures, the Big Five model became one of the most popular personality research tools.

1.3. CONCLUSION

This chapter incorporates the definition of personality and incorporates the historical development of personality psychology as a discipline. The chapter also discussed the different theories of personality namely, psychodynamic approach of personality, the social-cognitive theories, the humanistic theories and lastly it tried to see the trait theory and the emergence of FFM model from these theory. The next chapter will deal the conceptual framework of the FFM and its cross-cultural application.

CHAPTER 2: FIVE –FACTOR THEORETICAL MODEL

As it has been seen from the historical development of five-factor model of personality, most theorists have found that their classification boils down to five super ordinate traits known as big five-factors (Goldberg, 1993 & Costa, 1990; Norman, 1963). Different personality psychologists are coming into agreement that there are five dimensions of personality, but they differ on their interpretation with respect to their meaning (Digman, 1990). There is continuous debate in terms of which traits define each factor, and which are central. However, this chapter focuses only on the dimensions of personality given by Costa and McCrae (1992) namely Neuroticism, Extraversion, Openness to experience, Agreeableness, and Consciousness. This chapter also included the application of the FFM and the use of NEO-PI-R across cultures.

2.1. DOMAINS OF FIVE-FACTORS

2.1.1. Neuroticism (N)

There is low controversy concerning the definition of Neuroticism. Neuroticism refers to an individual difference in experiencing distress, and in the cognitive and behavioral styles that follows from this tendency (McCrae & John, 1992). This domain of personality contrasts adjustment or emotional stability. Some of the main features of neurotic personality include experiences related to fear, sadness, embarrassment, anger, guilt, and disgust. Neuroticism is, however, more than susceptibility to psychological distress. People with high N trait are more prone to irrational ideas, less able to control their impulses, and are less likely to cope with stress relative to others people. Even though a high trait of N may be at risk for some kinds of psychiatric problems, it should not be seen as a measure of psychopathology. According to Costa and McCrae (1992) N consists of six facets namely anxiety, anger, hostility, depression, self-Consciousness, impulsiveness, and vulnerability (Costa & McCrae, 1992).

Anxiety. This facet is characterized by apprehensiveness, fearfulness, proneness to worry, nervousness, tenseness, and jitteriness. **Anger Hostility**: this represents to the experiences of anger and related things such as frustration and bitterness. This facet intends to express an individual's readiness to experience anger however, whether anger is expressed or not depends on the individual's level of Agreeableness. **Depression**: this facet is supposed to be associated with people's experience of depression or affect (Costa & McCrae, 1992).

According to Costa & McCrae (1992) high level of this trait is expressed in terms of how much an individual has feelings of guilt, sadness, hopelessness, and loneliness. People with such traits have the tendency to be discouraged easily. Self-Consciousness facet consists of traits related to emotion of shame and embarrassment. People with self-consciousness are experience discomfort if they are among many people, they become sensitive to ridicule, and they have the tendency of feeling inferior in front of others. This trait is related to both shyness and anxiety. **Impulsiveness**: as suggested by Costa & McCrae (1992) refers to lack of ability to control desires and cravings or urges, for example cravings for things like food, cigarette and so on. Individuals with low trait on impulsiveness are less likely to resist temptation and more prone to frustration easily. **Vulnerability**: this last facet of N is usually associated with traits like stress, becoming dependent, hopeless in time of problems or severe conditions.

2.1.2. Extraversion (E)

The term Extraversion has been used for a long time, but still there is disagreement about it since Goldberg identified this domain with his interpersonal circumplex of dominance (Goldberg, 1990). However, Costa & McCrae (1989) argue that E is located mid way between the Dominance and Warmth factors as described by Goldberg. E is distinguished by the wideness in its content (Costa & McCrae, 1992). People with high Extraversion are people who are sociable, however, it does not mean that Extraversion is sociability. Sociability is only one of the traits of Extraversion. Besides liking people, extraverted individuals prefer large groups and gatherings, and tend to be assertive and talkative. They tend to like excitement and stimulation and should have cheerful dispositions, be upbeat, energetic, and optimistic (Costa & McCrae, 1992).

Introversion on the other hand is not seen as the opposite of Extraversion, rather it is seen as the absence of Extraversion. People who are introverts are reserved rather than unfriendly, they are more dependent on themselves rather than others. They prefer to be alone but are not suffering from social anxiety. Even though they don't have the high spirit of extraverts, it doesn't mean that they are unhappy or pessimistic (Costa & McCrae, 1992).

According to Costa & McCrae (1992) Extraversion from the perspective of the NEO-PI or five factors is different from the Jungian theoretical perspective. Introspection or reflection is not obtained in the pole of E, instead it is more likely to be characterized with people who are open to experience which is one of the other five factor dimensions (Costa & McCrae, 1992). The facet scales of this domain are gregariousness, assertiveness, activity, excitement-seeking, and positive emotions.

Warmth: this facet is usually related to the issues of interpersonal relationship with other people. Warm people have the tendency to be affectionate and friendly. Such individuals can genuinely like and form close attachments with other people. However, the opposite is true for low a score on this facet. Individuals with low warmth tend to be more formal, reserved, and distant in manner than the high score individuals. This facet is close to Agreeableness in interpersonal space, it can be distinguished only due to cordiality and heartiness, which is not part of A. **Gregariousness**: refers to the preference of others in time when they are alone. Such individuals enjoy to be accompanied by others. But the opposite is true for low score on this facet. **Assertiveness**: is characterized by traits such as dominance, and forcefulness. Such people can speak confidently and they want to be most of the time group leaders. However, individuals with low score on this facet are more likely to prefer to refrain from talking. **Activity**: this facet is related to rapid tempo and vigorous movements in a task, which requires energy. **Excitement Seeking**: this is more similar to some aspects of sensation seeking. People with high score on this facet enjoy noisy environment, places full of bright colors, excitement, and stimulation. **Positive Emotion**: this facet is supposed to measure the tendency to experience positive emotions like joy, happiness, love, and excitement. Such people laugh most of the time; they are cheerful and optimistic towards the future (Costa & McCrae, 1992).

2.1.3. Openness to Experience (O)

McCrae & Costa (1992) mentioned that there is a lot of controversy in the factor of O between researchers. Trait adjective studies by Goldberg, John, and Ostendorf (1990,cited in McCrae & John, 1990) defined O in terms of intelligence, imagination, and perception. However, Costa & McCrae (1990) argue that neither Openness and intellect is equivalent to

measures of intelligence but it is modestly related to some aspects of intelligence like divergent thinking that contribute to creativity. Openness is a dimension of personality, which can be seen structurally in the depth, scope, and permeability of Consciousness, and the need for variety and experiences. Ideas, of course, form an important aspect of Consciousness, but fantasies, feelings, sensations, and values are also experiences to which an individual can be more or less open (Costa & McCrae, 1992). Individuals who are open to experience are more curious about the outer and the inner worlds. These individuals are experientially richer and are more willing to entertain novel ideas and unconventional values than people who are closed to experience (Costa & McCrae, 1992).

As a whole, unlike closed individuals, open individuals are unconventional, willing to question to authority, prepared to entertain new ethical, social, and political ideas but this does not imply that open individuals are without principles. Psychologists associate Openness with a healthy lifestyle and maturity. The facet scales of this domain are fantasy, aesthetics, feelings, actions, ideas, and values (Costa & McCrae, 1992).

Fantasy: This facet refers to a vivid imagination and an active fantasy life. Individuals with this facet are obsessed with daydreaming simply to create an interesting inner world. They tend to develop elaborate fantasies believing that this could help them to develop rich and creative life. **Aesthetics**: this trait is more characterized by a deep appreciation for art and beauty. Individuals with such traits are good in poetry; absorbed to the music they are listening and intrigued by art. **Feelings**: Openness to feelings refers to one's own inner feelings. A high score on this facet implies that an individual is experiencing deeper emotional states and tends to experience both happiness and unhappiness than other people. **Actions**: this facet of Openness is related to willingness to make special activities, going to new places, eating new foods, and novelty instead of doing familiar and routine things. Ideas: One of the most important aspects of Openness is intellectual curiosity. This facet also incorporates intellectual interest, open-mindedness and the willingness to consider new and even unconventional ideas. Openness to ideas is not equivalent to intelligence but it may contribute to the development of intellectual potential. **Values**: this implies willingness to reexamine social, political, and religious values of other people. This is sometimes

considered as the opposite of dogmatism. Closed individuals tend to accept authority, respect tradition, and they are more conservative in their attitudes (Costa & McCrae, 1992).

2.1.4. Agreeableness (A)

According to Costa & McCrae (1992) Agreeableness, like Extraversion, is primarily a dimension of interpersonal behavior, but Agreeableness is chiefly related to the preferred quantity of social stimulation. People who are Agreeable are fundamentally altruistic in nature. They are sympathetic and helpful to others believing that others are also going to help them equally. However, people with a disagreeable personality are more egocentric, skeptical of others and focus more on competition rather than co-operation. Agreeable people are more popular than antagonistic individuals (Costa & McCrae, 1992).

Trust: this facet of Agreeableness is mostly associated with a disposition to believe that others are honest and well intentioned. **Straightforwardness**: individuals are characterized, as frank, sincere, and indigenous where as low scores on this scale are more willing to manipulate others through flattery, craftiness, or deception. **Altruism**: refers to an active concern for others, welfare which is based on generosity, consideration of others, and readiness to assist others in time of need. A low score on this facet is mostly associated with self-centeredness and reluctance. **Compliance**: the main concern of this trait is the reaction of an individual to interpersonal conflict. Individuals with high score on such trait tend to defer to others, to inhibit aggression, and to forgive and forget. They are also known for their meekness and mildness. **Modesty**: this is characterized by humbleness and self-efficacy traits. **Tender-mindedness**: this scale is supposed to measure attitudes of sympathy and concern for others. Individuals with such traits tend to give more attention to others needs and the human side of social policies (Costa & McCrae, 1992).

2.1.5. Consciousness (C)

Murray and Kluckhohn (1953 cited in Costa, McCrae & Dye, 1991) have described Consciousness as an aspect of ego strength using terms such as determination, initiative, and responsibility. C is describing “good’ versus “evil” and “strong-willed” versus “ weak-willed” individuals and for this reason many scientific psychologists are not interested in the

study of this factor (McCrae & Costa, 1987). Costa, McCrae and Dye (1991) have conceptualized C as having both proactive and inhibitive aspects. The proactive side of Consciousness is seen in the need for achievement, and commitment to work; and the inhibitive side is seen in moral scrupulousness and cautiousness. Conscientious individuals are purposeful, strong-willed, and determined. High "C" is mostly associated with academic and occupational achievements and at the same time it may lead to annoying fastidiousness, compulsiveness, and workaholic behaviors. In addition individuals with high C are scrupulous, punctual, and reliable where as low scores individuals are less exacting, and more lackadaisical to achieve their goals. The facet scales of this domain are competence, order, dutifulness, achievement striving, self-discipline, and deliberation (Costa & McCrae, 1992).

Competence refers to the sense that one is capable, sensible, and accomplished. This concept is more related to the component of self-esteem. **Order**: a trait, that refers to the tendency of an individual to keep one's environment tidy and well organized. **Dutifulness**: refers to strict adherence to standards of conduct. This facet is related to the Freudian concept of superego (Costa, McCrae & Dye, 1989). Individuals who are with high level of this trait are quite strict in their moral obligations and ethical principles. **Achievement striving** is also one of the facets of C and refers to the striving for excellence. Individuals with high level of achievement are diligent, purposeful and have a sense of direction in their life. **Self-Discipline**: this facet is viewed namely with persistence, i.e. the ability to continue with the task regardless of the nature of the task. People with low self-discipline tend to procrastinate, give up, and get frustrated easily. **Deliberation**: refers to the tendency of thinking slowly before doing something. People with a low score in this facet are known for their haste and doing things without considering their consequences (Costa & McCrae, 1992).

2.2. CROSS CULTURAL APPLICATION OF FFM AND NEO-PI-R

Are the big five factors cross culturally universal? Research in Europe and North America, as well as in other cultures using Western lists of adjectives, has produced similar results. There is a strong support from many different places in the world regarding the universality and cross-cultural generalizability of the FFM. Studies from diverse cultures showed that there is

evidence for the FFM in at least six distinct languages. For instance various studies from Western culture with Indo-European languages as well as non-Western cultures reported the replicability of the FFM across different cultures (Costa & McCrae, 2001).

Similarly the NEO-PI-R has been translated into many languages or dialects and studies of factor structure have been conducted in more than 30 cultures starting from Zimbabwe to Peru. The revised NEO-PI-R has been translated into over 30 languages, with back translation into English reviewed by the original test authors. These translations have reported an adequate reliability and validity when adequate samples and appropriate statistical methods are applied (McCrae, 2001).

Several cross-cultural studies addressed the factor structure of the NEO-PI-R. According to McCrae (2002) the five-factor structure has been replicated well beyond chance across 26 different cultures with some variation to the original. As a whole translation into Western languages show closer convergence with the American originals than do those nonwestern languages that have the clearest replication of N and C but less clear with O.

In Hong Kong reports from Yoon, Schmidt & Illies (1999) indicated that there was a significant difference only in the domain of E, with scores approximately one-quarter standard deviation lower than the USA. In Zimbabwe the study showed that there was significant difference only for N (McCrae, 2001).

In addition previous cross- cultural research employing the NEO-PI-R, although recovering the FFM factor structure through Procrustes rotation, has found a variation in varimax solution among Asian cultures (Rolland, Parker & Stumff, 1998). In Western samples such as USA, Germany, Canada, the standard E and A factors emerged from Varimax rotation. However, in Asian populations there was blending of E and A into two factors representing Love (positive loadings on facets E1, E2, E4, E6, A1, A3, and A6) and Submission (negative loading on facets E1, E2, E4, E6, A1, A3, and A6), and Submission (negative ladings on facets E3, E4, and E5, and positive loadings on facets A2, A3, A4, and A5) occurred. McCrae interpreted this as a likely consequence of the difference between individualistic

societies of the West the collectivist societies of Asia. This L-S rather than E-A structure on varimax rotation was replicated with the present French samples (Rolland, Parker & Stumff, 1998).

Different perspectives have different opinions regarding the main cause of personality difference across cultures and among individuals. For example from the Marxist theory point of view people's needs, wishes, beliefs, and values are products of the conditions under which they live and work. According to Marx the materialistic, competitive, individualistic personality styles of people in Western culture reflects the underlying economic realities, such as competition of workers for scarce jobs, and the breakdown of extended family work units that occurred with the rise of capitalism. He generally tried to justify economic influence on personality (Westen, 1996).

Research has also shown consistently that individualism and competitiveness are highly correlated with the extent of industrialization of the economy. For instance the personality trait of Machiavellianism (i.e. the belief that manipulating other people is acceptable and even desirable) is highly correlated with degree of technological development. People in industrial societies tend to rear their children to compete and achieve, whereas those in less technologically advanced societies stress the virtue of obedience and cooperation (Westen, 1996).

According to Mills & Clark (1982) in collectivist culture people are interdependently within their groups, that is they give priority to the goals of their in-groups rather than their own interest, shape their behavior primarily on the basis of in-group norms, and behave in a communal way and they are more concerned with the relationships and achieving justice. In other words collectivists prefer methods of conflict resolution that do not destroy relationships (e.g. meditation), whereas individualists are willing to go to court to settle disputes. Triandis (2001) further mentioned that in individualistic societies people are autonomous and independent from their in-groups; they give priority to their personal goals over the goals of their in-groups, they behave primarily on the basis of their attitudes rather

than the norms of their in-groups, and exchange theory adequately predicting their social behavior.

A serviceable though overly simple, theoretical framework is that ecology shapes culture, which includes child rearing patterns, which influence personality. Ecology includes features of the geography, resources, and the history of the society. For instance societies that have experienced failures throughout their history are likely to be less optimistic than societies that have experienced mostly successes and so on. Relatively isolated societies, such as those on islands, tend to be high in tightness. In such cultures people have clear ideas about what behaviors are appropriate, they agree among themselves that sanctions are needed when people do not follow the norms and since they are influenced by neighboring cultures, they are less likely to accept other norms. But in loose societies there is tolerance of deviation. Such tolerance for deviation from norms can be found in relatively heterogeneous societies where people do not depend on each other much (Triandis, 2001). In addition gross national product per capita, although not sufficient, is one index of cultural complexity. Other indices include the percent of the population that is urban, the size of cities, personal computers, per capital income and so forth. Thus it is understandable that people in individualistic cultures desire to have more choice and are motivated more when they have many choices than people in collectivist cultures (Triandis, 2001). In collectivist cultures, child rearing emphasizes conformity, obedience, security, and reliability, but in individualistic culture child rearing focuses on independence, exploration, creativity, and self-reliance (Triandis, 2001).

There is also a clear difference in the definition of self between collectivists and individualistic societies. People in individualistic culture tend to define themselves with reference to social entities. People from individualistic cultures tend to be dominant whereas individuals from collectivist culture tend to be agreeable (Moskowitz, Such, & Desaulniers, 1994). The structure of the collectivists reflects respect to others, adjustment to the needs of others, and restraint of own needs and desires. The basic motive structure of individualistic reflects their internal needs, rights, and capacities including the capacity to withstand the social capacity (Moskowitz, Such, & Desaulniers, 1994).

Similarly Freud's method of analyzing culture is the same as the method applied to dreams, neurotic symptoms, and conscious beliefs in individuals. He viewed cultural phenomena such as myths, moral and religious beliefs, and games as expression of the needs and conflicts of individuals. In addition he also argued that institutions such as religion could be understood in terms of their functions for individuals. According to Freud the monotheistic concept of God in many religions is remarkably similar to a young child's conception of his father i.e. a strong, masculine, frightening figure who can be both loving and vengeful (Westen, 1996).

The cultural pattern approach to personality and culture asserts that individual psychology reflects cultural practices, not the other way round. The culture pattern approach sees culture as an organization set of beliefs, rituals, and institutions that shape individuals to fit its patterns. Some cultures stress community and pursuit of the common good, and their members generally internalize these values. Others foster a paranoid attitude, which individuals express in their relations with neighbors or outsiders, such as the Nuer of the Sudan or the Aymaya of South America. As a whole according to this approach, culture is like a great sculptor that chisels the raw biological material of an individual from infancy on until it conforms to the sculptor's aesthetic ideal (Westen, 1996).

2.3. CONCLUSION

This chapter discussed the theoretical framework of FFM by focusing on the domains of the FFM, namely, the Neuroticism, Extraversion, and Openness to experience, Agreeableness, and lastly the Consciousness domains of personality. In addition the chapter also incorporated the application of the FFM across cultures and why differences in personality exist across different cultures. The next chapter will discuss culture and assessment, psychometric properties in cross-cultural adaptation, and lastly demography and personality.

CHAPTER 3
EXPLORING THE UTILITY OF THE NEO-PI-R IN THE ERITREAN CONTEXT

The main focus of the study was to assess the reliability and validly of the NEO-PI-R with a concern to norm the NEO-PI-R. Thus this chapter discusses cross-cultural assessment, cross-cultural adaptation, and translation of assessment and it will also include issues related to reliability, validity, norming, and the influence of age, gender, and educational level on the response of NEO-PI-R. However, to do this the chapter first provides a general overview on Eritrea.

Eritrea is a country in the Eastern part of Africa. The population of Eritrea is approximately 3,5 million. Eritrea has nine ethnic groups that differ from each other based on language. There are three distinct linguistic families namely- the Cushitic (or Hamitic), the Semitic, and the Nilotic languages. The languages in Eritrea include Tigrigna, Tigre, Kunama, Afar, Nara, Bilen, Saho, Arabic, The Beja in western Eritrea, the Afar in the southern tip of the country, and the Saho in the eastern parts of the highlands are considered as Cushitic languages. The biggest native languages in Eritrea are the Semitic ones, the closely related Tigrigna and Tigre. Tigrigna is spoken by 50 per cent, and Tigre by 25 per cent of the entire population. However, Tigrigna and Arabic are the main working languages in Eritrea. English is the medium of instruction from high school level upwards (Amanuel, et. al., 1997).

The Tigrigna is a Semitic language (Homito-Semitic/ Afro-Asiatic language family), which is spoken namely in the highlands of Eritrea. It is a working language of government, media, and medium of education at elementary level in Eritrea, in addition to Arabic. It is also spoken in many parts of Ethiopia, such as, in most parts of Tigray, part of Wollo and Goder (Northern Ethiopia). It is the fourth most widely spoken Semitic language in the world after Arabic, Hebrew, and Amharic. Although there are no accurate historical records about this language, it is believed that it has been in existence since the 13th century as a spoken language and since the beginning of the 19th century as a written language. Tigrigna has also its own writing system, which is called Fide (Geez)(Amanuel, et. al., 1997).

3.1. CROSS-CULTURAL ASSESSMENT

Cross-cultural research in psychology involves the systematic study of similarities and differences in the behavior and development of groups under the influence of different cultural conditions (Struik, 2001). As mentioned by Laher (2001), to define culture is very difficult, since culture has different meanings to different people depending on the background and context of the individual. Nevertheless culture in this context refers to the collection of artifacts and mentifacts (i.e., ideas, beliefs, conventions), which are common among the members of one society rather than outsiders. Elements of culture include shared standards, unstated assumptions, tools, norms, values, habits about sampling the environment, and the like. Psychologists also consider perception and cognition as elements of culture. Triandis (2001) noted that the important thing to think about culture is that " Culture is to society what memory is to an individual." Language, time, and place are among the most important factors that contribute to the cultural difference between one culture and another culture (Triandis, 2001). Language is needed to transmit culture and it is desirable to have the same historical period and geography to do so efficiently. Cultural psychology approach assumes that personality (most broadly defined as the qualities and characteristics of being a person) is completely interdependent with the meaning and practices of particular socio cultural contexts. People develop their personalities over time through the interactive participation in the various social worlds in which they engage.

According to Church (2001) there are three different perspectives or approaches in the study of personality and culture, which are namely cross-cultural approach, cultural psychology approach, and indigenous approach. The **cross-cultural approach** is concerned with the comparison of multiple cultures in the search for cultural universals. It also involves the treatment of culture or quantitative variables related to ecology and culture, the use of traditional and relatively context-free, psychometric scales and questionnaires. In addition it is also concerned about the cross-cultural equivalence of constructs and measurements. Further this approach focuses on individual differences. **Cultural psychology approach** focuses on contextual descriptions on psychological phenomenon in one or more cultures, with less emphasis of cultural universality, the dynamic and mutually constitutive nature of

culture and psychological functioning. It is also concerned with quantitative, ethnographic, and interpretive research methods and gives less emphasis on individual differences. **Indigenous approaches** are very difficult to categorize, but they seem to be more concerned in their emphasis on the need to formulate theoretical constructs, and methods that reflect indigenous cultural context. People with this approach adopted strategies that resemble cross-cultural and cultural approaches. According to Church (2001) the indigenous approach along a number of dimensions, and it is largely focused on elaboration of constructs thought to be particularly relevant or salient for particular cultural groups.

According to Church (2000) there are several reasons for the study of personality across cultures. The first reason is that examining personality cross-cultural helps to discover whether there is similarity in the concepts of personality across different cultures. Secondly, it could be useful to find out whether there is a cultural difference in the level of personality traits across cultures, for instance whether the Tigrigna people are more agreeable than American or other people in the world. The final reason is to discover whether certain features of personalities are universal.

3.2.CROSS-CULTURAL ADAPTATION AND TRANSLATION

Adapting or translating achievement, ability, and personality tests and questionnaires prepared in one language and culture into another language and culture has a long history in educational and psychological testing though this fact is not well known among educational researchers and measurement specialists. Test translation "refers to the process of converting a measure from one language to one or more of other languages"(Foxcroft & Roodt, 2001,p.87). In this study it refers to the translation of the NEO-PI-R measurement from English language to Tigrigna language. Test adaptation on the other hand refers to the process of making applicable one measurement to a specific context by retaining the original meaning of the original language. Nevertheless the terms adaptation and translation have been used interchangeably in this study. The NEO-PI-R will be adapted in the Eritrean context and particularly in the Tigrigna society by obtaining the original meaning of the measurement. Foxcroft & Roodt (2001) stated that while adapting a test the language of the

measurement remains the same, however, the words and context is changed in order to be relevant to specific national or cultural group.

Adapting an existing instrument rather than developing a new instrument has both advantages and disadvantages. Adapting an instrument allows cultural comparison both at national and international levels since the researcher can be able to compare the existing data with the new data (Chang, 2001). It helps individuals to be assessed in their own languages. It is also relatively less expensive and not time consuming.

The disadvantages of adaptation include the fact that there is no evidence that concepts that may exist in the source culture may also exist in the targeted culture (Chang, 2001). Another disadvantage of adapting is that if certain constructs measured in the original version are not found in the targeted culture, the resulting scores of the construct validity may end up to be misleading (Chang, 2001). As a whole Chang (2001) concluded that despite the difficulties in adapting an instrument, it is important to use it considering its greatness in allowing generalizability and investigation among diverse population. Accordingly there are two methods of test adaptation and translation namely the forward translation method and the backward translation method.

3.2.1. Forward Translation Method

In forward translation several translators working individually or in a group directly translate the source version of the test into the target language. Hambleton & Kanjee (1994) have noted three of the most common problems in forward translation. Firstly, it might be difficult to find translators who are familiar with the source origin language or culture. Secondly, there is also a probability that the translators can use their insightful guesses even though incorporating multiple translators can minimize this problem. Finally translators may also think in a different way if they are compared with target language speakers and this could lead to lack of generalization in the results. However, regardless of all these problems forward translation can be among the means for adapting a test.

After translating the items, it is given to one or more of samples of the targeted group and they are asked to give their own reflection on the meaning of the items. Then judges decide whether the given response really accurately measures what it is supposed to measure in terms of cultural and linguistic understanding. The item is regarded as being equivalent to the source language. A high percentage of respondents present a reasonable representation of an item in the target language. The main concern of the judge here is to identify whether the target language examinees perceive the meaning of each item on a test in the same way as the source language examinees (Hambleton, 1994). The main advantage of forward translation design is that valuable information regarding the functioning of any item is given directly by the examinees. However, its limitation is that there are a lot of factors of personal, cultural, and linguistic nature that can distract the result as a result of interaction between the examinee and the judges. For instance there is a room by the judges for misunderstanding, misinterpreting the response of the target examinees. The second disadvantage with this design is that it is time consuming and demanding intensive labor as compared with the other designs. The third limitation is that it might be difficult or the result might be meaningless if the measurement is not valid or misunderstood by the examinees of the target group. Thus one has to be sure about the meaning of response in the source language before given comments on the response of the target group. Moreover, the involvement of bilingual judges or bilingual cognitive psychologists is important for the assessment of equivalence between the source language and the target language (Hambleton & Kanjee, 1994).

3.2.2. Backward Translation Method

In this design the source language is first translated into the target language by several translators and then back translated into the source language by independent individuals. Equivalence can be assessed using judges from the source language and they cross check for errors in the target language and compare it with the original language. Similar to the forward translation design this also has disadvantages. Its main disadvantage is that the evaluation for equivalence assessment is done merely in the source language. The second disadvantage is that the assumption that errors made during the original translation will not be made again during the back translation is not always applicable (Hambleton & Kanjee, 1994).

As a whole the judgmental method includes the use of forward designs and backward designs. Even though both of these designs provided valuable information concerning the equivalence of source and target languages tests, however, using namely these designs is not sufficient to provide adequate equivalence since examinee responses to the tests are not collected and carefully analyzed and the examinees are often operating at different cognitive levels than the translators. Hambleton & Kanjee (1994) noted that facts from item bias studies recommended that judges might not sometimes be successful in predicting items on a test that functions differentially in two or more groups, for instance between males versus females, blacks versus whites. Thus Hambleton & Kanjee (1994) recommended the supplement of appropriate statistical methods in assessing equivalence. The statistical designs which are used to assess equivalence of translated measures depend on the characteristics of the participants. In other words are the participants monolingual, bilingual, or multilingual speakers in relation to the version of the translated instrument that is original, translated, back-translated (Foxcroft & Roodt, 2001). Hence, the study utilized forward translation to translate from English to Tigrigna, and backward translation method to back translate the Tigrigna translated into English so as to measure the equivalence of the NEO-PI-R across the two languages.

3.3. RELIABILITY

Reliability refers to " the consistency of scores obtained by the same individuals when re-examined with the same test on different occasions or with different sets of equivalent items or under other variable examining conditions" (Anastasi& Urbina, 1997,p.7). Similarly according to Huysamen (1997) reliability refers to how consistently the test measures regardless of when the test is administered, which form of it is used or by whom it is scored. In other words it refers to the consistency of its scores over different occasions, test forms, scorers etc (Huysamen, 1997). Anastasi (1988) noted that there are four techniques that are used to assess reliability of a test namely alternate form reliability, test-retest reliability, internal consistency reliability, and inter-rater reliability.

3.3.1.Test-retest Reliability

According to Rust & Golombak (1992) this reliability technique, which is determined by administering the test twice to the same group of people with an interval between the two administrations and comparing statistically the two sets of scores by calculating the correlation coefficient is said to be test-retest reliability. This reliability technique assumes that there is no considerable change in the concept being measured between the two occasions.

McCrae and Costa (1992) suggested that good retest reliability is important to measure personality traits, which are staying stable over time and most personality measures including NEO-PI-R show an adequate retest. For instance their findings of retest reliability among 31 men and women showed that, a range between 0.66 to 0.92 for the facet scales and 0.87,0.91, and 0.86 for the N, E and O domain scales respectively. Similarly a six-year longitudinal study of N, E, and O scales showed a retest reliability coefficient ranging from 0.68 to 0.83 in both self-rating and spouse ratings. In addition a three-year longitudinal study on the NEO-PI-R been reported a coefficient ranging between 0.63 and 0.79 on the domains of A and C scales respectively. A seven-year longitudinal study on the NEO-PI-R based on peer ratings indicated that there is a reliability coefficient ranging from 0.51 to 0.82 for the 18 N, E, and O facet scales and from 0.63 to 0.81 for the five domain scales in men and women (Costa & McCrae, 1992). However, the study was less concerned within the study of test-retest reliability of the NEO-PI-R.

3.3.2.Alternate-Form Reliability

The alternate-form reliability is almost similar to test-retest reliability, it is based on the comparison of two sets of scores for the same persons but the only difference is that this is obtained by administering two equivalent forms of the same test. The tests measure the same traits but they are composed of different questions or items. The two equivalent forms tests are administered with an interval of time and comparing the two forms of tests can assess reliability. The reliability coefficient, which can be estimated from this technique, is called coefficient of equivalence. However, the study seems less concerned to study the alternate form reliability of the NEO-PI-R (Murphy, & Davidshofer, 1998).

3.3.3. Internal Consistency Reliability

Internal consistency reliability is different from the other retest and alternate and inter-rater reliability, since the method is based solely on the number of items in the test and the average correlation among them (Anastasi, 1988). The internal consistency reliability technique involves (1), administration of a test to a group of individuals and (2,) computing the correlation among all items and computing the average of those intercorrelation (Anastasi, 1997). If it is considered each test item as an observation of behavior, internal consistency estimates suggest that reliability is a function of (1), the number of observations that one makes and (2), the extent to which each item represents an observation of the same thing observed by other test items (Murphy, & Davidshofer, 1998). According to Trochim (2002) this consistency can be calculated using an average inter-item correlation, an average item-total correlation, and split-half reliability and Cronbach alpha. With regards to the NEO-PI-R this study examines the internal-consistency of the NOE-PI-R using the Cronbach's alpha reliability coefficient. A study by McCrae & Costa (1992) on form S showed that internal consistency reliability for the individual facet scale ranged from 0.56 to 0.81 in self-report for scales with only eight items, but for the 48-item domain scales the coefficient alpha ranged from 0.86 to 0.95. For instance the coefficient alpha of Neuroticism, Extraversion, Openness, Agreeableness, and Consciousness is 0.92, 0.89, 0.87,0.86, and 0.90 respectively. This report is also similar to men and women. Therefore the study was also concerned with the study of internal consistency reliability of NEO-PI-R in the Eritrean context.

3.3.4. Inter-rater Reliability

Refers to the extent to which an observational measure yields similar results across different judges (Murphy, & Davidshofer, 1998). The other techniques of reliability coefficients discussed above are usually useful in measuring highly standardized types of measures, where as inter-rater reliability is namely used for subjective type of tests, for example projective technique of personality measurements (Foxcroft & Roodt, 2001). Hence the study was less concerned with the inter-rater reliability of NEO-PI-R since it is an objective measurement, which does not require subjective judgment.

3.5. VALIDITY

In contrast to reliability, which refers to the accuracy or precision of a test, validity of a test, to the question of what the scores measure, i.e., what they mean (Murphy, & Davidshofer, 1998) from the perspective of Rust & Golombok (1989), validity refers to whether an assessment measures what it is supposed to measure, i.e. does the personality test truly measure personality? According to Anastasi (1988) the validity of a test concerns what the test measures and how well it does so. In this sense it is unlikely to accept the test name as an indication of what the test measures. A personality test, which is not valid, may provide a misleading portrait of one's emotional strengths and weaknesses. There are several forms of validity but the major groupings include face validity, content validity, criterion-related validity, and construct validity (Rust & Golombok, 1989).

3.5.1.Face Validity

Face validity refers to the appearance of the test, i.e., it is concerned with whether the test looks valid or not for the test takers, (Kline, 1993). This type of validity pertains to whether the test looks valid to the subjects who take it; the administration personnel who decide on its use and other technically untrained observers (Anastasi, 1988). The only demand that requires the tests have some degree of face validity is that without which subjects may not cooperate in the testing. In other words, if the respondents fail to take the test seriously the test is meaningless and this lowers the validity of the test (Kline, 1993). According to Rust & Golombok (1989) evaluation of the test suitability must include considerations on the style and appropriateness of items. Face validity in this study is determined by asking the respondents whether the NEO-PI-R appeared to be assessing their personality.

3.5.2.Content Validity

The concept of content validity refers to more than just face validity. Content validity is concerned with whether the content of the test elicits the range of responses representing the entire domain or universe of behaviors that the test is supposed to measure (Aiken, 1997). As Foxcroft (Foxcroft & Roodt, 2001) suggested content validity is not an appropriate aspect of validity for personality tests. The content validity of a test cannot be expressed in a

quantitative way; rather experts in the field should evaluate it on logical grounds. Experts may differ on their definition of the universe; however, their task is to evaluate (1), whether the chosen items adequately represent the tasks in the universe and, (2), whether the written items indeed require the execution of these tasks. The content validity of the test is considered satisfactory only if the above requirements are met (Huysamen, 1997). Content validity in this study was determined by the approval of the equivalence of the back translation from the authors of the manual of the NEO-PI-R in addition to the response from the participants as to whether the questionnaire assessed their personality or not.

3.5.3.Criterion-related Validity

Criterion-related validity indicates the effectiveness of a test in predicting an individual behavior in specified situations (Anastasi, 1988). One of the major reasons for developing a test is to help in making decisions about individuals. The validity of a test as an aid of decision-making is of the greatest practical importance in psychology. The accuracy of decisions is directly related to how valid the test score is, in other words an invalid test may lead to decisions that are ineffective and not fair to the individuals to be assessed. However, the simplest method of determining whether a test can be used validly in making decisions is to correlate test scores with measures of success or the outcome of decisions. Such kind of validity technique is referred as criterion-related validity (Murphy, & Davidshofer, 1998). There are two types of criterion related validity namely concurrent validity and predictive validity.

Concurrent validity refers to the precision with which the measurement can estimate the extent to which an individual currently possesses a given trait or behaves in a particular way from the extent to which an individual currently possesses some other trait or behaves in some other ways. In order to predict concurrent validity it is possible to use scores in one variable so as to estimate scores on another variable, which is measuring present properties of an individual. On the other hand predictive validity refers to the accuracy with which the test can estimate the extent to which some individual characteristic will be manifested in the feature based on an individual's current manifested behavior (Murphy, & Davidshofer, 1998). However, this study was less inclined to study the criterion validity of the NEO-PI-R.

3.5.4. Construct Validity

Construct validity is the main form of validation underlying the trait-related approach to psychometrics (Foxcroft & Roodt, 2001). To understand whether an instrument has construct validity, the theoretical relationships must be specified, the correlation of the instrument with the other similar instruments must be determined, and the interrelations of the factors must be examined (Foxcroft & Roodt, 2001).

The theoretically appropriate predictive power of NEO-PI-R scales can be seen with respect to a variety of external criteria such as psychological well-being, coping and defenses, needs and motivation, Jungian types, interpersonal traits, and creativity and divergent thinking (McCrae & Costa, 1992). For instance research findings from McCrae and Costa (1980) proposed a model of psychological well being which indicated a relationship between positive affect and E, negative affect and N, and happiness with both E and N. According to McCrae and Costa (1992) individuals who scored high on both E and N are more likely to experience high emotion, joy and despair. On the other hand individuals who are low on N and E are unemotional and there is also a difference between those who are happy and unhappy individuals. The happiest people are more likely to score high on E and low on N and unhappiness is correlated with low score on E and high scores on N. This study also showed that individuals with high O are also more likely to experience more positive and more negative affects, which could be attributed to their wide range of feelings. Finally recent studies by McCrae and Costa (1992) suggested that individuals with high levels of A and C showed greater level of happiness and life satisfaction.

Factor analysis is a statistical technique for analyzing the interrelationship of behavior. It assesses how well the internal structure of the instrument corresponds to the model it is supposed to measure. In this sense the NEO-PI-R is basically intended to measure the five-factor model. In addition intercorrelation among the scales is also one of the ways that can be utilized to assess the construct validity of the instrument (McCrae and Costa, 1992). Hence the study examined the construct validity of the NEO-PI-R applying factorial analysis and intercorrelation matrix among the different scales.

3.6. NORMING OF THE NEO-PI-R

One of the ways of describing a person's performance on a test is to compare an individual's score to the test scores of other persons or group of people. The scores to which each individual is compared is referred to as norms, that can present standards for interpreting test scores and interpreting an individual score by comparing that score to the scores of each individual is referred to as a norm based interpretation. A norm-based score can show an individual stand in comparison to other normative groups (Murphy & Davidshofer, 1998). According to Murphy, & Davidshofer, (1998) a norm is one of the characteristics of good psychometric tests. Without norms the psychological significance and meaning of an individual's score on a test is difficult to know and this is similar for personality tests. Thus a score of 20 on an Extraversion test, for example is interpretable if it appears from the norms that such a score is exceeded by only 2 percent of the population. The number of samples, that are taken can also affect the norm of a test, in other words very small samples can result in misleading norms (Murphy, & Davidshofer, 1998).

There are many ways of converting raw scores, which may be used to fulfill the above-mentioned objectives. Some of them include percentiles which refer to the percentage of people in a normative standardization sample who fall below a given raw score, z-score which expresses an individual's position from the mean in terms of standard deviation units with a mean of 0 and a standard deviation of –3 to +3. T-score where the mean score is equal to 50 and with a standard deviation of 10, Stanine scale with a mean of 5 and standard deviation of 1.96, Sten scale: which is the same as the stanine scale except that the mean is 5.5 and a standard deviations of 2 (McCrae & Costa, 1992).

The normative sample of the NEO-PI-R is based on three different groups or sub samples. The first group includes 405 men and women who completed the new items of NEO-PI-R in 1989 and 1990 from Augmented Baltimore Longitudinal Study of Aging (ABLSA). The second group includes, from ABLSA who completed the NEO-PI-R by computer administration in 1989 and 1991.The third group include 1,539 men and women who were voluntarily involved in a national study of job performance. McCrae & Costa (1992) noted

that even though there was a difference in the time, and the condition of administration among the three samples, their personality score is almost the same or comparable except that men from the job performance scored over-half standard deviation higher than that of the original ABLSA sample in the Extraversion scale.

Moreover to obtain a diverse normative sample McCrae and Costa (1992) selected randomly almost 500 men and 500 women from the above-mentioned three groups. The nature of the sample include people who completed at least high school and their age ranged from 21 to 96.The findings as shown in the tables below indicate a mean for men and women.

	Men	Women
Neuroticism	75.2	83.1
Extraversion	108.5	110.3
Openness	110.1	111.0
Agreeableness	120.1	128.5
Consciousness	123.6	122.7

Table 3.1. The means for USA adult sample

McCrae and Costa (1992) also suggested that even though the level of personality traits are more likely to be similar in adulthood, they believe that there is a significant difference between the adults and college students. Considering this they decided to develop a new norm for college students including 148 males and 241 females.

	Men	Women
Neuroticism	90.5	99.8
Extraversion	116.7	123.9
Openness	113.9	118.6
Agreeableness	107.4	117.2
Consciousness	113.5	115.1

Table 3.2. The means for USA college age sample

McCrae & Costa (1992) mentioned that the scales of the NEO-PI-R and the NEO-FFI measure traits that approximate normal, bell-shaped distributions. Most individuals will score near the average for the scales, with a small percentage at either end. It is necessary to keep this distribution of scores in mind when interpreting the meaning of any individual's score. Scales are most conveniently explained by describing characteristics described. Instead individual's scores will usually represent degrees of personality trait, and more extreme scores mean a higher probability of showing the distinctive features. Characteristics are compared across people, rather than within the individual. Thus a person who scores at the 75th percentile on Depression and the 25th percentile on the Positive Emotion is more likely to feel depressed and less likely to feel happy than most other people. But because happiness is much more common than depression, such an individual is still likely to be happy more often than depressed.

Professionals using the NEO-PI-R should avoid thinking in terms of either types or categories when interpreting scores. Although it is convenient to speak of "introverts" and "extroverts" the NEO-PI-R E scale represents a continuous dimension, and most individuals would best be described as " ambiverts", that is showing a combination of introverted and extraverted tendencies. The same principle also applies to all other domains (McCrae & Costa, 1992).

In designing the profile forms and interpretive reports for the NEO-PI-R, McCrae & Costa (1992) have found it useful to summarize results in terms of five levels: very low, low, average, high, very high. Although the percentages vary somewhat with the shape of the distributions, of all individuals administered the NEO-PI-R, approximately 38% score in average range (T=45-55), 24% score in the high range (T= 56 to 65) and in the low range (T= 35 to 44) and 7% score in the very high range (T= 66 and higher) and in the low range (T=34 and lower). This system allows for more fine-grained distinctions than simple dichotomies.

Raw scores on personality inventories are usually meaningless- response take on meaning only when they are compared to the responses of others. Published norms are intended to serve the standard reference group, but the choices of appropriateness norms require some consideration by the professional. Traditionally separate norms have been used for men and women. For some applications the user would want to compare the individual to people in general. For this reason, combined –sex normative information is provided (McCrae & Costa, 1992).

Similarly it would be possible to plot college –age individuals on the adult norms to see how they compare to adults in general. Many college students would score quite high on excitement –seeking, but this is meaningful, because college students are typically higher than adults in general in seeking stimulation. When interpreting the score of an individual aged 21 to 30, standard instructions now suggest that Adult Norm profile forms can be used. However, because these young adults tend to be intermediate in scores between adolescents and older adults, it may some times be appropriate to use the college –age norms. When the college age norms profile form is used the individual is being described in comparison with the average man or woman aged 17 to 20 (McCrae & Costa, 1992). Therefore the study was also concerned to norming the NEO-PI-R in the Eritrean context so as to serve as a standard reference while determining an individual personality.

3.7. BIAS

Bias refers to the presence of trouble or systematic error in a measure. According to Vande Vijver & Leung (2001) bias can be formally defined as differences in scores between groups that have no correspondence in the domain of the organization of the test. As a whole form of bias can be categorized into three groups namely **construct bias**: bias manifested when the construct measured across cultures is not identical. In other words this refers to the fact that behaviors that constitute the domain of interest measured are not similar in different cultures. **Method bias**, bias which comes as a result of sample inconvenience, instrument characteristics, tester and interviewer effects and the method of administration. Method bias usually causes a change of mean score among cultural groups, which can be misinterpreted as a valid cross-cultural difference. The third type is called **item bias** or differential item

functioning (Vande Vijver & Leung (2001). This type of bias refers to anomalies at the item level, such as poor item translation or inapplicability of an item in a specific culture.

Grimm & Church (1999) noted that social desirability, extreme responding, and acquiescence in cross-cultural research could produce artificial cultural difference. This is not directly related to item-specific affects that can be identified in an item bias analysis, rather to a more global influence on test scores. For instance Marin, et.al (1992) found that there is a real difference between Hispanics and non-Hispanic whites in their response, i.e. Hispanics tend to show extreme responses than non-Hispanic whites, but this difference does not exist with the level of adaptation. Similar findings by Hui and Triandis (2001) also showed the same cultural difference with the 5-point rating scales. Besides cross-cultural study among managers and expatriates from Britain, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Singapore, and Thailand showed that younger and educated respondents are inclined to choose midpoint responses (Triandis, 2001). Further research findings among American whites, Hispanics, and Mexicans also showed that the level of acquiescence is more prevalent among older people of Mexican origin, and lower in socioeconomic status (Vande Vijver & Leung, 2001). Lastly Van Herk (2000, cited in Vande Vijver & Leung, 2001) in her survey in an international marketing related to acquiescence found that acquiescence is more prevalent among older and less educated respondents. As a whole cross cultural findings on the issue of response style on educational level, gender, age and socioeconomic might have an influence in the response style, which may result to bias in the test. Thus this study focused on the age, gender, and educational level and their influence in the response of the NEO-PI-R.

According to Paunonen & Ashton (1998) there is also a possibility of failing to find invariant psychometric properties for a personality scale across cultures for so many reasons. This could be due to properties of the measure itself, the nature of the culture, which is being assessed, and it could also be due to an interaction between the personality measure and the culture.

3.7.1. Demographics and Personality

3.7.1. 1. Age and Personality

Gerontologists in the United States have studied the relationship between age and five-factors of personality for the last decades, employing both cross-sectional and longitudinal methods. The discovery of this findings suggested that by the age of 30, personality is generally as stable as right or left-handedness and eye color (Costa & McCrae, 2003). A similar study in USA and Canada also provided evidence of age differences in personality between adolescents and those of age 30 (Costa & McCrae, 2003).

Are these age differences the result of maturational changes or generational differences? The findings by McCrae and Costa indicated that today's older Americans are more conscientious because they grew up in a more disciplined and less affluent era and learned to value hard work. Hence, this generational effect may have an influence in age differences in Consciousness. Longitudinal studies between adolescents and adults showed that Consciousness increase with age, and this Consciousness difference in age appears to be due to maturational changes. In addition McCrae and Costa (2003) hypothesize that age changes in personality are more likely to be dictated by cultural demands and expectations. They further commented that in the USA adolescents have freedom and they do not have family responsibility, rather they spend their time in formal education, but in their 20s they start families and careers which allow them to have a lot of responsibilities and as a consequence this leads to higher level of Consciousness (McCrae & Costa, 2003).

Is personality maturation determined by culture? For instance Eastern cultures like China, Korea tend to place very high demands on their children; hence children in these societies could reach the full development of Consciousness by the beginning of adolescence. Examining cross-cultural generalizability translation of the Revised NEO Personality Inventory were administered to samples in Germany, Italy, Portugal, Croatia, and South Korea and similar age pattern of differences were seen in each country for both men and women. These findings indicated a decrease in Neuroticism, Extroversion, and Openness but an increase of Agreeableness and Consciousness as people mature. This may not be because

of generational effect rather it seems likely that more or less universal age changes are biologically based. Traits of five-factor are heavily influenced by genetics and many genes show their effect at different points in the life span. Thus decline in Neuroticism, and increase in Consciousness may be attributed to the natural part of the human experience (McCrae, Costa, et al, 1999).

In contrast to the plaster theory, a theory that regards those five traits as genetically, programmed to develop during childhood and solidify by the age of 30, a study by Carroll (2003) suggested that personality does change through life. For instance research, which has been conducted among 130,000 adults, ages 21 to 60 found that men and women are more likely to become agreeable and more conscientious with age. Even Agreeableness i.e. a persona's warmth, generosity, and helpfulness-showed an improvement after the age of 30. Similar report by Woods (2003) also suggested that average level of personality traits changed gradually but systematically through the life span, and sometimes even more after the age of 30. For instance Consciousness continued to increase in people during the age of 30s, 40s, 50s, and beyond, this is characterized by developing tendency to make plans, be organized, disciplined, and fulfill work and personal and social commitments. Similarly there is an increase of Agreeableness between the age of 30 and 40. According to this study increasing Consciousness and Agreeableness and decreasing Neuroticism in adulthood may indicate increasing levels of maturity, that is people are becoming on the average better adapted as they get older, well into middle age.

3.7.1.2. Gender and Personality

Gender differences in personality have been studied for the last four decades. Maccoby and Jackline (1974, cited in Costa, Antonio and McCrae, 2000) were the first people to conduct research on sex-related differences in cognition, temperament, and social behaviors in children and adults. They conclude that men are more assertive and less anxious than women. Difference was reported for self-esteem and locus of control traits (Costa, Antonio and McCrae, 2000).

In terms of gender Costa, Terracciano and McCrae (2001) reported that women typically score somewhat higher than men on facets of N and A and on some facets of E and O. On the other hand men usually score higher on other facets of E and O, specifically, on assertiveness and Openness to ideas. However, there are few gender differences in facets of C. Furthermore reports from McCrae (2002) also found evidence for cultural difference in the magnitude of gender differences. McCrae (2002) also suggests that gender difference in modern or progressive cultures (like European countries) is larger than in traditional cultures (South Korea). According to McCrae (2002) this difference could be related to attribution, i.e. in countries where women are expected to be submissive, they attribute their low assertiveness to their role as a women rather than their traits. However, European women who are equally low in assertiveness see it as part of their own personality.

Other reports from McCrae and Costa (2002) showed that gender difference on traits related to N have consistently reported higher scores of N on women than men. Neuroticism predisposes individuals to different kinds of major psychopathology, for instance generalized anxiety disorder, panic disorders, phobias, major depression, dysmathic disorder, and borderline personality disorder are all diagnosed substantially more often in women than in men (American Psychiatric Association, 1994). The only exception among the traits of N, which is not significant in women, is anger. Many research findings showed that the level of hostility is higher among men than among women.

The difference of personality in gender can be attributed to two classical theories, which are biological and social psychological. The biological explanation of sex difference in personality believes that sex difference in personality arises from innate temperamental difference between the sexes. Evolutionary explanation to this difference predicts that sex difference in personality can be attributed to the different domains in which they have faced to adapt their problems. For instance women have invested on childbirth and lactation of children. Thus women tend to be more agreeable and nurturing than men (Costa, Antonio and McCrae, 2001).

According to the social role model explanation gender difference in personality occurred as a result of gender roles, which define appropriate conduct for men and women. Gender roles are considered as shared expectations of men and women during their development. However, there is also a lot of debate whether gender roles reflect purely cultural creation or natural differences (Costa, Antonio and McCrae, 2001).

Cross-cultural comparison on personality can provide evidence for the influence of biological versus cultural factors in gender differences in personality traits. If the difference is due to biological bases, then the same difference ought to be seen in all cultures. But it is also possible that cultural gender difference result from universals learned gender roles. For instance findings of McCrae and Costa (2001) on cross-cultural similarities in gender difference generally seem to be consistent with the other research findings and with some theoretical predictions. Especially women were consistently higher in facets of N and A. Women in most countries scored higher than men in warmth, gregariousness, and positive emotions but lower in assertiveness and excitement seeking. These associations were predicted from the placement of these traits using an interpersonal circumplex statistical method (McCrae & Costa, 1989). Women scored higher than men in Openness to ideas, consistent with pervasive stereotypes that associate women with feelings and men with thinking. However, according to this study there were no consistent gender differences on Openness to fantasy or values. In the same way women in most of the cultures were more likely to be dutiful than men, but there were few other consistent differences in facets of C. McCrae and Costa (1989) further suggested that, even if there is a consistent gender difference across different cultures there is also cultural variation in gender difference related to the magnitude of gender difference in personality. Thus the study also intends to identify whether there is gender difference in the response of NEO-PI-R in the Eritrean adults again attempting to contribute to discussions on the cross-cultural applicability of the NEO-PI-R.

3.7.1.3. Education and Personality

According to McCrae & Costa (1992) among the five domains of personality, only the Openness domain showed an association with years of education. Usually educated people are curious, imaginative, and liberal. However, the correlation between Openness and

education is not very high. Therefore it is not yet clear whether Openness is really related to educational level or indirectly to intelligence. Apart from these findings there is no any further information. Hence the study also considered examining whether or not educational levels affect the response of the NEO-PI-R.

3.8. CONCLUSION

This chapter discussed the importance of across-cultural assessment and psychometric properties that should be considered in psychological testing while adapting or importing a psychological instrument. In addition demographic variables namely age, gender and educational level and their effect on the response of the NEO-PI-R have been included. In the next chapter the methods utilized in this study will be discussed.

CHAPTER 4: RESEARCH METHODOLOGY

4.1. AIMS OF THE STUDY

4.1.1. Primary Aims

This study aimed to consider the reliability and validity of the Tigrignan translated Neuroticism-Extraversion-Openness-Personality Inventory-Revised (NEO-PI-R) for use in the Eritrean context particularly in Tigrigna society. In addition the study also sought to develop Tigrigna norms for the translated version.

4.1.2. Secondary Aims

As a secondary aim, the study explored demographic information of subjects namely age, gender, and educational status and responses on the NEO-PI-R with an intention to considering the cross-cultural utility of the NEO-PI-R.

4.2. RATIONALE FOR THIS RESEARCH

Even though psychology is a well-known discipline throughout the world, it is in its earliest foundation in Eritrea. Likewise the use of psychological tests and particularly the use of personality measurement inventories is not yet practiced in research, counseling services, clinical practices, industrial and educational settings. As a result researchers and practitioners have problems in using different psychological tests for research and other psychological practices. Hence there is a need for creating and/or adapting psychological inventories in Eritrea.

The process of developing a new personality instrument is a time consuming process, very expensive and the possibility of making cross-cultural comparison is also minimal. On the other hand, according to Foxcroft & Roodt (2001), adapting assessment measures in general and particularly personality measures might have the following advantages: (1) it enhances fairness in assessment, since individuals are assessed using their own language - as a result bias in assessment can be removed and validity is increased, (2) adapting an existing assessment instrument reduces costs and saves time, especially in places like Eritrea where there is a lack of resources and technical expertise for developing new measures are lacking, (3) in recent times where there is a growing contact and co-operation of different nations in

economic, educational, and cultural spheres, adapting the existing psychological measures would allow comparative studies between different language and cultural groups both at national and international level. Thus considering the above mentioned points the researcher also preferred to adapt a well-known personality inventory, namely the NEO-PI-R.

The five-factor taxonomy or five-factor model (FFM) of personality structure has been one of the most important developments in the area of personality theory and personality assessment (Struik, 2001). It is also claimed that it has a universal applicability (Piedmont & Weinstein, 1993). Presently the best available instrument for the operationalization of the FFM is the NEO Personality Inventory-Revised (NEO-PI-R) and the NEO-PI-R has been adapted into many languages throughout the world so as to assess the applicability of the FFM across different cultural groupings. However, this is not the case in Eastern Africa region and particularly in Eritrea. In addition the NEO-PI-R is valid to be used in counseling services, clinical practices, vocational counseling, industrial and educational contexts. Hence, considering its application in these aspects, translating the NEO-PI-R into Tigrigna as a means of assessing personality in different sectors, would be useful in Eritrea. Translating into Tigrigna would be most useful as Tigrigna is one of the most widely spoken languages in Eritrea.

4.3. RESEARCH QUESTIONS

4.3.1. Primary Research Questions

- Is NEO-PI-R a reliable instrument for use in the Eritrean context?
- Is NEO-PI-R a valid instrument for use in the Eritrean context?
- What are the norm ranges of the NEO-PI-R in the Eritrean context, particularly in Tigrigna society?

4.3.2. Secondary Research Questions

- Does age influence the responses on the NEO-PI-R?

♣Is there significant relationship between age and Neuroticism personality?

♣ Is there significant relationship between age and Extraversion personality?

♣Is there significant relationship between age and Openness to experience personality?

♣ Is there significant relationship between age and Agreeableness personality?

♣ Is there significant relationship between age and Consciousness personality?

- Does gender influence the responses on the NEO-PI-R?

♣ Is there significant difference between males and females in Neuroticism personality?

♣ Is there significant difference between males and females in Extraversion personality?

♣ Is there significant difference between males and females in Openness to experience personality?

♣ Is there significant difference between males and females in Agreeableness personality?

♣ Is there significant difference between males and females in Consciousness personality?

- Does educational level influence the response on the NEO-PI-R?

♣ Is there significant difference between the different educational levels in Neuroticism personality?

♣ Is there significant difference between the different educational levels in Extraversion personality?

♣ Is there significant difference between the different educational levels in Openness to experience personality?

♣ Is there significant difference between the different educational levels in Agreeableness personality?

♣ Is there significant difference between the different educational levels in Consciousness personality?

4.3.3. Secondary Hypotheses[1]

- Age will influence the response on the NEO-PI-R.

♣There is significant relationship between age and Neuroticism personality.

♣ There is significant relationship between age and Extraversion personality.

♣ There is significant relationship between age and Openness to experience personality.

[1] There are no hypotheses specified for the primary research questions since the focus of the study is on the development of norms, reliability, and validity issues. Hypothesising about norms, validity, and reliability does not make sense.

♣ There is significant relationship between age and Agreeableness personality.

♣ There is significant relationship between age and Consciousness personality.

- Gender will influence the response on the NEO-PI-R.

♣There is significant difference between males and females in Neuroticism personality.

♣ There is significant difference between males and females in Extraversion personality.

♣ There is significant difference between males and females in Openness to experience personality.

♣ There is significant difference between males and females in Agreeableness personality.

♣ There is significant difference between males and females in Consciousness personality.

- Educational level influences the response on the NEO-PI-R.

♣There is a significant difference across different educational levels in Neuroticism personality.

♣ There is a significant difference across different educational levels in Extraversion personality

♣There is a significant difference across different educational levels in Openness to experience personality.

♣There is a significant difference across different educational levels in Agreeableness personality.

♣There is a significant difference across different educational levels in Consciousness personality.

4.4. RESEARCH DESIGN

The study was an exploratory type of research. Participants were approached to complete the NEO-PI-R questionnaire in natural setting. Like any exploratory type of research the study incorporated a large number of samples from different colleges and organizations. In addition rather than establishing causality, the study was namely concerned to discover the utility of the NEO-PI-R that is the norm of the instrument in the Tigrignan society, to investigate the reliability and validity of the Tigrigan translated NEO-PI-R and finally the study is intended

to investigate whether there is a relationship between age response of NEO-PI-R, whether there is significant gender difference in the response of NEO-PI-R. Hence the study did not manipulate any variable and it did not fulfill the requirement for pre-experimental, quasi-experimental type of research designs. It was not concerned with making any prediction in terms of the effect of one variable on another. There was neither any control group nor experimental group, rather it followed a non-experimental type of research. Thus, the study followed the specific form of correlational type of research design (Rosenthal & Ronsow, 2000).

4.5. SAMPLING

The NEO-PI-R was administered in Asmara, which is the capital city of Eritrea. The population of Asmara is approximately six hundred thousand where a majority of the people are Tigrignan speakers. The NEO-PI-R was administered in different places including organizations like the Ministry of Health, Ministry of Labor and Welfare, University of Asmara, College of Nursing and Health Technology in Asmara, Halhale Certificate College and the general community. Non-probability convenience sampling technique was utilized and some elements of a stratified sampling system were also utilized to get a sample that was evenly distributed in their age, sex, and educational status. Since majority of the individuals approached complained that the questionnaire was too long and they did not have time to complete it, and were not motivated to complete the questionnaire, only 410 questionnaires were returned from the initial 700 questionnaires. Hence an initial response rate of 61.4% was obtained. The sample consisted of 250 students from the University of Asmara, 51 people from the Ministry of Labor and Welfare, 25 people from the Ministry of Health, 60 students from College of Nursing and Health Technology and 50 people from Halhale Certificate College. Among these 26 of the questionnaires were not included since they were incomplete. The educational status of the participants was minimum of grade 10 in formal education and the age range of the participants was between 18 and 70 years old.

Some people were approached to take the test again after one week but many of them were not willing to take the test again citing the length of the questionnaire and the time involved

as problematic. Thus this study failed to consider the test-retest reliability of the questionnaire.

4.6. INSTRUMENTS

This study utilized a questionnaire method. The questionnaire consisted of four sections including an information sheet, demographic questionnaire; the Tigrignan translated NEO-PI-R, and finally open ended questions.[2]

4.6.1. Information Sheet

The information sheet contained relevant information on the study, the procedure, and researcher's contact details as well as contact details for counseling institutions if the individuals feel vulnerable on completion of the questionnaire.

4.6.2. Demographic Questionnaire

Participants were asked to provide information on their gender, age, and educational levels.

4.6.3. Open-ended Questions

The questionnaire consists of three questions namely (1) do you think that the questionnaire appears to measure your personality, (2) did you get questions, that are not appropriate, (3), did you get questions, that are difficult to understand them?

4.6.4. The NEO-PI-R

There are different approaches to assessing the five-factor model, and they can be classified into two groups namely the adjective type of instruments and the phrase type of instruments. The main difference between these two groupings is that the adjective versions contain only adjectives to describe personality but the phrase type use phrases to describe personality. Some of the adjective types of instruments include Norman's 20 Pairs, Norman's 75 clusters, Peabody's 57 antonym pairs, Goldberg' s 100 unpaired terms, and the adjective checklist. The phrase types of instruments include the NEO Personality Inventory, the Hogan

[2] See appendix F and G for the instruments

Personality Inventory, the Act-Report Measures the Five-Factor Inventory, California Q-Sort, Myers-Briggs Type Indicator and others (Briggs, 1992).

There are many advantages and disadvantages of working with the adjective phrases and the item phrase. For example adjectives in a language are finite and definable, the second advantage of using adjectives as items involves their hypothesized link to behavior. Studying words to understand the personality characteristics of people is based on lexical hypothesis. The third advantage of using adjectives to measure the five-factor model is economy, i.e. a list of 100 adjectives, 20 for each of the five factors, can be presented in one page compared to item phrases. However, it does not mean that they are not also without limitation. They are blunt, dull-edged instruments, i.e. a single word allows for no context, no shading, no motivation, and no specificity; it is telegraphic (Briggs, 1992).

At the same time the item phrases have the following advantages, first they are precise and rich in their expression, for example the word "cold". In adjectives this word besides having a temperature lower than normal does not specify anything, but this is not the case with the item phrase it refers to the "not affectionate, not marked or affected by emotion". Secondly, item phrases allow for specificity, differentiation, and the exploration of motivational factors. Third, there is flexibility, which is useful when a project is focused on a construct of limited domain (Briggs, 1992).

Generally, choosing either adjective type of instruments or phrase item instruments depends on the objective of the project. If a researcher wants a broad-based measure of personality description and does not require finer elaborations it is obvious to choose one of the adjective-based measures considering its advantages (Briggs, 1992).

However, if the researcher is interested in finding one or more of the five factors with some precision so as to understand how or why a measure is working the appropriate choices should be the item phrases measures. Similarly, since this research was aimed to find out the cross-cultural universality of the five-factors of personality the item phrases measures was preferred than the adjective type of measures (Briggs, 1992).

As mentioned earlier, there are many item phrase personality inventories that have been developed to measure deliberately the five-factor model of personality. However, the NEO-PI provides a better representation of the five-factor model than the other measures. Thus the study decided to adopt the NEO-PI-R (Briggs, 1992).

As its name implies, the NEO-PI was originated in 1978 to measure three major dimensions of personality Neuroticism, Extraversion, and Openness to Experience and 18 facet scales measuring traits related to the domains (Costa & McCrae, 1980). In 1983, however, the authors recognized that these three dimensions did not adequately represent certain personality traits and they added the 18-item domain scale measuring A and C. In 1985 the instrument was published as the NEO Personality Inventory. In 1990 the facet scales were completed for A and C and with some modifications on the previous dimensions of N, E, and O items and finalized to develop the NEO-PI-R.

The NEO-PI-R consists of 240 items and came into two forms: Form S, which is an instrument for self-rating, and form R, which is used for rating some one else. The items are the same except that the subject is changed from “I” to “he” or “she”. Each of the three original factors (called domains) is measured by 48 items, which are sub divided into six sets of eight items. These clusters of items are called facets and were designed to provide more specific information about some important concepts within each of the domains. These facets are regarded as subsets of the larger set (the factor domains) in which “ subsets draw all their elements from the set, but may themselves be large or small, overlapping or mutually exclusive (Costa & McCrae, 1995).

The constructs measured by the NEO-PI-R were not original discoveries rather McCrae and Costa explored previous literature to identify the traits and dispositions, which were represented as trait terms in natural language and have appeared in the various trait theories. In developing the NEO-PI-R McCrae and Costa used the hierarchical structure method, i.e. the traits are arranged in hierarchies from very broad to very narrow traits and both the domains and the facets traits were assessed. Analysis was done starting at the general level so

as to identify the universal personality and went to facets to represent the main difference among the domains. In item analysis they began by analyzing items at the domain level and proceeded to analyze items within each domain to define facets (Costa & McCrae 1992).

In developing the NEO-PI-R Costa and McCrae (1992) used a rational or deductive approach i.e. statements related to the characteristic being assessed were logically deduced to be related to the content of the characteristic being assessed. The final item selection also used an extensive analysis of and application of basic principles of psychometrics. McCrae and Costa adopted factor analysis as the basis for item selection, since it identified clusters of items that covaried with each other and which were independent of other item clusters i.e. items which were convergent to each other with respect to other items in the cluster analyses were identified. Finally they came with the five factors followed by identifying facets using a procrustes method that led to the theory of five-factor model (Costa & McCrae 1992).

In terms of its reliability the internal consistency coefficients of the NEO-PI-R range from 0.86 to 0.92 for the domain scale and from 0.56 to 0.81 for the facet scales (Costa & McCrae, 1992) According to McCrae & Costa (1995) the six- month test-retest reliability coefficients ranged from 0.76 to 0.84 in a study of clinical outpatients.

In terms of validity, domain and facet scores from the NEO-PI-R have shown to relate in predictable way to personality trait scores from a variety of personality measures, peer reports, and adjective checklists (Costa & McCrae, 1992). The NEO-PI-R also shows a range of moderate to strong correlations with some other personality measurements like the Personality Research Form (PRF) and the California Personality Inventory (CPI)(Costa & McCrae, 1992a). Thus it can be said that the NEO-PI-R has got high construct validity. A correlational study examining the 300 items of the Adjective checklist showed an appropriate and distinctive pattern that testifies to the discriminate validity of the facet scales. Data on construct validity show that the scales of the NEO -PI-R are generally successful in measuring the intended constructs (Piedmont & Weinstein, 1993). The NEO-PI-R also shows a range of moderate to strong correlations with some other personality measurements like the

Personality Research Form (PRF) and the California Personality Inventory (CPI)(Costa & McCrae, 1992a). Thus it can be said that the NEO-PI-R has got high construct validity.

In terms of scoring the NEO-PI-R items are answered on a 5-point scale ranging from strongly agree (1) to strongly disagree (5) and scales are balanced to control for the effects of acquiescence. The NEO-PI-R could be administered and scored either by hand or computer (Costa & McCrae, 1992).

4.7. PROCEDURES

4.7.1. Translation Procedure

4.7.1.1. Forward Translation

Before the translation commenced permission was sought from Psychological Assessment Resources (PAR) for the translation of the NEO-PI-R into Tigrigna language. Later three people were involved in the translation process. Initially the researcher himself, who speaks both languages i.e. Tigrigna and English, had translated the NEO-PI-R into Tigrigna. Then the translated version was given to the Department of Psychology at the University of Asmara and checked by a member of the staff from the department who speaks English and Tigrigna fluently. In addition an individual from PFDJ (Peoples Front for Democracy and Justice) who also uses both languages extensively and has translation experience from English to Tigrigna and who writes Tigrigna dictionaries was approached to check the translated Tigrigna NEO-PI-R version. Finally after the comments and some corrections from these people the researcher made it ready for back translation. [3]

4.7.1.2. Backward Translation

Another individual who can speak Tigrigna, English, French, Italian, Amharic and who uses all these languages extensively, fluently and has experience in translation was approached to back translate the Tigrigna NEO-PI-R into English. The translator was unfamiliar with the subject matter thus when he got unfamiliar words and concepts to understand the translator was not allowed to use literal translation, which could cause misunderstanding in the target population. If the translator was unfamiliar with the concepts in the subject matter he was

[3] See appendix F for the Tigrigna Translated version of NEO-PI-R

asked to approach the researcher for explanation. The back-translated Tigrignan version was given to the researcher's supervisor, at the University of the Witwatersrand in the department of Psychology, for comments and some corrections. The researcher and the supervisor compared the English back-translated NEO-PI-R to the original English version of NEO-PI-R and changes were then retranslated with the help of the other postgraduate Eritrean students at the university of the Witwatersrand. The final version was sent to the author, Dr. Robert McCrae together with a list of items, which were problematic to translate.[4]

McCrae made comments on 36 items and asked the researcher and the supervisor to review these items. Based on the comments the researcher retranslated the 36 items and had these back translated by individuals from linguistics and history departments at the University of the Witwatersrand who were fluent in Tigrigna and English. Once this was done it was sent to Dr McCrae for second approval. Minor comments on three items were received and the translation process was finalized. The researcher then sent the final version of the NEO-PI-R to the PAR and permission was obtained to go ahead with data collection[5]

4.7.2. Administration Procedure

Once approval was received from the PAR the researcher trained and recruited five volunteers to assist with data collection .The individuals include two psychologists from the Department of Psychology at the University of Asmara, one psychologist from the Ministry of Health, one social worker from the Ministry of labor and welfare, and one lecturer from the college of Nursing and Health Technology. They were given training concerning the administration and the procedures to be followed while administering the quetionnaires.[6]
Specifically, students from the Faculty of Education were first approached to complete the questionnaire due to the easy accessibility of these participants compared to other faculties. This faculty also consists of the largest number of students. Students were approached around the compound Students generally completed the questionnaire in 40 to 50 minutes. Once they completed they were asked to put the questionnaire in a box.

[4] See Appendix G for the English Back translated version of the NEO-PI-R
[5] See Appendix J permission for the use of NEO-PI-R from the PAR
[6] See Appendix B and C respectively for the permission given from the University of Asmara and School of Nursing and Health Technology

One psychologist approached students at Halhale Certificate College during lecture time. Similar to the university students they were informed about the objectives and aims of the study. The questionnaire was administered before the lecture and they were asked to give it back to the lecturer in the next lecture, which was after one week. Similarly students of nursing and health technology were approached during the lecture time by one of the lecturers in that college.

However, a different procedure was followed in the Ministry of Health and Ministry of Labor and Welfare offices. A psychologist from the Family and Community Unit and a social worker from the Ministry of Welfare and Labor Office approached their co-workers during office hours individually at their offices. Volunteer individuals were asked to complete the questionnaire within a week. After one week the two individuals collected the completed questionnaire from the respondents.

As a whole the questionnaire was administered within a period of 3 weeks and about 436 were collected. Finally, once the data was collected, responses on the questionnaire were entered and scored on computer and the relevant statistical analyses were conducted.

4.8. ETHICAL CONSIDERATIONS

According to the APA ethical code of professional conduct (APA, 1992) researchers should not deceive participants in research about important aspects that would affect their willingness to participate in the research. Hence the researcher considered various ethical requirements when conducting this research. Participants were given an information sheet[7] that informed them about the objectives of the study. In addition participants were informed that their participation in the study was voluntary and no negative consequences would be enforced on participants who decided not to participate. Anonymity was ensured in that no identifying data was requested from the respondents. In addition the participants were informed that their responses would be kept confidential and would be analyzed by the researcher and the researcher's supervisor. On completion of the study the questionnaires will be destroyed. No individual feedback was given since the study was namely concerned

[7] See Appendix D and E for the ethical information in English and Tigrigna respectively

to determine group trends. However, if participants required further information they were given the contact details of the researcher, i.e. the researchers' e-mail address, mobile phone number and postal address.

4.9. STATISTICAL ANALYSIS

4.9.1. Descriptive Statistics

The statistical analysis began with the investigation of the descriptive statistics. Descriptive statistics in the form of frequencies for gender and level of education was examined so as to describe the categorical demographic characteristics in the study. Descriptive statistics in the form of means, standard deviations, maximum and minimum scores, and skewness co-efficient were examined for the continuous variables of age, and the scales of the NEO-PI-R. Skewness coefficients were calculated to allow the researcher to test for the parametric assumption of normality.

4.9.2. Reliability of the NEO-PI-R

4.9.2.1.Internal Consistency Reliability

The internal consistency NEO-PI-R was calculated using Cronbach's alpha. Cronbach's coefficient alpha is a general formula for estimating the reliability of a test in which items typically have three or more answer options (Anastasi, 1988). Thus it is also appropriate to use Cronbach's alpha for NEO-PI-R since it consists of five answer options i.e. strongly disagree, disagree, neutral, agree, and strongly agree. Cronbach's alpha was calculated generally for all the samples and particularly and the result was compared with reports from USA.

4.9.3. Validity of the NEO-PI-R

4.9.3.1. Face Validity

Face validity of the NEO-PI-R was determined by asking respondents whether the NEO-PI-R questionnaire appears to be assessing personality or not. Thus frequencies were used to determine whether individuals thought that the questionnaire appears to assess their personality or not.

4.9.3.2. Content Validity

Content validity in the study was done on two bases. First judgment was done by McRae, the author of the NEO-PI-R, for the back translation of the NEO-PI-R so as to compare it with the original version. In addition respondents were also asked to give their judgment and whether there were items that were inappropriate and if there were items that were difficult to understand. Thus frequencies were used to determine whether individuals thought that there were inappropriate items and problematic items for understanding.

4.9.3.3. Construct Validity

Construct validity in the study was done on two bases; first factor analyses were used to determine the number of factors. Factorial analyses is a generic term for a family of statistical techniques concerned with the reduction of a set of observable variables in terms of a small number of latent factors (ACITS, 1995). Since the study is exploratory in nature, an exploratory factor analysis was utilized. Exploratory factor analysis (EFA) is generally used to discover the factor structure of a measure. EFA is often recommended when researchers have no hypotheses about the nature of the underlying factor structure of their measure. Exploratory factor analysis has three basic decision points: (1) decide the number of factors, (2) choose an extraction method, (3) choosing a rotation method (ACITS, 1995).

In terms of extracting factors the most common approach, which is called a scree plot, with the eigen value and percentage of variance explained by each factor was utilized so as to determine the number of factors. The scree plot is a two-dimensional graph with factors on the x-axis and eigen value*s* on the y-axis.

Once the numbers of factors were decided the researcher utilized principal component analysis to get the loadings for each of the factors. Principal component analysis was utilized considering its effectiveness to determine the factors that explain all the variance including the error variance in any particular correlation matrix (Laher, 2001).

After an initial solution was obtained, the loadings were rotated so as to maximize high loadings and minimize low loadings so that the simplest possible structure is achieved.

Generally orthogonal rotation and specifically varimax orthogonal rotation were utilized assuming that there is no correlation among the factors (htt://www.utexas.edu/cc/stat/).

Secondly correlation matrix was utilized to examine the correlation among the domain scales and among the different facets.

4.9.4. Determining Tigrigna Norming for the NEO-PI-R

In determining the norms of the Eritrean samples the study-utilized percentiles. The raw scores were converted into percentiles in order to construct a normal distribution that allows ranking of individual by comparing their scores to the general sample scores. The study used a standard deviation of 10 to maximize the normal distribution. Norming was calculated for the domains and for each facet. In addition norming was calculated generally for all the samples and differently for males and females at the domain and facet levels. McCrae and Costa (1992) used similar method to develop norming in the USA sample.

4.9.4.1. Age and Personality

Spearman correlational analysis was utilized between age, and the domains of the NEO-PI-R and their facets. Since age was highly skewed to the right, non-parametric Spearman's correlation co-efficient was used to determine the correlation between age and the NEO-PI-R domains and facets.

4.9.4.2 Gender, Education and Personality

One-way ANOVA was utilized to examine whether there was a significant difference in personality between males and females. The Levene's test for homogeneity of variance was used to check for homogeneity of variance in the distribution. Results showed that except N2, E2, O2, O4, and C5, the other domain and facet met the criteria of homogeneity of variance. Thus, considering the homogeneity of variance the study applied parametric one-way analysis of variance (ANOVA) for these scales to examine whether there was a statistical significant difference between males and females in personality. However, non-parametric

Kruskal-Wallis ANOVA was used to determine whether there was a significant difference between males and females for N2, E2, 02, O4, and C5 facet scales.

Similarly Levene's test of homogeneity of variance was utilized to determine the homogeneity. Domain scale A and facet scale A3 did not meet the condition of homogeneity of variance. Hence, a non-parametric Kruskal-Wallis ANOVA was utilized to determine whether a statistical significant difference excited between levels of education and A and A3 respectively.

Post-hoc tests, utilizing Turkey's HSD (honestly significant difference) test, were used to look at significant differences found in the parametric analysis of variance. Turkey's test controls the error rate for all comparisons minimizing the chances of a Type I error (Laher, 2001). However, since post testing could not be able to detect significance pair wise for the scales of N5, N, A1, A6, A, C2, C3, C4, C5, C6, and C only comparison means among groups was held.

For comparisons between the different educational groupings utilizing the non-parametric Kruskal-Wallis ANOVA, post-hoc testing could not be done since post-hoc testing was not feasible for pair wise comparisons. Thus mean ranks would be analyzed to determine general trends rather than utilizing post-hoc tests.

4.10. CONCLUSION

This chapter provided an outline of the methods utilized in this study including the procedures that were applied to collect the sample and to translate the NEO-PI-R and finally the statistical analyses applied in this study. The next chapter will present the result findings of this study.

CHAPTER 5: RESULTS

5.1. INTRODUCTION

This chapter presents all the results obtained in this study. The chapter first presents statistics for the demographic information, followed by the descriptive statistics for the different scales of NEO-PI-R.The chapter then discusses results for reliability of the Tigrigna translated NEO-PI-R.The validity of the Tigrignan translated NEO-PI-R (i.e. face validity, content validity, and construct validity) in the Eritrean context will be discussed followed by norming results of the NEO-PI-R in the Eritrean context. Finally correlational results for age and personality followed by ANOVA results for gender, and educational levels are presented in the chapter. However, before starting to look at the results, it is important to know some of the abbreviations used in this study.

Key to abbreviations used in tables:

N- Neuroticism
E-Extraversion
O- Openness
A- Agreeableness
C-Consciousness
N1- Anxiety
N2- Anger Hostility
N3- Depression
N4-Self Consciousness
N5- Impulsiveness
N6- Vulnerability
E1-Warmth
E2- Gregariousness
E3- Assertiveness
E4- Activity
E5-Excitement-Seeking
E6- Positive-Emotion
O1- Fantasy
O2- Aesthetics
O3- Feelings
O4- Actions
O5- Ideas
O6- Values
A1- Trust
A2- Straightforwardness
A3- Altruism
A4- Compliance
A5- Modesty
A6-Tender-Mindedness
C1-Competence
C2- Order
C3- Dutifulness
C4-Achievement Striving
C5- Self-Discipline
C6- Deliberation

Symbol in (*) indicates significance at $p < 0.05$

Symbol in (**) indicates significance at $p < 0.01$

5.2. DESCRIPTIVE STATISTICS FOR DEMOGRAPHIC INFORMATION

5.2.1.Age

	N	Mean	Std.Dev	Minimum	Maximum	Skewness
Age	408	27.24	8.721	18	72	+1.66

Table 5.1. Descriptive statistics for age

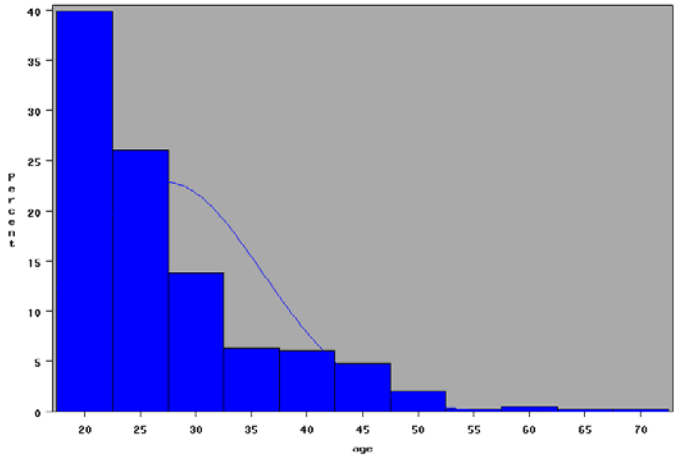

Figure 5.1. Distribution of age

From table 5.1 and figure 5.1 we can see the age range of the sample was between 18-72. The mean age was 27.24 years with a standard deviation of 8.721. The skewness co-efficient for age was 1.66.This indicated that the age variable in this study was highly skewed to the right.

Variable		Frequency	Percentage	Cumulative Percentage
Gender	Males	265	64.60	64.60
	Females	135	33.00	97.6
	Missed	10	2.40	100
Educational Status	First year	33	8.09	8.09
	Second year	79	19.36	27.45
	Third year	33	8.09	35.54
	Fourth year	81	19.85	55.39
	Diploma	65	15.93	71.32
	Certificate	60	14.71	86.02
	High school	59	13.98	100

Table 5.2. Descriptive statistics for gender and educational level

5.2.2. Gender

From table 5.2 it was clear that the sample consisted of 265 (66.6%) males and 135(33%) females, and 10(2.4%) individuals did not fill in their gender.

5.2.3. Educational Level

Table 5.2 indicated that among the respondents 33(8.09%) were first year students, 79(19.36%) were second year students, 33(8.09%) were third year students, 81(19.85%) were fourth year students. In addition 65(15.93%) were students who were doing diplomas in nursing and 60(14.71%) of the participants were doing certificate training in Halhale College. The rest of the participants i.e. 59(13.98%) only completed high school.

5.3. DESCRIPITIVE STATISITCS OF THE NEO-PI-R

NEO-PI-R Scale	Mean	Std.Dev	Maximum	Minimum	Skewness
Domains					
N: Neuroticism	132.60	15.80	174	75	0.33
E: Extraversion	146.25	10.55	186	118	0.31
O: Openness	144.77	9.94	170	115	0.20
A: Agreeableness	116.46	14.21	200	93	0.61
C: Consciousness	167.12	16.53	214	124	0.05
Neuroticism Facets					
N1: Anxiety	22.26	3.91	34	8	0.01
N2: Anger Hostility	20.51	3.98	33	10	0.26
N3: Depression	23.33	4.31	35	9	0.19
N4:Self Consciousness	25.08	3.83	35	13	0.09
N5: Impulsiveness	20.77	3.81	32	10	0.06
N6: Vulnerability	20.61	3.87	30	8	0.13
Extraversion facets					
E1: Warmth	27.36	3.83	38	15	0.06
E2: Gregariousness	23.14	3.91	34	12	0.23
E3: Assertiveness	20.44	3.66	32	10	0.31
E4: Activity	22.39	3.32	32	13	0.20
E5: Excitement-Seeking	25.60	3.60	36	14	0.09
E6: Positive-Emotion	27.60	4.26	40	14	0.01
Openness facets					
O1: Fantasy	20.91	3.50	34	13	0.31
O2: Aesthetics	26.60	4.63	40	10	0.24
O3: Feelings	25.51	3.19	36	15	0.06
O4: Actions	22.83	3.04	32	13	0.33
O5: Ideas	26.30	4.08	38	12	0.04
O6: Values	22.53	3.21	33	15	0.25
Agreeableness facets					
A1: Trust	25.45	3.39	33	11	0.42
A2: Straightforwardness	27.61	3.73	38	16	0.08
A3: Altruism	28.31	3.87	37	11	0.31
A4: Compliance	27.6	3.87	40	15	0.34
A5: Modesty	28.16	3.95	39	12	0.31
A6: Tender-Mindedness	29.29	3.98	39	15	0.54
Consciousness facets					
C1: Competence	25.80	3.50	38	16	0.25
C2: Order	28.59	3.54	36	16	0.37
C3: Dutifulness	30.49	4.30	40	14	0.40
C4: Achievement Striving	28.63	3.70	39	14	0.24
C5: Self-Discipline	25.76	3.37	36	13	0.01
C6: Deliberation	27.84	4.11	40	17	0.08

Table 5.3. Descriptive statistics for the NEO-PI-R

Table 5.3 showed the means, the standard deviations, skewness coefficient, the maximum and the minimum values of the domain and the facet scales. As can be seen the mean value for the Neuroticism, Extraversion, Openness to experience, Agreeableness, and Consciousness domains with their facets.

It is clear that the mean value of the Neuroticism domain is 132.6 with the maximum value of 174 and the minimum value of 75, and a standard deviation of 15.80.The mean value for the anxiety, anger hostility, depression, self-Consciousness, impulsiveness and vulnerability were 22.26, 20.51, 23.33, 25.08, 20.77, and 20.61 respectively for each of the Neuroticism facet scales. The maximum value of the Neuroticism facets was 34 and the minimum value was 8.

The mean value of the Extraversion domain is 146.25 with the maximum value of 186 and the minimum value of 118 with a standard deviation of 10.55.The mean value of Extraversion facets warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotion are 27.36, 23.14, 20.44, 22.39, 25.60, and 27.60 respectively. The maximum value of the Extraversion facets was 40 with a minimum value of 8.

The mean value of the Openness domain is 144.77 with the maximum value of 170 and the minimum value of 115 with a standard deviation of 9.94.The mean value of the Openness facets of fantasy, aesthetic, feelings, actions, ideas, and values are 20.91, 26.6, 25.5, 22.83, 26.30, 22.53 respectively. The maximum value of the Openness to experience facets was 40 with a minimum value of 10.

The mean value of the Agreeableness domain was 116.46 with the maximum value of 200 and the minimum value of 93 with a standard deviation of 14.21.The mean values of the Agreeableness facets of trust, straightforwardness, altruism, compliance, modesty, and tender

mindedness are 25.45, 27.61, 28.31, 27.6, 28.16, and 29.29 respectively. The maximum and minimum value of the Agreeableness facets ranged between 11 and 40.

The mean value of the Openness domain was 144.77 with the maximum value of 170 and the minimum value of 115 with a standard deviation of 9.94.The mean value of the Openness facets of fantasy, aesthetic, feelings, actions, ideas, and values are 20.91, 26.6, 25.5, 22.83, 26.30, 22.53 respectively. The maximum and minimum value of the Consciousness facets ranged between 10 and 40.

5.4 RELIABILITY FOR THE NEO-PI-R

Internal consistency reliability coefficient using Cronbach's alpha was presented in table 5.4.1.

5.4.1. Internal Consistency Reliability

NEO-PI-R Scale	Cronbach Alpha	NEO-PI-R Scale	Cronbach Alpha
Domains			
Neuroticism	0.79	Agreeableness facets	
Extraversion	0.50	A1: Trust	0.30
Openness	0.45	A2: Straightforwardness	0.32
Agreeableness	0.73	A3: Altruism	0.46
Consciousness	0.82	A4: Compliance	0.37
Neuroticism Facets		A5: Modesty	0.45
N1: Anxiety	0.49	A6: Tender-Mindedness	0.49
N2: Anger Hostility	0.45	Consciousness facets	
N3: Depression	0.51	C1: Competence	0.37
N4: Self-Consciousness	0.42	C2: Order	0.35
N5: Impulsiveness	0.46	C3: Dutifulness	0.61
N6: Vulnerability	0.48	C4:Achievement Striving	0.40
Extraversion facets		C5: Self-Discipline	0.30
E1: Warmth	0.44	C6: Deliberation	0.56
E2: Gregariousness	0.38		
E3: Assertiveness	0.32		
E4: Activity	0.29		
E5: Excitement-Seeking	0.24		
E6: Positive-Emotion	0.56		
Openness facets			
O1: Fantasy	0.32		
O2: Aesthetics	0.59		
O3: Feelings	0.22		
O4: Actions	0.02		
O5: Ideas	0.45		
O6: Values	0.10		

Table 5.4. Cronbach alpha reliability co-efficients

The internal consistency for the domains of Neuroticism, Extraversion, and Openness to experience, Agreeableness and Consciousness are 0.79, 0.50, 0.45, 0.73, and 0.82 respectively. There was high internal consistency reliability for the domains of Neuroticism, Agreeableness and Consciousness, whereas the reliability consistency coefficient for the Extraversion and Openness to experience domains were moderate low.

The coefficient alpha for the Neuroticism subscales namely anxiety; anger hostility, depression, self-Consciousness, impulsiveness and vulnerability were 0.49, 0.45, 0.51, 0.42, 0.46, and 0.48 respectively. The coefficient alphas for the Extraversion facets were 0.44, 0.38, 0.32, 0.29, 0.24, and 0.56 for warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotion respectively.

Similarly there was a coefficient alpha of 0.32 for fantasy, 0.59 for aesthetic, 0.22 for feelings, 0.12 for actions, 0.45 for ideas, 0.10 for values for the domains of Openness to Experience. In terms of the Agreeableness facets the coefficient alpha for the facets of trust, straightforwardness, altruism, compliance, modesty, and tender mindedness was 0.30, 0.32, 0.46, 0.37,0.45 and 0.49 respectively. Finally Consciousness facets coefficient alpha indicated a coefficient alpha of 0.37, 0.35, 0.61, 0.40, 0.30, and 0.56 for competence, order, dutifulness, achievement striving, self-discipline and deliberation respectively. As a whole the internal consistency of the sub scales for each domain ranged between the coefficient of 0.59 and 0.10.

5.5. VALIDITY OF THE NEO-PI-R

5.5.1. Face Validity

	Frequency	Percentage	Cumulative Frequencies	Cumulative Percentage
Yes	346	84.39	346	84.39
No	34	8.23	380	92.62
Missing	30	7.31	410	100

Table 5.5. Face validity frequencies

Table 5.5 showed the responses of the participants to the question ' Does this questionnaire really appear to measure personality?' and the result indicated almost 346(84.39%) of the respondents agreed that the NEO-PI-R does appear to assess personality but 34(8.23%) said the questionnaire does not appear to measure personality. Finally, 30(7.31%) of the respondents did not give their opinion regarding this question.

5.5.2. Content Validity

The content validity of the study was carried out on two bases. Firstly judgment were given from the authors of the NEO-PI- R whether there was a correct translation done or not and table 5.6 reveals some of the items which were considered as problematic item in the translation. Secondly, participants were asked to give their judgmental comments regarding the items, which were not proper and problematic to understand.

Item No	Item Statement	Domain	Facet
13	Without strong emotions, life would be uninteresting to me	Openness (O)	Feelings (O3)
16	In dealing with other people, I always dread making a social blunder	Neuroticism (N)	Self-Consciousness (N4)
17	I have a leisurely style in work and play	Extraversion (E)	Activity (E4)
20	I am easy going and lackadaisical	Consciousness(C)	Achievement Striving (C4)
35	I believe that most people basically are well intentioned	Consciousness(C)	Competence (C1)
37	I like to have a lot of people around me	Extraversion (E)	Gregariousness (E2)
45	Some times I am not as dependable or reliable as I should be	Consciousness(C)	Dutifulness (C3)
46	I seldom feel self-conscious when I am around people.	Neuroticism (N)	Self-Consciousness (N4)
52	I wouldn't enjoy vacationing in Las Vegas	Extraversion (E)	Excitement-seeking (E5)
59	I am hard-headed and tough minded in my attitude	Agreeableness (A)	Tender-mindedness (A6)
82	I have sometimes done things just for kicks or thrills	Extraversion (E)	Excitement –Seeking (E5)
87	I am not a cheerful optimist	Extraversion (E)	Positive Emotion (E6)
90	Occasionally I act first and think later	Consciousness(C)	Deliberation (C6)
95	I often come into situations without being fully prepared	Consciousness(C)	Competence (C1)
97	I really feel the need for other people if I am by myself for long.	Extraversion (E)	Gregariousness (E2)
105	Some times I cheat when I play solitaire	Consciousness(C)	Dutifulness (C3)
106	It doesn't embarrass me too much if people ridicule and tease me.	Neuroticism (N)	Self-Consciousness (N4)
115	I have trouble making myself do what I should	Consciousness(C)	Self-Discipline (C5)
118	I believe that the different ideas of right and wrong that people in other societies have may be valid for them	Openness (O)	Values (O6)
127	I prefer jobs that let me work alone without being bothered by other people	Consciousness(C)	Competence (C1)
135	When I make a commitment, I can always be counted on to follow through.	Consciousness(C)	Dutifulness (C3)
142	I like to be where the action is	Extraversion (E)	Excitement- Seeking (E5)
150	I often do things that might go wrong	Consciousness (C)	Deliberation (C6)
156	It takes a lot to get me mad	Neuroticism (N)	Anger Hostility (N2)

157	I would rather vacation at a popular beach than an isolated cabin in the woods	Extraversion (E)	Gregariousness (E2)
158	Certain kinds of music have an endless fascination for me	Openness (O)	Aesthetics (O2)
160	I tend to be some what fastidious or exacting	Consciousness(C)	Order (C2)
167	I usually seem to be in a hurry	Extraversion (E)	Activity (E4)
174	I feel that I am no better than others, no matter what their condition.	Agreeableness (A)	Modesty (A5)
190	I am not compulsive about cleaning	Consciousness(C)	Order (C2)
193	I find it easy to emphasize-to feel my self what others are feeling	Openness (O)	Feelings (O3)
197	My life is fast paced	Extraversion (E)	Activity (E4)
201	Some times I do things on impulsiveness	Neuroticism (N)	Impulsiveness (N5)
213	I would have difficulty just letting my mind wander with out control or guidance	Openness (O)	Fantasy (O1)
222	I do not find it easy to take charge of the situation	Extraversion (E)	Assertiveness (E3)
231	I am always able to keep my feelings under control	Neuroticism (N)	Impulsiveness (N5)

Table 5.6. Problematic items in the translation process

As can be seen from the above table there was a problem in the translation of 36 items and these were revised based on the comments given from the authors. Among the problematic items 6(16.6%) of them were from Neuroticism domain, particularly three items were from self-Consciousness facet, two items were from impulsiveness facet, and one item was from anger hostility facet.11 (30.05%) of the problematic items were from the Extraversion domain i.e. three items from Gregariousness (E2) facet, one item from Assertiveness (E3) facet, three items from Activity (E4) facet, three items from Excitement seeking (E5) and one item from positive emotions (E6) facet.

Similarly the Openness domain consisted 5(14%) of the problematic items namely, one item from fantasy (O1) facet, one item from Aesthetic (O2) facet, two items from Feeling (O3) facet, and lastly one item from Value (O6) facet. Unlike the above domains the Agreeableness domain obtained only 2 (5.5%) problematic items, one from Tender mindedness (A6) facet and one from Modesty (A5) facet. Finally similar to the Extraversion domain the Consciousness domains consisted of 11(30.5%) problematic items, which are

three items from Competence (C1) facet, two items from the Order (C2) facet, two items from Dutifulness (C3), one item from the Achievement striving (C4) facet, one item from self discipline (C5) facet and C6 from the Deliberation (C6) facet.

As a whole, majority of the problematic items were from the Extraversion domain and Consciousness domain, followed by items from Neuroticism, and Openness. However, the Agreeableness items consisted of among the least problematic items.

Response	Frequency	Percentage	Cumulative Percentage
Yes	110	26.1%	26.1%
No	249	60.7%	86.8%
Missing	51	13.2%	100%

Table 5.7. Content validity frequencies – appropriateness of items

The above table-displayed results regarding question number 3, " Are there any items you thought were inappropriate? If yes please specify the numbers". The result indicated that 26.1%(110) of the respondents were agreed that there were inappropriate items in the questionnaire, while 60.7% (249) of the participants were agreed that there were no inappropriate items in the questionnaire and 13.2% (51) of the respondents did not give any response at all regarding the above question.

No	ITEM	Frequency
13	Life without feelings means nothing to me	1
17	I work and play in an unhurried style	1
21	I set limits to everything	1
27	I have never jumped for joy	1
29	Political leaders should be aware of the human aspect of their policies	3
39	I don't mind to manipulate people to get what I want	2
52	I don't like going to Shamrook to enjoy myself	1
57	I have sometimes experienced a feeling of joy and rapture	1
58	I believe that laws and social policies should be changed in order to reflect the demands of this changing world	1
63	I have an active life of day dreaming	1
68	Classical or modern dances bore me	2
73	It is important to me how I feel about things	1
81	I don't have a problem in confronting temptation	1
89	We can never do too much for the poor and the elderly	1
105	I sometimes cheat when I play cards by myself	1
111	When I get some food that I like, I eat myself sick	7
125	I value myself for having the right and balanced outlook	1
126	I get disgusted of some people I meet in work	1
129	I don't want to be considered a hypocrite	1
133	I have a wide range of feelings and emotions	1
149	Human needs and demands should come before economic considerations	1
163	I seldom give attention to the mental state and feelings that various environments create	2
169	When someone picks a fight, I am ready to fight him	1
170	I try my best to achieve all that I can possibly achieve	1
171	Sometimes I eat myself sick	1
182	I have a strong attachment to my friends	1
185	I am very skillful	2
199	I am obstinate and stubborn	1
208	When people at the age of 25 don't know what to believe, it means they have a problem	1
213	I find it difficult to drift in thoughts without control or guidance	1
214	I have big faith in man's nature	1
223	An old odor like a particular perfume or the names of far away places create strong emotions in me	1
228	I use the same route to go to a given place	1
230	I am workaholic	4
234	I am better than anyone	8
239	I like to be known as 'merciful' rather than 'just'	1

Table 5.8. Content validity themes – appropriateness of items

As can be seen from table 5.8 there was no communality on the responses except for items 234 " I am better than any one", item 230 " I am workaholic", item 111, " When I got some food that I like, I eat my self sick", and finally item 29 " political leaders should be aware of the human aspects of their policies".

	Frequency	%	Cumulative %
Yes	196	47.8	47.8
No	176	42.9	90.7
Missing	38	9.3	100

Table 5.9. Content validity frequencies – understanding of items

The above table displayed results regarding question number 4 " Did you get items which are very difficult to understand? If yes please specify the numbers". 47.8% (196) of the respondents agreed that they found difficult items and 176(42.9%) of the respondents said that there were no any difficult items, but 38 (9.3%) of the respondents were refrained from giving their opinions.

No	ITEM	Frequency
13	Life without feelings means nothing to me	1
37	I like many people to be around or near me	1
39	I don't mind to manipulate people to get what I want	1
46	When people are around me I feel comfortable	3
47	When I do something I put a lot of energy in it	1
48	I think that learning or developing a new hobby is important	1
58	I believe that laws and social policies should be changed in order to reflect the demands of this changing world	1
63	I have an active life of day dreaming	5
73	It is important to me how I feel about things	1
81	I don't have a problem in confronting temptation	1
85	I am always successful and productive person	1
116	I keep a cool head in times of emergency	1
126	I get disgusted of some people I meet in work	1
129	I don't want to be considered a hypocrite	1
132	People expect me to make decisions	1
133	I have a wide range of feelings and emotions	1

140	I don't feel I have motivation to go ahead	1
148	It is better to be faithful to one's aims and principles than having an open mind	1
149	Human needs and demands should come before economic considerations	1
151	Most of the time I worry about the things that might go wrong	1
182	I have a strong attachment to my friends	1
183	When I was a child, I never liked make-believe games	1
190	I am not worrying too much about cleanliness	1
208	When people at the age of 25 don't know what to believe, it means they have a problem	1
223	An old odor like a particular perfume or the names of far away places create strong emotions in me	1
238	The morality which is based on permissiveness is not morality at all	5
239	I like to be known as 'merciful' rather than 'just'	9

Tables 5.10. Content validity themes – understanding of items

As can be seen from the information displayed in table 5.10 there was no communality in the responding of the participants except for very few items namely item 63 " I have an active life of day dreaming", item 238 " The morality which is based on permissiveness is not at all a morality" item 239 " I like to be known as a "merciful" rather than "just".

5.5.3. Construct Validity

Similar to the other studies this study reviewed construct validity psychometric properties of the translated version of the NEO-PI-R. The study considered the factorial analysis in addition to the scale intercorrelation of the NEO-PI-R.

5.5.3.1. Factor Structure of the NEO-PI-R

In deciding on the number of factors the study considered both the theoretical and empirical factors. On the theoretical level McCrae and Costa (1992) suggested the scales on the NEO-PI-R were based on the five-factor model of personality. That is the 240 items in the NEO-PI-R can provide five factors after they are properly extracted using the right procedure. According to Anderson, et.al (1998) 0.28-factor magnitude can be considered as a loaded

item or scale in each factor, in the same way this also utilized a magnitude of 0.28 to consider the item or the scale was loaded on each factor.

However, since the study is based on the exploratory factor analysis factoring an empirical level were also considered. Thus at the empirical level scree plots were examined, in addition to the variance explained by each factor.

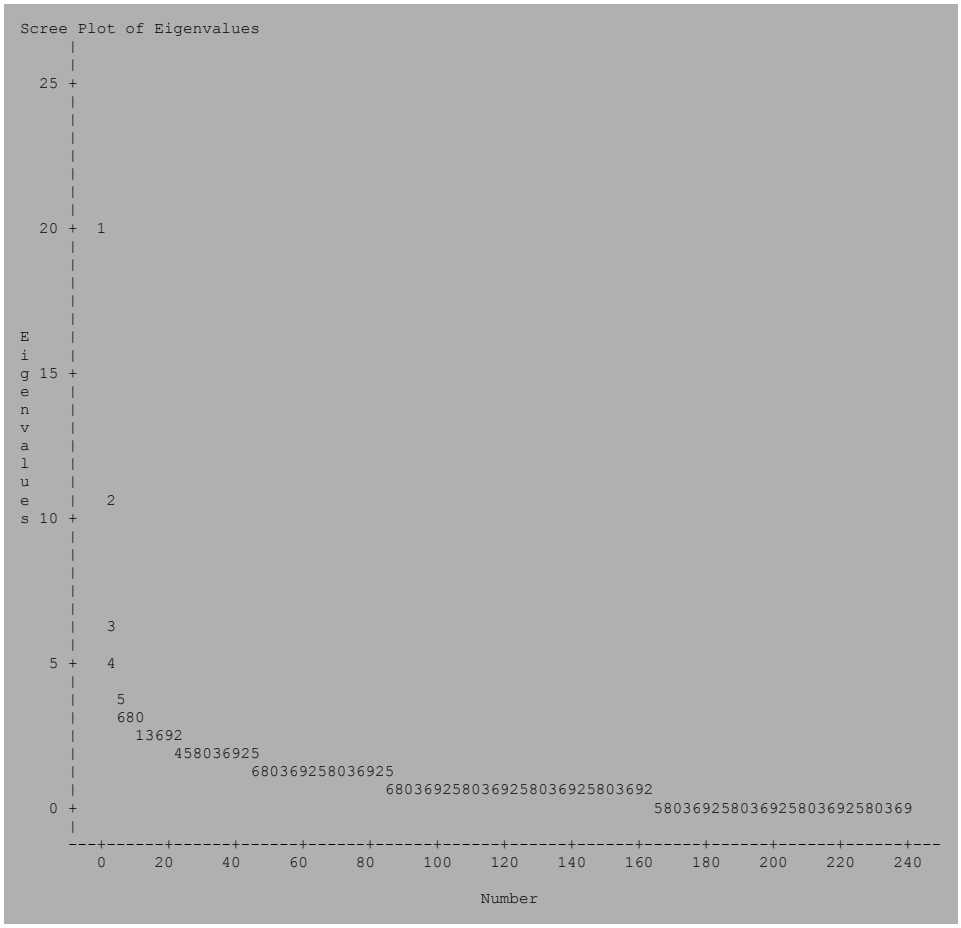

Figure 5.2. Scree plot for the NEO-PI-R at the item level

No of Factors	Variance	% Of Variance	Cumulative %
1	18.95	40.029	40.029
2	12.07	25.496	65.525
3	6.27	13.244	78.769
4	5.89	12.441	91.210
5	4.47	8.790	100
Total	47.34	100	

Table 5.11. Percentage of variance explained by each factor at the item level

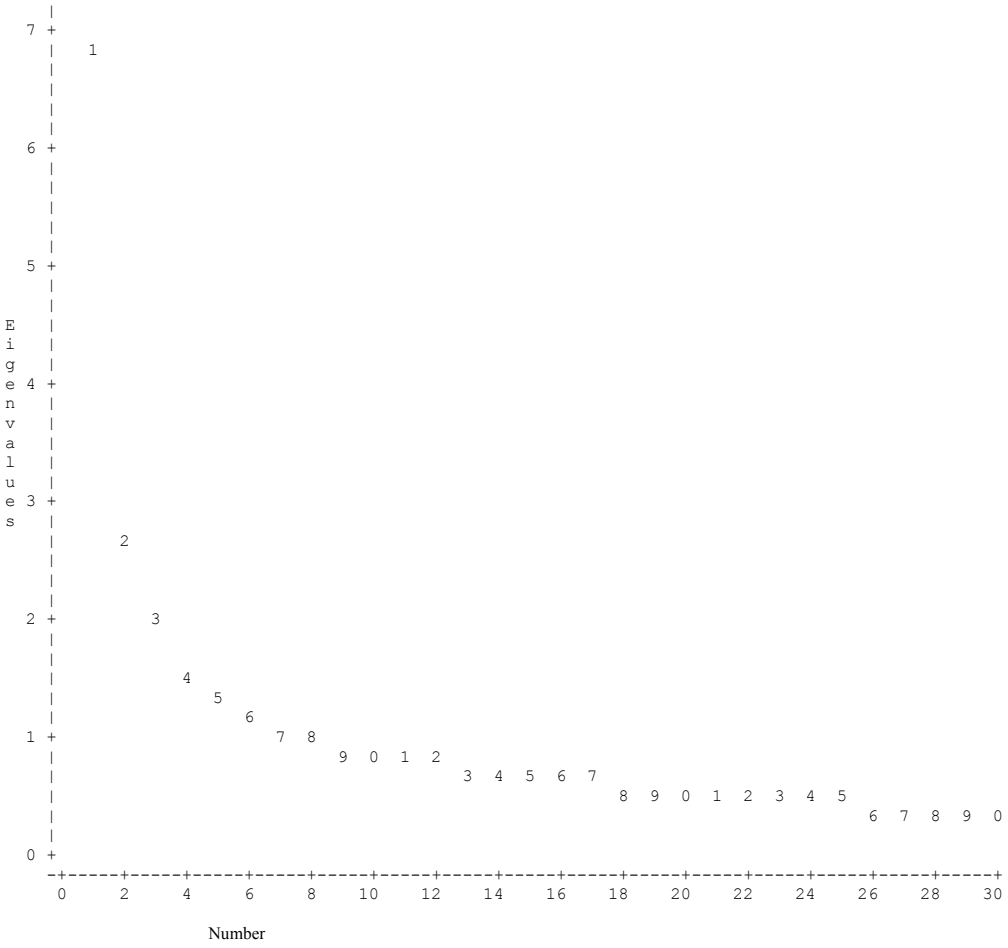

Figure 5.3. Scree plot for the NEO-PI-R at the scale level

No of Factors	Variance	% Variance	Cumulative %
1	4.39	31.05	31.05
2	2.68	18.95	50.00
3	2.53	17.90	67.90
4	2.38	16.84	84.74
5	2.15	15.26	100
Total	14.13	100	

Table 5.12. Percentage of variance explained by each factor at the scale level

The above scree plots indicated that five factors could be extracted both at the item level and the scale level. The variance explained by each factors can be also seen from the above tables. The variance explained by factor 1 was 40.029%, factor 2 was 25.496%, factor was

13.244%, factor 4 was 12.441% and factor 5 was 8.79 %for the principal component analysis at the item level. In addition the variance explained by each factors at the scale level was 31.05%, 18.95%, 17.90%, 16.84%, and 15.26% for factors one, two, three, four and five respectively.

5.5.3.2. Varimax -Rotated Five-Factor Solution

Facet scales	Factor1	Factor2	Factor3	Factor4	Factor5
N1	-0.26395	0.03367	**0.58938**	**-0.38174**	-0.01059
N2	-0.20260	**-0.44850**	**0.51272**	-0.21040	0.07065
N3	-0.23725	0.06947	**0.70344**	-0.12632	-0.05040
N4	-0.07807	0.08237	**0.65642**	-0.02288	0.12381
N5	**-0.65770**	-0.10087	0.06368	-0.22648	0.05231
N6	**-0.54032**	-0.00840	**0.37924**	**-0.32967**	-0.20259
E1	0.20359	0.13234	-0.15476	**0.62596**	0.27677
E2	-0.27087	-0.00527	**-0.46982**	0.07094	**0.40580**
E3	-0.12164	**-0.59228**	-0.19412	0.01974	0.13143
E4	-0.06421	**-0.56246**	0.27406	0.18855	0.01308
E5	-0.10486	-0.08992	0.06762	0.05395	**0.56051**
E6	0.07281	0.23987	-0.17108	**0.43372**	0.17416
O1	**-0.44128**	**-0.29889**	0.10190	-0.07001	0.17801
O2	0.21950	0.12929	-0.02942	-0.09566	**0.67032**
O3	0.27780	-0.21085	-0.01765	0.15827	**0.47162**
O4	**-0.37087**	0.01420	-0.22891	-0.24812	0.15912
O5	0.27702	-0.07103	-0.06924	0.15074	**0.55515**
O6	-0.00273	**-0.37145**	-0.17116	0.04566	**-0.36830**
A1	0.13497	-0.09942	-0.06425	**0.63417**	-0.11328
A2	**0.28769**	**0.39012**	0.04804	**0.40231**	-0.23855
A3	**0.29558**	0.21512	-0.13694	**0.53622**	0.18337
A4	0.17356	**0.61043**	-0.05070	**0.35925**	-0.10831
A5	0.19996	**0.59816**	0.06855	0.18435	0.03826
A6	0.23399	**0.50163**	**0.38756**	0.26601	0.26600
C1	**0.56735**	-0.04203	-0.23009	0.25549	0.17821
C2	**0.59497**	0.27331	0.04511	0.11692	0.18359
C3	**0.71027**	0.17450	0.02952	**0.30960**	0.11604
C4	**0.62621**	0.25773	0.03621	0.09331	0.14341
C5	**0.68104**	0.04060	-0.26521	0.00720	0.06734
C6	**0.68400**	0.22098	-0.23348	-0.00189	0.14588

Table 5.13. Varimax-rotated five factor solution for this subscale

Factor 1

Varimax rotation of factor analysis at the scale level shows that 12 scales were loaded on factor one .The scales loaded in factor one included two scales from Neuroticism scales namely impulsiveness and vulnerability loaded negatively at the magnitude of -0.66 and -0.54.Two more scales were negatively loaded from the Openness to experience scales namely fantasy and action scales with a loading magnitude of -0.44 and -0.37 respectively and two scales from the Agreeableness domain which are straightforwardness and altruism with a magnitude of 0.28769 and 0.29558 respectively. All the Consciousness scales were positively loaded in factor one; these are competence, order, dutifulness, achievement striving, self-discipline, and deliberation. The varimax intercorrelation matrix for competence scale is 0.56, order is 0.59, dutifulness is 0.71, achievement striving=0.62, self-discipline= 0.68, and deliberation =0.68.

Factor 2

Factor 2 consists of anger hostility scale from the Neuroticism scales, and two scales from the Extraversion scales namely assertiveness, and activity. In the same way values from the Openness to experience is also included. Scales of straightforwardness, compliance, modesty, tender mindedness, were loaded on this factor. The anger hostility scale is loaded negatively with a magnitude of –0.44, the assertiveness scales, the activity, and the value scales loaded negatively with a magnitude of –0.59, 0.56 and –0.37 respectively on this factor. In addition fantasy from the Openness domain was loaded with a magnitude of -0.29889. Furthermore all the Agreeableness scales i.e. straightforwardness, compliance, modesty, and tender mindedness loaded positively with a magnitude of 0.39,0.61, 0.59, and 0.50 respectively on this factor.

Factor 3

As a whole seven scales were loaded in the factor 3 namely: anxiety (N1=0.58), anger hostility (N2=0.51), depression (N3= 0.70), self-Consciousness (N4= 0.65), vulnerability (N6= 0.37), gregariousness (E2= -0.469) and finally tender mindedness (A6= 0.387). Among these, majority of them are from the Neuroticism domain. The last two scales were also loaded negatively in this particular factor. The rest of the scales were not loaded and their

magnitude ranged between 0.27 and 0.02 for the positively loaded scales and between –0.26 and –0.01 for the negatively loaded scales.

Factor 4

As whole nine scales were loaded in the factor 4 these are: anxiety (N1=0.38), vulnerability (N6=-0.32), warmth (E1= 062), positive-emotion (E6= 0.43), trust (A1= 0.0.63), straightforwardness (0.40), altruism (0.53), compliance (A4=0.35) and finally dutifulness (C3= 0.309). Among these majority of them are from Agreeableness domain. The first two scales were also loaded negatively in this particular factor. The rest of the scales were not loaded and their magnitude ranged between 0.26 and 0.007 for the positively loaded scales and between –0.24 and –0.001 for the negatively loaded scales.

Factor 5

As whole seven scales were loaded in the factor 3 these are: gregariousness (E2=0.40), warmth (E1=0.56), aesthetics (O2=0.67), feelings (O3=0.47), ideas (O5=0.55), values (O6= -0.36). Among these majority of them are from Openness to experience. The last scale was loaded negatively in this .The rest of the scales were not loaded and their magnitude ranged between 0.26 and 0.013 for the positively loaded scales and between –0.23 and –0.01for the negatively scale loaded scales.

Scales	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
N1	2	2	2	1	---
N2	2	2	2	--	--
N3	---	4	----	2	---
N4	3	3	1	2	---
N5	3	2	1	2	---
N6	5	2	---	1	----
E1	2	2	----	----	----
E2	2	---	1	2	1
E3	---	3	1	2	---
E4	2	3	2	---	---
E5	2	---	---	----	2
E6	3	3	1	---	---
O1	2	2	1	1	1
O2	2	---	---	---	3
O3	2	---	---	----	1
O4	4	--	---	---	---
O5	4	---	---	---	---
O6	6	---	1	---	---
A1	3	---	---	---	---
A2	4	3	1	1	----
A3	4	3	1	---	---
A4	2	2	1	---	---
A5	2	---	2	---	---
A6	5	---	2	1	---
C1	3	2	1	--	---
C2	6	4	---	2	---
C3	6	1	---	1	--
C4	4	2	1	---	---
C5	3	2	---	---	---
C6	5	3	---	1	---

Table.5.14. Number of items percentile loaded on each factor[7]

Factor 1

The above table showed the number of items loaded from each scale on each factor. 15 items were loaded in general from the Neuroticism domain, namely two items each from anxiety, and anger hostility facets, three items from the scales of self-Consciousness and

[7] See appendix H for the varimax rotation of factor analysis at the item level

impulsiveness scales. 11 items were loaded from the Extraversion domain on this factor namely two items from warmth and gregariousness, activity, and excitement seeking facets each, and three items from positive emotion scale. Likewise, 20 items were loaded from the Openness to experience items namely, 2 items each from the fantasy, aesthetic, and feelings scales, 4 items from action and ideas scales, and lastly 6 items from the scale of value. Furthermore, 20 items were loaded from the Agreeableness items namely, 3 items from trust scale, four items from strait forwardness and altruism scales, 2 items each from compliance and modesty scales, and 5 items from modesty scale. Finally, 27 items were loaded from the Consciousness domain, namely 3 items from competence scale, 6 items each from the order and dutifulness scales, 4, 3 and 5 items from achievement striving, self-discipline, and deliberation scales. As a whole majority of the items loaded on this factor are from Consciousness domain, followed by domains from Openness to experience and Agreeableness domains and lastly from the Neuroticism and Extraversion domains.

Factor 2

From table 5.14 it is clear that 17 items were loaded in general from the Neuroticism domain, namely two items each from anxiety, anger hostility, impulsiveness, and vulnerability facets, three items from the scales of depression and four items from self-Consciousness scale.11 items were loaded from the Extraversion domain on this factor namely two items from warmth, 3 items each from assertiveness and activity. However, only 2 items were loaded from Openness to experience i.e. from aesthetic scale. 8 items were loaded from Agreeableness items namely 3 items each from straightforwardness and altruism and 2 items from compliance scale. Further, 14 items were loaded from Consciousness domain, namely 2 items each from competence, achievement striving, and self-discipline, 4 items from order, 1 item from dutifulness scale and lastly 3 items from the deliberation facet.

Factor 3

From table 5.14 it is clear that 6 items were loaded in general from the Neuroticism domain, namely two items each from anxiety, anger hostility and 1 item each from self-Consciousness and impulsiveness scales.5 items were loaded from the Extraversion domain on this factor namely one item from gregariousness, assertiveness and positive emotion and two items from

activity facet. However, only 2 items were loaded from Openness to experience i.e. one from fantasy facet and the other from values facet. 7 items were loaded from Agreeableness items namely 1 item each from straightforwardness, altruism, and compliance, and two items each from modesty and tender mindedness scales. Lastly, only two items were loaded from the Consciousness domains namely one each from competence scale and achievement striving scale.

Factor 4

From the table 5.14 it is clear that 7 items were loaded in general from the Neuroticism domain, namely two items each from depression, self-Consciousness, and impulsiveness.4 items were loaded from the Extraversion domain on this factor namely two items from gregariousness and assertiveness. However, only 1 item was loaded from Openness to experience, which is from fantasy scale. Similarly 2 items were loaded from Agreeableness items namely 1 item each from straightforwardness and tender mindedness. Lastly, only four items were loaded from the Consciousness domains namely one each from dutifulness and deliberation scales, and 2 items from order scale.

Factor 5

From table 5.14 it was clear that there was no any item loaded from the Neuroticism domain. 3 items were loaded from the Extraversion domain on this factor namely two items from excitement seeking and one item from gregariousness. Similarly there were only four items loaded from Openness to experience domain, namely one item from fantasy scale and three items from aesthetics facet.

5.5.3.2. NEO-PI-R Scale Intercorrelation

As can be seen from the table 5.15 the correlation of the domains and facets varied with significant positive correlation ranging between 0.80 and 0.10 and significant negative correlation between –0.10 and –0.54. High positive correlations were obtained between each domain and their sub scales. Correlation of 0.75, 0.64, 0.71, 0.57, 0.56, 0.73, were found between the Neuroticism domain and its facets of anxiety, anger hostility, depression, self-Consciousness, impulsiveness, and vulnerability respectively. Similarly a high positive correlation of 0.55, 0.56 was obtained between Extraversion domain and facets of warmth and gregariousness, however, a relatively moderate correlation of 0.37, 0.36, 0.43, and 0.47 were obtained between the Extraversion domain and facets of assertiveness, activity, excitement seeking and positive emotion respectively. Correlations of 0.66, 0.63, 0.70, 0.64, 0.62, and 0.54 were found between Agreeableness domain and its facets such as trust, straight forwardness, altruism, compliance, modesty, and tender-mindedness respectively. Lastly, a high positive correlation was obtained between Consciousness and facets of Consciousness with a magnitude of 0.69, 0.70, 0.80, 0.70, 0.69, and 0.76 respectively for competence, order, dutifulness, achievement striving, self-discipline, and deliberation.

If we see the correlation among the Neuroticism subscales there was a moderate positive correlation between anxiety scale and scales of anger hostility, depression, self-Consciousness, impulsiveness, and vulnerability, which ranged between 0.47 and 0.28 and there was also a positive moderate correlation of 0.34 between anger hostility and depression, 0.205 between anger hostility and self-Consciousness, 0.27 between anger hostility and impulsiveness, 0.28 correlation between anger hostility and vulnerability, a correlation of 0.38, 0.41, and 0.71 between depression and self-Consciousness, impulsiveness, vulnerability, respectively. Moderate correlation of 0.25 and 0.48 was found between self-Consciousness, and vulnerability, between impulsiveness and vulnerability. However, there was no significant relationship between self-Consciousness and impulsiveness.

In terms of correlation between the Neuroticism domain and facets of Extraversion, the result indicated that there was a negative significant relationship between Neuroticism domains and facets of warmth (r= -0.395), gregariousness (r= -0.154), and positive emotion (r= -0.268)

but there was a significant positive relationship between Neuroticism domain and activity (r= 177), and positive emotion (r= -0.268). However, there was no significant relationship between Neuroticism domain and excitement seeking. Similarly, the result showed significant relationship between the Neuroticism domains and facets of Openness to experience namely fantasy (r=311), aesthetics (-0.123), feelings (r= -0.211), actions (r= 135), ideas(r= 0.235), however, there was no significant relationship between the Neuroticism domain and values facet of. In addition the correlation table also showed that there was a significant relationship between the Neuroticism domain and all facets of Agreeableness except tender mindedness facet with a magnitude of trust (r= 0.311), straightforwardness (r= -0.278), altruism (r= -0.397), compliance (r= -0.292), and modesty (r= 0.162). Further, the result displayed a significant negative correlation between the Neuroticism domain and facets of Consciousness with a magnitude of competence (r= -0.459), order (r= -0.287), dutifulness (r= -0.406), achievement striving (r= -0.302), self-discipline (-0.470), and deliberation (r= -0.486).

There was a negative significant correlation between facets of fantasy(r= -0.097), and significantly positively correlation between Extraversion domain and facets of aesthetics (r= 0.213), feelings(r= 0.289), and ideas(r=0.271), however, there was no significant relationship between Extraversion domain and values facet and action facets. Considering the correlation between the Extraversion domain and facets of Agreeableness, it is clear that there was a positive significant correlation between Extraversion domain and trust (r= 0.169), and altruism (r= 0.244) and there was no significant relationship between Extraversion domain and facets of straightforwardness, compliance, modesty, and tender mindedness. Furthermore, there was a significant positive correlation between Extraversion domain and facets of Consciousness namely competence(r= 0.357), dutifulness (0.112), and self-discipline (0.270), however, there was no significant correlation between Extraversion domain and facets of order, achievement striving, and deliberation.

Considering the correlation between Openness to experience domain and facets of Agreeableness, the result displayed a negative significant relationship between Openness domain and facets of compliance (r= -0.137) and modesty (r= -0.116). Significant positively

correlation was obtained between Openness domain and facets of competence (r= 0.144), dutifulness (0.220), and achievement striving (0.262). Lastly, a positive significant correlation was obtained between the Agreeableness domain and facets of Consciousness with a magnitude of competence (r= 0.30), order (r= 0.42), dutifulness (r= 0.54), achievement striving (r= 0.45), self-discipline (r= 0.255), and deliberation(r= 0.37).

In terms of the Extraversion facets there was only a moderate correlation of 0.32 between warmth facets. A minimal correlation of 0.16 was found between gregariousness and warmth, a correlation of 0.15 and 0.13 between gregariousness, and warmth and excitement seeking respectively, a correlation of 0.16 between assertiveness and activity, a correlation of 0.117 was found between activity and excitement seeking. On the other hand there was a minimal negative correlation between assertiveness and positive emotion. Where as on the majority of the reaming facets there were no significant correlation.

From table 5.15 it was clear that the correlation among the Openness subscales there was only moderate positive correlation of 0.32 between aesthetic and feelings scales, 0.32 between aesthetic and ideas and finally 0.28 between feeling and ideas. There was minimum of 0.16 correlations between fantasy and actions scales. However, there was negatively significant correlation of –0.18 between aesthetics and values. Apart from the above-mentioned correlations there were not any correlation among the facets.

If we see the correlation among the Agreeableness subscales there was a moderate positive correlations of 0.25 between trust scale and scale of altruism. There was also a positive moderate correlation of 0.24 between straightforwardness and altruism, 0.43 between straightforwardness and compliance, 0.31 between straightforwardness and modesty, 0.29 between straightforwardness and tender-mindedness, 0.30 between altruism and compliance, 0.32 between altruism and modesty, 0.23 between altruism and tender mindedness, 0.34 between compliance and modesty, 0.34 between compliance and tender mindedness, 0.34 between modesty and tender-mindedness. A minimal correlation was found between trust and straightforwardness.

In the case of the correlation among the Consciousness subscales there was a moderate positive correlations of 0.37, 0.49, 0.31, 0.42, 0.47 between competence and subscales of order, dutifulness, achievement striving, self-discipline, and deliberation respectively. There was also a high positive correlation of 0.5 between order and dutifulness, and a moderate correlation of 0.0.39, 0.37, 0.45 between order subscale and subscales of dutifulness, achievement striving, self-discipline, and deliberation respectively. There is a high positive correlation of 0.53, 0.47, and 0.48 between dutifulness and scales of self-discipline and deliberation scales. At the end a correlation of 0.39 and 0.45 was found between achievement striving scale and scales of self-discipline and deliberation scales. Generally, in comparison with the sub scales of the other domains these scales are highly correlated.

On the other hand the table also showed correlations among those, which are not theoretically, related scales. There is a significant negative moderate correlation of –0.248 between Neuroticism domain and Extraversion domain, no significant correlation between Neuroticism and Openness, significant negative moderate correlation of –0.38 between Neuroticism and Agreeableness .A high moderate negative correlation of -0.54 was obtained between Neuroticism scales and Consciousness scales. There is no significant correlation between Extraversion and Agreeableness.

		N	N1	N2	N3	N4	N5	N6	E	E1	E2	E3	E4	E5	E6	O	O1	O2	O3	O4	O5	O6
Neuroticism	N	1.00																				
Anxiety	N1	0.752 .0001	1.000																			
Anger Hostility	N2	0.641 .0001	0.392 .0001	1.000																		
Depression	N3	.716 .0001	0.466 0.0001	0.340 0.0001	1.000																	
Self-consciousness	N4	.573 .0001	0.381 0.0001	0.205 0.0001	0.382 0.0002	1.000																
Impulsiveness	N5	.564 .0001	0.286 .0001	0.272 0.0001	0.411 0.0001	0.069 0.161	1.00															
Vulnerability	N6	.734 .0001	0.475 0.0001	0.340 0.0001	0.716 0.0001	0.255 0.0001	0.458 0.0001	1.000														
Extraversion	E	-.248 .0001	-0.282 0.0001	-0.049 0.313	-0.234 0.0001	-0.234 0.0001	-0.038 0.442	-0.277 0.030	1.000													
Warmth	E1	-.395 .0001	-0.323 0.0001	-0.297 0.0001	-0.179 0.0003	-0.097 0.050	-0.3008 0.0001	-0.388 0.0001	0.555 0.0001	1.000												
Gregariousness	E2	-.154 .0018	-0.116 0.018	-0.070 0.150	-0.243 0.0001	-0.177 0.0003	0.098 0.045	-0.089 0.0001	0.563 0.0001	0.169 0.0006	1.000											
Assertiveness	E3	-.015 .748	-0.045 0.361	0.174 0.0004	-0.133 0.0071	-0.122 0.012	0.125 0.011	-0.051 0.300	0.376 0.0001	-0.057 0.243	0.158 0.0013	1.000										
Activity	E4	.177 .0003	0.089 0.070	0.254 0.0001	0.0804 0.104	0.067 0.175	0.107 0.029	0.107 0.030	0.363 0.0001	-0.023 0.630	-0.022 0.654	0.162 0.001	1.000									
Excitement-Seeking	E5	.032 .518	0.005 0.906	0.007 0.886	0.024 0.622	0.122 0.013	0.046 0.345	-0.076 0.120	0.439 0.0001	0.074 0.134	0.139 0.0049	-0.027 0.579	0.117 0.017	1.00								
Positive Emotion	E6	-.268 .0001	-0.282 0.0001	-0.145 0.003	-0.164 0.0009	-0.107 0.0306	-0.145 0.0032	-0.228 0.0001	0.479 0.0001	0.324 0.0001	0.087 0.078	-0.124 0.0116	-0.076 0.1222	-0.020 0.679	1.00							
Openness	O	-.084 .089	-0.071 0.148	0.065 0.186	-0.129 0.008	-0.0147 0.767	-0.003 0.942	-0.175 0.0004	0.330 0.0001	0.132 0.007	0.132 0.007	0.199 0.0001	0.188 0.0001	0.02 0.68	0.329 0.0001	1.000						
Fantasy	O1	.311 .0001	0.161 0.001	0.313 0.0001	0.102 0.037	0.102 0.037	0.320 0.0001	0.245 0.0001	-0.097 0.049	-0.214 0.0001	0.057 0.245	0.160 0.001	0.110 0.025	0.148 0.002	0.148 0.002	0.399 0.0001	1.000					
Aesthetic	O2	-.123 .012	-0.049 0.321	-0.068 0.169	-0.093 0.058	0.020 0.673	-0.100 0.042	-0.202 0.0123	0.213 0.0001	0.191 0.0001	0.135 0.006	-0.037 0.446	-0.097 0.048	0.281 0.0001	0.102 0.0001	0.598 0.0001	-0.03 0.50	1.000				
Feelings	O3	-.211 .0001	-0.167 0.0007	0.036 0.457	-0.143 0.003	-0.082 0.096	-0.225 0.0001	-0.266 0.0001	0.289 0.0001	0.268 0.0001	0.139 0.004	0.185 0.0002	0.038 0.432	0.098 0.047	0.073 0.139	0.481 0.0001	-0.07 0.12	0.271 0.0001	1.000			
Actions	O4	.135 .0061	0.106 0.03	0.012 0.794	-0.025 0.601	0.057 0.246	0.242 0.0001	0.165 0.0008	0.058 0.239	-0.101 0.040	0.140 0.004	0.083 0.093	0.0353 0.476	0.049 0.321	-0.033 0.498	0.371 0.0001	0.16 0.001	-0.045 0.355	-0.08 0.102	1.000		
Ideas	O5	.235 .0001	-0.162 0.001	-0.095 0.054	-0.116 0.018	-0.062 0.206	-0.167 0.0007	-0.340 0.0001	0.271 0.0001	0.207 0.0001	0.084 0.087	0.111 0.024	-0.040 0.417	0.226 0.0001	0.152 0.002	0.622 0.0001	0.012 0.80	0.320 0.0001	0.281 0.0001	-0.03 0.522	1.000	
Values	O6	-.041 .407	-0.055 0.259	0.031 0.529	-0.063 0.201	-0.088 0.073	-0.0091 0.853	0.022 0.657	-0.022 0.643	-0.066 0.181	-0.020 0.683	0.057 0.245	0.062 0.211	0.019 0.709	-0.092 0.061	0.226 0.0001	0.099 0.044	-0.186 0.0002	-0.093 0.059	0.043 0.382	-0.069 0.160	1.000
Agreeableness	A	-.380 .0001	-0.230 0.0001	-0.404 0.0001	-0.107 0.029	0.027 0.575	-0.426 0.0001	-0.391 0.0001	0.057 0.243	0.435 0.0001	-0.0809 0.102	-0.319 0.001	-0.237 0.0001	-0.044 0.372	0.323 0.0001	-0.091 0.065	-0.341 0.0001	0.124 0.011	0.102 0.038	-0.25 0.0001	0.191 0.0001	-0.187 0.0001
Trust	A1	-.261 .0001	-0.192 0.0001	-0.180 0.0003	-0.169 0.0006	-0.075 0.127	-0.175 0.0004	-0.249 0.0001	0.169 0.0006	0.314 0.0001	0.021 0.667	0.014 0.773	0.003 0.939	-0.005 0.905	0.106 0.032	-0.031 0.523	-0.16 0.001	0.0008 0.870	0.035 0.479	-0.16 0.001	0.089 0.070	0.071 0.151
Straight forwardness	A2	-.278 .0001	-0.144 0.003	-0.282 0.0001	-0.109 0.027	-0.024 0.626	-0.312 0.0001	-0.243 0.0001	-0.089 0.072	0.183 0.0002	-0.154 0.001	-0.244 0.0001	-0.142 0.003	-0.163 0.0009	0.216 0.0001	-0.083 0.091	-0.19 0.0001	-0.016 0.733	0.043 0.380	-0.15 0.002	0.071 0.151	-0.007 0.875
Altruism	A3	-.397 .0001	-0.328 0.0001	-0.312 0.0001	-0.203 0.0001	-0.034 0.488	-0.330 0.0001	-0.380 0.0001	0.244 0.0001	0.373 0.0001	0.084 0.088	-0.087 0.079	-0.110 0.025	0.048 0.327	0.310 0.0001	0.075 0.129	-0.183 0.0002	0.130 0.008	0.174 0.0004	-0.15 0.001	0.240 0.0001	-0.082 0.095
Compliance	A4	-.292 .0001	-0.145 0.003	-0.393 0.0001	-0.083 0.093	-0.035 0.478	-0.298 0.0001	-0.220 0.0001	-0.038 0.440	0.266 0.0001	-0.041 0.404	-0.300 0.0001	-0.247 0.0001	-0.051 0.296	0.199 0.0001	-0.137 0.005	-0.242 0.0001	0.056 0.256	-0.066 0.117	-0.19 0.0001	0.077 0.117	-0.091 0.065
Modesty	A5	-.162 .001	-0.065 0.188	-0.248 0.0001	0.017 0.723	0.034 0.484	-0.217 0.0001	-0.180 0.0002	-0.059 0.230	0.228 0.0001	-0.039 0.430	-0.245 0.0001	-0.242 0.0001	-0.064 0.195	0.137 0.005	-0.116 0.018	-0.295 0.0001	0.099 0.043	0.063 0.203	-0.134 0.006	0.045 0.354	-0.176 0.0003
Tender-Mindedness	A6	-.041 .398	0.0037 0.939	-0.090 0.069	0.124 0.012	0.219 0.0001	-0.249 0.0001	-0.191 0.0001	0.004 0..927	0.264 0.0001	-0.164 0.0008	-0.301 0.0001	-0.237 0.009	0.067 0.175	0.227 0.0001	-0.042 0.388	-0.185 0.0002	0.171 0.0005	0.127 0.009	-0.17 0.0006	0.183 0.0002	-0.376 0.0001
Consciousness	C	-.549 .0001	-0.348 0.0001	-0.357 0.0001	-0.311 0.0001	-0.081 0.099	-0.540 0.0001	-0.549 0.0001	0.142 0.003	0.408 0.0001	-0.027 0.584	-0.198 0.0001	-0.147 0.0029	-0.001 0.981	0.296 0.0001	0.101 0.0001	-0.377 0.0001	0.287 0.0001	0.233 0.0001	-0.234 0.0001	0.322 0.0001	-0.107 0.029
Competence	C1	-.459 .0001	-0.401 0.0001	-0.289 0.0001	-0.322 0.0001	-0.049 0.314	-0.326 0.0001	-0.440 0.0001	0.223 0.0001	0.357 0.001	0.0001 0.997	-0.011 0.821	-0.009 0.850	0.021 0.670	0.230 0.0001	0.144 0.003	-0.186 0.0002	0.191 0.0001	0.136 0.005	-0.068 0.169	0.281 0.0001	-0.053 0.284
Order	C2	-.287 .0001	-0.118 0.016	-0.223 0.0001	-0.134 0.0065	-0.015 0.750	-0.353 0.0001	-0.306 0.0001	0.071 0.147	0.321 0.0001	0.0071 0.886	-0.257 0.0001	-0.075 0.127	-0.026 0.598	0.184 0.0002	0.04 0.318	-0.299 0.0001	0.273 0.0001	0.179 0.0003	-0.20 0.0001	0.216 0.0001	-0.169 0.0006
Dutifulness	C3	-.406 .0001	-0.295 0.0001	-0.233 0.0001	-0.206 0.0001	-0.015 0.756	-0.451 0.0001	-0.458 0.0001	0.112 0.022	0.369 0.0001	-0.074 0.131	-0.158 0.001	-0.108 0.028	-0.010 0.834	0.244 0.834	0.220 0.0001	-0.301 0.0001	0.222 0.0001	0.224 0.0001	-0.277 0.0001	0.220 0.0001	-0.096 0.051
Achievement Striving	C4	-.302 .0001	-0.169 0.0006	-0.207 0.0001	-0.126 0.0106	-0.026 0.595	-0.359 0.0001	-0.326 0.0001	0.045 0.360	0.234 0.0001	-0.058 0.236	-0.171 0.0005	-0.146 0.003	0.007 0.876	0.210 0.0001	0.262 0.0001	-0.284 0.0001	0.170 0.0005	0.196 0.0001	-0.197 0.0001	0.262 0.0001	-0.095 0.053
Self-discipline	C5	-.470 .0001	-0.303 0.0001	-0.274 0.0001	-0.269 0.0001	-0.184 0.0002	-0.432 0.0002	-0.421 0.0001	0.129 0.009	0.270 0.0001	0.017 0.724	-0.090 0.066	-0.098 0.046	-0.001 0.976	0.216 0.0001	0.068 0.165	-0.281 0.0001	0.166 0.0007	0.112 0.022	-0.112 0.022	0.230 0.0001	0.009 0.852
Deliberation	C6	-.486 .0001	-0.246 0.0001	-0.342 0.0001	-0.311 0.0001	-0.438 0.0001	-0.438 0.0001	-0.491 0.0001	0.056 0.253	0.242 0.0001	0.0014 0.584	-0.171 0.0005	-0.192 0.0001	0.004 0.920	0.213 0.0001	0.085 0.085	-0.299 0.0001	0.232 0.0001	0.164 0.0009	-0.121 0.014	0.211 0.0001	-0.062 0.209

NE0-PI-R Scales		A	A1	A2	A3	A4	A5	A6	C	C1	C2	C3	C4	C5	C6
Neuroticism	N														
Anxiety	N1														
Anger Hostility	N2														
Depression	N3														
Self-consciousness	N4														
Impulsiveness	N5														
Vulnerability	N6														
Extraversion	E														
Warmth	E1														
Gregariousness	E2														
Assertiveness	E3														
Activity	E4														
Excitement-Seeking	E5														
Positive Emotion	E6														
Openness	O														
Fantasy	O1														
Aesthetic	O2														
Feelings	O3														
Actions	O4														
Ideas	O5														
Values	O6														
Agreeableness	A	1.000													
Trust	A1	0.432 0.0001	1.000												
Straight forwardness	A2	0.664 0.0001	0.192 0.0001	1.000											
Altruism	A3	0.635 0.0001	0.258 0.0001	0.241 0.0001	1.000										
Compliance	A4	0.705 0.0001	0.169 0.0006	0.439 0.0001	0.301 0.0001	1.000									
Modesty	A5	0.649 0.0001	0.036 0.465	0.313 0.0001	0.322 0.0001	0.349 0.0001	1.000								
Tender-Mindedness	A6	0.625 0.0001	0.057 0.246	0.294 0.0001	0.234 0.0001	0.344 0.0001	0.344 0.0001	1.000							
Consciousness	C	0.541 0.0001	0.23 0.0001	0.34 0.0001	0.46 0.0001	0.33 0.0001	0.31 0.0001	0.32 0.0001	1.000						
Competence	C1	0.30 0.001	0.226 0.0001	0.159 0.001	0.361 0.0001	0.151 0.002	0.110 0.025	0.120 0.014	0.696 0.0001	1.000					
Order	C2	0.42 0.0001	0.165 0.0008	0.284 0.0001	0.269 0.0001	0.307 0.0001	0.246 0.0001	0.295 0.0001	0.702 0.0001	0.377 0.0001	1.000				
Dutifulness	C3	0.54 0.0001	0.223 0.0001	0.392 0.0001	0.448 0.0001	0.296 0.0001	0.328 0.0001	0.323 0.0001	0.808 0.0001	0.491 0.0001	0.505 0.0001	1.000			
Achievement Striving	C4	0.45 0.0001	0.123 0.012	0.284 0.0001	0.328 0.0001	0.269 0.0001	0.337 0.0001	0.316 0.0001	0.707 0.0001	0.311 0.0001	0.391 0.0001	0.530 0.0001	1.000		
Self-discipline	C5	0.255 0.0001	0.092 0.062	0.179 0.0003	0.302 0.0001	0.154 0.001	0.126 0.010	0.094 0.056	0.697 0.0001	0.427 0.0001	0.372 0.0001	0.473 0.0001	0.397 0.0001	1.000	
Deliberation	C6	0.37 0.0001	0.174 0.0004	0.184 0.0002	0.312 0.0001	0.266 0.0001	0.204 0.0001	0.248 0.0001	0.766 0.0001	0.476 0.0001	0.455 0.0001	0.485 0.0001	0.459 0.0001	0.444 0.0001	1.000

Table 5.15. Scale- Item intercorrelations for NEO-PI-R

P<0.05 correlation significant at the 0.05 level (2-tailed)
P<0.01correlationsignificantatthe0.01level(2-tailed)

5.6. TIGRIGNAN NORMS FOR THE NEO-PI-R

The norm in tables (5.16, 5.17, 5.18, 5.19, 5.20, 5.21) showed percentile scores of the NEO-PI-R both at the domain levels and the facet levels. The average age for the sample was 27 and majority of the participants were students from colleges and universities with the age range of 21 years old and above. Hence unlike the USA college sample this study only calculated norming for adults. Consistent with McCrae & Costa (1992) norming for males and females were calculated differently and at the domain level as well as at the facet level.

Raw	Men					Female					Combined				
Score	N	E	O	A	C	N	E	O	A	C	N	E	O	A	C
90															
91						1									
92						1									
93		1				1									
94		1				1					1				
95		1				1					1				
96		1				1					1				
97		1				1					1				
98		1				2					1				
99		2				2					1				
100		2				2					2				
101		2				3					2				
102		3				3					3				
103		3				3					3				
104		3				4					3				
105		4				4					4				
106		4				5					4				
107		5				6					5				
108		6				6					5				
109		7				7					6				
110		7				8					7				
111		8				9					8				
112		9				10					9				
113		11				11					10				
114		12				12					11				
115		13				14		1			12				
116		15				15		1			13				
117		16				16	1	1			15				
118		18				18	1	1			16				
119		19				20	1	2			18				
120		21	1			21	1	2			20	1	1		
121		23	1			23	2	3			22	1	1		
122		25	1			25	2	3			24	1	1		
123		27	1			27	3	4			26	1	1		1
124		30	1	1		29	3	5			28	2	2		1
125		32	1	1		31	4	6			30	2	2		1
126		34	2	1		34	5	7			32	2	3		1
127		37	2	2		36	6	9			35	3	3		1
128		39	3	2	1	38	7	10		1	37	4	4	1	1
129		41	3	3	1	41	8	12		1	39	5	5	1	1
130		44	4	3	1	43	10	14		1	42	6	6	1	2
131		47	5	4	1	45	12	17		1	44	7	8	1	2
132		49	6	5	1	48	14	19		1	47	8	9	1	2

Raw Score	Men					Female					Combined				
	N	E	O	A	C	N	E	O	A	C	N	E	O	A	C
133	52	8	7	1	2	50	16	22		1	49	10	11	1	3
134	54	9	8	2	3	53	18	25		1	52	12	13	2	3
135	57	11	10	2	3	55	21	28	1	2	55	14	16	2	3
136	59	13	12	2	3	57	23	32	1	2	57	16	18	2	4
137	62	15	15	3	4	60	26	35	1	2	60	19	21	3	4
138	64	18	17	3	4	62	29	39	1	3	62	21	24	3	5
139	67	20	20	4	5	65	33	43	1	3	64	24	28	4	6
140	69	23	24	4	6	67	36	46	1	3	67	27	31	4	6
141	71	26	27	5	6	69	40	50	2	4	69	31	35	5	7
142	73	30	31	6	7	71	43	54	2	5	71	34	39	6	8
143	75	33	35	6	8	73	47	58	2	5	74	38	43	7	9
144	77	37	39	7	9	75	51	62	3	6	76	42	47	7	10
145	79	41	44	8	10	77	54	65	3	7	78	45	51	8	11
146	81	45	48	9	11	79	58	69	4	7	79	49	55	10	12
147	83	49	52	11	12	81	62	72	5	8	81	53	59	11	13
148	84	53	57	12	14	82	65	75	5	9	83	57	63	12	14
149	86	57	61	13	15	84	69	78	6	10	84	61	67	13	16
150	87	61	65	15	17	85	72	81	7	12	86	64	71	15	17
151	89	64	69	17	18	87	75	84	8	13	87	68	74	17	19
152	90	68	73	18	20	88	78	86	10	14	89	71	77	18	21
153	91	72	76	20	21	89	80	88	11	15	90	75	80	20	22
154	92	75	80	22	23	90	83	90	12	17	91	78	83	22	24
155	93	78	83	24	25	91	85	91	14	19	92	80	86	24	26
156	94	81	85	27	27	92	87	93	16	20	93	83	88	26	28
157	94	83	88	29	29	93	89	94	17	22	94	85	90	29	30
158	95	86	90	31	31	94	91	95	19	24	94	85	90	29	30
159	96	88	92	34	33	94	92	96	22	26	95	89	93	34	34
160	96	90	93	37	36	95	93	97	24	28	96	91	94	36	36
161	97	91	95	39	38	96	95	97	26	30	96	93	95	39	39
162	97	93	97	42	40	96	96	98	29	32	97	94	96	41	41
163	97	94	97	45	43	97	97	98	31	34	97	95	97	44	43
164	98	95	97	47	45	97	98	99	34	37	98	96	98	47	46
165	98	96	99	50	47	98	98	99	37	39	98	97	99	49	48
166	98	97	98	53	50	98	98	99	39	41	98	97	99	52	50
167	98	98	99	56	52	98	99	99	42	44	98	98	99	55	53
168	99	98	99	58	55	98	99	100	45	46	99	98	99	57	55
169	99	98	99	61	57	99	99		48	49	99	99	99	60	57
170	99	99	100	64	59	99	99		51	51	99	99	100	63	60
171	99	99		66	62	99	99		54	54	99	99		65	62
172	99	99		69	64	99	100		57	56	99	99		68	64
173	99	99		71	66	99				59	99	100		70	66

Raw Score	Men					Female					Combined				
	N	E	O	A	C	N	E	O	A	C	N	E	O	A	C
174		100		74	69	99				61	100			72	68
175				76	71	100				63				75	70
176				78	73					66				77	72
177				80	75					68				79	74
178				82	77					70				81	76
179				84	78					72				82	78
180				85	80					74				84	80
181				87	82					76				86	81
182				88	83					78				87	83
183				90	85					80				89	84
184				91	86					81				90	86
185				92	87					83				91	87
186				93	89					85				92	88
187				94	90					86				93	89
188				95	91					87				94	90
189				95	92					89				95	91
190				96	93					90				95	92
191				96	93					91				96	93
192				97	94					92				97	94
193				97	95					93				97	95
194				98	95					93				97	95
195				98	96					94				98	96
196				98	97					95				98	96
197				99	97					95				98	97
198				99	97					96				99	97
199				99	98					97				99	97
200				99	98					97				99	98
201				99	98					97				99	98
202				99	99					98				99	98
203				100	99					98				99	99
204					99					98				100	99
205					99					99					99
206					99					99					99
207					99					99					99
208					99					99					99
209					100					99					99
210										99					100
211										99					
212										100					

TABLE 5.16. NORMS FOR ERITREAN SAMPLE FORM S DOMAIN SCALE

Raw	Men						Women						Combined					
Score	N1	N2	N3	N4	N5	N6	N1	N2	N3	N4	N5	N6	N1	N2	N3	N4	N5	N6
9																		
10								1										
11		1				1		2			1			1				1
12		1	1		1	1	1	3			2	1		1			1	1
13	1	2	1		2	3	1	4	1		3	2	1	3	1		2	2
14	1	4	2		3	5	2	7	1		5	3	1	5	1		3	4
15	3	7	3	1	5	8	4	11	2		9	6	3	7	2		6	7
16	5	11	5	1	9	12	6	15	4	1	14	10	5	12	4	1	10	11
17	8	18	8	2	14	19	10	22	6	1	21	15	8	17	6	2	15	16
18	13	25	12	4	20	26	15	29	10	3	29	22	13	25	10	3	22	23
19	20	35	17	6	28	35	21	37	14	5	38	30	19	33	15	5	30	32
20	28	45	23	10	38	45	28	46	20	8	49	40	27	43	21	9	40	42
21	37	56	31	16	48	55	37	55	27	13	59	50	36	53	29	14	51	52
22	48	66	40	23	59	65	47	64	35	19	69	60	46	63	37	21	61	62
23	58	75	49	31	69	74	56	72	44	27	78	70	57	72	46	29	71	72
24	68	83	58	41	77	82	65	80	53	36	85	78	67	80	56	39	79	80
25	77	89	67	51	85	88	74	85	62	46	90	85	75	86	65	50	86	86
26	84	93	74	61	90	92	81	90	71	56	94	90	83	91	73	60	91	91
27	90	96	81	71	94	95	87	94	78	66	96	94	89	94	81	70	95	95
28	94	98	87	79	97	97	91	96	84	75	98	97	93	97	86	79	97	97
29	96	99	91	86	98	99	94	98	89	83	99	98	96	98	91	86	98	98
30	98	99	94	91	99	99	97	99	93	89	100	99	98	99	94	91	99	99
31	99	100	96	94	100	100	98	99	96	93		100	99	100	97	95	100	100
32	100		98	97			99	100	97	96			99		98	97		
33			99	98			99		98	98			100		99	98		
34			99	99			100		99	99					99	99		
35			100	100					100	99					100	100		
36										100								

TABLE5.17. NORMS FOR ERITREAN SAMPLE FORM S NUEROTICISM FACET SCALES

Raw	Men						Women						Combined					
Score	E1	E2	E3	E4	E5	E6	E1	E2	E3	E4	E5	E6	E1	E2	E3	E4	E5	E6
9																		
10								1										
11								1										
12			1					1	2						1			
13			3					1	4						2			
14			5					2	7	1				1	3			
15		1	8	1				4	12	1	1			2	6	1		
16		2	14	2				6	18	3	2			3	10	2		
17		4	21	5		1		10	26	6	3	1		5	16	4	1	1
18	1	7	30	9	1	1	1	15	35	10	5	1	1	9	24	8	2	1
19	1	11	40	14	2	2	1	21	46	16	9	2	2	14	33	14	4	2
20	3	17	52	22	4	4	3	28	57	24	14	3	3	20	43	22	7	4
21	5	25	63	33	7	6	5	37	67	35	21	5	5	28	54	32	11	6
22	8	34	73	44	12	10	8	46	77	46	29	8	9	38	65	44	18	10
23	13	44	82	56	19	15	13	56	84	58	39	12	14	48	74	56	26	15
24	19	55	88	68	28	22	19	65	90	70	49	17	20	58	82	68	36	21
25	27	65	93	78	39	29	27	74	94	79	60	23	28	68	88	78	47	28
26	37	74	96	86	51	38	36	81	97	87	70	30	38	77	93	86	59	37
27	47	82	98	92	63	48	46	87	98	92	78	38	48	84	96	92	69	46
28	57	88	99	95	73	58	56	91	99	96	85	47	59	90	98	96	78	56
29	67	93	100	98	82	67	66	94	100	98	91	56	68	94	99	98	86	65
30	76	96		99	89	75	75	97		99	94	65	77	96	99	99	91	73
31	83	98		100	93	82	83	98		100	97	72	84	98	100	100	95	80
32	89	99			96	88	88	99			98	79	90	99			97	86
33	93	99			98	92	93	99			99	85	94	99			99	91
34	96	100			99	95	96	100			100	90	96	100			99	94
35	98				100	97	98					93	98				100	96
36	99					98	99					96	99					98
37	99					99	99					97	100					99
38	100					100	100					98						99
39												99						100
40												100						

TABLE 5.18. NORMS FOR ERITREAN SAMPLE FORM S EXTRAVERSION FACET SCALE

Raw	Men						Women						Combined					
Score	O1	O2	O3	O4	O5	O6	O1	O2	O3	O4	O5	O6	O1	O2	O3	O4	O5	O6
09																		
10																		
11																		
12							1	1										
13	1						2	1					1					
14	2						4	2		1			2					
15	3	1				1	7	3		1		1	4	1				1
16	6	1		1		2	12	5		3	1	2	7	1		1	1	2
17	11	1		2	1	4	18	7	1	5	1	4	12	2		2	1	4
18	17	2		4	1	8	27	10	2	9	2	7	19	3	1	5	2	7
19	26	3	1	8	2	13	36	14	4	15	4	13	28	5	2	10	4	13
20	36	5	3	15	4	21	47	19	7	23	6	20	38	8	4	17	6	20
21	48	7	5	24	7	31	58	24	13	33	10	30	49	11	8	26	10	30
22	60	11	10	37	12	43	68	31	20	44	15	42	60	16	14	38	15	42
23	70	16	17	50	17	55	78	38	30	55	21	55	71	22	22	51	21	55
24	80	23	27	64	25	66	85	46	41	66	29	67	80	29	32	64	29	67
25	87	30	39	76	34	77	90	54	54	76	38	78	87	37	44	76	38	78
26	92	39	52	86	43	85	94	62	66	84	48	86	92	46	57	85	48	86
27	96	48	65	92	54	91	97	69	76	90	58	92	96	54	69	92	58	92
28	98	57	76	96	64	95	98	75	84	94	67	96	98	63	79	96	67	96
29	99	66	85	98	73	97	99	81	91	97	76	98	99	71	87	98	76	98
30	100	74	92	99	80	99	100	86	95	98	83	99	99	78	93	99	83	99
31		81	96	100	87	99		90	97	99	88	100	100	84	96	100	88	100
32		87	98		92	100		93	99	100	93			89	98		93	
33		91	99		95			95	99		95			92	99		95	
34		94	100		97			97	100		97			95	100		97	
35		97			98			98			99			97			99	
36		98			99			99			99			98			99	
37		99			100			99			100			99			100	
38		99						100						99				
39		100												100				

TABLE 5.19. NORMS FOR ERITREAN SAMPLE FORM S OPENNESS TO EXPEEINCE FACET SCALES

Raw	Men						Women						Combine					
Score	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4	A5	
09																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17	1													1				
18	2	1		1	1		1						1	1		1	1	
19	3	1	1	1	1	1	2		1	1	1		3	1	1	1	1	1
20	6	3	2	3	2	1	4	1	1	1	2	1	5	2	2	3	2	1
21	11	5	3	5	4	2	8	2	3	3	3	2	9	4	3	5	4	2
22	17	8	5	8	6	4	13	4	5	5	5	3	15	7	6	8	7	4
23	25	14	9	13	10	6	20	6	8	8	8	5	24	12	10	13	11	7
24	35	20	14	19	15	10	30	11	12	12	12	9	34	18	15	19	16	11
25	47	29	20	28	22	15	41	16	18	18	18	13	45	26	21	27	23	16
26	58	39	28	37	31	21	52	24	26	26	26	19	57	35	30	36	31	23
27	69	50	37	48	40	29	64	33	35	35	34	27	69	46	39	46	41	31
28	79	60	47	58	50	39	74	43	45	45	44	35	79	56	49	56	51	40
29	86	70	58	68	60	48	83	53	56	55	54	45	86	66	59	66	61	50
30	92	79	67	77	69	58	89	64	66	65	63	55	92	76	69	75	70	60
31	95	86	76	84	78	68	94	73	75	74	72	65	95	83	77	82	78	69
32	97	91	83	90	84	76	97	81	82	81	80	73	98	89	84	88	85	77
33	99	95	89	94	90	83	98	88	88	87	86	81	99	93	90	93	90	84
34	99	97	93	96	94	89	99	92	93	92	91	91	100	96	94	96	94	89
35	100	99	96	98	96	93	100	95	96	95	94	95		98	96	98	96	93
36		99	98	99	98	96		97	98	97	97	97		99	98	99	98	96
37		100	99	100	99	98		99	99	98	98	98		99	99	99	99	98
38			99		99	99		99	99	99	99	99		100	99	100	99	99
39			100		100	99		100	100	100	100	100			100		100	99
40						100												100

TABLE 5.20 NORMS FOR ERITREAN SAMPLE FORM S AGREEABLINESS FACET SCALES

Raw	Men						Women						Combined					
Score	C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6	C1	C2	C3	C4	C5	C6
09																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17	1										1		1					
18	1				1	1	1				2	1	1				1	1
19	3	1		1	3	2	2				3	1	3		1	1	2	2
20	5	1	1	1	6	3	4			1	6	2	9	1	1	2	4	3
21	9	3	2	2	11	5	8		1	1	10	4	14	2	2	4	8	5
22	14	5	3	4	19	8	13	1	1	3	15	7	22	4	3	8	13	8
23	21	8	5	7	29	12	20	2	3	5	22	10	31	7	5	13	21	13
24	30	13	7	12	41	18	30	4	5	9	30	15	42	11	8	21	31	19
25	41	20	11	18	54	25	41	7	8	15	40	22	53	18	12	31	42	26
26	52	28	16	25	67	34	53	12	12	22	50	30	65	26	17	42	54	34
27	63	38	23	34	78	43	65	20	17	32	61	39	75	35	24	54	66	44
28	73	49	31	44	86	52	75	30	23	42	70	48	83	46	31	66	76	54
29	81	60	40	55	92	62	84	41	30	54	79	58	89	57	40	76	84	63
30	88	70	49	65	96	71	90	54	39	65	86	67	94	68	49	84	91	72
31	92	79	58	74	98	79	94	66	48	74	91	76	97	77	58	91	95	79
32	96	86	67	81	99	85	97	77	57	83	94	83	98	84	66	95	97	86
33	98	91	75	88	100	90	99	85	66	89	97	88	99	90	74	97	99	91
34	99	95	82	92		94	99	91	74	93	98	92	100	94	81	99	99	94
35	99	97	88	95		96	100	95	81	96	99	95		97	86	100	100	96
36	100	99	92	97		98		98	86	98	100	97		98	91			98
37		99	95	99		99		99	91	99		99		99	94			99
38		100	97	99		99		100	94	100		99		100	96			99
39			98	100		100			96			100			98			100
40			99						98						99			
41			100						99						99			
42									99						100			
43									100									

TABLE 5.21. NORMS FOR ERITREAN SAMPLE FORM S CONCIETOUSNESS FACET SCALES

5.7. DEMOGRAPHICS INFORMATION AND THE NEO-PI-R

5.7.1. Age and Personality

		N1	N2	N3	N4	N5	N6	N
Age	r	-0.191	-0.132	-0.205	-0.131	-0.230	0.306	-0.317
	p	0.0001**	0.008**	0.0001**	0.008**	0.0001**	0.0001**	0.0001**
		E1	E2	E3	E4	E5	E6	E
Age	r	0.187	-0.034	-0.028	-0.039	-0.0054	-0.007	0.027
	p	0.0002**	0.489	0.565	0.430	0.912	0.880	0.581
		O1	O2	O3	O4	O5	O6	O
Age	r	-0.204	0.147	0.188	-0.194	0.075	0.047	0.028
	p	0.001**	0.0032	0.0002**	0.0001**	0.130	0.342	0.575
		A1	A2	A3	A4	A5	A6	A
Age	r	0.174	0.188	0.176	-0.049	0.210	-0.0165	0.191
	p	0.0005**	0.018**	0.0004**	0.264	0.0001**	0.741	0.0001**
		C1	C2	C3	C4	C5	C6	C
Age	r	0.170	0.208	0.314	0.166	0.254	0.214	0.318
	p	0.0006**	0.0001**	0.0001**	0.0009**	0.0001**	0.0001**	0.0001**

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table.5.22. Spearman's correlation between age and NEO-PI-R scales

An examination of the spearman correlation from the above table 5.22 indicated that there was significant negative relationship between age and Neuroticism domain and each of the facets of Neuroticism at 0.01 significance level; this indicated that young people are more neurotic than the older ones. The magnitude of the correlations were N1= -0.191, N2= -0.131, N3= -0.205, N4= -0.131, N5= -0.230, N6= -0.306 and N= -0.317.Similarly age was positively significant related to warmth (E1= 0.187) with a minimal magnitude of the relationship at the 0.01 level of significance. This showed that older people are warmer than the young people. There was no significant relationship between age and the Extraversion domain and with each of the Extraversion facets.

The results also displayed the relationship between age and the Openness to experience scales. Age seems to have a significant negative correlation with O1 (r=-0.204) and O4(r=-0.194) and seems significant positively correlated with O3(r= 0.188) at the 0.01 significant levels, which indicated that young individuals are more likely to consist of fantasy and action traits than the older individuals. On the other hand older individuals seem to be dominated with feeling traits than the younger individuals. The result also indicated that that the magnitude of the correlations was not very strong but moderate for O3 and O4 and minimal for O1. On the other hand the result showed that there was no significant relation ship between age and the other facets and as whole with the Openness domain.

In addition the table displayed the correlation between age and the Agreeableness scales. Age seems to be significant positively correlated with A1 (r=0.174), A2(r=0.118), A3(r= 0.176), and with A5(r=0.210) at each facet level and it also seems significant positively correlated with A(r=0.191) domain in as a whole which showed that older individuals are more trustful, straightforward, modest and more agreeable in their behavior than the younger individuals. In contrast, there was no significant relationship between age and A4 and A6 facets of Agreeableness at the 0.01 significant levels. The result indicated that the magnitude of the correlations was minimal for all those significantly correlated facets including the domain in general.

Furthermore the result showed that age seems to be significant positively correlated with C1 (r=0.170), C2(r=0.208), C3(r= 0.314), C4(r=0.166), C5(r=0.254), C6(r=0.214) at each facet level and it seems also significant positively correlated with the C (r=0.318) domain as a whole at the 0.01 significant levels. The result indicated that the magnitude of the correlations was moderate for C2, C3, C5, and C6 and minimal for C1, C4, and C6.These results indicated that as a whole older individuals seem to consist of more Consciousness personality than the younger age group individuals.

5.7.2. Gender and Personality

Since gender is a nominal variable and the NEO-PI-R scales are interval, analysis of variance (ANOVA) was utilized for those scales which are homogeneous in their variance and non-parametric Kruskal-Wallis One-Way ANOVA was used for those scales which were not homogenous in their variance. Except for scales of anger hostility (N2), gregariousness (E2), aesthetics (O2), actions (O4), self-discipline and (C5) scales all the remaining scales were homogenous.

	N1	N2	N3	N4	N5	N6	N
Gender F	0.13	0.01	1.20	1.35	6.64	0.19	0.12
p	0.721	0.927	0.275	0.245	0.013*	0.198	0.729

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.23. ANOVA results for gender and Neuroticism facets

From table 5.23 it is clear that impulsiveness was the only facet that showed significant difference in gender. Generally there was no significant relationship as a whole for the Neuroticism domain of personality scale.

Gender	N	Impulsiveness (N5)
Males	132	21.15
Females	232	20.11

Table 5.24. Mean score for males and females in impulsiveness

An examination of the mean in table 5.24 indicated that males seem to be more impulsive than females with a mean of 21.15 for males and 20.11 for females.

	E1	E2	E3	E4	E5	E6	E
Gender F	0.06	8.33	15.89	0.24	25.05	6.18	10.35
p	0.80	0.004**	0.0001**	0.62	0.0001**	0.013*	0.001**

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.25. ANOVA results for gender and Extraversion facets

Information in Table 5.25 showed that there was significant gender difference in Extraversion personality domain and facets of gregariousness, assertiveness, excitement seeking, and positive emotion.

Gender	E	E2	E3	E5	E6
Males	147.26	23.55	20.85	25.91	27.21
Females	143.77	22.37	19.35	24.06	28.32

Table 5.26. Mean score for males and females for Extraversion facets

Table 5.26 displayed that males were more extraverted than females with a mean of 147.26 and 143.77 respectively; similarly males were scored higher in gregariousness, assertiveness, and excitement seeking. However, females seem to be having more positive emotion trait than males with a mean of 27.21 for males and a mean of 28.32 for females.

	O1	O2	O3	O4	O5	O6	O
Gender F	6.36	12.06	12.40	1.74	7.71	0.42	30.7
p	0.01	0.0006**	0.0005**	0.18	0.005**	0.51	0.001**

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.27. ANOVA results for gender and Openness facets

Table 5.27 showed that there was a significant gender difference between males and females in the Openness to experience personality dimension in general and specifically to facets of fantasy, aesthetic, feelings, and ideas.

Gender	O	O1	O2	O3	O5
Males	146.47	21.18	27.19	25.85	26.65
Females	140.91	20.25	25.51	24.70	25.48

Table 5.28. Mean score for males and females for Openness facets

Results in table 5.28 indicated that males were more likely to exhibit Openness to experience than females with a mean of 146.47 and 140.91 respectively. In addition the result measured that males with a mean of 21.18 and females with a mean of 20.25 in fantasy, males with a mean of 27.19 and females with a mean of 25.51 in aesthetics. Further, the result displayed a mean of 25.85 and 24.70 for males and females respectively for feeling, and a mean of 26.65 and 25.48 for males and females for the ideas facet. As a whole it was clear that males are more likely to show Openness to experience personality specifically fantasy, aesthetic, feeling and ideas traits.

	A1	A2	A3	A4	A5	A6	A
Gender F	1.99	17.7	030	10.39	2.24	0.65	9.71
p	0.15	0.0001**	0.58	0.001**	0.13	0.14	0.002**

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table .5.29. ANOVA results for gender and Agreeableness facets

Results in table 5.29 indicated that there was a significant difference in Agreeableness dimension of personality between males and females. There was also a significant gender difference in the facets of NEO-PI-R personality traits of straightforwardness and compliance. However, there was no any significant gender difference in the other Extraversion facets.

Gender	A2	A4	A
Males	27.03	27.22	167.57
Females	28.68	28.51	172.19

Tables 5.30. Mean score for males and females for Agreeableness facets

An examination of the means in table 5.30 indicated that females seem to be more straightforward than males with a mean of 28.68 and 27.03 respectively. In addition the result also showed high score of compliance and Agreeableness for females than males with a mean of 28.51 for females and a mean score of 27.22 for females in compliance and with a mean of 172.19 for females and a mean of 167.57 for males.

	C1	C2	C3	C4	C5	C6	C
Gender F	0.06	19.7	6.06	0.10	0.60	0.91	3.95
p	0.80	0.0001**	0.014*	0.75	0.43	0.34	0.05

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Tables. 5.31. ANOVA results for gender and Consciousness facets

It is possible to examine from table 5.31 that there was a significant gender difference in Consciousness personality dimension. In addition there was also a significant gender difference in the facets of order and dutifulness facets. However, there was no any significant difference between males and females in the facets of competence, achievement striving, self-discipline, and deliberation facets of Consciousness personality.

Gender	C2	C3
Males	28.07	30.11
Females	29.70	31.22

Table 5.32. Mean score for males and females for Consciousness facets

Analysis of order and dutifulness using the scales of order and dutifulness in the table 5.32 showed that females scored higher in order facet with a mean of 29.07 for females and 29.70 for males. In addition the result also indicated that females scored higher in dutifulness facet than males with a mean of 31.22 and 30.11 for females and males respectively.

Mean Score	N2	E2	O2	O4	C5
χ p	0.959 0.002	6.168 0.013	10.60 0.001	2.08 0.148	0.219 0.639

df = 1
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

TABLE 5.33. KRUSKAL WALLIS RESULTS FOR GENDER AND PERSONALITY

As can be seen from table 5.33 significant differences were found for anger hostility (N2, p= .002), gregariousness (E2, p= .0013), aesthetic (O2, p= .001), but no significant difference was obtained for action (O4), and self-discipline.

Median Rank	N2	E2	O2
Males	27	24	28
Females	26	23	26

TABLE 5.34. KRUSKAL WALLIS MEDIAN RANK RESULTS FOR GENDER AND PERSONALITY

Examination of median rank scores in Table 5.34 indicated that males seem to be more dominated with anger hostility, gregariousness (E2), and aesthetic (O2) type of personality than females.

5.7.3.Education and Personality

Since education is a nominal variable and the NEO-PI-R scales are interval, analysis of variance (ANOVA) was utilized for those scales which are homogeneous in their variance and non-parametric Kruskal-Wallis One-Way ANOVA was used for those scales which were not homogenous in their variance. Except for scales of Agreeableness all the scales were homogeneous in their variances. In addition Tukey's and Fisheries tests could not be able to detect whether there is a significant difference between the different groupings of educational in the scales of N5, N, A1, A6, A, C2, C3, C4, C5, C6, and C thus the study preferred only to examine the mean at the general level rather than comparing between groups.

		N1	N2	N3	N4	N5	N6	N
Educational Status	F	1.93	0.26	2.87	1.13	2.14	4.36	2.86
	p	0.07	0.95	0.009**	0.34	0.04*	0.0003**	0.009**

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.35. ANOVA results for educational level and Neuroticism facets

Table 5.35 provided evidence that there was a significant difference among levels of education and depression (N3, p=0.009), impulsiveness (N5, p= 0.04), vulnerability (N6, p=0.0003) and the (N) Neuroticism dimension of personality as a whole. However, there is no significant difference among the levels of education and personality scales of anxiety (N1) anger hostility (N2), self-Consciousness (N3).

Level of education	Means	1st	2nd	3rd	4th	Diploma	Certificate
1st	23.36						
2nd	23.96	0.59					
3rd	23.81	0.45	0.14				
4th	22.16	1.20	1.80	1.65			
Diploma	23.03	1.35	0.76	0.90	2.56*		
Certificate	22.61	0.74	1.34	1.20	0.45	2.10	
High school	24.72	0.32	0.92	0.78	0.87	1.68	0.41

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

TABLE 5.36. POST-HOC RESULTS FOR EDUCATION AND DEPRESSION

Table 5.36 indicated the results for post-hoc testing between level of education and depression scale of the NEO-PI-R. From the table it was possible to see those individuals with diploma educational level differed significantly with 4th year students with a mean difference of 2.56. However, there was no significant difference between the other groups. Diploma students are more depressed than 4th year students.

Level of education	Mean	1st	2nd	3rd	4th	Diploma	Certificate
1st	21.87						
2nd	21.55	0.32					
3rd	20.57	1.30	0.98				
4th	19.70	2.17	1.85*	0.87			
Diploma	20.29	0.30	-0.012	0.99	1.86		
Certificate	19.20	2.67*	2.35*	1.37	0.50	2.36*	
High school	21.72	1.58	1.25	0.27	0.59	1.27	1.09

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table 5.37. Post-Hoc results for education and vulnerability

The results for post-hoc testing in Table 5.37 indicated that there was a significant difference in vulnerability between 1st year students and certificate students with a mean difference of 2.67, between 2nd year and 4th year students (x= 1.85), between 2nd year and certificate educational level individuals (x= 2.35), between individuals with diploma and certificate educational levels (x= 2.36), apart from the above mentioned there is no significant difference between the other groups in vulnerability. First year students are more vulnerable than certificate students, second year students are more vulnerable than 4th year and certificate students, and diplomas students were more vulnerable than certificate students.

	E1	E2	E3	E4	E5	E6	E
Educational Status F	1.45	0.33	3.26	1.28	2.26	1.30	0.32
p	0.19	0.92	0.003**	0.26	0.037**	0.25	0.92

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table.5.38.ANOVA results for educational level and Extraversion facet

Table 5.39 provided evidence that there was a significant difference among levels of education and assertiveness (E3), and excitement seeking (E5). However, there was no significant difference among the levels of education and personality scales of warmth (E1) gregariousness (E2), activity (E4), positive emotion (E6) and finally there is no significant difference among educational levels and the Extraversion domain in general.

Level of education	Means	1st	2nd	3rd	4th	Diploma	Certificate
1st	21.6						
2nd	20.67	0.96					
3rd	21.15	0.48	0.48				
4th	21.08	0.54	0.41	0.06			
Diploma	18.89	1.60	0.64	1.12	1.05		
Certificate	20.13	1.50	0.53	1.08	0.95	0.10	
High school	20.03	2.74*	1.77	2.25	2.19*	1.13	1.23

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table 5.39. Post-Hoc results for education and assertivness personality

Table 5.40 indicated results for post-hoc testing between level of education and assertiveness scale of the NEO-PI-R. From the table it was possible to see that those individuals with 1st year educational level differed significantly from those individuals who completed high school with a mean difference of 2.74. In addition there was a significant difference in

assertiveness between individuals with 4th year educational levels and those who completed high school with a mean difference of 2.19. First year and 4th year students were more assertive than high school students.

Level of education	Means	1st	2nd	3rd	4th	Diploma	Certificate
1st	25.96						
2nd	25.24	0.72					
3rd	25.12	0.84	0.11				
4th	24.48	1.48	0.75	0.63			
Diploma	24.66	0.18	0.54	0.66	1.30		
Certificate	26.33	0.36	1.09	1.21	1.85*	0.54	
High school	25.78	1.30	0.57	0.45	0.18	1.12	1.66

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table 5.40. Post-Hoc results for education and excitement seeking personality

Table 5.41 indicated results of post-hoc testing between level of education and excitement seeking scale of the NEO-PI-R. From the table it was possible to see that those individuals with certificate educational level differed significantly in excitement seeking from those 4th year students with a mean difference of 1.85.However, there was no significant difference between the other groups. Certificate students seem to be more excitement seeking than 4th year students.

	O1	O2	O3	O4	O5	O6	O
Educational Status F	2.94	4.58	1.50	1.98	0.64	2.86	2.29
p	0.008**	0.0002**	0.17	0.06	0.69	0.009**	0.034**

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table .5.41. ANOVA Result for educational level and Openness facets

Table 5.42 provided evidence that there was a significant difference among levels of education and Openness personality, fantasy (O1, p= 0.008), aesthetics (O2, p=0.0002), values (O6, p=0.009) and the Openness domain in general (O, p=0.034). There was no significant difference among the levels of education and personality scales of feelings (O3) and ideas (O5).

Level of education	Means	1st	2nd	3rd	4th	Diploma	Certificate
1st	21.39						
2nd	21.72	0.32					
3rd	20.21	1.18	1.50				
4th	21.35	0.03	0.36	1.14			
Diploma	20.98	0.40	0.73	0.77	0.37		
Certificate	20.66	0.72	1.05	0.45	0.69	0.31	
High school	19.49	1.90	2.23*	0.72	1.86*	1.49	1.17

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.42. Post-Hoc results for education and fantasy

Table 5.43 indicated the results for post-hoc testing between the level of education and fantasy scale of the NEO-PI-R. From the table it was possible to see those individuals with high school educational level differed significantly from those of 2nd year and 4th year students with a mean difference of 2.23 and 1.86 respectively. However, there was no significant difference between the other groups. Second year students seem to be more fanaticizing than high school students and 4th year students seem to be more fanaticizing than 4th year students.

Level of education	Means	1st	2nd	3rd	4th	Diploma	Certificate
1st	25.90						
2nd	25.96	0.05					
3rd	26.77	0.33	0.28				
4th	25.34	0.56	0.61	0.89			
Diploma	27.29	1.38	1.33	1.04	1.94		
Certificate	29.01	3.10*	3.05*	2.77	3.67*	1.72	
High school	26.77	0.80	0.80	0.52	1.42	0.52	2.24

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.43. Post-Hoc results for education and aesthetic facet

The results for post-hoc testing from table 5.44 indicated that there was a significant difference in aesthetic personality between certificate and 1st year, 2nd year, and 4th year individuals with a mean difference of 3.10,3.05, and 3.67 respectively. Certificate students were more aesthetic than 1st year, 2nd year, and 4th year students.

Level of education	Means	1st	2nd	3rd	4th	Diploma	Certificate
1st	23.39						
2nd	22.54	0.84					
3rd	23.12	0.27	0.57				
4th	23.25	0.13	0.71	0.13			
Diploma	21.44	1.74	1.09	1.67	1.81*		
Certificate	22.45	0.94	0.09	0.67	0.80	1.003	
High school	21.98	1.41	0.56	1.13	1.27	0.53	0.46

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table .5.44. Post-Hoc results for education and values

Table 5.45 indicated results for post-hoc testing between level of education and values scale of the NEO-PI-R. From the table it was possible to see that those individuals with diploma educational level differ significantly from those 4th year students with a mean difference of 1.81. However, there was no significant difference between the other groups. 4th year students seem to be more concerned on values than the diploma students.

Level of education	Means	1st	2nd	3rd	4th	Diploma	Certificate
1st	145.30						
2nd	144.89	0.40					
3rd	143.72	1.57	1.17				
4th	145.60	0.30	0.70	1.87			
Diploma	144.61	0.68	0.28	0.88	0.99		
Certificate	147.48	2.18	2.58	3.75	1.87	2.86	
High school	141.05	4.25	3.84	2.67	4.55	3.56	6.43*

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.45. Post-Hoc results for education and Openness

As can be seen from table 5.46, there was a significant difference in the Openness to experience personality between individuals who completed high school and certificate. Certificate students seem to be more open than high school students.

	A1	A2	A3	A4	A5	A6	A
Educational Status F	2.92	1.83	1.11	1.66	1.06	2.42	2.66
p	0.008**	0.09	0.35	0.12	0.38	0.026	0.015*

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table.5.46. ANOVA results for educational level and Agreeableness facets

Table 5.47 provided evidence that there was a significant difference among levels of education and Agreeableness personality in general and especially trust and tender mindedness traits in particular.

	C1	C2	C3	C4	C5	C6	C
Educational Status F	2.57	4.47	3.92	3.19	2.62	3.15	5.41
p	0.018*	0.0001**	0.0008**	0.004**	0.01*	0.004**	0.0001**

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table.5.47. ANOVA results for educational level and Consciousness facets

Table 5.48 demonstrated that a significant difference in competence, order, dutifulness, achievement striving, self-discipline, and deliberation traits and Consciousness personality domain as a whole and the different educational levels.

Level of education	Means	1st	2nd	3rd	4th	Diploma	Certificate
1st	25.54						
2nd	25.00	0.54					
3rd	25.00	0.54	0.00				
4th	26.85	1.30	1.85**	1.85			
Diploma	25.43	0.11	0.43	0.43	1.42		
Certificate	26.08	0.53	1.08	1.08	0.76	0.65	
High school	26.17	0.63	1.17	1.17	0.67	0.74	0.09

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.48. Post-Hoc results for education and competence

Table 5.49 indicated results of post-hoc testing between level of education and competence scale of the NEO-PI-R. From the table it was possible to see that those individuals with second year educational levels differed significantly from those individuals with 4th year students with a mean of with a mean difference of 1.85, however, there was no significant

difference between the other groups in competence. Fourth students seem to be more competent than 2nd year students.

Level of education	N5	N	A1	A6	A	C2	C3	C4	C5	C6	C
1st	21.69	134.81	24.42	27.75	163.72	28.06	30.15	27.66	25.51	27.21	164.12
2nd	21.65	136.15	24.91	28.77	163.67	27.17	28.84	27.67	25.18	26.41	160.30
3rd	21.27	132.12	26.27	28.39	164.03	28.57	29.54	27.96	25.09	27.54	163.71
4th	20.60	130.04	25.27	29.16	167.22	28.64	30.93	28.81	26.61	28.33	170.64
Diploma	19.70	129.84	24.60	29.89	164.55	28.67	30.53	28.50	25.13	27.86	166.72
Certificate	20.25	128.60	26.11	30.00	169.70	29.05	31.50	29.51	25.68	28.25	170.09
High school	20.64	136.69	26.24	30.15	171.00	30.26	31.77	29.85	26.66	29.19	173.91

N=410
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table. 5.49. ANOVA mean scores for education and personality

As can be seen from table 5.50, 1st year, 2nd year, and 3rd year students seem to be more impulsive than the other groupings. 2nd year and high school students are more neurotic in their personality than the other groups.3rd year students, certificate completed individuals, and high school students seem to consist of trust trait than the other groups. High school students and certificate students seem to be tender minded than the other groups. High school students, followed by certificate and 4th year students seem to be more agreeable than the other groups. High school students followed by certificate students seem to be consisting of order trait than the other groupings. In terms of dutifulness trait high school students and certificate students are more dutiful than the other groupings. In terms of achievement striving personality trait certificate and high school completed individuals are more likely to be more achievers than the other groupings. High school and 4th year students seem to be more self-disciplined than the other groups. In terms of deliberation high school students were more likely to be high in deliberation than the other groupings.

	A
χ	0.959
p	0.002

df = 1
*P<0.05 correlation significant at the 0.05 level (2-tailed)
**P< 0.01 correlation significant at the 0.01 level (2-tailed)

Table 5.50. Kruskal Wallis results for education and Agreeableness

From the table 5.51 it was clear that significant differences were found for the Agreeableness dimension of personality (A, p= .002).

Educational Level	N	Median Rank
1st	33	161
2nd	73	164
3rd	33	162
4th	82	168
14th	65	172
13th	116	169
12th	95	167

Table 5.51. Kruskal Wallis median rank for education and Agreeableness

Examination of median rank scores in table 5.52 indicated that diploma students, certificate students followed by 4th year and metric completed individuals seem to be more Agreeableness than the other educational level groupings.

5.8.CONCLUSION

This chapter reported the findings of the study, including the descriptive statistics both for the demographic information and NEO-PI-R, reliability and validity of the NEO-PI-R, norming of the NEO-PI-R in the Tigrigna culture and finally findings regarding the age, gender and education, and personality. The next chapter will discuss these findings by relating to the previous findings and from the researchers observation.

CHAPTER 6: DISCUSSION

6.1. INTRODUCTION

This chapter will try to discuss all results obtained in this study in relation to the previous findings. Firstly descriptive statistics for the sample will be included followed by the descriptive statistics of the NEO-PI-R. Results concerning the reliability, the validity, of the NEO-PI-R by norming of the NEO-PI-R in the Eritrean context will be discussed. Finally all results related to age, gender, and education will be incorporated. The discussion was not solely based on the literature review rather personal observation and experience of the researcher have been included since the researcher him self is an Eritrean and belonging to the Tigrigna culture.

6.2. DESCRIPITIVE STATISTICS

The main importance of discussing the descriptive statistics of the sample is that the sample size and the nature of the sample in a study influence the outcome of the study. The obtained sample in this study was 410 individuals from different institutions. Almost 71.32% of the samples were students from the University of Asmara and School of Health and Nursing Technology; and the rest 29.68% of the sample were workers. The sample size in this study seems quite large. The normative sample on which the NEO-PI-R Adult Form S profile forms were based on a composite of three sub samples, namely 405 men and women in the Augmented Baltimore Longitudinal Study of Aging (ABLSA), in addition to 329 ABLSA participants who completed the NEO-PI-R through computer and 1,539 men and women who participated in the study of job performance. Hence, when the sample of this study is compared with McCrae and Costa, it seems to be small considering the aim of the study i.e. reliability, validity, and norms. Murphy and Davidshofer (1997; cited in Laher, 2001) argue that for developing a norm larger sample is important and the size of the sample might depend on the nature of the test to be normed as well as the number of items in the test to be normed. Similarly Rust and Golombok (1989 cited in Laher, 2001) advocated that a fair estimate of an appropriate sample size is to take the number of variables in the study and multiply by two. For the norming of a test this may involve the number of items on the test multiplied by two. If this approach is followed then the sample size obtained in this study

falls short of an adequate sample size. Nevertheless, it must be noted that this study was exploratory in nature and therefore not on the same scale as a full-scale norm development study. The sample obtained to develop the norms in this study could be regarded as preliminary and should act as a pioneer project to the development of norms based on a larger more representative sample and as an initiation for further study.

In terms of gender proportion almost 64.60 % of the participants were males and 33% of the participants were females. In Eritrea majority of the students at tertiary level of education are males i.e. almost 88%. This was not surprising since reports from the (MOE, 1999) indicated that the overall illiteracy rate for women in developing countries in 1999 was 32.1 percent, compared to 18.0 percent for men and in Eritrea literacy rates for women was 60.9 percent and for men was 33.5 percent.

In terms of age, the age ranged between 18- 72 with a mean of 27.24.This was expected since majority of the participants in this study were college students. The skewness coefficient revealed that the age was skewed to the right, which implies that the age was not normally distributed; therefore all the analysis pertaining to age utilized non-parametric statistics.

Finally, in terms of educational level, the results indicated that 8.09% of the participants were first year students, 19.36% of the participants were second year students, 8.09% were third year students, 19.85 were fourth year students, 15.93% had diplomas, 14,71% had completed certificate studies, and 13.98% were high school graduates. From the result it can be seen clearly that 86.02 of the participants had some tertiary education and 13.98% were high school completed. This is not surprising since according to the authors of the manual, the minimal educational level of the participants should be a minimum of grade 10. Therefore the study was namely limited to college students and minimal of 10th grade completed individuals. The difference of the proportion of the educational levels in the study can be attributed to convenience sampling nature of administration of the questionnaire i.e. only those who were above grade 10th and those who were willing to participate in the study were taken for the study. Almost 95 % of the population of Eritrea is illiterate (MOE, 1999);

therefore the NEO-PI-R must be used with the help of experts or trained individuals so as to be utilized in the majority of the people.

6.3. DESCRIPITIVE STATISITCS OF THE NEO-PI-R

NEO-PI-R Scale	USA		French		South Africa		Eritrea	
	Mean	Std	Mean	Mean	Std	Std	Mean	Std
N	79.1	21.2	106.9	100.7	21.1	22.8	132.6	15.8
E	109.4	18.4	112.1	114.3	17.6	18.5	146.25	10.55
O	110.6	17.3	126.9	121.0	17.4	17.1	144.77	9.94
A	124.3	15.8	119.3	111.7	18.7	19.1	116.12	14.53
C	123.1	17.6	107.2	106.8	18.7	21.9	167.12	16.53
N1	14.3	5.3	20.4	16.2	5.0	5.8	22.26	3.91
N2	12.4	4.6	16.5	17.2	5.4	5.2	20.51	3.98
N3	12.3	5.4	18.4	17.6	4.4	5.7	23.33	4.31
N4	14.3	4.4	18.0	18.9	3.7	5.0	25.08	3.83
N5	15.8	4.4	19.1	13.2	4.6	4.8	20.77	3.81
N6	10.0	3.9	14.6	22.0	4.2	5.4	20.61	3.87
E1	22.9	4.0	22.7	18.1	4.9	4.4	27.36	3.83
E2	16.5	4.8	18.0	16.1	4.8	5.7	23.14	3.91
E3	15.8	4.7	14.5	17.4	3.8	5.3	20.44	3.66
E4	17.6	4.4	18.0	19.7	4.3	4.6	22.39	3.32
E5	16.4	4.9	17.5	20.9	4.4	4.7	25.60	3.60
E6	20.2	4.5	21.4	17.5	4.7	5.4	27.60	4.26
O1	16.6	4.9	21.9	20.6	4.8	5.4	20.91	3.50
O2	17.6	5.3	21.4	21.2	5.2	5.5	26.60	4.63
O3	20.3	4.0	23.1	22.7	3.9	4.1	25.51	3.19
O4	16.4	3.7	17.9	16.3	3.4	3.9	22.83	3.04
O5	19.0	5.0	20.9	19.9	4.7	5.2	26.30	4.08
O6	20.7	4.1	21.8	20.1	3.7	3.8	22.53	3.21

A1	21.3	4.2	16.4	16.9	4.4	5.8	25.45	3.39
A2	21.2	4.4	19.8	18.5	5.1	6.0	27.61	3.73
A3	23.6	3.5	23.3	21.7	3.8	3.9	28.31	3.87
A4	18.9	4.0	16.3	15.8	5.0	5.0	27.60	3.87
A5	18.9	4.2	21.2	18.6	4.8	4.9	28.16	3.95
A6	20.5	3.5	22.2	20.2	3.2	3.9	29.29	3.98
C1	22.2	3.5	18.0	19.2	3.7	4.0	25.80	3.50
C2	19.0	4.2	17.3	16.2	4.2	6.0	28.59	3.54
C3	23.2	3.9	21.3	20.0	3.9	4.6	30.49	4.30
C4	19.5	4.0	18.4	17.7	4.7	5.1	28.63	3.70
C5	21.8	4.3	16.9	17.0	4.8	5.3	25.76	3.37
C6	17.5	4.1	15.4	16.6	4.6	4.8	27.84	4.11

Means and standard deviation for USA, France, and South Africa samples reported in Costa & McCrae, 1992, Rolland, Parker & Stumpf, 1998, Heucher, 1996.

As can be seen from the above table the means in the present study was different from the means of the previous findings of USA, France and South Africa. Mean score of the scales for the current sample do appear to differ from the means of all the domains and all the facets in the present study i.e. all the means of the present study except for Agreeableness domain seem to be higher than the means of USA, France, and South Africa, and at this point there is no way to determine whether such differences are due to cultural factors or are a product of the scale itself. This was not surprising considering the cultural difference between the developed world and those of third world countries. However, as Van Hemert & Baerveldt (2001) mentioned this mean difference can be explained by difference in the measurement error possibly, which is caused by social desirability, extreme response style, acquaintance in the response style, response distortion and interpretation problems rather than only to the personality difference in the Eritrean samples and some of these differences may be due to the very specific nature of this sample i.e. it could be due to the cultural difference in response style between the collectivist and those of individualistic cultures. Yamaguchi, et.al (1995) suggested that people in collectivist culture hesitate in making extreme responses;

where as those in individualistic cultures do not. Thus such response bias could influence the result unless it is eliminated before making any cross-cultural comparisons.

6.4. RELIABILITY

According to Paunonen and Ashton (1998 cited in Laher, 2001), the examination of scale means and variances together with reliability estimates particularly internal consistency reliability co-efficient contributes to an understanding of the cross-cultural applicability of that instrument.

6.4.1. Internal-Consistency Reliability

NEO-PI-R Scales	USA	South Africa	Korea	Eritrea
N	0.92	0.91	0.89	0.79
E	0.89	0.87	0.85	0.50
O	0.87	0.87	0.82	0.45
A	0.86	0.89	0.79	0.73
C	0.90	0.89	0.91	0.82
N1	0.78	0.80	0.73	0.49
N2	0.75	0.75	0.59	0.45
N3	0.81	0.80	0.72	0.51
N4	0.68	0.64	0.55	0.42
N5	0.70	0.44	0.62	0.46
N6	0.77	0.75	0.69	0.48
E1	0.73	0.74	0.62	0.44
E2	0.72	0.71	0.65	0.38
E3	0.77	0.74	0.59	0.32
E4	0.63	0.57	0.56	0.29
E5	0.65	0.60	0.45	0.24
E6	0.73	0.73	0.62	0.25
O1	0.76	0.75	0.46	0.32

O2	0.76	0.78	0.77	0.59
O3	0.66	0.69	0.48	0.22
O4	0.58	0.47	0.52	0.15
O5	0.80	0.74	0.75	0.45
O6	0.67	0.53	0.40	0.10
A1	0.79	0.73	0.65	0.30
A2	0.71	0.75	0.61	0.32
A3	0.75	0.71	0.64	0.46
A4	0.59	0.72	0.46	0.37
A5	0.97	0.75	0.47	0.45
A6	0.56	0.45	0.46	0.49
C1	0.67	0.71	0.60	0.37
C2	0.66	0.60	0.66	0.35
C3	0.62	0.61	0.72	0.61
C4	0.67	0.74	0.75	0.40
C5	0.75	0.77	0.68	0.30
C6	0.71	0.74	0.70	0.56
USA, South Africa, and Korea data from: Costa (1996), Heucher (1996), & Yoon, Schmidt, & Ilies (1997) respectively.				

As it can be seen from the above table comparing the coefficient alpha at the domain level for Neuroticism, Agreeableness and Consciousness of the present findings appeared to be almost similar with the previous findings in USA, South Africa and Korea except for the domains of Extraversion and Openness to experience, which are lower in their coefficient alpha than the previous studies.

Comparing the co-efficient alpha of the facets from the above table also revealed that even though they are not exactly the same there is also similarity in the magnitude of facets like self-Consciousness, impulsiveness, vulnerability, warmth, gregariousness, assertiveness, aesthetics, feelings, values, compliance, modesty, tender-mindedness of the present study

with Korean samples. In addition there are also similarities for the magnitude of self-Consciousness, impulsiveness, Aesthetics, feelings, values, compliance, and tender-mindedness facets among Eritrean sample and the USA, South Africa and Korea samples.
Given this it was possible to conclude that the NEO-PI-R does demonstrate internal consistency reliability in the Tigrignan culture context comparable to the American, French, and Korean reliability estimates. Yet the differences between the Eritrean and American co-efficients in terms of magnitude imply that the scales were measuring aspects of personality consistently across the groups but that of the Tigrignan people responded in a way that is different to Americans, South Africans, and other people generally across the world. This could be due to the possibility that cross-cultural differences exist in the manifestation of personality dimensions particularly if culture is considered.

6.5. VALIDITY

In addition to comparing scale means and variances and reliability, the study also explored the validity of the NEO-PI-R instrument so as to determine its applicability in the Eritrean context thus this study considered face validity, content validity and construct validity.

6.5.1. Face Validity

84.39% of the subjects in this study agreed that the NEO-PI-R could assess personality. 8.23% disagreed that the translated NEO-PI-R did not appear to measure personality. Thus the findings of this study clearly indicated that the translated NEO-PI-R has face validity. No justification can be given from the findings regarding the disagreement of the participants since they did not give any feedback on that rather it would be better if future research could explore it.

6.5.2.Content Validity

Translating the NEO-PI-R into Tigrigna was a long process; four translators as well as the author of the NEO-PI-R examined and analyzed the items until the final version resembled the original version. Thirty-six items were identified as problematic in the first back-translation and further 3 items were identified in the second back-translation.

In terms of the problem they were mostly related to the difference in language and cultural understanding of the items for instance, item 13, which says, " Without strong emotions, life would be uninteresting to me". In Tigrignan language there is no clear-cut difference between the words like emotion, feeling, mood. These words are directed by the same expression, "Simiet". In addition leisure and happiness can be used interchangeably in Tigrigna language. For item 46, there is no clear term related to self-Consciousness in the language. In terms of item 52 " I would enjoy vacation in Las Vegas". There is no equivalence to Las Vegas in Tigrignan society it needed to be adapted in order to be understood in the Eritrean context and was changed to Shamrook which is not equivalent to Las Vegas but at least it explained the concept. Shamrook is " a night club place". Moreover, the game solitaire is not common in the Tigrigna society and in Eritrean culture that is why it was difficult to translate it but it was just translated to "playing cards alone". The word mad is usually associated with the extreme mental abnormality and hence it could be a problem just to translate as it is.

Further, there was no clear cut difference between the words vacation and rest, should, ought to, could, would, may, might. All of these words are also used interchangeably and there is no particular meaning for each of them. There was no difference in the use of words like stress, depression, anxiety, worry and other mental problem terms rather if the individual is suffering from minor mental problems even stress it is said to be he/ she is worried, however, if the severity was relatively high in its degree it is said to be he is mad. Lastly, there was also a problem in the translation of words like fantasy; imagination, creativity, daydreaming, dreaming from the Openness domain since people do not usually use the terms. Hence there was a problem in translating and describing the above terms in the Tigrigna language. Generally, majority of the problematic items were from the Extraversion domain.

6.5.2.1. Frequencies and Themes: Appropriateness and Understanding

This study also examined content validity with two questions asking respondents if there were any items they thought were inappropriate or any items, which they did not understand. 60.7% of subjects in the study indicated that they thought all items were appropriate, while 47.8% of subjects indicated that they had understood all the items. Based on these

percentages one is inclined to argue that the translated NEO-PI-R has appropriate content validity within the Eritrean context. However 26.1% of subjects indicated that items were not appropriate and 47.8% indicated that they did not understand items on the NEO-PI-R. This is a substantial percentage and therefore merits further consideration. This introduces the possibility of bias in the NEO-PI-R and this was explored in the study and will be discussed further on in the chapter.

Eritrean societies are conservative in terms of their values, norms, and traditions especially at the adult stage. For instance going to Shamrook and classical or modern dances are only for children or adolescents. In addition manipulating of people to get something is also immoral in that society, i.e. people consider it as a behavior of wicked individuals and wicked individuals are not accepted in that society, where helping, accommodating, and caring of others is given more credit than taking advantage of other people or allowing the situation or the weakness of an individual. In the same way, item 105 " I some times cheat when I play cards with my self", item 111 " When I get food that I like, I eat my self sick", item 163 " When some one picks a fight, I am ready to fight him", item 185 " I am very skillful", item 214 "I have big faith in man's nature", item 234 " I am better than any one", item 89 "We can never do too much for the poor and the elderly". It is clear that all the above items were considered as inappropriate, for instance in Eritrean societies, cheating, eating too much, fighting, and trusting in man rather than in God and helping the poor and the elderly, and considering some one as better than others, types of behaviors are considered immoral and unethical considering the culture of the society. The people in Tigrigna society belong to either Muslim, Orthodox, Catholic, Protestant religious denominations, thus, people in the society are more inclined to the different moral values and attitudes of their religion rather than only interested in their own desires.

Items that were regarded as inappropriate or not understandable were listed in the results section together with frequency of the item listing. There appears to be little consensus on which items were problematic but an examination of both tables revealed that item 13, 'Life without feeling means nothing to me' item 39, 'I do not mind to manipulate people to get what I want,' item 58, 'I believe that laws and social policies should be changed in order to

reflect the demands of this changing world,' item 63, 'I have an active life of day dreaming' item 145; 'It is important to me how I feel about things,' and 'I do not have problems in confronting temptations; item 126'I do get disgusted of some people I meet in work,' 133 ' I have a wide range of feelings and emotions; item149 ' human needs and demands should come before economic considerations'; item182 'I have strong attachment to my friends'; item 208 ' when people at the age of 25 do not know what to believe , it means they have problems'; item 223 'an old odor like a particular perfume or the name of far away places create strong emotions in me' were items most frequently cited across the tables. Some of the items have already been discussed previously. With items 13, 145, 133 the problem can be attributed to the language used in these items, that is, it is very hard to differentiate between the terms " emotion" and "feeling" in the Eritrean context.

The content validity of the NEO-PI-R as defined in the translation process appears to be appropriate apart from the 36 items, which were problematic in the translation process and generally this might have an influence on the use of NEO-PI-R in the Tigrigna society. Thus more research would have to be conducted before the instrument is employed on Eritrean societies or it should be used with caution as an initial personality instrument in that society.

6.5.3. Construct Validity

Exploring the construct validity formed the major part of the study since it involved the factor analysis of the items and scales on the NEO-PI-R. Numerous researchers have evaluated the cross-cultural generalization of the five-factor model whether it is valid with Europeans, Indian, Asian, or African languages and researchers continued to find the five factors in self-report. It is of particular interest to find evidence supporting the five-factors model in languages that do not even share a common deviational or experiential history with English (Yoon, et.al, 1999).

To determine whether the five-factors could be recovered in this study or not, an exploratory factor analysis with varimax rotation was conducted; the scree plot test clearly indicated that five- factors could be extracted. The result of the five-factor analysis was presented in chapter 5. The exploration of the total variance was 47.3 and the exploration of variance

explained by factor 1 was 40.029, factor 2 was 25.496, factor was 13.244, factor 4 was 12.441 and factor 5 was 8.79 for the principal component analysis at the item level. In addition the variance explained by each factors at the scale level was 31.05,18.95, 17.90, 16.84, and 15.26 for factor one, two, three, four and five respectively.

Factor 1 can be labeled as Consciousness dimension of personality on the scale level. This dimension consisted of namely competence, order, dutifulness, achievement striving, self-discipline, and deliberation, which were loaded positively. In addition to negatively loaded traits of impulsiveness and vulnerability from the Neuroticism domains, fantasy and action traits from the Openness domain as well loaded in this factor. From these findings it is clear that Tigrigna people like the other individualistic and collectivistic cultures consisted of Consciousness personality. This factor seems to be consistent with McCrae & Costa (1992) findings of the Consciousness domain personality. Thus, there is a clear indication of the existence of Consciousness personality in the Eritrean context. This could be due to the fact that like any collectivist and individualistic societies Eritrean culture trained individuals to develop competence i.e. to be competent, to be effective and efficient at work, to make sound judgments on their life, and to be successful in their life, order traits especially to keep their belongings to be clean and neat, dutifulness i.e. accomplishing the given tasks, avoiding cheating, to be firm to the ethics of the culture, and to do their work very carefully. In addition to these the culture also focuses on self-discipline i.e. to do things on time, to be productive rather than to be lazy etc and to be deliberate or conscious about the decisions that an individual should make. It is not also surprising the negative loading of impulsiveness in this factor since the culture discourages individuals to overindulge in any thing. Rather it teaches individuals to be resistant in time of temper, difficulties, hunger, etc. For instance the Tigrigna culture reared their children not to eat any thing outside from their household even if they are hungry. When someone visited an individual and asked for tea or food, usually the response is no and the family forced him to eat some thing. That is why people usually do not ask individuals for food or drink they just prepare themselves and give the visitors without question. In addition to that an individual should not also eat too much, since there is always a bad connotation behind, people may regard it as selfishness. However, there is no clear justification for the negatively loaded traits of vulnerability, action and fantasy rather further

research is needed for that. As a whole it is not surprising to see the Consciousness personality domain in the Eritrean context as well considering the above-mentioned values in the Tigrigna culture.

Consistent with the findings of the Asian culture (Rolland, et.al, 1998) the Extraversion domain did not exist in the Tigrigna culture. Rather the second factor showed a combination of Agreeableness traits namely compliance, modesty, and tender mindedness in addition to negatively loaded traits of assertiveness and activity from the Extraversion domain, and anger hostility from Neuroticism and value traits from Openness domain of the original NEO-PI-R. This study clearly showed that unlike the findings of McCrae and Costa (1992) Extraversion domain did not really exist. However, this does not mean that Extraversion does not exist at all in the Tigrigna culture but the understanding of the concept may be different among the people. Extraversion in the western perspective is often equated with sociability in popular speech, especially adjectives like sociable, fun loving, affectionate, friendly and talkativeness (McCrae & Costa, 1987).

Lucas et.al. (2000) described external factors such as culture may influence the structure of Extraversion and its relation to pleasant affect by influencing these external factors. In western cultures, in which most Extraversion research has been conducted, social contact may be seen as "fun" and rewarding may be strongly related to pleasant affect, whereas social behavior in other cultures may be motivated more by the desire for harmony and by feelings of respect and duty. One dimension of culture that may be particularly useful in identifying systematic differences in the processes of underlying the Extraversion / pleasant-affect relation is the individualism and collectivism or independent – interdependent conceptualization of the self. In individualistic cultures people often try to distinguish themselves from one another, whereas in collectivist culture, harmony with in-group members is a more central goal. Thus social contact may serve different purposes and may result from different motivations in different cultures. In individualistic cultures in which feelings and emotions are attended to more strongly (Lucas et.al, 2000), people may engage in social behaviors that are fun and rewarding. In collectivist culture, in which feelings and emotions have less influence compared with norms and roles, positive emotion may not

prompt social behavior or feelings of sociability. Thus it is not surprising to see different pattern of relations among facets of Extraversion in different nations. For example pleasant affect may be less strongly related to Extraversion in the collectivist culture of the Eritrean society. For instance talkativeness cannot be seen as a one aspect of Extraversion in the Eritrean cultures rather usually people are trained to be less talkative and submissive to authority, parents and teachers. As the researcher experiences indicated that even the relationship between a teacher and a student at all educational levels is more of authoritative relationship where the teacher talks and the students in submission to listen to him. In the same way items of Extraversion domain like " I tend to avoid movies that are shocking or scary" considering this item it is some time better to ask how many people own or have access to movies in third world countries like Eritrea. If this is one of the expressions of the Extraversion personality in the Western perspective it is less likely to be manifested among the third world people where they do not have access to movies like the western people. From this it is clear that understanding of Extraversion in the west is different from Extraversion in the Eritrean culture.

Consistent with the findings of McCrae and Costa (1992) the study showed that factor 3 consisted of Neuroticism domain of personality namely anxiety, anger hostility, depression, self-Consciousness, and vulnerability. The existence of this factor was expected having into consideration the experience of the people. Unlike many African countries, Italians, British, and Ethiopians colonized Eritrea in turns until 1991. The people were involved in an extensive war for their independence almost for the last four decades and they have been affected with emotional maladjustment such as traumatic experience, hostility, depression and anxiety as a result of war. Even for the last five years the people are still struggling for their sovereignty against Ethiopians, hence it is not surprising with the manifestation of fright, apprehensiveness about the future, sadness, stress which come as a result of war.

Factor 4 clearly showed Agreeableness personality dimension namely trust, straightforwardness, altruism, and compliance traits, which is consistent with the findings of McCrae & Costa (1992). There are two reasons for the possibility of allocentric tendencies the first one is psychological attachment to in-group and the second is fear of rejection from

the in-group (Yamaguchi, et.al, 1995). In collectivist culture a person expects reward or punishment and for this reason individuals are motivated to sacrifice self-interest for the sake of the group. A concern of punishment also motivates them to abandon personal goals for those of the group. Similarly like any other collectivist dominated cultures the rearing practice of the Tigrigna culture teaches people to be more obedient, and agreeable to the norms, values and other elements of culture. Minor deviation from the norms would result in alienation and rejection from the society. For instance when an individual deviate from the Coptic orthodox belief to any other religious affiliation, the individuals face rejection from the community, relatives, and family. Thus it is not surprising to see the existence of Agreeableness dimensions of personality like any other cultures around the world.

Yamaguchi, et.al. (1995) described that individuals in collectivist culture give priority to group goals over personal goals because they are sensitive to rewards and punishment from in-group members. They have also lower needs for uniqueness because they withhold their opinions and preferences when they are in conflict with those of groups. The present findings are consistent with these assumptions although further studies are necessary to examine these assumptions.

Factor 5 in the English version of the NEO-PI-R showed Openness to experience personality. Unlike the findings of McCrae & Costa (1992) the present study revealed only some traits of Openness to experience domain of personality namely traits of aesthetic, feelings, ideas and values. However, action and fantasy traits from the English versions were not loaded in this factor. To see this result is not surprising, considering the fact that fantasy items are not usually used among the people. For instance, as it was described earlier the people in Eritrea do not use words like daydreaming, imagination, fantasy, rather all of these synonymous words are usually combined in with the word " dream". Cheung, et.al (2001) noted that the NEO-PI-R Openness domain has not been consistently extracted in cross-cultural studies of the Big Five and he said that it may be differently defined in different cultures but still exists and has a functional impact on social behavior. The Openness to Experience domain was introduced by Cheung, et.al (2001) to reinterpret Goldberg's Intellect as the fifth factor. Openness to Experience is a broader construct that encompasses imaginativeness, liberal

thinking, receptivity to many varieties of experience and a fluid and permeable structure of Consciousness. Even McCrae (1990) said that Openness to Experience seemed to be poorly represented in natural languages, particularly for the less observable traits that characterize the structure of Consciousness.

As a whole, even though the five factors could be extracted in the present study, there was a difference in the pattern of the structure. However, getting such different result was expected considering the origin of the NEO-PI-R. Basically, the NEO-PI-R was developed in the western culture, which is dominated by individualistic or independent relationship among the people. The present result may be influenced by many factors. For instance as Westen (1996) mentioned that resources and economic difference can influence as well the personality of an individual, having the condition of hardship. Considering the scarcity of resources in the Eritrean population in particular and the Horn of Africa in general, the people in that region do not spend much time in pleasure seeking activities.

The pattern of results for this study offers some emic and etic implications. From an etic perspective, it is clear that the five-factor personality can generalize well to the five-factor model of personality that can generalize as well to the Eritrean culture. It is both interesting and exciting to note that constructs originally derived from English language can be applied to cultures that share neither a common language nor history. This is further evidence that the five-factor model represents psychological constructs that are fundamental to human experience (McCrae & Costa, 1989b; Piedmont, 1995).

6.5.3.1. NEO-PI-R Scale Intercorrelations

To assess the construct validity of the translated NEO-PI-R the study also conducted intercorrelation among the different domains and the different facets. When the intercorrelation of the present findings is compared with the USA intercorrelation[8]. Consistent with the findings of Costa & McCrae (1992) in USA sample there was a negative correlation between Neuroticism and Extraversion, Agreeableness, and Consciousness with a magnitude of -0.248, -0.380, -0.549 respectively but unlike the USA findings there was a

[8] Intercorrelation matrix in the USA sample

negative relationship between Neuroticism and Openness with a magnitude of –0.084.The patterns of correlation between Extraversion domain and the other domains is similar to that of the USA. There was also a consistent finding between the USA and the Eritrean sample in terms of the pattern of relationship between the Openness to Experience, between Agreeableness, and Consciousness domains and between Agreeableness domain and Consciousness domain. As a whole the magnitude of the relationship among the different domains is almost similar to the Costa & McCrae (1992) in USA sample.

In addition consistent with the findings of McCrae & Costa (1992) there was a positive significant relationship between the Neuroticism domain and facets of Neuroticism domain, between the Extraversion domain and facets of Extraversion domain, between Openness domain and facets of Openness domain, between Agreeableness domain and facets of Agreeableness domain.

Furthermore comparing of intercorrelation pattern among the facets of each domain indicated that all the Consciousness facets significantly positively correlate, all the Agreeableness facets correlate significantly positively except that there was no significant relationship between trust and modesty, between trust and tender mindedness, all the Neuroticism facets correlate significant positively except there was no significant relationship between self-Consciousness and impulsiveness. This was not surprising considering the high Cronbach alpha for the Consciousness, Agreeableness and Neuroticism domains. However, there was no significant relationship between majority of the Extraversion facets except between warmth and gregariousness, between gregariousness and assertiveness, assertiveness and activity, between positive emotion and assertiveness, between assertiveness and excitement seeking. Similarly there was no significant relationship between all the domains of Openness to experience except between facets of fantasy and action, aesthetic and ideas, fantasy and values, aesthetic and values, feeling and ideas. This was expected since the Extraversion and the Openness to experience domains were low in their Cronbach alpha than the other domains. In addition Openness to Experience and Extraversion domains were not well-replicated factors in the Tigrigna culture. Thus a low correlation among the different facets in the Extraversion and Openness domains is not surprising.

Comparisons of the American and Eritrean scale intercorrelation matrix allow for the following generalizations. Costa & McCrae (1992) correlations were higher than the Eritrean NEO-PI-R correlations. Smaller correlations tend to be more erratic across the two samples with some correlations appearing as significant in the Eritrean sample but not in the American and vice versa. The researcher's opinion is that interpreting these correlations is of little use to the study given that they are not strong enough to merit consideration. Also given that the sample used in this study was small in comparison to the one utilized by Costa & McCrae (1992) the possibility was increased that these correlations may be spurious and not appropriate for analysis. In the same vein, it could be argued that the large correlations observed may also be affected because of the sample size and should be interpreted with caution. However from a statistical point of view a sample of 410 was big enough to calculate effective correlations (Howell, 1995)

For the most part then the scale intercorrelations were good. They support Costa & McCrae (1992 theory in that appropriate correlations were found between theoretically related, and unrelated concepts. At the same time the fact that a group of correlations were found that were not necessarily theoretically related Costa & McCrae (1992) offers no explanation for why this may be so.

6.6. NORMS

NEO-PI-R Scales	Eritrea		USA	
	Min	Max	Min	Max
N	93	174	37	133
E	120	173	67	157
O	120	170	73	151
A	128	204	82	163
C	123	210	76	163
N1	13	33	3	27
N2	11	31	2	24
N3	13	35	2	25

N4	16	35	4	25
N5	12	31	6	26
N6	11	31	1	21
E1	18	37		
E2	15	34	2	28
E3	12	31	5	28
E4	15	31	6	29
E5	17	34	4	24
E6	17	39	6	30
O1	13	31	5	27
O2	15	39	3	29
O3	18	34	9	29
O4	16	31	5	25
O5	16	37	7	32
O6	15	31	10	30
A1	17	34	8	32
A2	18	38	9	31
A3	19	39	12	32
A4	18	38	6	29
A5	18	39	5	31
A6	19	40	8	29
C1	17	34	13	32
C2	20	38	5	30
C3	19	42	16	32
C4	19	35	10	30
C5	18	35	6	32
C6	18	39	7	30

This study used the same procedure as Costa & McCrae (1992) for calculating norming. Despite the study utilizing the same method with USA there was a real difference in the norms between the Tigrigna sample and the USA sample i.e. the values of the minimum and maximum for all the domains were higher in the Eritrean sample than the USA sample and this was expected considering cultural differences between the two groups. Similar to the mean differences, the difference in the norming can be explained by the difference in the measurement error possibly, which is caused by social desirability, extreme response style, acquaintance in the response style, response distortion and interpretation problems rather than only to the personality difference in the Eritrean samples. Some of these differences may be due to the very specific nature of this sample i.e. it could be due to the cultural difference in response style between the collectivist and those of the individualistic cultures. Yamaguchi, et.al (1995) suggested that people in collectivist culture hesitate in making extreme responses; where as those in where as those in individualistic cultures do not. Thus such response bias could influence the result unless it is eliminated before making any cross-cultural comparisons. In addition comparing to the USA sample, the sample size in the present study was moderate and it was not proportionally representative of all the people in the Tigrigna culture considering the differences of sub culture within Tigrigna culture itself. Hence these norms need to be applied with caution to certain groups. Despite the limitations it can be argued that having some Eritrean (Tigrignan) point of reference might be better as a good start rather than relying totally on a foreign measure and for the practice of psychological assessment.

As a whole calculating the norms of the NEO-PI-R in this study can be considered a step in the right direction for personality assessment within the Tigrignan context. It marks a significant attempt for the use of psychological assessment and the future of psychological testing within Tigrigna culture specifically and as a whole in the Eritrean context.

6.7. DEMOGRAPHICS AND PERSONALITY

6.7.1. Age and Personality

The present study explored the relationship between personality and age as measured by the NEO-PI-R scales and the subscales of each scale. An examination of the spearman

correlation in chapter 5 indicated a decrease of Neuroticism personality with age. These findings were consistent with the findings of McCrae, Costa and Pedroso et.al (1999). Where as there was no significant relationship between age and the Extraversion facets in general except for warmth facet but this is not surprising considering the failure of the Extraversion domain as a factor. In terms of Openness to Experience, fantasy and warmth decreases with age but feeling increases with age. This was also expected since only limited facets were replicated in this study.

In terms of the Agreeableness domain trust, straightforwardness, altruism, modesty and Agreeableness domain personality in general increases as age increases. Furthermore, the study also revealed an increase of competence, order, dutifulness, achievement striving, self-discipline, deliberation and Consciousness personality dimension in general with the increase of age. These results displayed consistency with the findings from Germany, Italy, Portugal, Croatia, and South Korea, which showed a decrease in Neuroticism, an increase in Agreeableness and Consciousness as people mature. Hence, as McCrae, Costa, Pedroso et al, (1999) suggested a decline in Neuroticism, and an increase in Consciousness, and Agreeableness in this study may be attributed to the natural part of the human experience.

6.7.2.Gender and Personality

In the present study males were more impulsive than females, but there was no significant difference in gender for facets of anxiety, anger hostility, depression, self-Consciousness, and vulnerability traits and Neuroticism domain of personality in general. These findings were not similar with the previous reports of McCrae and Costa (2002), which showed higher scores of Neuroticism for females than males. Neuroticism predisposes individuals to different kinds of major psychopathology, for instance generalized anxiety disorder, panic disorders, phobias, major depression, dysmathic disorder, and border line personality disorder are all diagnosed substantially more often in women than in men (American Psychiatric Association, 1994). The only exception among the traits of N, which is not significant in women, was anger. Many research findings showed that the level of hostility is higher among men than among women.

The finding in the present study also showed that males were more extraverts than females; and males scored higher in gregariousness, assertiveness, and excitement seeking than females but females seem to be higher in positive emotion trait than males. Similar to the findings of McCrae (2001) males in this study were more likely to consist of fantasy, aesthetic, feeling, ideas traits specifically and Openness personality in general than females.

An examination of the mean difference in this study indicated that females seem to be higher in straightforwardness and compliance than males, which is consistent with the findings of McCrae (2001) that says women are usually somewhat higher than men on facets of Agreeableness. According to McCrae & Costa (2001) there were only few gender differences in facets of Consciousness, except women in most of the cultures seem to consist of dutifulness trait than men. In the same way results of the present findings showed that there was a significant gender difference in Consciousness personality dimension, namely order and dutifulness facets. However, there was no any significant gender difference between males and females in the facets of competence, achievement striving, self-discipline, and deliberation facets of Consciousness personality. Analysis of order and dutifulness using the scales of order and dutifulness showed that females scored higher in order and dutifulness.

Gender difference in this study similar to the other cultures can be attributed to either biological or social psychological. As per the biological explanation of sex difference in personality they believe that sex difference in personality arises from innate temperamental difference between the sexes. Evolutionary explanation to this difference predicts that sex difference in personality can be attributed to the different domains in which they have faced to adapt their problems. For instance Eritrean women spend a lot of time on child rearing and lactation of children. Thus it is not surprising like other women in the other parts of the world or cultures when they do have more agreeable and nurturing personality traits than men (Gebremedhin 1996).

In addition to the biological explanation the difference can also be attributed to a social model. According to the social role model explanation gender difference in personality

occurred as a result of gender roles, which define appropriate conduct for men and women. Like any collectivist culture there is also a clear distinction of gender roles in the Eritrean society. Eritrean society is patriarchal in nature. The division of male and female roles, and the accompanying prejudices, begins in childhood (Gebremedhin, 1996). Husbands and fathers head their families, wielding incredible amounts of power. They oversee family resources and determine the futures of their spouses and children. Males are raised from birth to fulfill these positions. As in much of the world, despite the introduction of modern ways of life, societal traditions often accord women a subservient status (Gebremedhin, 1996). They are looked upon as daughters, as wives, and as mothers. Their duties are domestic; they assume the roles of cooks, caregivers, and cleaners. From a very young age, girls learn domestic skills and begin to take on domestic duties. They learn to cook and sew, to care for children, to wash and clean, and to supplement the household income with cottage crafts. They take up these duties at the age of six years (Melcamu, 1994) and are expected to perform them for the rests of their lives.

As a whole cross-cultural comparison on personality can provide evidence for the influence of biological verses cultural factors in gender differences in personality traits. If the difference is due to biological bases, then the same difference ought to be seen in all cultures. But it is also possible that pun cultural gender difference result from universals in learned gender roles.

6.7.3.Education and Personality

Unlike the findings of McCrae & Costa (1992) the study showed a significant difference among the different levels of education and the different traits of personality. For instance in terms of Neuroticism personality dimension individuals with high school educational levels seem to be more depressed, 2nd year, 1st, more impulsive than the other groupings 1st year, seem to be more vulnerable, than the other groupings.

Findings of Extraversion personality in the study showed that diploma holders are more assertive than the other groupings. Certificate holders seem to have excitement seeking personality than the other groupings. In terms of Openness to experience personality

dimension certificate holders seem to consist of aesthetic trait than the other groupings. In addition high school graduates seem to be more concerned with values than the other groupings. Certificate holders seem to be more open than the other groupings

In terms of Agreeableness the study also showed that certificate holders seem to have more trust traits than the other groupings. Likewise the study revealed that individuals with high school educational levels seem to be tender minded than the other groupings. In terms of Consciousness individuals with fourth year education were more likely to be competent than the other educational level groupings. In addition high school completed individuals are more likely to show dutifulness trait than the other groupings.

As Laher (2001) mentioned, these differences in personality styles could be attributed to a number of reasons. It could be that those with a higher level of education have a better grasp of language and would be more likely to distinguish between the subtle nuances present in each of the items. They may also be more capable of answering consistently across the questionnaire, i.e. they are able to read, understand and respond more efficiently when the same item may appear with different phrasing or in reverse. Apart from this there was no any evidence from the previous research and from this study why this difference existed.

As a whole the differences in the present study were not consistent with previous findings. In addition almost 95% of the people are illiterate and the sample may not be representative of the whole population, hence the NEO-PI-R should be used carefully and future research should also consider all this limitations.

6.8. CONCLUSION

The chapter discussed the findings of the present study in relation to the previous findings and the next chapter is going to include the limitation, implication and recommendation of the present study.

CHAPTER 7: LIMITATION, IMPLICATION AND RECOMMENDATION OF THE STUDY

This chapter will begin by exploring the limitation of this study followed by its implications and lastly included recommendation for future research.

7.1. LIMITATIONS OF THE STUDY

Even though the present study was interesting and provided useful information in the field of personality, but it was with a number of conceptual and methodological limitations that may have some bearing on the results of this study.

7.1.1.Cocnceptual Limitations

There were conceptual limitations in the present study regarding the concept of personality and the five-factor model as a whole. The term personality is a very complex and multifaceted concept with no universal definition; however, this research was limited with specific concepts of personality.

Costa and McCrae (1992) suggested 3 criteria, which make the five-factor model basic to define personality dimensions. They claim (a), that longitudinal and cross-observer studies demonstrate that all 5 factors are enduring dispositions that are manifested in patterns of behavior. However, Eysenck argues that this claim is irrelevant because this is also true with the findings of Cattell's model of personality and Eysenck's Pen model of personality. Secondly Costa and McCrae also claim (b), traits related to each of the factors are found in variety personality systems and in the natural language of trait description. According to Eysenck the same is true for the second criteria, it carries its own destruction. He argued that if the traits in question are found in a variety of personality systems, why should we prefer the one presented by Costa and McCrae?. Thirdly McCrae and Costa claim that the factors of five-factor model are found in different age, sex, race, and language groups, however, Eysenck also claims that this is also the same with the Cattell's and Eysenck's models of personality.

Moreover Dawda (1997) noted the following limitations regarding whether FFM is a complete theory or not. He said a complete theory should consider the following questions (i) what are the characteristics of the person and how are they organized (i.e., personality structure), (ii) how these characteristics develop and change over different contexts (i.e., personality process). Similarly the greatness of the theory can be determined only if the theory can sufficiently address the question of both individual differences and similarities in personality characteristics (nomothetic view), and the intra-individual complexity of personality organization and dynamics (idiographic view). Besides the methodology, that has been utilized to develop and study the construct validity, the kinds of statistical procedures used to determine the level of complexity and the limits of validity of a given framework can also make the model to be more acceptable.

However many scholars like Dawda (1997) have been more skeptical about the greatness of the trait theory in general and the FFM in particular considering the above conditions. Dawda (1997) argued that trait theory in general, and the NEO Five Factor Model in particular, has a defined place in personality research and theory. Many of the criticisms were based on the theoretical framework of the model, its originality, the method of factor analysis and the limitation of the rating scale.

The first problem with the big five lies in the fact that it is merely a descriptive taxonomy, lumping together similar behaviors under a common label. Other trait theorists take another route, and attempt to link genetic or anatomical structures to traits, offering putative explanations for why people have differing traits, how they develop, and how they actually influence behavior. Given that the big five lacks this, its usefulness in a clinical situation is not always trusted. Perhaps linking the big five traits (such as Neuroticism) to biological substrates may lend more insight into the treatment of disorders such as depression. However, assigning traits and behaviors to specific biological causes is more difficult than it appears, and much of the data resulting from these attempts appear to be more correlative than causal.

Some say that fewer than five factors can be used to describe personality. Pervin (1993) suggested that many trait theorists would believe that there is more to personality than the

Big Five--for example, people's self-concepts, their identities, their cognitive styles, and the unconscious. The model focuses on stability of personality, but it doesn't discuss change of personality

The second problem as it has been suggested by McAdams (1992) is related to the issue of comprehensiveness. The Five-factor model of personality lies in its reputed comprehensiveness, and much of the success for its comprehensiveness comes from empirically uncovering the five factors in many other omnibus personality measures. Many research findings suggest that the big five has been replicable in six languages such as English, German, Japanese, Chinese, Filipino and Hebrew. McAdams commented that the FFM model claim to cover the entire universe of personality traits on the bases of the following three achievements. (a) The ubiquity of the five-factor solution in factor analyses of self-and peer ratings; (b) the discovery of the Big Five in the constructs offered by other personality theories; (c) the replication of the five-factor structure in other languages and cultures. As it has been pointed out by McAdams (1992) even though the five-factor structure of trait descriptors is recognizable across samples and investigators, the degree of correspondence is less than ideal. The factor of Openness to experience has been the subject of a lively debate among those who see it as a factor of intellect.

The third problem of this model lies with the source of information for the development of FFM model. The FFM like the other trait theories was based on a dictionary (Dawda, 1997). For instance Cattell's lexical hypothesis assumes that the important aspects of human nature have corresponding terms in every day language. Similarly factor-analysis technique assumes that more additional adjectives can be included to the features of personality. Nevertheless it is important to know that there are large clusters of adjectives, which have little importance in the description of personality. This marginalization of psychological language in the creation of the five-factor model warrants concern.

Dawda (1997) further described that due to the emergence of these easily administered self-report measures, the Big Five model became one of the most popular personality research

tools but there is skepticism over people's ability to report accurately while they are evaluating themselves.

The present study was quantitative in nature; it is susceptible to all limitations of this positivistic paradigm (Laher, 2001). As a quantitative study, the researcher aimed at only exploring personality within a cross-cultural context but this was only considered within the theories posited by previous research, specifically the Five Factor model (McCrae, et.al., 1998). Like any quantitative study, this study obtained an enormous amount of data with a lot of nondescript responses from many participants. Apart from this there was no further elaboration on the responses given by the respondents, in other words it did not give clear explanation regarding the causes of the real behavior of the participants. As mentioned by Laher (2001) quantitative research can only provide a wide sample without in-depth understanding of the responses. There was no in-depth exploration of people's perceptions of personality; rather their responses were just taken as absolute. Therefore this was problematic in the study, since the research namely sought to explore the utility of the NEO-PI-R in the Eritrean context so as to see the cross-cultural applicability of the instrument.

Apart from the conceptual limitation there was also a limitation regarding the NEO-PI-R instrument. Even though the NEO-PI-R used to measure FFM, it seems easy to administer, its utility is limited only to the narrative of individual differences in global characteristics of personality structure or to the forecast of individual behavior. It is neither possible to address the dynamic organization of personality characteristics nor does it address cross-situational variations in behavior. As a result, the NEO FFM has little utility in clinical settings, where comprehensive idiographic and dynamic assessment of an individual is very important Dawda (1997).

In addition the NEO-PI-R inventory is based on Likert scale ranging between strongly agree, strongly disagree responses, subjects presumably make some kind of average or approximated judgment which does not allow provision for the qualitative information that may be relevant to personality. From this it is clear that personality tests are static in nature. Personality inventories like the NEO-PI-R fail to engage with the Self as knower – an active,

process-oriented entity as opposed to an undifferentiated object characterized by content-oriented passivity (Laher, 2001). Laher (2001) further mentioned structured inventories seem to be unproductive since they were designed intentionally to resist subjective logic and reasoning which leads to insensitivity to clinical subtleties and dynamics.

Further the NEO-PI-R has apparent face validity, making it easy for respondents to guess that it is measuring personality and this may distort the results. This could also have been produced by the respondents " lack of truthfulness, misunderstanding of questionnaires, inability to identify clearly their personality and the instability of their opinions and attitudes (Laher, 2001). There was also a misunderstanding of questions particularly relevant to the sample of the study, where majority of them did their elementary school in Amharic rather than Tigrigna. In general, since the NEO-PI-R inventory is extremely long, there is inevitable high attrition where many of the respondents seem to have contradicted themselves when the same question was asked in different ways when assessing the various traits of personality.

7.1.2. Sample Limitation

Apart from the above-mentioned limitations, a number of shortcomings can be identified regarding the sample used in the study. The study was only limited to Tigrigna speaking people who are living in Asmara, and majority of them were students. Owing to the small sample size, the result cannot be considered generalizable to the entire Tigrignan population group. For instance the study focused on the population group only with a minimum education of grade 10 and it may not seem to represent the personality of the illiterate people. Rather, the study will serve only as exploratory type of research.

Also due to the special characteristics of the sample (convenience), the population and ecological validity was weak. In addition a larger sample would have been preferable but due to the number of items in the NEO-PI-R people were not willing enough to cooperate in the study.

The sample study was also done randomly without first identifying individuals with personality disorders. Hence this might as well affect the results of the present study. There

was also a disproportionate number of males to females, which does not accurately reflect the population of Eritrea in general and the Tigrignan people in different places.

Furthermore, since the participation was voluntary, it relied heavily on people being willing to participate in the study, and inevitably determines which subjects will answer the questionnaire. It is also possible that when people are confronted with such questionnaire there might be high tendency of not completing the questionnaire. Thus in terms of the limitation of the sample referred to above, the sample may not be a true reflection of the population. A non-randomized sample allows for such an error and this must be taken into consideration when interpreting the results. In the same vein it could be argued that since the sample used was a convenience sample, a volunteer bias could be operational in the study influencing results obtained. Rosenthal and Rosnow (1991) cite intensive research undertaken by themselves in 1975 illustrating differences between volunteer and non-volunteer subjects. According to Rosenthal and Rosnow (1975), volunteers tend to be better educated, more sociable, higher in need for social approval, more unconventional, less authoritarian, more altruistic and more self-disclosing than non-volunteers. Females are also more likely to volunteer for research in general than males. Dollinger and Leong (1993) found that the personality factors of Agreeableness and Openness to experience predicted volunteering in tasks involving the release of standardized scores as well as willingness to be followed up in longitudinal research. Extraversion also predicted willingness to be followed up in longitudinal research. Given that this study explores personality dimensions there is a chance that volunteer bias may have been operational and is therefore an important consideration for further research. The fact that females are more likely to respond as indicated in Rosenthal and Rosnow (1975) may also in part explain the disproportionate representation of males and females in the sample and is also a consideration for future research.

Another limitation of the present study was the analysis of personality disorder. Although the study did not examine the prevalence of personality disorders (DSM-IV) it is suggested that further research should divide the subjects with a tendency towards people with a personality disorder and normal personality.

7.1.3.Translation Limitation

The results seemed to suggest that certain translated items were not conveying the intensity of the construct to the same degree as was intended by the NEO-PI-R. It was true that differences in the English language spoken in Eritrea and USA cultures might have influenced the understanding and translation of constructs. Hence this may need further examination in future studies. In addition to this because of cultural difference between the Tigrigna speaking people and the USA people there are a lot of difference in the language itself, which is part of the culture. There are some phrases, that are more applicable only to USA people than to Eritrean people and this can make the translation process very challenging. For instance words like ought to, should, might, could are used synonymously in Tigrigna culture unlike the USA language. Further in this study there were some words, which have no Tigrignan equivalence such as " Solitaire" and places like " vacationing in Las Vegas".

7.1.4 Limitation Related to Reliability and Validity

This research was limited in terms of the procedures it undertook to explore the various aspects of reliability and validity. However, due to practical and time constraints, a pilot study was not done, test-retest reliability and criterion validity was not examined. In addition face validity and content validity were also explored in a subjective manner. The questions, which were used to examine face validity and content validity, were open-ended which may not be effective measures of any forms of validity. In addition respondents did not give any reason why some of the questions were difficult to understand and were not appropriate, considering the nature of the study. Apart from that Dr. McCrae who was responsible to check the content analyses of the back translated NEO-PI-R was from USA. Since he does not know the Tigrigna culture properly, the content validity might be influenced from this bias.

7.1.5. Statistical Limitations

The arguments presented above hold true for the statistical limitations as well. There were salient statistical limitations relating to the calculation of norms in the study as well as with

regards to the use of factor analysis. These were closely linked to the limitations of the sample addressed earlier in the chapter and will be addressed in the discussion that follows.

7.1.5.1. Factorial Analysis

In the following section some of the common problems inherent in the factor-analytic techniques are discussed. The method of factor –analysis has a number of features that make it less than a purely objective method. First, loss of information may result from the fact that factor-analysis works on the bivariate linear correlations and is insensitive to the non- linear relationships. Secondly, identifying the relationship among a group of bivariate correlations is not as simple as it is assumed by the factor-analytic method. In addition the method of factor-analysis requires arbitrary decisions on part of the analyst, i.e. the method of factor rotation chosen affects the subsequent groupings and loadings of variables. For example, orthogonal rotation, the method preferred by Costa and McCrae (1992a) and applied in this study, often imposes an artificial structure and may lead to the elimination of important variables because of its interpretation elegance. Second the decision about the number of factors, which adequately represent the data set, is to a great degree arbitrary. Hence, the controversy about the number of factors, which optimally account for the set of adjectival descriptors of personality, has been ongoing Third, typical development of a measure such as NEO questionnaires consists of a series of analyses, in which the variable set is modified for each subsequent analysis. As a whole, the arbitrariness of the factor-analytic method allows for a significant degree of data pre structuring. The main goal of the process is to achieve a clean factor structure, but reliability is achieved at the potential loss of validity.

The factor-analytic statistical method is considered illogical. Even though factor analysis is a sophisticated quantitative tool, a great deal of subjectivity and some times arbitrary decisions goes into (i) the choice of items, (ii) the choice of factor-analytic procedures and rotations, and (iii) the labeling of obtained factors. Initially the factor-analytic derivation of the big five were not guided by explicit psychological theory and there is still debate why only these five. The method of factor –analysis has a number features which make it less than a purely objective method. First, loss of information may result from the fact that factor-analysis works on the bivariate linear correlations and is insensitive to the non- linear relationships.

Secondly, identifying the relationship among a group of bivariate correlations is not as simple as it is assumed by the factor-analytic method. In addition the method of factor-analysis requires arbitrary decisions on part of the analyst, i.e. the method of factor rotation chosen affects the subsequent groupings and loadings of variables. For example, orthogonal rotation, the method preferred by Costa and McCrae (1992a) because of its interpretation elegance, often imposes an artificial structure and may lead to the elimination of important variables. Second the decision about the number of factors, that adequately represent the data set, is to a great degree arbitrary. Hence, the controversy about the number of factors that optimally account for the set of adjectival descriptors of personality has been ongoing. Third, typical development of a measure such as NEO questionnaires consists of a series of analyses, in which the variable set is modified for each subsequent analysis. The arbitrariness of the factor-analytic method allows for a significant degree of data pre structuring. The main goal of the process is to achieve a clean factor structure, but reliability is achieved at the potential loss of validity (Dawda, 1997).

As a whole since the factor –analytic is not considered an objective technique; it has a number of inherent limitations that require arbitrary decisions. Dawda (1997) argued that the NEO FFM is skeptical to be valid, since a series of inadequately elaborated rational decisions were made simply based on need to achieve reliable, orthogonal factor structure, guided the selection of items.

7.1.5.2. Norming

As was discussed in the previous chapters, the method of calculating norms in this study was the same as used by McCrae & Costa (1992). However, unlike Costa & McCrae (1992) the sample in the present study was relatively small. The norms obtained on this sample were not necessarily valid for all Eritrean societies and even for the Tigrigna culture.

7.1.5.3. Correlational Analysis

Correlational analysis was done to show whether there was a significant relationship between age and personality. Like any correlational design, the study precludes causal interpretation rather this study only explored linear relationships. The possibility of non-linear relationships

was not measured. However, considering the nature of the study and the aim of the study, this limitation was not particularly significant.

7.1.5.4. ANOVA

In addition to the limitations of correlation, norming and the use of factor analysis this study had limitations related to the cross-cultural applicability of the instrument largely because the statistics needed to evaluate the potential differences between the diverse groupings could not be conducted. Homogeneity of variance was not obtained for some personality demographic of (gender and levels of education) comparisons, hence non-parametric testing utilizing the Kruskal-Wallis one-way ANOVA technique was undertaken. Since no post-hoc testing was possible on these results, median ranks had to be utilized to assess potential differences. Apart from this non-parametric tests generally have less power than parametric tests (Laher, 2001). The analysis of median ranks was merely estimation and did not allow for conclusive statistical significance. Therefore the results, which were analyzed using this procedure, were not as valid as those of parametric post-hoc testing.

7.2. IMPLICATIONS OF THIS STUDY

Even though the study had limitations, the researcher believes that this research can contribute something to the field of personality psychology. This study can provide a useful exploration into the trait theory in general and the five-factor model in particular. It may contribute at the theoretical level and practical levels.

The findings presented in Chapter 4 indicated support for the universality of certain personality factors, namely Neuroticism, Openness to experience, Agreeableness, and Consciousness. These findings showed support to McCrae & Costa (1992) argument that personality styles are universal. Broadly speaking this research has also contributed support for the Five-Factor model, which is dominant for the last two decades and well-known theory. The Five-Factor model also suggested that five personality factors are universal to all human beings across all cultures.

The study has also a number of practical implications despite all the limitations described above. Although the content and construct validity information found in this study was not adequate, the scale itself demonstrated adequate reliability. The scale also had face validity. The responses obtained on questions relating to the adequacy of the instrument, the appropriateness and understanding of the items, and the validity of the scale in the Eritrean context, appeared to be the scale with some practical applications.

As it has been shown from the previous review, many trait theorists view the five-factor model as the basis for adequate representation of the structure of personality. Similarly the NEO-PI-R is viewed as an adequate measure of these traits. Pervine (1992) suggested that the five-factor model in general and the NEO-PI-R in particular can be used in the areas of clinical and counseling, industrial or vocational, educational setting, behavioral and health psychology. Hence this is also the same with the Tigrignan translated NEO-PI-R.

7.3. RECOMMENDATIONS FOR FUTURE RESEARCH

Based on the findings of the study and the limitation of the study the researcher makes the following recommendations for further research:

- The study was basically quantitative and like any quantitative research it was limited by the assumptions and methods employed within this paradigm. Therefore the researcher recommends that it is better to use a combination of qualitative and quantitative techniques for future research so that an in-depth knowledge about Eritrean personality can be attained.
- As it was mentioned in the limitation the research utilized random sampling technique, thus it also recommended that future research should employ stratified random sampling strategy so as to ensure that the study is representative to the whole population and that each person within each of the population groups has an equal chance of being represented in the sample. Like wise the sample size was relatively small compared to USA sample especially to develop norming in the Eritrean context. Thus it is recommended for future research a large sample size should be employed.

- The study was limited only to the Tigrignan society and excluding the other nine ethnic groups. Thus the study could not be representative of the whole Eritrean community. Thus it is recommend for future research to consider each of the ethnic groups.
- As it was mentioned in chapter 4 individuals from different disciplines rather than a psychologist should have done the back-translation Thus the researcher recommends further back translation by an individual from a psychology discipline considering the problems in the translation process.
- McCrae (1992) calculated separate norms for college sample and adult sample based on the age range. However, the study was limited only to adult sample age, thus the researcher recommends different norming for college age samples.
- This study also failed to consider the test-retest reliability of the NEO-PI-R in the Eritrean context. In addition the study did not include criterion related validity, and no correlational with other personality inventories, hence, it is recommended that future research should consider these things.
- In terms of construct validity, this study considered scale-item correlations as well as factor analysis. However exploration of the variables gender, and level of education with each of the personality dimensions revealed statistically significant group differences. The idea of creating separate norms for each of the groups was suggested but was also shown to be unfeasible. Hence it is recommended that in future research with a large and diverse enough sample that factor analysis be conducted within the sub samples.
- It is also recommended that future research rely not only on exploratory factor analysis as was done in this study and as is advocated in the recommendation above. Confirmatory factor analysis utilizing Procrusters rotations to target matrices is recommended since this method allows for a target matrix of loadings to be specified on the basis of theory and a Procrusters analysis is computed which aims to match the target matrix as closely as possible (Kline, 1993, 1994). Thus five –factor model using the translated NEO- PI-R can be tested in this manner to see if five factors can be exactly discovered.

7.4. CONCLUDING COMMENTS

This study was basically intended to examine the utility of the NEO-PI-R inventory in the Eritrean context and specifically in the Tigrigna culture. As per the aims and objectives of the study this research investigated the reliability and validity of the NEO-PI-R and tried to developed norming of the NEO-PI-R in the Tigrigna group. Based on the findings the Tigrignan translated NEO-PI-R seems to be a reliable instrument to be used in the Eritrean societies. In addition it can be also said that the findings of the study on the construct validity testified the universality of the FFM across different cultures. The study also concluded that there is a significant relationship between age and personality, there was also a significant difference in personality between males and females and among the different educational levels. Generally speaking even though the study had some limitations the researcher believed that the research has made contribution to the field of personality as a whole and specifically to the FFM model and this study paved a way for future research to improve and enhance the Tigrigna translated NEO-PI-R as a step towards adapting it for the Eritrean population.

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APPENDICES
APPENDIX A
ETHICAL CLEARANCE LETTER FROM WITS

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (NON-MEDICAL)
Ref: R14/49 Teferi

CLEARANCE CERTIFICATE **PROTOCOL NUMBER** H03-05-26

PROJECT The Application of the Neo Personality Inventory-Revised (NEO-PR-R) int he Eritrean Context

INVESTIGATORS Mr TB Teferi

DEPARTMENT Psychology, Wits University

DATE CONSIDERED 03-05-28

DECISION OF THE COMMITTEE *

Approved unconditionally

This ethical clearance is valid for 2 years and may be renwed upon application.

DATE 03-08-20 **CHAIRMAN** ..... (Professor GR McLean)

* Guidelines for written "informed consent" attached where applicable.

c c Supervisor:
Dept of ,

Works2\Iain0015\HumEth97.wdb\M 03-05-26
==========
DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10001, 10th Floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. I agree to a completion of a yearly progress report.

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX B
PERMISSION FROM THE UNIVERSITY OF ASMARA

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جامعة اسمرا

UNIVERSITY OF ASMARA

Ref. No. FE/200/2807/03

Date 30 JUL 2003

To Whom It May Concern

Tesfay Bahta Teferi is in the Department of Educational Psychology and he has submitted a research proposal on the application of the NEO-PI-R in the Eritrean context. Considering the relevance of the research proposal, the Faculty of Education allows him to administer the questionnaire among the student of the faculty of education.

Sr. Lettedngnil Ogbamicheal
A/Dean, Faculty of Education
University of Asmara

Mailing Address: University of Asmara, P.O. Box 1220, Asmara - Eritrea

Tel: 161926

Fax: 291 - 1- 162236

Telex: 42091 ASMUNIV

APPENDIX C
PERMISSION FROM THE SCHOOL OF NURSING AND HEALTH TECHNOLOGY

MINISTRY OF HEALTH
COLLEGE OF NURSING AND HEALTH TECHNOLOGY

Date-10/06/03

To
The instructors and students of the college of nursing and health technology

Ato Tesfay Bahta Teferi is one of the students who has come to our college to collect data information for his research to do his Masters degree in Psychology.

Please assist him in his research.



Thank you,

Ato Tsegay Beraki

Principal of College of Nursing and health Technology.

APPENDIX D
ETHICAL INFORMATION SHEET IN ENGLISH

Dear Sir / Madam

Hi! My name is Tesfay Bahta Teferi, and I am doing my Masters in Psychology at the University of the Witwatersrand, Johannesburg, South Africa. I am doing research on measuring personality in Eritrea. I would like to invite you to take part in my study. Your participation will involve the completion of this questionnaire, which takes between 30 to 40 minutes. I would like to assure you that your responses will be confidential. No identifying data is requested on the questionnaire, hence assuring your anonymity. Given this, I would appreciate it if you would complete this questionnaire honestly and openly. There is no right or wrong answer; rather I am trying only to determine your response to each item.

By completing and returning this questionnaire I will assume that you allow me to use your responses in my research. Should you decide not to take part in this study, there will be no negative consequences. Please note that only general trends will be determined, hence no individual feedback will be given. Should you require any further information feel free to contact me? My contact details appear below. Should you feel upset on completion of this questionnaire you may contact the Psychology Department at the University of Asmara on 18-1632.

I would like to thank you in advance for your participation and giving of your time to complete this questionnaire. Please detach and keep this sheet.

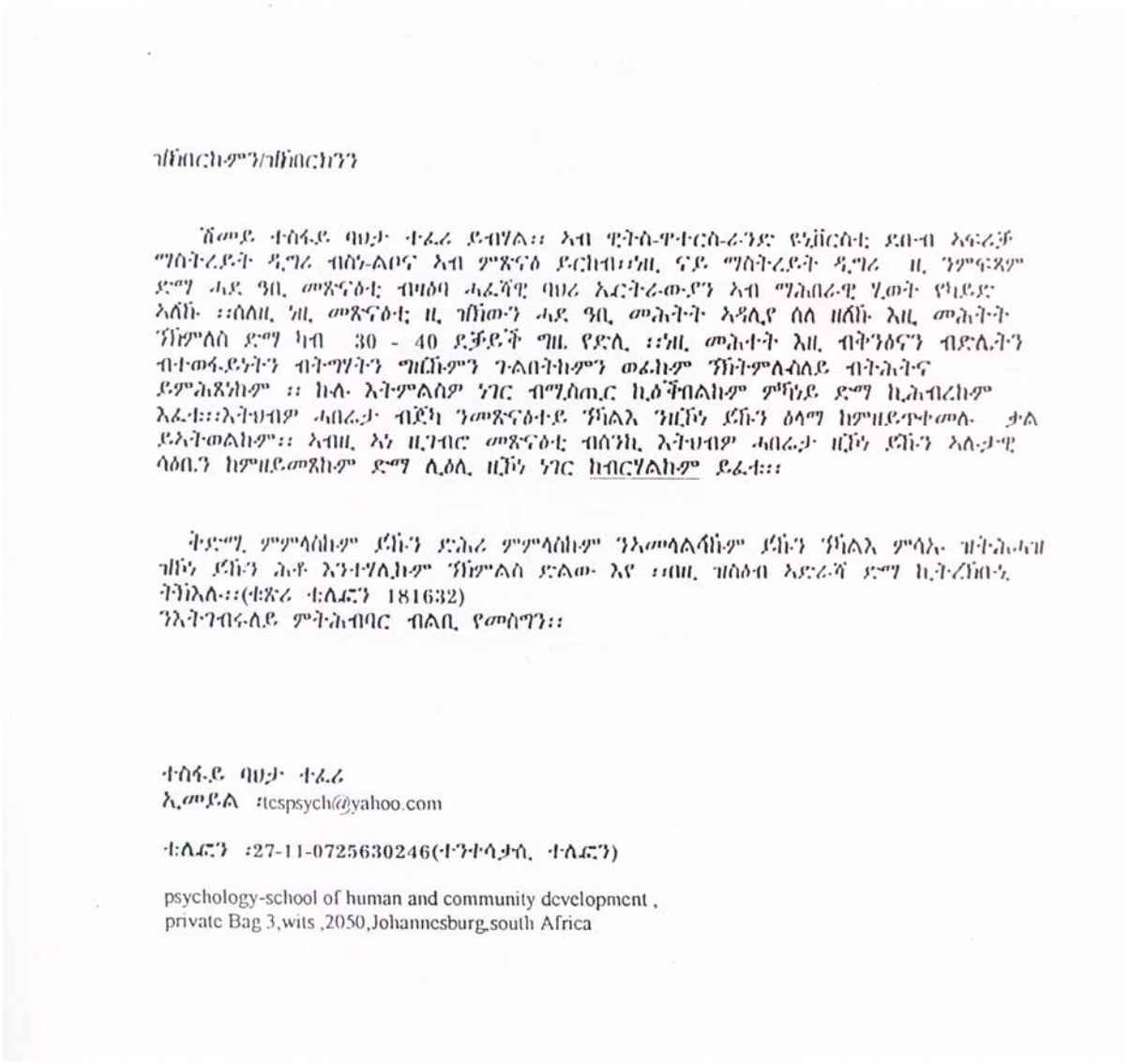
_____

Tesfay Bahta Teferi
E-mail address: tespsych@yahoo.com

Psychology – School of Human and community Development, Private Bag 3, Wits, 2050, Johannesburg, South Africa.

Telephone No: 27-11-0725630246 (Mobile Cell- phone).

APPENDIX E
ETHICAL INFORMATION SHEET IN TIGRIGNA



ዝክበርኩምን/ዝክበርክንን

ሽመይ ተስፋይ ባህታ ተፈሪ ይብሃል፡፡ አብ ዊትስ-ዋተርስ-ራንድ ዩኒቨርስቲ ደቡብ አፍሪቻ ማስትረይት ዲግሪ ብስነ-ልቦና አብ ምጽናዕ ይርከብ፡፡ነዚ ናይ ማስትረይት ዲግሪ ዚ ንምፍጻም ድማ ሓደ ዓቢ መጽናዕቲ ብዛዕባ ሓፈሻዊ ባህሪ አርትራውያን አብ ማሕበራዊ ሂወት የካይድ አሎኹ ፡፡ሰለዚ ነዚ መጽናዕቲ ዚ ዝኸውን ሓደ ዓቢ መሕትት አዳሊየ ሰለ ዘሎኹ እዚ መሕትት ኸምለስ ድማ ካብ 30 - 40 ደቓይቕ ግዜ የድሊ ፡፡ነዚ መሕተት እዚ ብቅንዕናን ብድሌትን ብተወፋይነትን ብትግሃትን ግዜኹምን ጉልበትኩምን ወፊኩም ኸትምሉስለይ ብትሕትና ይምሕጸነኩም ፡፡ ኩሉ እትምልስዎ ነገር ብሚስጢር ኪዕቕብልኩም ምኻነይ ድማ ኪሕብረኩም እፈቱ፡፡እትህብዎ ሓበሬታ ብጀካ ንመጽናዕተይ ኸልእ ንዚኾነ ይኹን ዕላማ ከምዘይጥቀመሉ ቃል ይአትወልኩም፡፡ አብዚ አነ ዚገብሮ መጽናዕቲ ብሰንኪ እትህብዎ ሓበሬታ ዚኾነ ይኹን አሉታዊ ሳዕቤን ከምዘይመጸኩም ድማ ሊዕሊ ዚኾነ ነገር ከብርሃልኩም ይፈቱ፡፡

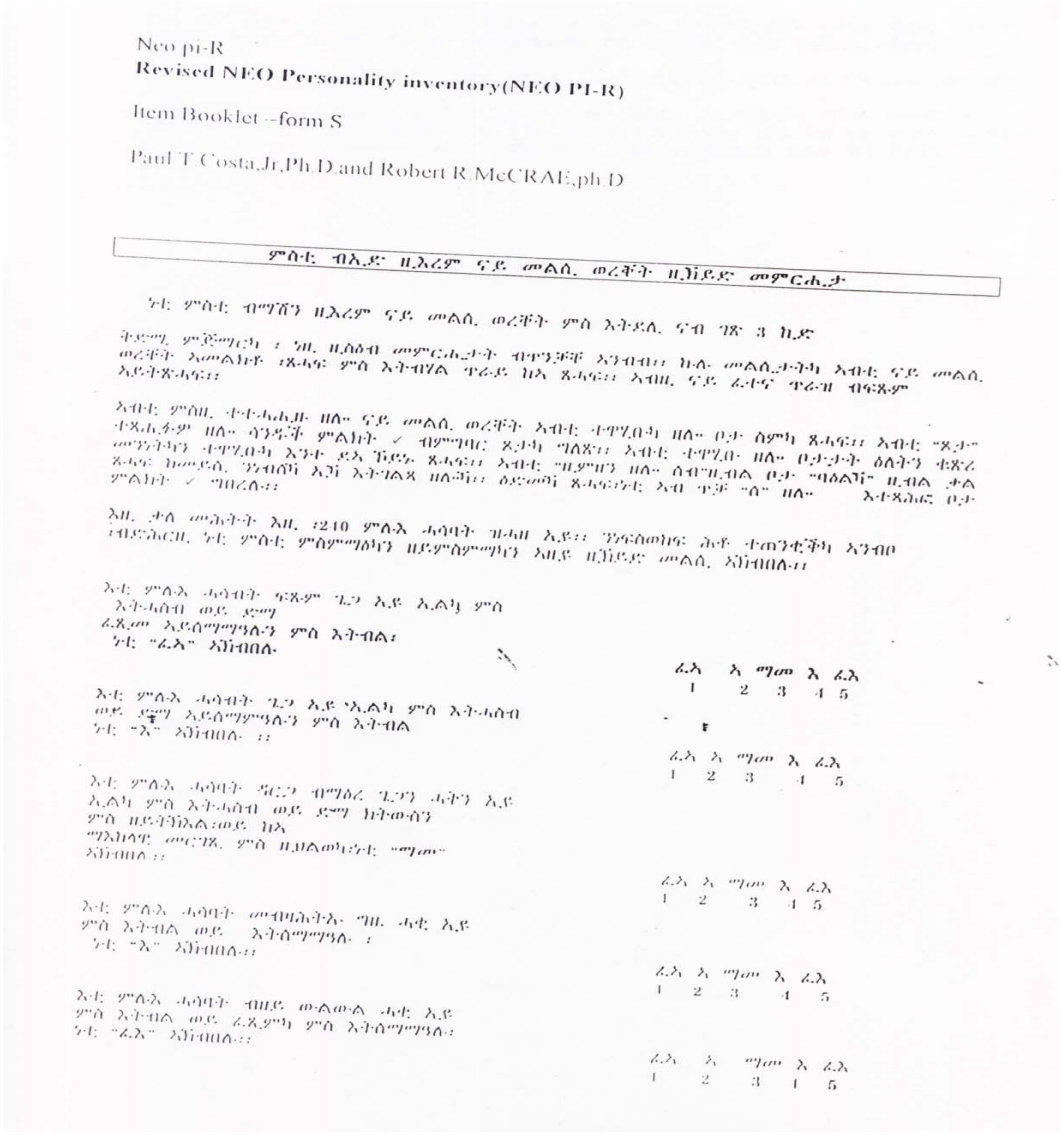
ቅድሚ ምምላስኩም ይኹን ድሕሪ ምምላስኩም ንአመላልሳኹም ይኹን ኸልእ ምሳኡ ዝትሕሓዝ ዝኾነ ይኹን ሕቶ እንተሃሊኩም ኸምልስ ድልው እየ ፡፡በዚ ዝስዕብ አድራሻ ድማ ኪትረኽቡኒ ትኽእሉ፡፡(ቁጽሪ ቴሌፎን 181632)
ንእትገብሩለይ ምትሕብባር ብልቢ የመስግን፡፡

ተስፋይ ባህታ ተፈሪ
ኢመይል ፡tespsych@yahoo.com

ቴሌፎን ፡27-11-0725630246(ተንተሳቃሲ ተሌፎን)

psychology-school of human and community development ,
private Bag 3,wits ,2050,Johannesburg,south Africa

APPENDIX F
TIGRIGNA TRANSLATED OF THE NEO-PI-R



Neo pi-R

Revised NEO Personality inventory(NEO PI-R)

Item Booklet --form S

Paul T.Costa,Jr,Ph.D.and Robert R.McCRAE,ph.D

ምስቲ ብኢድ ዚእረም ናይ መልሲ ወረቐት ዚኽይድ መምርሒታ

ነቲ ምስቲ ብማሽን ዚእረም ናይ መልሲ ወረቐት ምስ እትደሊ ናብ ገጽ 3 ኪድ

ትድሚ ምጅማርካ ፡ ነዚ ዚስዕብ መምርሒታት ብጥንቓቐ አንብብ፡፡ ኩሉ መልሲታትካ አብቲ ናይ መልሲ ወረቐት አመልክቶ ፡ጸሓፍ ምስ እትብሃል ጥራይ ከአ ጸሓፍ፡፡ አብዚ ናይ ፈተና ጥራዝ ብፍጹም አይትጽሓፍ፡፡

አብቲ ምስዚ ተተሓሒዙ ዘሎ ናይ መልሲ ወረቐት አብቲ ተዋሂበካ ዘሎ ቦታ ስምካ ጸሓፍ፡፡ አብቲ "ጾታ" ተጻሒፉዎ ዘሎ ሳንዱቕ ምልክት ✓ ብምግባር ጾታካ ግለጽ፡፡ አብቲ ተዋሂቡ ዘሎ ቦታታት ዕለትን ቁጽሪ መንነትካን ተዋሂበካ እንተ ደኣ ኾይኑ ጸሓፍ፡፡ አብቲ "ዚምዘን ዘሎ ሰብ"ዚብል ቦታ "ባዕልኻ" ዚብል ቃል ጸሓፍ ከመይሲ ንነብሰኻ እኻ እትገልጻ ዘሎኻ፡፡ ዕድመኻ ጸሓፍ፡ነቲ አብ ጥቓ "ሰ" ዘሎ እተጻሕፎ ቦታ ምልክት ✓ ግበረሉ፡፡

እዚ ቃለ መሕትት እዚ ፡240 ምሉእ ሓሳባት ዝሓዘ አይ፡፡ ንነፍስወከፍ ሕቶ ተጠንቂቕካ አንብቦ ፡ብድሕርዚ ነቲ ምስቲ ምስምማዕካን ዘይምስምማካን አዚይ ዚኽይድ መልሲ አኽብበሉ፡፡

እቲ ምሉእ ሓሳብት ፍጹም ጌጋ አይ ኢልካ ምስ እትሓስብ ወይ ድማ ፈጺመ አይሰማማዓሉን ምስ እትብል፡ ነቲ "ፈኣ" አኽብበሉ

ፈኣ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

እቲ ምሉእ ሓሳብት ጌጋ አይ ኢልካ ምስ እትሓስብ ወይ ድማ አይሰማምዓሉን ምስ እትብል ነቲ "እ" አኽብበሉ ፡፡

ፈኣ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

እቲ ምሉእ ሓሳባት ዳርጋ ብማዕረ ጌጋን ሓትን አይ ኢልካ ምስ እትሓስብ ወይ ድማ ክትውስን ምስ ዘይትኽእል፡ወይ ከአ ማእከላዊ መርገጽ ምስ ዘህልወካ፡ነቲ "ማመ" አኽብበሉ ፡፡

ፈኣ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

እቲ ምሉእ ሓሳባት መብዛሕትኡ ግዚ ሓቂ አይ ምስ እትብል ወይ እትሰማማዓሉ ፡ ነቲ "እ" አኽብበሉ፡፡

ፈኣ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

እቲ ምሉእ ሓሳባት ብዘይ ውልውል ሓቂ አይ ምስ እትብል ወይ ፈጺምካ ምስ እትሰማማዓሉ፡ ነቲ "ፈእ" አኽብበሉ፡፡

ፈኣ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

ቅኑዕ ወይ ግጉይ መልሲ ዝብሃል የልቦን።ነዚ ቃለመሕትት ንምምላሽ ድማ "ብዓል ፍሉይ ክእለት" ክትከውን የብልካን።።ንነብሸኻ ብቕንዕና ግለጸ፣ንርእይቶኻ ድማ ብዝከኣል መጠን ብትኽክል ኣስፍሮ።።

ንክሉ ሕቶ መልሶ።እቲ መልስታት ቁጽሪ ተገቢሩ ክብቅዕ፣ዓምዲ ናይ መልሲ ወረቐት ቀሪቡ ክም ዘሎ ኣስተኻክሎ።።
መልስታትካ ኣብቲ ብልክዕ ኣሃዝ እተንብረሉ ቦታ ክም ዝሰፈረ ኣረጋግጽ።።ኩቲ ግጉይ መልሸኻ ብ "X "ስሪዝካ ኩቲ ቅኑዕ መልሲ ኣኽብሉ።። ኩቲ 240 ሕቶታት ምስ መለስካ፣ ኩቶን ኣብ ናይ መልሲ ወረቐት (ሀ)(ለ)(ሐ) እተገብረለን ሕቶታት መልስን ።።ናብ ገጽ 1 ናይዚ ጥራዝ ኪድካ ብሕቶ ቁ.1 ጀምር።።

ቅድሚ ምጅማርካ ፡ነዚ ዚስዕብ መምርሒታት ብጥንቓቐ ኣንብብ፡፡ ኣብቲ ምስዚ ተተሓሒዙ ዘሎ ወረቐት መልስታትካ ንምሃብ ርሳስ ቁ.2 ተጠቀም፡፡ኩሉ መልስታትካ ኣብቲ ናይ መልሲ ወረቐት ኣመልክቶ፡፡ ኣብዚ ናይ ፈተና ጥራዝ ብፍጹም ኣይትጽሓፍ፡፡

ኣብቲ ናይ መልሲ ወረቐት፡ነቲ ኣብ ጥቓ "ባዛ ርእሰኻ"ዚብል ጽሑፍ ኣብቲ "ዚምዘን ዘሎ ሰብ"እተጻሕፎ ሳጹን፡ነቲ ዓንኪል ኣጸልሞ፡ከመይሲ ንዝኣ ነብሰኻ ኢኻ እትገልጽ ዘሎኻ ፡፡ ስምካን ወሸምኡውን ቁጽሪ መንነት ወረቐትካን እንተ ደኣ ተዋሂቡካ ኾይኑ ኣብቲ ተዋሂቡ ዘሎ ቦታ ምልኣዮ፡ብድሕርዚ ፡ነተን ኣብ ትሕቲ ነፍስ ወከፍ ሳጹን፡ነቲ ኣብ ጥቓ "ረ" ዘሎ ዓንኪል ኣጸልሞ፡፡ኣብቲ ተዋሂቡ ዘሎ ቦታ ጾታኻን ናይ ዕድመኻን ናይ ሎም መዓልቲ ዓልትን ጸሓፍ ፡፡ነቲ ናይ መልሲ ወረቐት ገልብጦ፡፡

እዚ ቃለ ዓመሕትት እዚ፡240 ምሉእ ሓሳባት ዝሓዘ ኢዩ፡፡ ንነፍስ ወከፍ ሕቶ ተጠንቂቕን ኣንብቦ፡ብድሕርዚ ነቲ ምስቲ ምስምማዕካን ዘይምስምማዕካን ኣዚዩ መልሲ ኣኽብበሉ፡፡

እቲ ምሉእ ሓሳባት ፍጹም ጌጋ ኢዩ ኢልካ ምስ
እትሓስብ ወይ ድማ ፈጺመ ኣይሰማምዓሉን
ምስ እትብል ነቲ "ፈእ" ኣኽብበሉ

ፈእ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

እቲ ምሉእ ሓሳባት ጌጋ ኢዩ ኢልካ ምስ
እትሓስብ ወይ ድማ ኣይሰማምዓሉን
ምስ እትብል ነቲ "እ"ኣኽብበሉ

ፈእ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

እቲ ምሉእ ሓሳባት ዳርጋ ብማዕረ ጌጋን
ሓቕን ኢዩ ኢልካ ምስ እትሓስብ ወይ
ድማ ክትውስን ምስ ዘይትኽእል፣ ወይ
ክኣ ማእከላዊ መርገጺ ምስ ዚህልወካ
፡ነቲ "ማመ" ኣኽብበሉ

ፈእ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

እቲ ምሉእ ሓሳባት መብዛሕትኡ ግዜ ሓቂ ኢዩ
ምስ እትብል ወይ ምስ እትሰማማዓሉ፣
ነቲ "እ" ኣኽብበሉ

ፈእ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

እቲ ምሉእ ሓሳባት ብዘይ ውልውል ሓቂ ኢዩ
ምስ እትብል ወይ ፈጺምካ ምስ እትሰማማዓሉ
ነቲ "ፈእ" ኣኽብበሉ፡፡

ፈእ	ኣ	ማመ	እ	ፈእ
1	2	3	4	5

ቅኑዕ ወይ ግቡይ መልሲ ዚብሃል የልቦን፡፡ነዚ ቃለ መሕትት ንምምላሽ ድማ "በዓል ፍሉይ ክእለት" ክትክውን የብልካን፡፡ንነብሰኻ ብቕንዕና ግለጸ፡ንርእይቶኻ ድማ ብዝክኣል መጠን ብትኽክል ኣስፍሮ፡፡

ንኩሉ ሕቶ መልሶ ፡፡ ነተን ዓንኪላት ፈጺምካ ከም ዘጸለምካዮን ኣረጋግጽ፡፡ እቲ መልስታት ቀጽሪ ተገቢሩሉ ክብቅዕ፡ኣብቲ ዓምዲ ናይ መልሲ ወረቀት ቀሪቡ ከም ዘሎ ኣስተብህል፡፡መልስታትካ ኣብቲ ብልክዕ ኣሃዝ እተነብረሉ ቦታ ከም ዝሰፈረ ኣረጋግጽ፡፡ ጌጋ ምስ እትገብር ወይ ክኣ ሓሳባትካ ምስ እትቕይር ፡ነታ ቀዳመይቲ መልሰኻ ፈጺምካ ደምስሳ፡፡ብድሕሪዚ ፡ነተን ምስ ቅኑዕ መልስታትካ ዚራኸቡ ዓንኪላት ኣጸልመን፡፡ነተን 240 ሕቶታት ምስ መለስካ ፡ነተን ኣብ ናይ መልሲ ወረቐት (ሀ) (ለ) (ሐ) እተገብረለን ሰለስተ ሕቶታት መልሰን ፡፡ናይ ገጽ 3 ናይዚ ጥራዝ ኪዳካ ብሕቶ ቁ.1 ጀምር፡፡

ዕድመ
ጾታ
ናይ ትምህርቲ ደረጃ

1. ኣነ ጭኑች ኣይኮንኩን
2. መብዛሕትኦም ዝንነፉኒ ሰባት እፈትዎም
3. ኣነ ኣዚዩ ንጡፍ ናይ ፈጠርዊ ምሕሳብ ክእለት ኣሎኒ
4. ብዛዕባ ናይ ካልኦት ሰባት ዕላማ እጠራጠር
5. ኣነ ብናይ ምጥንቓቕ ባህርያተይን
   ብሓፈሻዊ ምስትውዓለይን ፍሉጥ እየ
6. መብዛሕትኡ ጊዜ ሰባት ብዝገብሩለይ ኣታሓሕዛ እሓርቕ
7. እኩብ ሰብ ኣይፈቱን
8. ኣብ ሰነጽባቐን ሰነጥበብን ብዙሕ ተገዳስነት የብለይን
9. ጎራሕን ተንኮለኛ ኣይኮንኩን
10. ኣብ ክንዲ ንኩሉ ነገራት ኣቐዲመ ዝውጥኖ፡ምርጫይ ክፉት ኮይኑ ኪጸንሕ እመርጽ
11. ሳሕቲ እየ በይንነት ዚስመዓኒ ወይ ዚጽልምተኒ
12. ኣነ ክዕብልል ዝደልን ፡ንኩሉ ብሓይሊ ዝደልዮን ተሪር ዝዘርባኡን እየ
13. ብዙሕ ስሚዒት ዘይብሉ ህይወት ትርጉም ኣይህበንን
14. ገለ ሰባት ከም ስሱዕን ኣነብሃልን ገይሮም ይወስዱኒ
15. ነቲ ንኣይ ዚወሃበኒ ኩሉ ዕማማት፡ብዕቱብነት
    ከሰላስሎ እፍትን
16. ምስ ካልኦት ሰባት ክዋሳእ ከሎኹ ፡ማሕበራዊ ጌጋ ከይፍጽ
    እፈርህ
17. ኣብ ግዜ ስራሕን ጸዋታን ሁዱእ እየ
18. ብስርሐይ ጸኑዕ እየ
19. ምስ ካልኦት ኣብ ክንዲ ምውድዳር ፡ምትሕብባር እመርጽ
20. ኣነ ንኩሉ ኣቕሊለ ዝርእን ዕቱብነት ዝጎደለንን እየ
21. ንኩሉ ደረት እገብረሉ
22. ኩሉ ግዜ ንመሳጢ ነገራት ሃረር እብሎ
23. ኩሉ ግዜ ክልሰ ሓሳባትን ረቒቕ ሓሳብትን ኣልዒለ ክዛናጋዕ እደሊ
24. ብዛዕባ ተወሳዘታተይን ዝተዓውትኩሉ ፍጻመታትን ኣልዒለ ንምህዳድ ድምብርጽ ኣይብለንን
25. ነገራት ኣብ ግዜኦም መታን ኪፍጸሙ፡ንኣጠቓቅማ ግዜይ ኣብ ምቁጽጻር ደሓን እየ
26. መብዛሕትኡ እዋን ስንፍና ይስመዓኒ፡ጸገማተይ ድማ ካልኦት ኪፈትሑለይ እደሊ
27. ብሓጎስ ተሰራሲረ ኣይፈልጥን
28. ንተምሃሮ ዘይምርድዳእ ዚዕድሙ መዶርቲ ንክሰምዑ ምስ እትገድፎም ናይ ኣእምሮ ዝርግርግ ከም
    ዘእትወሎም ናብ ግጉይ ኣንፈት ድማ ከም ዝመርሕዎም እኣምን
29. መራሕቲ ፖለቲካ፡ብዛዕባቲ ሰብኣዊ ገጽታ ናይቲ ፖሊሲታቶም ዝያዳ ንቐሓት ኪኾኑ ይግባእ
30. ኣብ ዝሓለፈ ዓመታት፡ ሓድሓደ ናይ ዕሽነት ተግባራት ሰሪሐ ኣለኹ
31. ብቐሊሉ እፈርህ
32. ምስ ሰባት ምዕላል ብዙሕ ሓጎስ ኣይረኸበሉንየ
33. ንኩሉ ሓሳብተይ ብጭቡጥ መገዲ ክመርሖ እፍትን፡ኣብ ሕልሚ ዓለም ክህውትት ኣይደልን
34. መብዛሕትኦም ሰባት ብመሰረቶም ጽቡቕ ዕላማ ወይ መንፈስ ከም ዘለዎም እኣምን
35. ንሲቪላዊ ግቡኣት፡ንኣብነት ከም ምርጫ ምስታፍ፡ብኣዚዩ ዕቱብ መንፈስ ኣይርእዩም
36. ተቀላጢፈ ኣይሓርቅን
37. ብዙሓት ሰባት ኪኸቡኒ ወይ ኣብ ጥቕይ ክህልው ደስ ይብለኒ
38. ሳሕቲ ኣብቲ ዝስምዖ ዘለኩ መዚቃ እጥሕል እየ
39. ዘድሊያኒ ንክረክብ ንሰባት ክጠዋውዮም ኣይጸንዕን
40. ንኣቁሑተይ ብጽሬትን ብንጽህናን እሕዞም
41. ሓድሓደ ግዜ ዋጋ ዘይብለይ ኮይኑ ይስመዓኒ
42. ሓድሓደ ግዜ ከምቲ ዚግበኣኒ ኣብ መትከለይ ኣይጸንዕን
43. ዝበዝሕ ግዜ ብርቱዕ ስሚዒታት ኣይመጽንን
44. ንዝኾነ ዚንነፈኒ ሰብ ሰነ-ስርዓት ከርእዮ እፍትን
45. ሓደ ሓደ እዋን መብጻዓታተይ ክፍጽም ጸገም ኣለኒ ወይድማ ሰባት ኣባይ ብሙሉእ ኣይዉከሉን
46. ስሕት ኢለ ኣብ መንጎ ሰባት ምስ ዝኸውን ምቾት ይስምዓኒ
47. ሓደ ነገር ክገብር ከሎኹ ፡ብርቱዕ ሓይሊ እየ ዘህልኹሉ
48. ሓድሽ ጥበባዊ መሕለፍ ግዜ ምምሃር ወይ ምምዕባል ኣገዳሲ ኢዩ ኢለ እሓስብ
49. ምስ ዝደሊ፡ ኣሽካዕላልን ሓጫጭን ክኸውን እኸል
50. ንጹር ሽቶታት ኣሎኒ፡ናብኡ ንምብጻሕ ድማ ፡ብስሩዕ ኣገባብ እስርሕ

51. ፈተናታት ኃኽጻወር አይጽግመንን
52. አብ ሻምሮክ ከይደ ክዘናጋዕ አይፈተውንን
53. ፍልስፍና ዘረባ የሰልችወኒ
54. ብዛዕባ ዓወታተይ ክዛረብ አይፈቱን
55. ቅድሚ ዕርፍ ኢለ ስርሕይ ምጅማረይ ፡ዕውንውን ክብል ብዙሕ ግዚ እየ ዘጥፍእ
56. ንመብዛሕትኡ ጸገማተይ ንምምካት ክእለት ዘለዲ ኾይኑ ይስመዓኒ
57. ሓድሓደ ግዚ ብርቱዕ ናይ ሓጎስን ምፍንጭሕን ስምዒት አሕሊፈ አለኹ
58. ንጠለባ ናይዛ እትልወጥ ዘላ ዓለም ንምንጽብራቕ፡ሕግታትን ማሕበራዊ ፖሊሲታትን ኪልውጡ ከም ዚግባእ እአምን፡፡
59. አብ አመለኻኽታይ ዘይንቕነቕን ጽኑዕን ሓንጎል አለዲ
60. ቅድሚ ናብ ውሳነ ምሕላፈይ ፡ንነገራት አዕሚቁ እሓስበሉም
61. ዝበዝሕ ግዚ ፍርሂ ወይ ስግአት አይሰመዓንን
62. አነ ከም ጥዑምን ምቕሉልን ሰብ እየ ዝፍለጥ
63. አነ ንጠፍ ናይ ሕልሚ ህይወት አለዲ
64. መብዛሕትኦም ሰባት ንኪብለጹልካ ምስ እትገድፎም ከም ዚብለጹልካ እአምን
65. ኩሉ ግዚ ቀጻሊ ሓበራታ ከም ዝህልወኒ እገብር፡መብዛሕትኡ ግዚ ድማ ምስትውዓል ዝመልኦ ውሳነ እየ ዝወስድ
66. አነ ከም ሓደ አዘይ ውዕይን ነዳርን ሰብ እየ ዝፈልጥ
67. ዝበዝሕ እዋን ንሓደ ነገር በይነይ ክገብሮ እመርጽ
68. ያታዊ ወይ ዘመናዊ ትልሂት የሰልችወኒ
69. እንተ ደለኹውን ፡ንዝኾነ ሰብ ንምጥባር ክእለት የብለይን
70. ብጥንቓቐ ዝሰርሕ ሰብ አይኮንኩን
71. ኃሂ ወይ ብስጭት ብዙሕ አየጥቅዓንን
72. ኩሉ ግዚ ናይ ጉጅለይ መራሒ እኸውን ነይረ
73. ሓደ ነገር አብ ውሽጠይ ዚፈጥሮ ስምዒት የገድሰኒ አይ
74. ገለ ሰባት ብዛዕባይ ከም ሓደ ስምዒት ዘይብሉን ተንኮለኛን ሰብ ከም ዝኾንኩ ገይሮም ይሓስበኒ
75. ለቓሓይ ብቕልጡፍን ከየጉደልኩን እየ ዝኸፍል
76. ሓድሓደ ግዚ ብሕፍረት ዚአክል ክሕባእ እደሊ ነይረ
77. ስርሐይ ምናልባት ደንጓዩ ይኸውን ግን አየቓርጽን አይ
78. ንሓደ ስራሕ ንምስልሳል እቲ ልክዕ መገዲ ምስ ረኸብኩ ፡አብኡ እየ ዝጸንዕ
79. ወላውን ምኸኑይ ይኹን ፡ሕርቓነይ ንምግላጽ ሰጋ እብል (እወላወል)እየ
80. ርእሰ-ምምሕያሽ ፕሮግራም ምስ ጀመርኩ፡መብዛሕትኡ እዋን ድሕሪ ቅሩብ መዓልታት እጥንጥኖ
81. ንፈተና ንምጽራር ብዙሕ ጸገም የብለይን
82. ሓድሓደ ግዚ ስለ ኸምኡ ወይ አዝዩ ደስ ስለ ዝበለኒ ተግባራት ፈጺመ አለኹ
83. ግድላት ወይ ሕንቅልሕቅሊተያት ምፍታሕ ደስ ይብለኒ
84. አነ ካብ መብዛሑኦም ሰባት እበልጽ፡ከም ዝበልጽ ከኣ እፈልጥ እየ
85. አነ ኩሉ ግዚ ስርሑ አሳልጦ አፍራዩ ሰብ እየ
86. ብርቱዕ ብስጭት ምስ ዚስመዓኒ፡ኩሉ ፋሕ ይብለኒ
87. አነ ብዛዕባ መጻኢ አወንታዊ ዝኾነ አመለኻኽታ የብለይን
88. ብዛዕባ ንሞራላዊ ጎዳይ ዚምልከት ዉሳነታት፡ናብ መርሕቲ ሃይማኖታትና ክንጥምት አሎና ዝብል እምነት አለዲ
89. ንደኻታትን አረጋውያንን ዚአክል ጌርናልም ክንብል አይኃኽእልን
90. ሳሕቲ ከይሓሰብኩ ነገራት ይፍጽም
91. ዝበዝሕ ግዚ እጭነቕን እስንብድን
92. ብዙሓት ሰባት ከም ዝሑልን ንጹልን (ሰብ ዘይፈቱን)ገይሮም ይወስዱኒ
93. ግዚይ አብ ምሕላም ቀትሪ ከጥፍኦ አይደልን
94. መብዛሕትኦም ዝሪኸቦም ሰባይ ቅኑዓትን እሙናትን አዮም ኢለ እሓስብ
95. ዝበዝሕ ግዚ ፡ከይተዳለኹ ንነገራት ይፍጽሞም
96. ሰብ ከም ኮራይን መንጸርጸርን ገይሩ ይወስደኒ
97. ንነዊሕ እዋን በይነይ ምስ ዝኸውን፡ ሰባት እደሊ
98. አብ ስነጥበብ ወይ አብ ፍጥረት ዝርእዩ አገባባት ወይ ቅዲ ይድንጽወኒ
99. ቅንዕና ሒዝካ፡ ኒጋዳይ ኪኸውን አይከአልን
100. መታን ቀሊጢፈ ክረኸቦ፡ንአቐሑተይ ብስርዓት አቐምጦ
101. ገበነኛ ወይ ሓጥአተኛ ኾይኑ እተሰሞዓኒ ግዚታት አሎ
102. አብ አኸባታ፡መብዛሕትኡ እዋን፡ እቲ ዘረባ ኃኽልኦት እገድፈሎም
103. ስሕት ኢለ ጥራይ እየ ነቲ እዋናዊ ስምዒታተይ አድህቦ ዝህቦ
104. ብሓፈሻ፡ንሰብ ዝሓስብን ዝግደስን ክኸውን እፍትን
105. በይኃኽ ኮይንካ ዝጽወት ጠላዕ ክጻወት ከለኹ፡ ሓድሓደ ግዚ እቅሽሽ እየ

106.ሰባት ምስ ዘላግጹለይ ወይ ምስ ድምብርጽ አይብለንን
107.ዝበዝሕ ግዚ. ብርቱዕ ሓይሊ ይስመዓኒ
108.መብዛሕትኡ እዋን ሓድሽን ናይ ባዕድን መግቢ ኸበልዕ እፍትን
109.ንሓደ ሰብ ምስ ዝጸልኦ ፡አብ ገጹ እየ ዝነግሮ
110.ዕላማታትይ ንምፍጻም አበርቲዐ እሰርሕ
111.ዝፈትዎ መግቢ ምስ ዝረክብ ፡ ክሳዕ ዝትኮስ እበልዕ
112.ዘሰንብድን ዘነውርን ፈልምታት ክርእይ አይደልን
113.ግለ ሰባት ብዛዕባ አዚዩ ረቂችን ክልስሓሳባዊን ነገራት ኪዛረቡ ኸለዉ፡ዝበዝሕ ግዚ. ተገዳስነት አጥፍእ
114.ትሑት ክኸውን እፍትን
115.ነቲ ክገብሮ ከም ዝግበአኒ ዝፈልጦ ነገራት ንኸገብር ጸገም አሎኒ
116.አብ ህጹጽ እዋን (ናይ ሓደጋ እዋን) ነብሰይ እቆጻጸር እየ
117.ሓድሓደ ግዚ. ብሓጎስ እሰራሰር
118.አብ ካልእ ሕብረተሰብ ዘለው ሰባት ንቅኑዕን ግጉይን ዝምልከት አመር አባታቶም ዋጋ ክህልዎ ይኽእል
እዩ ዝብል እምነት አሎኒ
119.ንለመንቲ አይድንግጸሎምን እየ
120.ስጉምቲ ቅድሚ ምውሳደይ ሳዕቢናቱ እግምግም
121.ብዙሕ ግዚ. ብዛዕባ መጻኢ ግዚ. ስግአት የብለይን
122.ምስ ሰባት ምዝራብ(ምዕላል) ብሓቂ ደስ ይብለኒ
123.ክሓልምን ብሓሳበይ ክህውትትን ደስይብለኒ፡ ብኣኡ ክቕጽልን ክድህስሶውን እደሊ
124.ሓድ ሰብ ጽቡቕ ክገብረለይ ከሎ፡ (ስለምንታይ አዩ ብምባል) እጠራጠር
125.ቅኑዕ ወይ ሚዛናዊ አመለኻኽታ ብምህላወይ የኹርዓኒ እዩ
126.ገለ ብስራሕ ዝራኸቦም ሰባት የፈንፋኑኒ
127.ረብሻ ዘይብሉ ብሑት ስራሕ እመርጽ
128.ግጥሚ ብዙሕ አይሰሕበንን (አይዓጅበንን)
129.ከም ግብዝ ኮይነ ክረኣ አይደልን
130.ስርሓይ ክጥርንፎ (ክእርንቦ)ይጽግመኒ
131.ዝኾነ ነገር ምስ ዘበላሸወኒ ፡ነብሰይ ናይ ምውቃስ ወይ ምውንጃል ዝንባለ አሎኒ
132.ካልኦት ሰባት ባዕለይ ውሳነ ንኸወስድ ይጽበዩኒ
133.ናይ ሰፈሕን እተፈላለየ ስምዒታትን ወይ ድራኽታትን ተመክሮ አሎኒ
134.ሰብ ከም ለጋስ ገይሩ አይወስደንን (ከም ለጋስ አይፈልጠንን)
135.ሓደ ነገር ንክገብር ቃል ምስ አቶኹ፡ክሳዕ መወዳእታ ንኸበጽሖ ኩሉ ግዚ. ብሰባት እምነት ይንበረለይ
አዩ
136.ዝበዝሕ እዋን ካብ ካልኦት ዝተሓትኩ ኾይኑ ይስምዓኒ
137.አነ ከም ካልኦት ሰባት ቅልጡፍን ንጡፍን አይኮንኩን
138.ግዚይ አብ ዝፈልጦ ከባቢታት ከሕልፎ እመርጽ
139.ምስ ተጸረፍኩ ፡ይቕረ ክብልን ክርስዕን እፍትን
140.ንቕድሚት ንኸገስግስ ዝድፋእ ዘሎኹ ኮይኑ አይስመዓንን
141.ዝበዝሕ ግዚ. ንድሊያታተይ አይግዛእን
142.አነ አብቲ ንጥፈታት ዘለዎ ቦታ ክኸውን እደሊ
143.አእምሮ ዚውጥር ዓይነት ጸወታ ክጻወት ደስ ይብለኒ
144.አነ ብዛዕባ ርእሰይ ልዑል አረኣእያ አሎኒ
145.ሓደ ፕሮጀክት ወይ ትልሚ ምስ ጀመርኩ ፡ዳርጋ ኩሉ ግዚ. ናብ መፈጸምታኡ አብጽሖ እየ
146.መብዛሕትኡ ግዚ. ንኸውሰን ይጽግመኒ
147.ብዛዕባ ነብሰይ ብፍላይ ሕጉስ ወይ ፍሱሕ እየ አይብልን
148.በዓል ክፉት አእምሮ ካብ ምኻነይ ንዕላማታትካን መትከላካን እሙን ምኻን አዚዩ አገዳሲ ይኸ
149.ሰብዓዊ ድሊታት ወይ ጠለባት፡ንቁጠባዊ ሓልዮት ኪቐድሞ ይግባእ
150.ዝበዝሕ ግዚ. አቀዲመ ከይወጠንኩ ብሃንደበት እየ ንነገራት ዝገብር
151.ዝበዝሕ እዋን ብዛዕባ እቲ ብጊጋ ኪበላሾ ዘኽእል ነገራት እጭነቕ
152.ምስ ኃኖት ምቁሉልን ፍሽኽ በሃልን እየ (ብቀሊሉ እላለን እጻወትን)
153.ብሓሳባተይ ክህውትት ምስ ዝጅምር ፡ዝበዝሕ ግዚ. ሓደ ስራሕ ብምሓዝ አብኡ አተኩር
154.ቀዳማይ ግብረመልሰይ ንሰብ ምእማን እዩ
155.አብ ዝኾነ ነገር ምሉእ ዓወት አይረከብን
156.ብቐሊሉ አይቐጣዕን
157.ካብ አብ ብሕቲ ቦታ ኸይደ ዘዕርፍ፡ አብ ብዙሕ ህዝቢ ዚእከበሉ ቦታ ከይደ ከዕርፍ እመርጽ
158.ሓድሓደ ዓይነት መዚቃ ፡ዘይውዳእ አድናቆት የሕድረለይ
159.ሓድሓደ ግዚ. ንሰባት አታሊለ ድላየይ ከም ዚገብሩለይ እገብር
160.ሓድሓደ ግዚ. ናይ ምሒር ተጠንቂቓካ ምስራሕን ልክዕነት ምድላይን ዝንባለ አሎኒ
161.ነብሰይ አትሒተ እየ ዝርእያ

162.ናይ ካልኦት መራሒ ካብ ምኻን በቲ ዝደለኹም ናይ ውልቀይ ኣገባብ ክኸይድ እደሊ
163. ነቲ እተፈላለዩ ኣከባቢታት ዚፈጥሩም ኩነታት ኣእምሮን ስምዒታትን ሳሕቲ እየ ዘስተብህል
164. ዝበዝሑ ዝፈልጦም ሰባት ይፈትውኒ
165. ኣነ ናብቲ ሰነ-ምግባራዊ መትከላተይ ብዕቱብ መገዲ እየ ዝጠብቕ
166. ኣብ መንጎ ኣሕሉቐተይን ካልኦት ሰበ-ስልጣንን ጽቡቕ ይስመዓኒ(ኣይርበሽን)
167.መብዛሕትኡ ግዜ ህውኽ ዝኾንኩ ኮይኑ ይስመዓኒ
168.ሓድሓደ ግዜ ገለ ፍልይ ዝበለ ነገር ንምፍታን ኣብ ውሽጢ ገዛይ ለውጢ እገብር
169.ሓደ ሰብ ባእሲ ምስ ዚጅምር፡ክበኣሶ ድሉው እየ
170.ነቲ ዝኽእሎ ኩሉ ክፍጽም እጽዕር
171.ሓድሓደ ግዜ ክሳዕ ዝሓምም እየ ዝበልዕ
172.ሳዕስዒት ባህላዊ ትግርኛ ኣዝዩ ይምስጠኒ
173.ብዛዕባ ፍጥረት ወይ ህዋ ምሕሳብ ብዝሕ ግዲ የብለይን
174.ኪነታቶም ብዘየገድስ፡ኣነ ካብ ካልኦት ዝበልጽ ኮይኑ ኣይስመዓንን
175.ሓደ ውጥን ኣዚዩ ብርቱዕ ምስ ዚኸውን ካልእ ውጥን ክጅምር እደሊ
176.ኣብ ግዜ ጸገም ወይ ሓደጋ ነብሰይ ክኣሊ እኽእል
177.ኣነ ሕገብን ደስታ ዝመልኦን ሰብ እየ
178.ኣነ ሰፊሕ ዝኣእምሮኡን ብዛዕባ ናይ ካልኦት ቅዲ ኣነባብራ ሸለል ዝብልን እየ
179.ኩሉ ሰብ ክብረት ከምዝግብኦ እኣምን
180.ስሕት ኢለ እየ ህውኽ ውሳነ ዝወስድ
181.ኣነ ካብ ካልኦት ሰባት ዝወሓደ ስግኣታት ኣለኒ
182.ንብጾተይ ብብርቱዕ ስምዒት እየ ዝለግቦም
183.ንእሽቶ ከለኹ ናይ ሓሶት (ምትዕሽሻው) ጸወታ ብዙሕ ኣይፈቱን ነይረ
184.ብዛዕባ ሰባት ጽቡቕ ኣመለኻኽታ ኣሎኒ
185.ኣነ ኣዚየ ኪኢላ እየ
186.ኣብ ገለ እዋን ፡መሪር ጓህን ጽልኦትን
187.ማሕበራዊ ኣኼባታት መብዛሕትኡ ግዜ የሰልችወኒ
188.ሓድሓደ ግዜ ግጥሚ ከንብብ ወይ ሰነ-ጥበባዊ ስርሓት ክዕዝብ ከለኹ ብርቱዕ ስምዒት ኣብ ውሽጠይ ይውሕዝ
189.ኣብ ገለ እዋናት ንሰባት ብምጉጣጥን ወይ ከኣ ብምውዳስን ነቲ ኣነ ዝደልዮ ከም ዚገብሩለ
190.ብዛዕባ ጽሬት ብዙሕ ኣይጭነቅን
191.ሓደሓደ ግዜ ፡ኩነታት ዳርጋ ጽልሙት ወይተስፋ ዘይብሉ ኾይኑ ይረኣይኒ
192.ኣብ ግዜ ዕላል፡ነቲ ዘረባ ባዕለይ ክብሕቶ እደሊ
193.ምስ ካልኦት ኣብ ናቶም ስምዒት ኣትየ ክደናገጽ ቀሊል ኮይኑ እረኽቦ
194.ንነብሰይ ከም ለጋስን ተኻብን ሰብ ገይረ እወስዳ
195.መታን ከም ብሓድሽ ከይሰርሖ፡ንሰርሕይ ተጠንቂቐ እየ ኣገብሮ
196.ንሰባት ሕማቕ ነገር ምስ ዚዛረቦም ወይ ሕማቕ ነገር ምስ ዚገብሮም ፡ተመሊሰ ክርእዮም ኣይክእልን
197.ህይወተይ ታህዋኽ ዝመልኦ ኢዩ
198.ንዕረፍቲ ኣብቲ፡ቅድሚ ሕጂ ከይደዩ ዝነበርኩ ቦታ ክኸይድ እመርጽ
199.ኣነ ተድግን ገታርን እየ
200.ኣብ ዝኾነ ዝገብሮ ነገራት ፡ብሉጽነት ንኸርእይ እጽዕር
201.ሓድሓደ ግዜ ጸኒሑ ዘጣዕሰኒ፡ብእዋናዊ ስምዒት ተደረኽ እሰርሕ እየ
202.ኣነ ድሙቕ ሕብርታትን ዘብለጭልጭ
203.ነገራትን እፈቱ
204.ካብ ንባዕለይ ዝምስገን፡ንኻ ከመስግን እመርጽ
205.ሓድሓደ ግዜ ግዲ ዘይገብረሎም በዙሓት ክሰርሑ ዘለዎም ነኣሽቱ ስራሓት ኣለው
206.ኩሉ ነገር ዘበላሾ ዘሎ ምስ ዚመስል ፡ውሳነ ምውሳድ ግን ኣይጽገመንን
207.ተመክሮይ ንምግላጽ ፡ስሕት ኢለ ቃለ ኣጋንኖ ይጥቀም
208.ሰባት ኣብ 25 ዕድመ ምስ በጽሑ እንታይ ከም ዚኣምኑ ዘይፈልጡ ምስ ዘኾኑ ገለ ጸገሞ ኣለዎም ማለት ኢዩ
209.ነቶም ዕድሎም ካባይ ዝተሓተ እድንግጸሎም
210.መገሻ ክህልወኒ ኸሎ ፡ኣቐዲመ ብጥንቃቐ ውጥን ኣውጽእ
211.ሓደሓደ ግዜ ፡ዘሰንብድ ሓሳባት
ኣብ ሓንጎለይ ይኣቱ
212.ኣብ መሳርሕተይ፡ውልቃዊ (ብሕታዋ)
ዝኾነ ተገዳስነት ኣሎኒ
213.ብዘይ ቀይዲ ወይ መምርሒ ብሓሳባተይ ክህውትት ይጽግመኒ
214.ኣብ ባህርያት ደቅሰብ ዓቢ እምነት ኣሎኒ
215.ኣብ ስርሓይ ብቐዑን ጽፉፍን እየ

216.ነኣሽቱ ጸገማት (መሽክላታት)ከይተረፈ ጸርጸር የብሉኒ ኢዮም
217.ምስ ብዙሓት ሰባት ዚግበር ፓርቲ ወይ ድግስ ደስ ይብለኒ
218. ስሚዒታትን ስእላዊ ሓሳባትን ዘተኩር ግጥሚ ምንባብ ካብ ዛንታ ብዝያዳ ደስ ይብለኒ
219 ንሰባት ብጉርሒ ክሕዞም (ክጸወተሎም) ብዘለሎ ክእለት እምካሕ
220 ኑቲ ብጌጋ ኣብ ዘይቦታኡ ዘቀመጥኩዎ ኣቕሓ ክደሊ ብዙሕ ግዜ እየ ዘጥፍእ
221 ዝበዝሕ ግዜ ፡ነገራት ኪበላሸ ከለው ተስፋ እቆርጽ ግደፎ ድማ ይመጸኒ
222 ንሓደ ኩነታት ብዝምልከት ሓሳፍነት ምውሳድ ቀሊል ገይረ ኣይወስደን
223 ናይ ቀደም ሽታ- ከም ፍሱይ ጨና ወይ ኣስማት ናይ ርሑቕ ቦታት ብርቱዕ ስሚዒታት የሕድረለይ
224 እንተ ደኣ ተኻኢሉ ሰርሓይ ገዲፈ ንኻልኦት እሕግዝ እየ
225 እንተ ዘይሓሚመ ፡ካብ ሰራሕ ኣየብኩርን እየ
226 ዝፈልጦም ሰባት ናይ ዓሻ ስራሕ ኪሰርሑ ከለው ኣብ ክንድኦም እሓፍር
227 ኣነ ኣዝየ ንጡፍ ሰብ እየ
228 ናብ ሓደ ቦታ ንምኻድ፡ ሓንቲ መገዲ እየ ዝኽተል
229 መብዛሕትኡ ግዜ ምስ ቤተሰብይን ናይ ስራሕ ብጾተይን ኣብ ቆየቋ እኣቱ
230 ኣነ ሰሪሐ ኣይደክምን እየ(ከም ኣድጊ እየ ዝሰርሕ)
231 ኣነ ኩሉ ግዜ ንስሚዒታተይ ንኽቁጻጸር ክእለት ኣሎኒ
232 ኣብቲ ስፖርታዊ ግጥም ዚካየዱ ቦታ ፡ክፋል ናይቲ ህዝቢ (ቲፎዞ)ክኸውን እፈቱ
233 ኣብ ዝተፈላለየን ሰፊሕን ናይ ፍልጠት መዳይ ተገዳስነት ኣሎኒ
234 ኣነ ካብ ኩሉ ዝበለጽኩ ሰብ እየ (ንዓይ ዝወዳደረኒ ሰብ የልቦን)
235 ኣነ ብዙሕ ናይ ነብሰኻ ምቕያድ (ሰነ-ስርዓት)ባህርያት ኣሎኒ
236 ብስምዒት ወገን ዳርጋ ርጉእ እየ
237 ብቐሊሉ እየ ዝስሕቕ
238 እቲ ኣብ ሕንቓቕ እተመርኮሰ ሞራላዊነት ፡ብፍጹም ሞራላዊነት የብሉን
239 ካብ ከም "ፍትሓዊ" ኾይነ ዝፈልጥ፡ ከም "ምሕረትኛ" ኾይነ ክፈለጥ እመርጽ
240 ቅድሚ ንሓደ ሕቶ ምምላሽ፡ ክልተ ሳዕ እየ ዝሓስብ

ሕቶታት

1. እዚ ሕቶታት እዚ ሓፈሻዊ መንነት/ባህሪ ዝዕቕንዶ ይመስለለ
2. እዚ ሕቶታት እዚ ብግቡእ ነቲ ናትካ ባህሪ ዝዕቕንዶ ይመስለካ_____
3. ዝኾነ ዘይግቡእ ሕቶታት ኣጋጢሙካዶ(ንኣብነት)_____
4. ንኽትርድኣ ዘጸገመካ ሕቶታት ረኪብካ ዶ._____

APPENDIX G
ENGLISH BACK TRANSALETED OF NEO-PI-R

NEO-PI-R
Revised NEO Personality Inventory (NEO PI-R)

Item Booklet – form S

Paul T. Costa, Jr, Ph.D. and Robert R. McCrae, Ph. D

Instructions that go with the hand-corrected answer sheet

If you want the machine-corrected answer sheet, go to page 2

Read the following instructions before you start. Indicate all your answers on the answer sheet. Write only when you are told so. Don't write on the test booklet.

Write your name on the given space on the answer sheet attached herewith. Indicate your sex by placing a tick on the provided box for 'sex'. Write the date and your identification number (if it has been given to you), on the space provided. Indicate "yourself' on the space labeled" Person being evaluated" because you are describing yourself. Write your age and tick next to "S" in the space labeled "NEO Form".

This questionnaire has 240 items. Read every item carefully and then circle the answer that is closer to you agreement or your disagreement.

If you think the statement is completely wrong or you completely disagree with it circle the SD(**Strongly disagree**)
If you think the statement is wrong or you disagree with it circle the D(**Disagree**)
If you think the statement is equally wrong and right or if you can not decide, circle the N(**Neutral**)
If you think the statement is most of the time right or if you agree, circle the A(**Agree**)
If you think the statement is completely right or you completely agree with it circle the SA(**Strongly agree**)

There is no right or wrong answer, and you do not have to have a 'special skill' to answer the questionnaire. Describe yourself honestly, and put your opinion honestly as much as possible.

Answer all questions. Note that the answers are numbered from top to bottom in the columns on the answer sheet and make sure that your answer is marked in the correctly numbered space. In case if you make a mistake or change your mind, **DO NOT ERASE!** Make an "X" on the wrong one and make a circle around the correct answer. When you have finished to

mark all the 240 items, give your answer also to the remaining three questions labeled as A, B, and C on the answer sheet. Go to page 3 and start your response with question number 1.

Instructions that go with the machine-corrected answer sheet

Please read the following instructions before you start. To put your answers on the paper attached, use a pencil no.2. Indicate all your answers on the answer sheet. Do not write on the test booklet.

Fill in the circle to "self" on the answer sheet in the space labeled " Person Rated" because you are evaluating yourself. Write the date and your identification number if it has been given to you, on the space provided and then fill in the corresponding circles below each block .In the box labeled " Test Form" fill the circle next to the letter "S". Put your sex, age, and today's date in the space provided. Turn the answer sheet over.

This questionnaire has 240 items. Read every item carefully and then circle the answer that is closer to your agreement or your disagreement.

If you think the statement is completely wrong or you completely disagree with it circle the SD(**strongly disagree**)
If you think the statement is wrong or you disagree with it circle the D(**disagree**)
If you think the statement is equally wrong and right or if you cannot decide, circle the N(**Neutral**)
If you think the statement is most of the time right or if you agree, circle the A(**agree**)
If you think the statement is completely right or you completely agree with it circle the SA(**strongly agree**)

There is no right or wrong answer, and you do not have to have a 'special skill' to answer the questionnaire. Describe yourself honestly, and put your opinion honestly as much as possible.

Answer all questions and make sure that you fill in the circles completely. Note that the answers are numbered from top to bottom in the columns on the answer sheet. Please make sure that your answer is marked in the correctly numbered space. In case if you make a mistake or change your mind, erase **your** first answer and fill in the circle that really reflects your answer. When you finished to mark all the 240 items, answer the remaining three questions labeled as A, B, and C on the answer sheet. Go to page 3 in this booklet and start with item number 1.

Age_____
Sex_____
Educational Level_____

1. I am not a worrier
2. I like most of the people I meet
3. I have a very active imaginative skill
4. I am suspicious of others intention
5. I am known for carefulness and common sense
6. I often hate the way people treat me
7. I don't like to be in a crowd
8. Arts and beauty are not very important to me
9. I am not sly and cunning
10. I prefer to leave my options open rather than plan everything before hand
11. I seldom feel lonely or sad
12. I am foremost, powerful, and assertive
13. Life without feelings means nothing to me
14. Some people take me as selfish and egoist
15. I try to do seriously all the job given to me
16. When I interact with people I am afraid to commit a social mistake
17. I work and play in an unhurried style
18. I have reasonably settled habits
19. I prefer to cooperate than to compete with others
20. I take things lightly and am lazy
21. I set limits to everything
22. I always wish for exciting things
23. I often enjoy discussing theories and abstract ideas
24. It does not embarrass me to brag about my talents and my achievements
25. I am good at managing my time so that things get done on time
26. I often feel helpless and want others to solve my problems
27. I have never jumped for joy
28. I believe that if you leave students to listen to controversial speakers, they can be confused and misled
29. Political leaders should be aware of the human aspect of their policies
30. I have done some stupid things over the past years
31. I get scared easily
32. I don't find much pleasure talking to people
33. I try to lead my life in a concrete way and I don't want to live in a dream world
34. I believe that basically most people have good aims or disposition
35. I am not very serious about civil responsibilities such as participating in elections
36. I don't get angry easily
37. I like many people to be around or near me
38. Some times I get lost in the music I listen
39. I don't mind to manipulate people to get what I want
40. I keep my personal belongings clean and neat
41. I sometimes feel that I am worthless
42. I do not always succeed in asserting my wishes the way I know I should
43. I don't have strong feelings most of the time
44. I try to be polite to anyone I meet

45. Sometimes I have difficulty in keeping my promises and people cannot rely substantially on me
46. When people are around me I feel comfortable
47. When I do something I put a lot of energy in it
48. I think that learning or developing a new hobby is important
49. I can be sarcastic and mocking if I want
50. I have specific goals and I work in orderly manner to reach achieve them
51. It is not difficult for me to withstand temptations
52. I don't like to go to the Shamrook to enjoy myself
53. Philosophical discussions bore me
54. I don't like to talk about my achievements
55. I spend a lot of time doing nothing before I sit and start my work
56. I feel like I have the capacity to face most of my problems
57. I have sometimes experienced a feeling of joy and rapture
58. I believe that laws and social policies should be changed in order to reflect the demands of this changing world
59. I am not emotional in the way I look at things and I make decisions based on facts rather than feelings
60. I think deeply before I decide
61. Most of the time I don't feel fear or panic
62. I am known as kind and sociable person
63. I have an active life of day dreaming
64. I believe that if you let people take advantage of you, they do
65. I always see to it that I am continuously informed and I often make intelligent decisions
66. I am known as a very hot-headed and quick-tempered person
67. I always prefer to do things by myself
68. Classical or modern dances bore me
69. Even if I want, I don't have the ability to cheat anyone
70. I am not one who works carefully
71. I don't get beset by sorrow or depression
72. I have always been the leader of my group
73. It is important to me how I feel about things
74. Some people think that I am cold and cunning
75. I pay my debts promptly and in full
76. I have sometimes wanted to hide myself with shame
77. My work may be slow but it is steady
78. When I find the right way to do things I stick to it
79. Even if it is justified, I still hesitate to express my anger
80. When I start a self-improving program, I quit after a few days
81. I don't have a problem in confronting temptation
82. Sometimes I have done risky things just because it gives me an extreme happiness
83. I like to solve charades or puzzles
84. I am superior to other people and I know it
85. I am always successful and productive person
86. When I feel very much depressed, I go to pieces
87. I don't have a positive attitude towards the future

88. I believe that as regards decisions on moral issues, we have to look to religious leaders
89. We can never do too much for the poor and the elderly
90. I do things without thinking about it
91. I often worry and get scared
92. Most people take me as cold
93. I don't want to pass my time daydreaming
94. I think that most people I meet are honest and trustful
95. Most of the time I get into situations without being prepared
96. People take me as testy and quick-tempered
97. When I am alone for a long time I feel the need for people
98. I get fascinated at the styles I see in art or in nature
99. One cannot become a businessman with an honest disposition
100. I put my things in order so that I may find them easily
101. There have been times when I felt guilty or sinner
102. In meetings, I often leave the talking to others
103. I seldom give attention to my passing feelings
104. In general, I try to be considerate and kind to people
105. I sometimes cheat when I play cards by myself
106. I don't give a damn when people make fun of me
107. I often get the feeling of excessive energy
108. I often try to eat a new and foreign dish
109. When I hate someone, I tell him/her in his/her face
110. I work hard to achieve my goal
111. When I get some food that I like, I eat myself sick
112. I don't like to see horrifying and scandalous film
113. When people talk about abstract and theoretical things, I generally lose interest
114. I try to be humble
115. I have problems in doing the things I know I should do
116. I keep a cool head in times of emergency
117. I sometimes jump for joy
118. I believe that the concept of right and wrong that people in other societies have concerns only themselves
119. I don't feel pity towards beggars
120. I consider the risks before I take steps
121. I don't usually have worries about the future
122. I really like to talk to people
123. I enjoy daydreaming and fantasizing and I like to continue and explore it
124. When someone does good things for me I become suspicious
125. I value myself for having the right and balanced outlook
126. I get disgusted of some people I meet in work
127. I like to work alone or in a private room
128. I am not very keen about poetry
129. I don't want to be considered a hypocrite
130. I have problems putting my work in order
131. When things go awry, I am disposed to blame and incriminate myself
132. People expect me to make decisions

133. I have a wide range of feelings and emotions
134. I am not known for my generosity
135. When I pledge to do something I can see it through
136. Most of the time I feel inferior to others
137. I am not quick and active like others
138. I prefer to spend my time in places I knew before
139. When I get insulted, I try to forgive and forget
140. I don't feel I have motivation to go ahead
141. Most of the time I don't give in to my desire
142. I want to be where the action is
143. I like to play games that challenges the mind
144. I have a very high estimation of myself
145. When I start a project or a plan, I, most of the time see it through
146. I often find it find if difficult to decide
147. I don't call myself particularly happy or cheerful
148. It is better to be faithful to one's aims and principles than having an open mind
149. Human needs and demands should come before economic considerations
150. Most of the time I do things all of a sudden without making prior planning
151. Most of the time I worry about the things that might go wrong
152. I am engaging and smiling with strangers
153. When I start to day dream or fantasize most of the time I get myself a job and concentrate on it
154. My first reaction is to trust people
155. I don't completely succeed in anything
156. I don't get angry easily
157. I prefer to relax in a place where there is a crowd rather than going to a lonely place to relax
158. I can listen to some music over and over because it gives special meaning to me each time
159. Sometimes I manipulate people to do what I want
160. I have a disposition to want to work very carefully and with precision
161. I have a low estimation of myself
162. I prefer to follow my personal ways rather than being a leader of others
163. I seldom give attention to the mental state and feelings that various environments create
164. Most people that I know like me
165. I cling to my moral principles seriously
166. I feel at ease among my superiors and other officials
167. Most of the time I am in a hurry
168. Sometimes just to try new things, I make changes in my house
169. When someone picks a fight, I am ready to fight him
170. I try my best to achieve all that I can possibly achieve
171. Sometimes I eat myself sick
172. I love the excitement of traditional Tigrignan dancing
173. I have no much interest in thinking about nature and space
174. I feel that I am not better than others regardless of their condition
175. If I find a certain plan difficult, I start another one

176. I can take care of myself in times of difficulty and danger
177. I am a happy and joyful person
178. I have an open mind and am tolerant of others style of life
179. I believe that everybody deserves respect
180. I seldom take hasty decisions
181. I have less fears than other people
182. I have a strong attachment to my friends
183. When I was a child, I never liked make-believe games
184. I think good about people
185. I am very skilful
186. I have sometimes felt bitterness and disgust
187. Most of the time social gatherings bore me
188. Sometimes when I read poetry or contemplate a work of art a strong feeling invade me
189. Sometimes I make people do what I want through threats or praises
190. I am not worrying too much about cleanliness
191. Sometimes I feel that situations are almost bleak or hopeless
192. During conversation I talk the most
193. I feel easy to empathize with others – to feel myself what others are feeling
194. I take myself as charitable person
195. I do my work carefully not to have to do it again
196. When I say bad things to people or when I hurt them I am unable to see them again
197. My life is hurried
198. For vacation I like to go to the place I had been before
199. I am obstinate and stubborn
200. In everything I do I want to excel
201. Sometimes I do things pushed by fleeting emotion, which I usually regret later
202. I like strong colors and things that glitter
203. I am a person who likes to gain knowledge
204. I prefer to praise others than myself
205. There are a lot of little tasks to be done that I sometimes ignore all of them
206. Even if things go wrong, I don't find it difficult to take decisions
207. I seldom use words like "fantastic!" to express my experience
208. When people at the age of 25 don't know what to believe, it means they have a problem
209. I feel pity for those who are less lucky than me
210. When I have a trip to make, I plan it carefully beforehand
211. Sometimes scary ideas get into my head
212. I have personal interest in my coworkers
213. I find it difficult to drift in thoughts without control or guidance
214. I have big faith in man's nature
215. I am adequate and efficient in my work
216. Even small problems make me lose my temper
217, I like partying with lots of people
218. I like to read poetry that focus on feeling and imagination more than I do short stories
219. I pride myself on the capacity I have to manipulate people
220. I spend a lot of time to find the things I misplaced
221. Most of the time when things go wrong I lose hope and feel like quitting

222. I don’t find it easy to take charge of a situation
223. An old odor like a particular perfume or the names of far away places create strong emotions in me
224. If possible, I stop my work to help others
225. Unless I take ill, I don’t absent myself from work
226. When I see people that I know doing stupid things I feel embarrassed for them
227. I am a very active person
228. I use the same route to go to a given place
229. Most of the time I get into squabbling with my family and my work colleagues
230. I am workaholic
231. I always have the ability to control my feelings
232. In the place where sports events are going on I like to be part of the spectators
233. I have interest in various and vast field of knowledge
234. I am better than anyone
235. I have a lot of self-discipline
236. I am rather composed emotionally
237. I laugh easily
238. The morality which is based on permissiveness is not morality at all
239. I like to be known as ‘merciful’ rather than ‘just’
240. I think twice before answering a question

APPENDIX H

VIRAMAX FACTOR ROTATION AT THE ITEM LEVEL

	Factor1	Factor2	Factor3	Factor4	Factor5
n11	-0.25791	-0.18115	0.26075	-0.00484	0.20779
N12	-0.12652	-0.37701	-0.05707	0.16459	-0.05210
n13	-0.28703	-0.24411	0.34239	0.08387	0.10673
N14	-0.33216	-0.40097	-0.02079	0.23845	0.13430
n15	-0.21952	-0.11003	0.26346	-0.00718	0.13386
N16	0.14511	-0.27784	-0.04909	0.34120	0.00067
n17	-0.06009	0.08047	0.33147	-0.07900	0.20026
N18	0.25606	-0.26727	0.10689	0.20444	0.23085
N21	-0.05679	-0.25438	-0.09767	0.03130	0.02203
n22	-0.08788	-0.20415	0.16883	0.05034	-0.01317
N23	-0.14254	-0.38507	-0.11974	-0.17084	0.13998
N24	-0.04631	-0.40404	-0.11188	-0.04597	0.09219
N25	-0.09521	-0.26923	-0.28427	-0.04858	0.05499
n26	-0.47054	-0.16486	-0.02699	-0.17594	0.06062
N27	0.37154	-0.23038	0.10872	0.11969	0.07141
N28	-0.12002	-0.42849	0.06574	0.05912	0.08212
n31	-0.20029	0.05215	0.11033	-0.07670	-0.06838
N32	-0.08545	-0.46043	0.16141	0.08620	-0.00540
n33	-0.16178	-0.12149	0.27786	0.17099	0.22028
N34	0.22268	-0.32160	0.11333	0.25393	0.03847
N35	0.24476	-0.27505	-0.00588	0.32057	-0.07816
N36	-0.18690	-0.27470	0.09852	0.21824	0.01221
N37	-0.00322	-0.33702	0.10355	0.15350	0.07917
N38	-0.12470	-0.40485	0.11392	0.32480	0.18863
N41	0.30590	-0.08474	0.15617	0.29766	0.08353
N42	0.03050	-0.39287	-0.11696	0.05100	0.06271
N43	0.04547	-0.30843	0.03127	0.18912	-0.00187
n44	0.09085	0.08088	0.34641	0.06690	-0.06493
N45	-0.22136	-0.43037	0.02273	0.18831	0.03074
n46	-0.30554	-0.10860	0.20017	-0.01246	0.14113
N47	0.07926	-0.13362	0.02854	0.34103	0.07368
N48	0.42281	-0.00071	-0.01660	0.27642	0.11578
n51	-0.38663	-0.15844	0.20679	-0.15357	-0.21183

	Factor1	Factor2	Factor3	Factor4	Factor5
n52	-0.38373	-0.12565	0.21631	-0.02800	0.13603
n53	-0.42491	-0.12532	0.23447	0.02877	0.14060
N54	0.05927	-0.14038	-0.10347	0.02102	0.17240
n55	-0.14600	0.02345	0.05226	-0.29489	0.09786
N56	-0.38703	-0.34711	-0.17146	-0.18137	0.05729
N57	0.20561	-0.40598	0.16750	-0.11496	0.11738
n58	-0.19009	-0.17428	0.30932	-0.33935	0.18354
N61	-0.12466	-0.42483	-0.03919	0.03866	0.02799
n62	-0.46244	-0.08751	0.17996	0.07290	-0.04175
N63	0.05654	-0.27935	0.13169	0.30097	0.25321
n64	-0.37674	-0.16145	0.12630	0.14550	0.08912
N65	-0.12048	-0.38953	0.06251	0.27253	0.01029
n66	-0.35870	-0.08891	0.20850	-0.06484	0.09415
n67	-0.46042	-0.04303	0.09983	0.08416	-0.04204
n68	-0.33884	-0.18204	0.14215	-0.23430	0.10253
E11	0.20169	0.10681	-0.15794	-0.03546	-0.16036
e12	0.13319	0.29500	0.10127	-0.06660	0.12538
E13	0.24052	0.09565	-0.23017	0.16242	-0.26148
e14	0.14519	0.34347	0.09557	-0.10615	0.02121
E15	0.41674	0.11299	0.05329	-0.01569	0.04610
E16	0.40017	-0.00185	-0.12777	0.05041	-0.00461
E17	0.18632	-0.06308	-0.29100	-0.01901	0.04364
E18	0.18281	0.05642	-0.09426	0.18768	-0.01176
e21	0.01509	0.19786	0.02585	-0.17106	-0.04659
E22	0.06216	-0.12538	-0.12421	-0.09933	0.07433
e23	-0.17004	0.26007	0.10515	-0.27567	0.13002
E24	0.39940	-0.03570	0.14750	0.08659	0.25758
e25	-0.42381	0.00029	-0.13955	-0.30826	-0.02997
E26	-0.20816	-0.04941	-0.29199	-0.16143	0.05650
e27	0.02814	0.23700	-0.00374	-0.29618	0.06703
E28	0.08262	0.06026	-0.07551	-0.05138	0.36988
E31	-0.18201	-0.30811	-0.11262	-0.07517	0.14546
e32	-0.02015	0.50343	-0.13151	-0.07543	0.10442
E33	0.09704	-0.19429	-0.27900	-0.27795	-0.18694
e34	-0.10665	0.11227	-0.07903	-0.37839	-0.02897
E35	0.26499	-0.10669	-0.12229	-0.05424	-0.16908
e36	-0.18968	-0.09831	-0.07331	-0.34859	-0.04512

E37	-0.21000	-0.37865	-0.30840	-0.22326	-0.03224
e38	-0.24417	-0.06472	-0.11822	-0.21453	0.06761
e41	-0.40503	-0.10482	0.24937	-0.08180	-0.04270
E42	0.06732	-0.17785	-0.16063	0.00531	0.14730
e43	-0.31989	0.11067	-0.01909	-0.09278	-0.13358
E44	-0.00033	-0.18672	-0.28689	0.10468	0.11400
e45	0.19014	0.37506	-0.10599	-0.10016	0.07998

	Factor1	Factor2	Factor3	Factor4	Factor5
E46	0.02964	-0.32944	-0.17348	0.02236	0.00118
E47	-0.11989	-0.49181	-0.05035	-0.06726	0.06741
E48	0.12316	0.02939	-0.41743	0.09601	0.12351
E51	0.31198	-0.08472	-0.05535	0.11191	0.26866
e52	-0.11722	0.01942	0.04985	-0.16457	0.39427
E53	0.13459	-0.24935	-0.01480	-0.11291	0.04802
e54	-0.08701	-0.00279	0.01815	-0.16259	0.12406
E55	0.47361	0.10714	-0.02031	0.03194	-0.02605
e56	0.13419	0.13237	0.22105	0.05410	-0.11316
E57	-0.14678	-0.18671	-0.10348	-0.16583	0.34850
E58	0.14733	-0.06675	-0.05088	0.01499	0.22208
e61	0.11915	0.12194	0.03794	0.06019	0.10684
E62	0.42881	-0.06160	-0.07030	-0.13038	0.02717
e63	0.35951	0.31274	0.10926	-0.01994	-0.00719
E64	0.41095	-0.04040	0.00206	0.00800	0.11532
e65	0.10090	0.32303	-0.00260	-0.25571	-0.06954
E66	0.20244	0.18938	-0.30289	0.06028	-0.14400
e67	-0.08491	0.31397	0.01649	0.07019	0.05573
E68	0.05770	-0.14627	-0.04094	0.04141	0.00636
O11	0.11604	-0.02181	-0.38601	-0.13165	0.07301
o12	-0.37217	-0.27827	0.15367	-0.19747	-0.01919
O13	0.13054	-0.34763	-0.12289	-0.09569	0.04094
o14	-0.45451	-0.19812	-0.04555	-0.05621	0.05378
O15	0.01752	-0.36352	-0.06570	0.07343	0.14790
o16	-0.25271	0.01197	0.09312	-0.30226	-0.07534
o17	-0.15259	-0.02971	0.15170	-0.13437	0.30262
o18	-0.01346	-0.00649	0.08106	-0.02863	0.00014
o21	0.11541	0.13124	0.10511	-0.21895	0.26274
O22	0.15197	-0.04305	-0.11914	0.17558	0.36178
o23	0.06565	0.27050	0.05139	-0.14670	0.40465
O24	0.42311	-0.17751	0.10288	0.03978	0.19123
o25	0.19975	0.24531	0.24864	-0.11799	0.21759
O26	0.41871	-0.08555	-0.10309	-0.06698	0.20617
O27	0.22685	0.07333	-0.03025	-0.02081	0.39953
O28	0.15596	0.03151	-0.13658	-0.07435	0.26238
O31	0.25270	-0.06495	-0.05767	0.04166	0.29821
o32	-0.10677	0.09091	-0.03573	-0.27726	0.07150
O33	0.39012	0.02108	0.00772	0.06241	0.14570
o34	-0.14618	0.17256	0.07105	-0.16779	0.05996
O35	0.36074	-0.05198	-0.22550	-0.16712	0.00938
o36	-0.00367	0.18036	0.01143	-0.21811	0.08823
O37	0.26350	-0.04134	-0.23961	0.04156	-0.25354
O38	0.26664	-0.14224	-0.11986	-0.03597	-0.03845
o41	-0.46937	-0.22346	0.20004	-0.09154	-0.08491

	Factor1	Factor2	Factor3	Factor4	Factor5
O42	0.37646	-0.05186	-0.02922	0.06145	0.10647
o43	-0.53617	-0.16389	-0.00702	-0.10675	-0.00818
O44	-0.09701	-0.15898	-0.18605	0.01218	0.17636
o45	-0.17021	0.10374	0.00918	-0.21058	0.18095
O46	0.32787	-0.02602	-0.11522	0.05586	0.13792
o47	-0.17856	0.19427	-0.02809	-0.05047	0.10550
o48	-0.02989	0.12715	0.13813	-0.12390	0.04672
O51	0.31194	-0.04408	-0.19465	-0.03248	0.22539
o52	0.00889	0.05646	-0.00909	-0.31092	0.04033
O53	0.30310	0.01937	0.02269	-0.16901	0.12221
o54	0.10620	0.15626	0.05270	-0.26969	0.04941
O55	0.21477	-0.10918	-0.16096	-0.17389	0.05746
o56	0.18428	0.08303	0.12680	-0.14039	0.18276
O57	0.34925	-0.01868	-0.15760	-0.06826	0.01777
O58	0.54191	0.08648	-0.12083	0.02971	0.01746
o61	-0.35934	-0.01257	-0.03562	0.05567	-0.19115
O62	0.42747	0.08117	-0.04620	-0.06372	0.17958
o63	-0.22133	0.17087	-0.00596	-0.04676	-0.19148
O64	0.43544	-0.04643	-0.01882	0.07373	-0.13975
o65	-0.45035	-0.10681	-0.00387	-0.03953	0.01469
O66	-0.03905	-0.11172	-0.39223	0.11581	-0.06694
o67	-0.34851	0.15294	-0.05703	-0.11616	-0.07443
o68	-0.30171	-0.00706	-0.06826	-0.04320	0.07069

a11	-0.02411	0.09973	0.03261	0.01074	-0.19376
A12	0.13491	0.06286	-0.21505	0.07126	-0.03248
a13	-0.39067	-0.03200	-0.06987	-0.18743	-0.11494
A14	0.28278	0.06536	-0.18180	0.12551	-0.23718
a15	-0.09157	0.27585	0.10724	-0.15636	-0.17212
A16	0.22282	-0.06922	-0.12134	0.07369	-0.14284
A17	0.53465	0.19737	-0.06597	0.08673	-0.19419
A18	0.27686	-0.02128	-0.16594	0.06513	0.12075
A21	0.20646	0.14492	-0.06714	0.12802	-0.21897
a22	-0.09604	-0.07281	0.10310	-0.24603	0.03705
A23	-0.01697	-0.22822	0.11061	0.26655	-0.06923
a24	-0.25469	0.16096	-0.04641	-0.23759	-0.27404
A25	0.42381	0.07654	0.03683	0.23401	-0.06573
a26	0.31503	0.38262	0.15302	0.26569	-0.20767
a27	0.28477	0.36243	0.15274	0.28639	0.17666
a28	0.29654	0.30031	0.28904	0.22032	-0.15500
a31	0.18528	0.36493	0.02271	0.06534	-0.12005
A32	0.51439	0.10061	-0.01640	0.03318	0.12708
a33	0.09527	0.44892	0.05429	0.02162	0.04030
A34	0.35725	0.05451	0.11061	0.03738	0.02795
a35	0.04434	0.36335	-0.03328	-0.04324	0.11825

	Factor1	Factor2	Factor3	Factor4	Factor5
A36	0.42391	0.08824	-0.11890	0.16387	-0.11151
A37	0.10852	-0.11607	-0.28319	-0.00248	-0.13699
A38	0.28668	-0.12649	0.00574	-0.15462	-0.15612
A41	0.32966	0.12244	0.04958	0.03008	-0.03704
a42	-0.16014	0.25727	0.22043	-0.02145	-0.13505
A43	0.12064	-0.17896	0.08495	0.17352	-0.03190
a44	-0.09539	-0.07610	0.28019	0.09557	-0.09275
A45	0.27453	0.04561	-0.13685	0.00084	-0.13882
a46	0.26124	0.27425	0.15523	0.20905	-0.22453
a47	0.32141	0.35937	0.20950	0.19839	-0.00626
a48	0.22017	0.39724	0.08349	0.23088	-0.03805
a51	0.13906	0.26256	0.16010	0.10978	-0.03839
A52	0.10719	0.03833	-0.03529	0.19971	0.00947
a53	0.17955	0.16492	0.38030	0.07730	-0.04950
A54	0.46653	0.06844	0.14796	0.07017	-0.14404
a55	-0.18309	-0.00981	0.42665	0.02197	-0.03911
A56	0.25762	-0.01244	-0.02983	0.22739	-0.04491
A57	0.40133	0.18686	0.01902	0.16118	-0.01683
a58	0.27927	0.09309	0.34547	-0.06737	-0.24544
A61	0.51579	0.11149	0.08901	0.18443	0.10003
a62	-0.30662	-0.27771	0.36455	0.05647	0.01451
A63	0.58837	-0.00789	0.26551	-0.00234	-0.01394
a64	0.26018	0.19087	0.36377	0.04440	-0.06461
A65	0.27803	-0.11664	-0.03673	0.00651	0.03971
A66	0.56848	0.14521	0.16761	0.15732	-0.04471
A67	0.47932	-0.04269	0.08425	0.21980	0.02703
A68	0.10723	-0.12200	-0.01698	0.30792	-0.07282
C11	0.05026	0.01908	-0.35044	0.06916	-0.06321
c12	0.14797	0.23145	0.04954	-0.10419	0.21446
C13	0.36895	0.23210	-0.25480	0.02222	0.08785
c14	0.00684	0.40167	0.01374	-0.06169	-0.14538
C15	0.49782	0.25892	-0.07826	0.15929	0.10414
c16	0.07545	0.30848	0.09355	-0.03731	-0.10556
C17	-0.14264	-0.13214	-0.53286	0.02131	0.03379
C18	0.35778	0.10979	-0.35431	0.05425	-0.12215
c21	-0.29176	0.10909	0.04119	-0.06247	-0.08139
C22	0.38311	0.26090	-0.04067	0.30030	0.20357
c23	0.31646	0.40859	-0.00754	0.14071	0.15343
C24	0.36701	0.24873	-0.04527	0.28708	0.21842
c25	0.29499	0.47636	0.01424	0.10791	-0.03094
C26	0.38750	0.07305	-0.01593	0.20870	-0.12849
c27	0.26039	0.33646	0.19622	0.05123	0.02342
C28	0.00907	-0.40244	0.09777	0.02388	0.13301
C31	0.55886	0.22129	-0.03555	0.15445	0.11421

	Factor1	Factor2	Factor3	Factor4	Factor5
c32	0.12923	0.48684	-0.12187	0.03862	-0.11072
C33	0.36524	0.16928	-0.08584	0.25445	0.07117
c34	0.09617	0.28613	0.14995	0.09831	-0.21765
C35	0.50138	0.04451	-0.06414	0.13668	-0.07430
C36	0.57927	0.13623	-0.08202	-0.02961	-0.04669
C37	0.31873	0.22739	-0.14156	0.33022	0.19201
C38	0.39098	0.15750	-0.13836	0.17670	-0.09756

c41	0.14312	0.41241	-0.06864	0.04777	0.11735
C42	0.39149	0.20796	-0.08187	0.15470	0.06420
c43	0.05737	0.43477	-0.07959	-0.02893	0.16390
C44	0.48064	0.16834	-0.02905	0.08230	0.07780
C45	-0.08304	-0.26485	-0.06890	0.15285	-0.05072
C46	0.48637	0.14677	0.00254	0.24418	-0.03316
C47	0.38982	0.10841	0.05811	0.10831	0.00042
c48	0.04609	0.13065	0.48703	0.02818	-0.05725
C51	0.27811	0.12414	-0.12134	0.10867	0.22056
c52	0.01411	0.45363	0.03584	-0.03615	-0.01461
C53	0.27452	0.12041	-0.28971	0.08200	0.08352
c54	0.11003	0.46531	0.04326	-0.10156	0.10309
C55	0.44603	0.16257	-0.21128	0.15235	0.01437
c56	-0.11285	0.19727	0.02792	-0.19858	0.09458
c57	-0.39779	0.15241	-0.17892	0.07603	0.00042
C58	0.39878	0.10341	-0.13149	0.24622	-0.19438
c61	-0.02526	0.42043	-0.08785	0.01384	0.07751
C62	0.45462	0.27258	-0.13172	0.07876	0.06002
c63	-0.19471	0.43806	-0.17911	-0.01483	0.02454
C64	0.32605	0.19832	-0.01656	-0.01077	0.05099
c65	0.21454	0.42739	0.04446	0.06436	0.13869
C66	0.33075	0.01054	-0.02622	0.24453	0.02394
C67	0.39936	0.20451	-0.10841	0.34866	0.03232
C68	0.32088	0.19540	-0.11260	0.25272	0.17369

APPENDIX I

INTERCORRELATION MATRIX IN THE USA SAMPLE

NEO-PI-R Scale		O1	O2	O3	O4	O5	O6	A1	A2	A3	A4	A5	A6	C1	C2	C3	C4	C5	C6
NEUROTICISM	N	23	01	23	-17	-18	-04	-37	-18	-23	-24	07	-07	-54	-25	-40	-28	-52	-38
EXTRAVERSION	E	18	22	40	35	26	17	21	-16	38	-11	-23	15	32	16	11	41	30	-05
OPENNESS	O	65	71	62	60	70	52	13	-15	05	-06	-17	15	12	-13	-04	16	-04	-13
AGREEABLENESS	A	-17	12	-01	07	-05	-05	65	72	64	73	59	64	17	11	34	03	21	21
CONSCIENTIOUSNESS	C	-29	07	01	04	15	-06	21	26	34	15	-08	09	76	71	74	71	84	66
Anxiety	N1	19	00	22	-11	-14	-02	-27	-09	-07	-11	09	01	-36	-13	-25	-16	-32	-18
Angry Hostility	N2	16	-01	21	-12	-09	03	-42	-29	-34	-49	-12	-24	-31	-14	-31	-05	-32	-31
Depression	N3	20	03	18	-14	-13	-04	-30	-11	-18	-13	15	00	-51	-24	-33	-28	-47	-31
Self-Consciousness	N4	08	-03	07	-20	-18	-08	-26	-04	-16	-04	17	-04	-40	-16	-24	-23	-37	-22
Impulsiveness	N5	28	04	28	-03	-05	03	-17	-23	-04	-29	-01	-02	-27	-20	-33	-15	-37	-46
Vulnerability	N6	13	00	05	-17	-23	-09	-24	-04	-23	-05	11	-03	-58	-27	-37	-37	-53	-28
Warmth	E1	08	23	34	22	16	12	41	11	36	20	03	34	26	10	23	23	20	05
Gregariousness	E2	06	12	20	27	04	07	22	-05	24	08	-13	18	13	05	06	14	13	-03
Assertiveness	E3	08	13	21	24	29	10	11	-20	15	-24	-34	-03	39	16	19	44	30	05
Activity	E4	06	15	27	24	19	13	05	-11	19	-18	-22	-01	28	22	14	31	35	-06
Excitement-Seeking	E5	25	05	22	20	19	14	-11	-31	03	-30	-22	-03	03	02	-18	13	07	-22
Positive Emotions	E6	19	22	39	24	16	13	21	-03	44	04	-07	20	23	08	04	23	19	-10
Fantasy	O1		28	39	24	30	24	-02	-28	-07	-14	-18	04	-11	-27	-25	-12	-24	-27
Aesthetics	O2			39	34	46	13	14	06	06	08	-01	18	06	02	07	19	00	00
Feelings	O3				23	25	17	02	-14	18	-14	-05	14	10	-03	00	15	-03	-11
Actions	O4					31	28	13	-01	08	06	-06	09	09	-06	-01	16	10	-08
Ideas	O5						25	09	-10	01	-04	-20	05	23	-02	10	24	08	04
Values	O6							13	-12	-03	-05	-15	05	09	-13	-08	00	-04	-09
Trust	A1								34	37	39	14	34	26	04	29	10	19	10
Straightforwardness	A2									34	47	38	28	15	17	34	04	20	24
Altruism	A3										35	16	45	34	18	32	21	32	17
Compliance	A4											36	34	06	06	22	-03	11	22
Modesty	A5												26	-21	-02	05	-17	-05	01
Tender-Mindedness	A6													10	01	12	-01	08	09
Competence	C1														38	51	48	61	44
Order	C2															37	40	56	37
Dutifulness	C3																43	53	45
Achievement Striving	C4																	38	25
Self-Discipline	C5																		39
Deliberation	C6																		

Note. Decimal points omitted. $N = 1,000$.

NEO-PI-R scale		E	O	A	C	N1	N2	N3	N4	N5	N6	E1	E2	E3	E4	E5	E6
NEUROTICISM	N	-21	02	-25	-53	81	71	85	74	61	78	-22	-16	-33	-08	04	-13
EXTRAVERSION	E		40	04	27	-12	-09	-24	-31	12	-31	65	70	66	68	63	73
OPENNESS	O			-02	-02	04	05	03	-08	14	-05	29	19	27	27	27	34
AGREEABLENESS	A				24	-11	-47	-14	-09	-21	-12	40	12	-15	-08	-24	18
CONSCIENTIOUSNESS	C					-31	-33	-48	-36	-41	-54	24	11	34	33	-03	15
Anxiety	N1						47	64	54	34	60	-08	-06	-24	-04	01	-07
Angry Hostility	N2							52	37	40	43	-27	-15	-06	08	12	-12
Depression	N3								60	38	63	-20	-18	-32	-12	00	-17
Self-Consciousness	N4									31	56	-23	-23	-42	-14	-09	-16
Impulsiveness	N5										35	00	03	-04	06	25	16
Vulnerability	N6											21	11	42	22	08	21
Warmth	E1												49	32	24	16	52
Gregariousness	E2													35	27	34	35
Assertiveness	E3														44	23	31
Activity	E4															38	45
Excitement-Seeking	E5																37
Positive Emotions	E6																
Fantasy	O1																
Aesthetics	O2																
Feelings	O3																
Actions	O4																
Ideas	O5																
Values	O6																
Trust	A1																
Straightforwardness	A2																
Altruism	A3																
Compliance	A4																
Modesty	A5																
Tender-Mindedness	A6																
Competence	C1																
Order	C2																
Dutifulness	C3																
Achievement Striving	C4																
Self-Discipline	C5																
Deliberation	C6																

APPENDIX J

PERMISION FOR THE USE OF NEO-PI-R FROM THE PAR