GODFREY OKOYE UNIVERSITY

(The Catholic University of Enugu)

The First Inaugural Lecture

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The First Inaugural Lecture:

Behavioral Health: Application of Biopsychosocial Model of Prevention and Treatment

By

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The First Inaugural Lecture of Godfrey Okoye University

Behavioral Health: Application of Biopsychosocial Model of Prevention and Treatment

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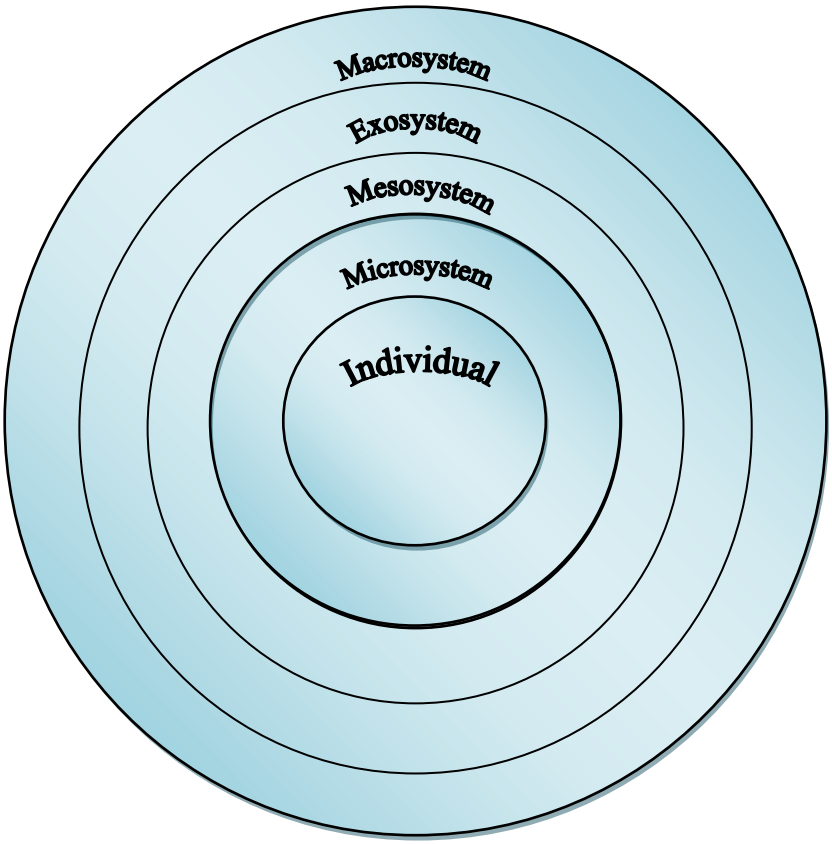
Current trends in psychological processes in morbidity and mortality have led to enhanced efforts to pay attention to the relationships among behaviour, health, and illness (Marks, Sykes & McKinley, 2003). Research indicates that certain health behaviours increase the risk of developing illnesses, mode of illness onset, morbidity, and mortality (Njoku, 2009a, 2010c, 2011a, 2012a). Conversely, some health behaviours decrease morbidity and mortality (Marks, Murray, Evans, & Willig, 2000; Taylor, 1986). Indeed, most illnesses related to high mortality rates have a behavioural factor. For example, illnesses associated with smoking, eating style, sexual behaviour, substance use, and an inactive lifestyle are among the leading causes of high mortality and therefore are usually among the major focuses of illness prevention and health promotion (Jason, Curie, Townsend, Pokorny, Katz & Sherk, 2002; Marks, Sykes & McKinley, 2003; Njoku, 2012a). In addition, certain cognitive factors such as self-esteem, thinking patterns, worldview, and attributions influence illness morbidity and mortality. Further, comorbities of physical and mental conditions have been noted in several studies (Marks et al., 2003).

Behavioural health focuses on behaviour and behavioural change for the purpose of optimizing health and overall quality of life (Njoku, 2015). It explores the relationship between behaviour and health. Health is everybody's business and is achieved when there is optimal balance between all aspects of health (physical, mental, social, and spiritual). World Health Organization (WHO, 1946) defined health as "a state of complete physical, mental and social well being and not merely the absence of disease or infirmity." Genetic, environment, development, and the social setting impact wellbeing. Thus, biological, sociological, psychological, and spiritual components interact to influence wellbeing (Njoku, 2007b). This therefore suggests that promotion, prevention, and treatment modalities must incorporate biopsychosocial factors for optimal results (Marks et al., 2003; Njoku, 2007b, 2012a).

The field of community psychology, in its health promotion and illness prevention tenets, argues that the ecological context is a key factor that must be considered. Bronfrenbrenner (1979; 1986) developed the ecological systems theory. This theory posits that an individual is nested in a system consisting of macrosystem, exosystem, mesosystem, and microsystem. These systems interact with the individual to produce individual outcomes. The macrosystem is the outermost level of the ecological model; it consists of values, ideologies, institutional patterns, and cultural characteristics. The exosystem captures social groups and institutions that exert influence on the individual,

such as community service and school boards. The next level, the mesosystem consists of interrelationships between microsystems (e.g., home and school), and the microsystem includes all influences exerted on an individual in a specific context (e.g., home). The individual, in the centre, is influenced by all the levels mentioned above (Patrikakou et al., 1999).



Ecological Framework (Bronfrenbrenner, 1979)

Another tenet of community psychology that is central to behavioural health is prevention. Caplan (1964) defines prevention as a form of intervention devised to ameliorate the potential impact of a given problem. There are three levels of prevention: primary, secondary, and tertiary. Primary prevention refers to interventions for a population that have not developed an illness, targeted at improving social conditions that

might lead to illness (Caplan, 1964; Durlak, 1995). Secondary prevention is geared towards individuals who are at risk for developing a specific disorder. For this form of prevention, efforts are targeted to ameliorate the identified risk factors that might lead to illness in order to delay or completely eradicate the possibility of developing the illness. Tertiary prevention is aimed at assisting those who have already developed the condition to reduce associated disability level (Cowen, 2000; Durlak, 1995).

Factors that Influence Health Conditions

Studies have shown that many factors influence health. These include stress, coping, genetic predisposition/familial factors, ethnic differences, experience of discrimination and prejudice (Njoku, Jason, & DiPasquale, 2008; Njoku, Jason, & Torres-Harding, 2005; Torres-Harding et al., 2002), mode of illness onset (Njoku, Jason, Porter, & Brown, 2009), socio-economic status (Njoku, Jason, Klipp, Mauro & Ystesund, 2006; Njoku et al., 2005; Ystesund, Njoku, Jason, Klipp, Mauro, & Bailey, 2006), preventive health behaviour differences, lack of sufficient health care services (Davies, 1995; Shulz et al., 2000), and illness attitude and attributions (Njoku, 2014).

Stress

Stress is one of factors that impacts health. Stress is the process by which we appraise and react to situations (stressors) that disrupt or threaten to disrupt our psychological or physical functioning (Bernstein & Nash, 2005; Cardena, Butler & Spiegel, 2003). Stress is any change one must adapt to, such as physical danger, achieving success and the exhilaration of falling in love. Regardless of the level or chronicity of the stress one experiences, personal response to the stress plays a significant role in its impact. Stress is characterized by production of a state of overload, evocation of incompatible tendencies, and lack of control.

Selye (1976) proposed a model for understanding the profile of individuals who experience chronic stress. He postulated that the first stage involves alarm when the body prepares itself for immediate action. This is followed by resistance, a period during which the body experiences reduced arousal but continues to use an above-normal rate of resources to cope with the stressor. Lastly, the body enters the exhaustion stage, during which the capacity to resist or fight the stressor is depleted and susceptibility to illness increases (Cardena et al., 2003).

Selye's (1976) approach to understanding stress accounts for physiological and psychological aspects and discusses both negative and positive responses to stress. However, his model is associated with the stress response of the autonomic nervous system and negates the contribution of cognitive factors to stress (Cardena et al., 2003). Later theories developed by researchers examined the cognitive components of stress. Selye's model falls under the response-based perspective of stress (Cardena et al., 2003).

Another approach to understanding stress is the stimulus-based model, which pays attention to the specific characteristics of the stressor. This model posits that specific stressors have unique social, psychological, physical, and intellectual demands on the coping resources of individuals, leading to stress responses that are commensurate with the stressor (Holmes & Rahe, 1967). The difficulty with this stimulus-based model of stress is its failure to account for individual differences in the perception of specific stressors (Marks et al., 2003).

The cognitive-transactional process model of stress characterizes stress as the association between the individual and the environment judged by the individual as challenging or compromising his or her coping resources and wellbeing (Lazarus, 1966, 1991). The underlying assumptions of this model are that stress involves a transaction, a process, and a context. Thus, stress happens as a function of a specific encounter between the person and the environment and is subject to continuous change, and the meaning of the specific transaction is based on the context (Lazarus, 1966, 1991).

Events or things that elicit stress are termed stressors (Cardena et al., 2003; Carson, Butcher, & Mineka, 2000). Sources of stress include the environment (e.g., weather, noise, pollution, traffic), social stressors (e.g., deadlines, job interview, disagreements, loss of a loved one), physiological (e.g., adolescent rapid growth, illness, injuries, inadequate sleep) and thoughts (e.g., thinking about catastrophic outcomes). The stressors in trauma are considered to be any event, human or natural that challenges the individual's assumptions about safety, controllability and predictability of events, and fairness. The current Diagnostic and Statistical Manual -V (DSM, APA, 2013) postulates that trauma involves the experience of stressors that presents with actual or threatened death, injury, or events that threaten the physical integrity of the individual.

Early warning signs of stress include sweaty or cold hands; shortness of breath; headaches; tiredness; irritability; indigestion; diarrhoea; too-frequent urination; muscle

spasms or tightness in the jaw, back of the neck, shoulders or lower back; unrefreshing sleep; difficulty concentrating; and increases in eating, drinking, smoking or use of drugs (Njoku, 2010b, 2010b).

Stress or trauma is associated with several responses such as the physiologically based reactions like increases in blood pressure, pulse and sweating (Njoku, Burkholder, Long, & Grodi, 2007). Some experiences may lead to transient impact, while others may involve life-changing outcomes (Calhoun & Tedeschi, 2000). Some of the positive consequences of stress include greater appreciation of life, improved interpersonal relationships, spirituality, more investment in life, proficiency with managing life challenges, and increases in personal resources (Fullerton & Ursano, 1997; Tedeschi & Calhoun, 1995).

The amount of stress an individual experiences depends in part on how the person appraises a specific event. The extent to which a stressor is perceived as threatening and uncontrollable contributes to its impact. Stress will be low when an event or situation is perceived as challenging rather than threatening or when individuals feel confident of their ability to cope with the situations they encounter (Davis, Eshelman & McKay, 2000; Njoku, 2010b).

Diathesis Theory of Stress

The diathesis theory of stress proposes that a variety of factors represent a biopsychosocial model of disease that contributes to individual outcomes (Burke, Zautra, Davis, Schultz & Reich, 2003). In this model, for example, given a genetic predisposition to high blood pressure, the presence of low self-esteem and a dysfunctional environment, an individual will be more likely to experience high blood pressure as a result of stress. Thus, two individuals may have similar genetic predisposition but if they have divergent life experiences and family dynamics, they are more likely to have different health outcomes (Njoku, 2010b; 2010b). See Fig. 1 below.

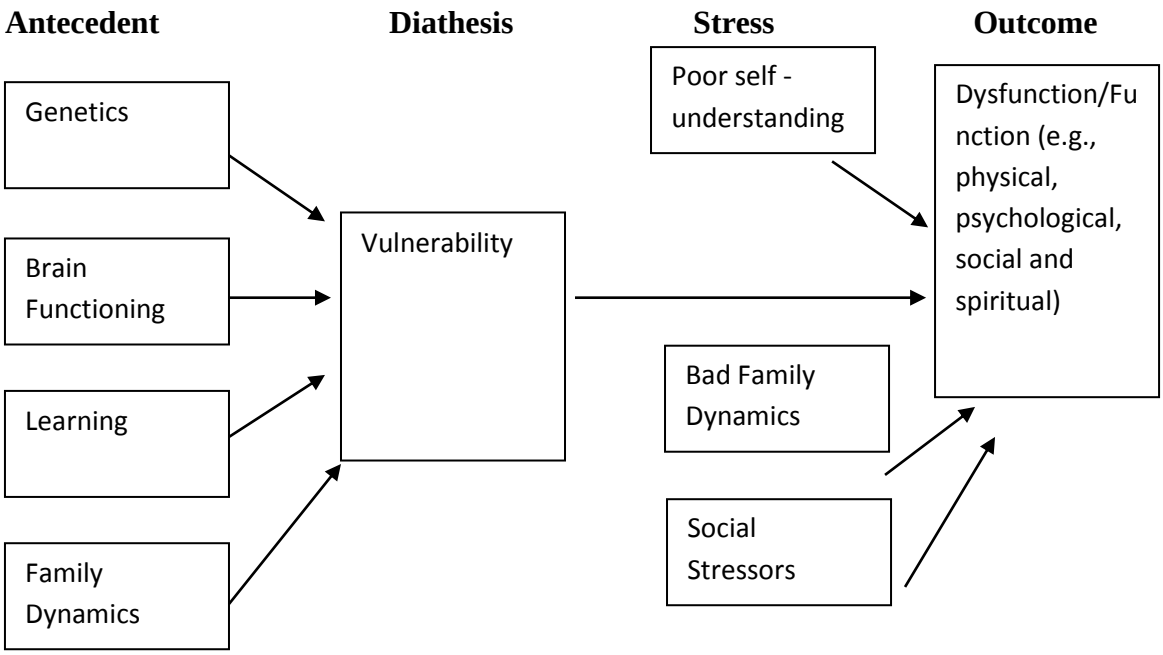


Fig. 1: Diathesis Stress Model

Stress and Medical Problems

Stress is implicated in several life-threatening health conditions, such as heart disease, high blood pressure, hardening of arteries, ulcers, and diabetes (Bernstein & Nash, 2005). The immune system is the body's first line of defence when faced with any form of stress. When the immune system becomes dysfunctional, a person will be more vulnerable to stress-related diseases and other illnesses (Marks et al., 2003). HIV leading to AIDS is a major example of the effect of impaired immune system. Chronic fatigue syndrome, arthritis, diabetes, lupus and other chronic progressive illnesses are also considered autoimmune diseases. Leukocytes (white blood cells) such as the B-cells, T-cells and NK-cells play significant roles in defending the body. The brain also plays a role in the defence of the body from foreign substances through altering the secretion of cortisol and by direct action on the T-cells and B-cells leukocytes (Bernstein & Nash, 2005). Stress suppresses the immune system over-time. Accounting for the impact of stress on immune system is crucial in the management of HIV because exposure to more stressors makes its management very difficult (Bernstein & Nash, 2005).

Stress and Psychological Problems

There are several psychological problems associated with stress: Reactive Attachment Disorder, Disinhibited Social Engagement Disorder, Adjustment Disorder, Posttraumatic Stress Disorder, Acute Stress Disorder, other specified and unspecified stress-related disorders, and burnout (APA, 2013; Njoku, 2010b). Reactive attachment, disinhited social engagement disorders are related to varied degrees of inhibitory behaviours in interpersonal relationships. Adjustment disorders are described as the emergence of emotional and behavioural symptoms due to specific identifiable stressors. Posttraumatic and Acute stress disorders are patterns of severe negative reaction following a traumatic event. The specified and unspecified trauma or stress-related disorders describe trauma and stress-related symptoms that do not sufficiently meet the prescribed criteria for other defined trauma and stress related disorders (APA, 2013). Burnout is an increasingly intense pattern of physical, psychological, and behavioural dysfunction in response to a continuous flow of stressors or chronic stress (Njoku, 2009a). Burnout has been noted to be a condition that is more prevalent among people in service professions. Maslach and Leiter (1996) found a constellation of signs involving low sense of personal accomplishment, a high level of depersonalization, and severe emotional exhaustion. They also found that burnout was work-related and associated with depression. Findings indicate that once an individual leaves the job, the symptoms of burnout resolve (Maslach & Leiter, 1996).

Coping

Another factor that affects health and illness behaviour is coping (Marks, et al., 2003). Coping refers to the efforts, cognitive and behavioural, that a person makes in order to better manage a condition that is stressful and the emotions that accompany the condition. According to Lazarus and Folkman (1984), these cognitive and behavioural efforts constantly change so that the individual is able to manage particular demands that are perceived as stressful. Some coping styles have been found to predict better health while other coping styles predict poorer health outcomes (Epping-Jordan et al., 1999; Njoku et al., 2005; Njoku & Jason, 2004; Njoku, Jason, Torres-Harding, & Corradi, 2004; Osowiecki, & Compas, 1999).

Coping Theories

According to Carver, Scheier, and Weintraub (1989), coping can be grouped into problem-focused and emotion-focused styles. Problem-focused coping styles are geared towards solving the problem or taking actions to effect change in the stressor. Emotion-focused coping styles seek to reduce the emotional distress generated by the stressful event or problem. They propose that while both coping styles exist in individuals, problem-focused coping tends to occur when a person feels able to do something to effect change, and emotion-focused coping tends to occur when it is more difficult for a stressor to be changed (Folkman & Lazarus, 1980).

Lazarus and Folkman (1984) posited the transactional stress and coping paradigm which they conceptualized as cognitive and behavioural efforts geared towards managing events that disrupt an individual's adjustment capacity. They opined that an individual's response to stress and coping is influenced by the cognitive appraisal of a stressful event or the person's perception of his or her relationship with the environment. This description encompasses three components: harm or loss appraisal of the event, appraisal of the situation as controllable or uncontrollable, and personal assessment of coping outcomes and expectation of success in coping with the stressor in the future. Lazarus and Folkman (1984) argue that a conglomeration of these cognitive appraisals impact coping.

A more recent theory of coping, the cognitive processing theory, posits that people's core beliefs or assumptions about themselves and their world can be challenged by their experience of traumatic events (Janoff-Bulman, 1992). In cases of chronic conditions such as cancer and chronic fatigue syndrome/myalgic encephalomyelitis (CFS/ME), with waxing and waning unpredictable symptoms and associated occupational and social losses, persons with these illnesses might challenge their previous assumptions of themselves (Janoff-Bulman, 1992; Njoku et al., 2005).

Coping Styles

Coping styles can be classified in different ways. One type of coping strategy is classified as a disengagement approach, which involves estrangement of self from the feelings associated with the stressor or the stressor itself. Another type, engagement style, involves facing the stressor or the emotions related to the stressor. Engagement style is further categorized as efforts to be in control of the stressor and its associated emotions (primary control) and as efforts to adapt to the source of stress (secondary control)

(Connor-Smith, & Compas, 2002). Primary control styles like seeking emotional support and problem solving have been found to be associated with positive outcomes (Osowiecki et al., 1999). Secondary control styles like distraction and cognitive restructuring have also been linked to better outcomes (Epping-Jordan et al., 1999).

Catanzaro, Wasch, Kirsch, and Mearns (2000) examined how dispositional and situational coping strategies impact coping responses and symptoms. Dispositional coping strategies are those strategies related to factors such as mood and personality. These factors are internal to the individual. Situational coping has to do with factors that are external to the individual, for example the environment. They found that dispositional coping measures were significantly positively correlated with situational coping measures. They also found that a negative mood regulation, a dispositional form of coping, is associated with fewer symptoms of depression and anxiety. Their results support existing studies that suggest that situational coping strategies impact symptoms and dispositional coping strategies. A possible confound presented by assessing situational coping recalled and symptoms concurrently may have affected the coping report in the study. However, the study presents evidence of an interaction between dispositional and situational coping strategies and symptoms.

In summary, coping influences the development and management of health conditions, illnesses and diseases. It also influences a person's worldview and sometimes challenges peoples' belief about the capacity they have to manage their difficulties. In behavioural health, it would be helpful to assess the coping behaviour of individuals presenting with illnesses, health conditions or diseases as well as how their illnesses have impacted their approach to life challenges.

Psychoneuroimmunology

Psychoneuroimmunology is another factor that impacts health, illness, recovery and health maintenance. It focuses on the relationships among psychological factors, the immune system, and physical health. Health problems of particular interest include autoimmune diseases, infectious diseases, cancer, allergy, and wounds. Two major physiological systems, namely, hypothalamic-pituitary-adrenal (HPA) axis and sympathetic nervous system (SNS) modulate the immune function.

When stress activates the hypothalamic-pituitary-adrenal (HPA) axis, certain predictable events occur. First, hypothalamic neurons release corticotrophin-releasing hormone that causes the anterior pituitary to release adrenocorticotropin hormone (ACTH) into circulation. Next, the adrenal cortex responds to ACTH by releasing glucocorticoids. Glucocorticoids are cortisol primarily found in humans. Cortisol has both anti-inflammatory and immunosuppressive effects on the body. The immunological effect of the release of cortisol could be positive as in cases where it decreases overactive immune response to reduce the likelihood of developing inflammatory or autoimmune diseases (Munck & Guyre, 1991; Sternberg, 1997). Other immune modulation functions of cortisol involve TH-1 and TH-2 immune response types. In this case, cortisol suppresses cytokines that are essential for the promotion of a cell-mediated TH-1 immune response and advances the production of cytokines that supports a humoral TH-2 type immune response. This may lead to a shift in the type of immune defence to an antibody-mediated response. Depending on presenting pathogens, this shift may produce beneficial or adverse effects. Cortisol also induces a redistribution of immune cells from the blood to other organs or tissues. This may lead to immune dysregulation (McEwen et al., 1997).

The hypothalamus is also involved in the regulation of the activities of the autonomic nervous system. During a "fight or flight" response, sympathetic nerve terminals release norepinephrine into varied effector organs, such as the adrenal medulla, that releases the catecholamines epinephrine and norepinephrine into the blood stream. The sympathetic nerve terminals also innervate primary and secondary lymphoid tissue and appose lymphocytes and macrophages in contacts that mimic synaptic activity (Felten, Ackerman, Wiegand, & Felten, 1987; Madden, Rajan, Bellinger, Felten, & Felten, 1997). The immune functioning is therefore impacted by catecholamines released from the adrenal medulla or sympathetic nerves. Lymphocytes have adrenergic receptors that induce a change in cytokine production pattern after stimulation. Adrenagic agonists reduce TH-1 cytokine production but do not affect the production of TH-2 cytokines. Catecholamine release increases the quantity of peripheral blood lymphocytes. Natural killer (NK) cells, considered essential in the surveillance and elimination of tumours and cells that have been infected by viruses, seem to be sensitive to catecholamines. NK cells increase in number and cytotoxic ability in response to the presence of catecholamines (Crary et al., 1983; Nomoto, Karasawa, & Uehara, 1994). Other pathways that have been implicated in immune modulation are the opioid system and blastogenic response to

phytohemagglutinin (Dantzer et al., 1998; Keller, Weiss, Schleifer, Miller, & Stein, 1983; Rabin, 1999).

In conclusion, although the immune system is biological, because stress is implicated in its functioning, behaviour management is important for ensuring that the immune system operates optimally. The prevention, treatment and management of illnesses such as autoimmune diseases, infectious diseases, cancer, allergy and wounds to an extent might depend on the ability of the immune system to function well.

Lifestyle

Healthy lifestyle is also considered a determinant of health (National Heart Lung and Blood Institute, 2014). Healthy lifestyle choices refer to things we do to optimize our health. According to the National Heart Lung and Blood Institute (2014), these behavioural changes can help to reduce the risk of developing diseases. These choices include the following: annual health check-ups, maintaining a healthy weight, sticking to a healthy diet, being physically active, drinking minimal or no alcohol, and managing stress well (Njoku, 2015). The major features of psychosocial well-being are cohesion, harmony, and meaningfulness. Fragmentation, disharmony, and meaninglessness are characteristics of illness. Detrimental behaviours include smoking, drinking alcohol, lack of exercise, overworking, sleep deprivation and an unbalanced diet. Cognitive factors associated with dysfunctional health are low self-esteem, unrealistic expectations, and pessimistic thinking patterns. These issues are psychological and could be managed with psychological interventions in order to optimize healthy outcomes (Njoku, 2007b, 2010a, 2014a).

Social Support

Having the resources to deal efficiently with life events and the ever changing social and economic circumstances of life is an essential condition for health. The resources are biological, sociocultural, psychological, economic, and spiritual. The availability and appropriate combination of these resources create the conditions for well-being. Their lack or relative availability can lead to diseases and illnesses (Mark, Sykes & McKinley, 2003; Schwarzer & Schulz, 2003). In additional to individual efforts to develop adequate social support, social support can be accessed from group interventions such as group therapy, family therapy and other systemic approaches to psychological treatment for the

purpose of managing illnesses, diseases and health conditions (Njoku, 2007b, 2010a, 2014a).

Conditions, Diseases, Disorders and Behavioural Health

As presented earlier, most physical, mental, and social conditions, diseases, and disorders are best explained by a diathesis comprising biological, psychological, and social perspectives. For this reason, behavioural or psychological techniques, strategies, and therapies could be applied to these illnesses as adjunctive treatment or primary treatment option, as well as for management, prevention, and health promotion purposes (Njoku, 2000b, 2015). This section explores some physical illnesses and mental disorders and briefly describes social health and spiritual well-being.

Physical Conditions, Diseases, and Illnesses

What is Physical Health?

According to OptumHealth (2015), Optimal physical health is defined as when the body's functioning is as designed by nature to function. It requires healthy eating, exercising, knowing and recognizing the symptoms of disease, taking necessary precautions to prevent injuries, getting essential health check-ups, maintaining responsible drinking behaviour and appropriate weight (Insel & Roth, 2000). WHO (2015) categorized the determinants of health as social, economic, and physical environment, and personal characteristics and behavioural factors.

What is Physical Illness?

Physical illness is defined as unhealthy state of the body (Insel & Roth, 2000). Illness is the subjective experience of feeling unwell and disease is understood to be the pathological process that might produce symptoms (Insel & Roth, 2000). This section discusses the prevalence, risk factors, available resources and a sample of physical conditions, diseases and illnesses.

Prevalence of Illnesses, Diseases and Conditions, and their Risk Factors in Nigeria

Studies have examined the prevalence of varied illnesses, diseases and conditions in Nigeria. Njoku (2012c) examined the prevalence of high blood pressure, diabetes, and obesity in Enugu rural setting and found a point prevalence of 30.86%, 8.48% and

14.54% respectively for high blood pressure, diabetes and obesity. Another study conducted by Akinjinmi, Adeyooye, Akingbade & Okerentuga (2014) found a 14.8% rate for diabetes in an Abeokuta, Ogun State sample. International Diabetes Foundation (2012) data indicate that Nigeria has the largest number of people (3.0 million) with diabetes in Africa with South Africa coming second (1.9 million persons), Ethiopia third (1.4 million persons) and Kenya fourth (769,000 persons). Ilo, Amadi, Nwankwo and Ugwu (2011) found a prevalence rate of 6.0% for obesity in their study. A retrospective study of rheumatoid arthritis reported a prevalence rate of 12.3% (Adelowo, Ojo, Oduenyi, & Okwara, 2010), and the 2008 National HIV sero-prevalence reported a rate of 4.6% for HIV in Nigeria. WHO's 2014 data indicates a prevalence rate of 28.7% for malaria. Risk factors identified in all these studies included sedentary lifestyle, obesity, raised blood pressure, gender and substance abuse (Adelowo et al., 2010; Akinjinmi et al., 2014; Njoku, 2012c; WHO, 2014).

Etiology of Physical Illness

Although previous physical illness perspective centered on the biological model, recent advances in research have shown that a more comprehensive biopsychosocial model provides a better picture of physical conditions, diseases and illnesses. The diathesis stress model encompasses this integrative approach (Burke et al., 2004). As discussed previously, this model accounts for genetics, psychological and social factors (Njoku 2010b; 2011b).

Examples of Physical Illnesses, Conditions and Diseases

Asthma

Asthma is a chronic lung disease marked by airway obstruction and inflammation. Individuals who have asthma experience recurring wheezing, coughing, tightness of chest, and shortness of breath (National Heart Lung and Blood Institute, 2014). The role of inflammation in asthma has treatment implications, especially for psychosocial pathways of asthma. Asthma episodes may be precipitated by excessive carbon dioxide (hypercapnia) and lack of oxygen (hypoxia), which may account for the high comorbity rate of asthma and anxiety disorders. According to National Institute of Allergy and Infectious Diseases (NIAID, 2014), stress and anxiety tend to worsen asthma conditions. Asthma attacks occur more often and are more difficult to control when asthma is comorbid with anxiety and stress.

Stress and anxiety can trigger the release of chemicals like histamine and leukotrienes, which in turn might trigger the constriction of the airway. In addition, given that concentration and memory difficulties are usually associated with periods of anxiety and stress (APA, 2013), individuals with asthma might forget their asthma medication, which might make it more likely for asthma attacks to occur. Further, as previously indicated, stress impacts the immune system and stress-hormones make the body more vulnerable to infections. Infections trigger asthma (McEwen et al., 1997, NIAID, 2014).

Asthma and allergies also co-occur. Research indicates that 60% of individuals who have asthma also have allergies (Ford, 1983). It has been suggested that the development of asthma and allergies occur during the childhood period, indicating that a genetic factor might be involved. However, some people with a genetic predisposition for asthma do not develop the disease. This means that environmental factors, such as family stress, might play a role in early childhood development of asthma and allergies (Mrazek, Klinnert, Mrazek, & Macey, 1991; Wright, Rodriguez, & Cohen, 1998; Wright, Weiss, & Cohen, 1996). Therefore, psychological interventions as a complement to medication are important for reducing exacerbation of the asthma.

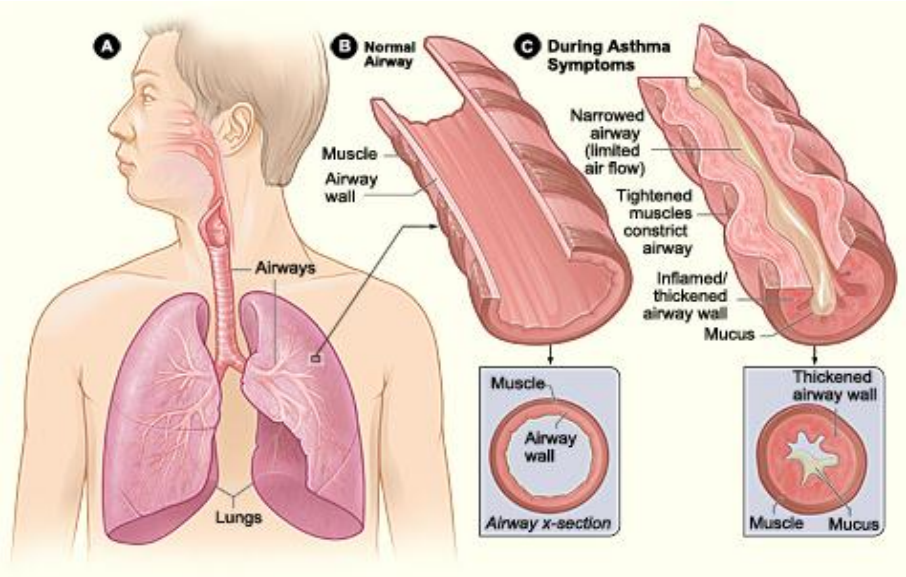


Fig. 2: Airway Obstruction in Asthma (National Heart, Lung and Blood Institute, 2014. Retrieved from http://www.nhlbi.nih.gov/health/health-topics/topics/asthma).

Figure 2A shows the location of the lungs and airways in the body. Figure 2B shows a cross-section of a normal airway. Figure 2C shows a cross-section of an airway during asthma symptoms.

There is evidence for the successful implementation of classical and operant conditioning for treatment and management of asthma (Rietveld, van Beest, & Everaerd, 2000). In addition, cognitive and perceptual processes have been examined and found relevant to the treatment of asthma (Isenberg, Lehrer, & Hochron, 1992). Other psychological interventions include self-management training, psychoanalytic methods involving managing difficulty with labelling and expressing feelings and managing repressive-defensive coping behaviours, and family systems approaches (Dirks, Robinson, & Dirks, 1981; Hermanns, Florin, Dietrich, Rieger, & Hahlweg, 1989; Jamner, Schwartz, & Leigh, 1988; Nemiah, 1996). Asthma education, psychotherapy, emotional expression exercises, relaxation training, biofeedback techniques (e.g., EMG biofeedback and respiratory sinus arrhythmia biofeedback), and self-regulation approaches involving yoga and hypnosis have also been implemented for the treatment and management of asthma (Jain et al., 1991; Kohen, 1995; Kotses et al., 1995; Lehrer, Carr, et al., 1997; Lehrer, Smetankin, & Potapova, 2000; National Heart Lung and Blood Institute, 1997; Peper et al., 1992; Smyth, Stone, Hurewitz, & Kaell, 1999; Sommaruga et al., 1995; Vazquez & Buceta, 1993; Wilson, et al., 1996).

Obesity

Obesity is the excessive accumulation of body fat in such a manner that it constitutes adverse health consequences (Corsica, & Perri, 2003). Both genetics and environmental factors have been implicated in the development of obesity (Corsica, & Perri, 2003). Currently, classification of obesity is based on the body mass index (BMI). Individuals with a BMI of 30 to 39.9 are categorized as being obese and BMIs over 40 are considered extreme obesity (Njoku, 2012c). See Table 1 for World Health Organization's classification system.

Category	**BMI (kg/m^2)**	**Disease Risk**
Underweight	<18.5	Low*
Normal weight	18.5-24.9	Average
Overweight	≥ 25.0	
Pre-obese	25.0 – 29.9	Increased
Obese Class I	30.0 – 34.9	Moderate
Obese Class II	35.0 – 39.9	Severe
Obese Class III	≥ 40.0	Very severe

Table 1: World Health Organization Classification of Weight and Risks

* Associated with increased clinical problems such as anorexia nervosa

BMI is calculated by dividing weight in kilogrammes by the square of heights in metres (kg/m^2). See Table 2a and 2b for charts of BMI corresponding to varied body weights and heights. Although the BMI is an acceptable approximation of body fat, it does not discriminate between fat weight and muscle weight (Corsica, & Perri, 2003).

BMI	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**
Height (inches)	**Body Weight (Pounds)**																	
58	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167	172
59	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173	178
60	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179	184
61	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185	190
62	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191	196
63	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197	203
64	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204	209
65	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210	216
66	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216	223
67	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223	230

68	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230	236
69	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236	243
70	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243	250
71	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250	257
72	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258	265
73	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265	272
74	148	155	163	171	179	186	194	202	210	218	225	233	241	249	256	264	272	280
75	152	160	168	176	184	192	200	208	216	224	232	240	248	256	264	272	279	287
76	156	164	172	180	189	197	205	213	221	230	238	246	254	263	271	279	287	295

Table 2a: Body Mass Index Table I (National Heart Lung and Blood Institute, 2014).

BMI	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**
Height (inches)	**Body Weight (Pounds)**																	

58	177	181	186	191	196	201	205	210	215	220	224	229	234	239	244	248	253	258
59	183	188	193	198	203	208	212	217	222	227	232	237	242	247	252	257	262	267
60	189	194	199	204	209	215	220	225	230	235	240	245	250	255	261	266	271	276
61	195	201	206	211	217	222	227	232	238	243	248	254	259	264	269	275	280	285
62	202	207	213	218	224	229	235	240	246	251	256	262	267	273	278	284	209	295
63	208	214	220	225	231	237	242	248	254	259	265	270	278	282	287	293	299	304
64	215	221	227	232	238	244	250	256	262	267	273	279	285	291	296	302	308	314
65	222	228	234	240	246	252	258	264	270	276	282	288	294	300	306	312	318	324
66	229	235	241	247	253	260	266	272	278	284	291	297	303	309	315	322	328	334
67	236	242	249	255	261	268	274	280	287	293	299	306	312	319	325	331	338	344
68	243	249	256	262	269	276	282	289	295	302	308	315	322	328	335	341	348	354
69	250	257	263	270	277	284	291	297	304	311	318	324	331	338	345	351	358	365

70	257	264	271	278	285	292	299	306	313	320	327	334	341	348	355	362	369	376
71	265	272	279	286	293	301	308	315	322	329	338	343	351	358	365	372	379	386
72	272	279	287	294	302	309	316	324	331	338	346	353	361	368	375	383	390	397
73	280	288	295	302	310	318	325	333	340	348	355	363	371	378	386	393	401	408
74	287	295	303	311	319	326	334	342	350	358	365	373	381	389	396	404	412	420
75	295	303	311	319	327	335	343	351	359	367	375	383	391	399	407	415	423	431
76	304	312	320	328	336	344	353	361	369	377	385	394	402	410	418	426	435	443

Table 2b: Body Mass Index Table II (National Heart Lung and Blood Institute, 2014).

In terms of prevalence of obesity, WHO indicated that globally, in 2008, about 12% of adults aged 20 and above had obesity (2014). Regarding morbidity, obesity is associated with numerous physical illnesses, such as cancers (breast, colon, endometrium, and prostate), coronary heart disease (CHD), dyslipidemia, gallbladder disease, hypertension, menstrual problems, osteoarthritis, respiratory diseases, sleep apnea, stroke, and type 2 diabetes mellitus (Corsica, & Perri, 2003; Njoku, 2012c). Obesity also impacts mortality. Persons with BMI of 30 and above evidence 50% to 100% increases in mortality rates for all causes of mortality when compared to people who have normal range BMI (Troiano, Frongillo, Sobal, & Levitsky, 1996).

In addition to physical illnesses, obesity is associated with adverse psychosocial consequences. These include social discrimination, psychological distress, depressive disorders, body image-related disorders and eating disorders particularly binge eating (Carpenter, Hasin, Allison, & Faith, 2000; Fitsgibbon, Stolley, & Kirschenbaum, 1993; French, Jeffery, Sherwood, & Neumark-Sztainer, 1999; Spitzer et al., 1993; Stunkard & Sobal, 1995).

In terms of treatment and management of obesity, biological interventions include pharmacotherapy and surgery. Other methods of treatment and management involve lifestyle adjustment approaches. Behavioural treatments appear to yield good results for lifestyle adjustments (Wadden & Foster, 1992).

Arthritis and Musculoskeletal Conditions

Arthritis and musculoskeletal conditions are associated with varied levels of disability (Lawrence et al., 1998). These conditions include rheumatoid arthritis, osteoarthritis, and fibromyalgia (Burke, et al., 2003). Rheumatoid arthritis is an autoimmune disease marked by systemic attacks of the immune cells on the synovial tissue lining the joints of the body resulting in chronic inflammation (Burke et al., 2003). This leads to the saturation of the synovial lining of affected joints with cytokines, lymphocytes and other pro-inflammatory cells. The inflammatory responses are sustained by the activities of these cells. As the condition progresses, the inflammation erodes the surrounding cartilage, bone and ligaments and leads to loss of function in the affected joint (Harris, 1993). The symptoms of rheumatoid arthritis are joint swelling, tenderness, pain, fatigue and morning stiffness (Harris, 1993).

Osteoarthritis is marked by the destruction of the cartilage and erosions of the bone. The availability of enzymes that promote cartilage repair is less than those that increase cartilage destruction. This inequality then leads to reduced overall cartilage in affected joints which gradually brings about bone to bone contact. At this point, movement becomes difficult and is associated with pains in the joints that are affected. Symptoms of osteoarthritis are pain, limited range of motion, inflammation and morning stiffness (Kraus, 1997). Further progression of the disease might lead to deformity of the joints (Mankin, 1993). Unlike rheumatoid arthritis, joint swelling and tenderness in osteoarthritis are confined to specific affected joints. The hip, knee, spinal column joints and other joints that bear the body's weight are mostly affected by

osteoarthritis (Kraus, 1997). Onset of the condition is usually insidious but then over the years progresses slowly (Burke et al., 2003).

Fibromyalgia is a chronic pain condition with an unknown cause and prognosis. Whereas there is a physical evidence of sources of pain in rheumatoid arthritis and osteoarthritis, the site of the musculoskeletal pain in fibromyalgia (FM) are usually unidentifiable (Burke et al., 2003). Some studies posit that FM occurs as a function of dysregulation of the neuro-hormonal and pain-transmitting chemicals in the central nervous system (Bennett, 1999; Russell et al., 1994). FM is marked by widespread pain in soft tissue, tender points, unrefreshing sleep, fatigue, stiffness and depression (Burke et al., 2003).

Burke et al. (2003) proposed the diathesis model for understanding the etiology of these conditions. The diathesis model as presented earlier encompasses biological, psychological and social factors. The biological factors include genetic factors, immune dysregulation and chemical imbalance. The psychological vulnerabilities comprise neurotic personality, self-efficacy, self-control, depression, and somatization. The social factors include social support and stigmatization. This diathesis model of understanding these conditions suggests that psychosocial methods of treatment and management might be helpful to individuals presenting with rheumatoid arthritis, osteoarthritis and fibromyalgia. Psychological interventions that have shown evidence of treatment efficacy for these conditions include cognitive-behavioural therapy, graded exercise and cognitive-based psychoeducation (Nicassio & Greenberg, 2001).

Chronic Fatigue Syndrome/Myalgic Encephalomyelitis (CFS/ME)

According to the Fukuda et al. (1994) definition, CFS/ME is marked by the presence of persistent or relapsing chronic fatigue that has been present at least 6 months with new or definite onset. Rest does not significantly alleviate the condition and it reduces premorbid levels of occupational, social, educational and personal activities. CFS/ME could be accompanied by memory and concentration impairment, sore throat, tender cervical or axillary lymph nodes, muscle pain, multiple joint pain, headaches, unrefreshing sleep, and post exertional malaise that lasts more than 24 hrs. Concurrent occurrence of four or more of these eight symptoms after onset of the illness, which has lasted for at least six months are required for a diagnosis of CFS/ME. Further, in order to be diagnosed with CFS/ME, medical, psychiatric or alcohol and drug related conditions (within two years before onset or after) that may plausibly explain the fatigue must be ruled out (Fukuda et al., 1994).

The Canadian case definition for Myalgic Encephalomyelitis (ME) indicate that a diagnosis of this condition should be made when there is a presence of fatigue, post-exertional malaise, sleep dysfunction, pain, two or more neurological cognitive symptoms, and at least one symptom from two of the following areas; autonomic, neuroendocrine and immune dysfunctions (Carruthers et al., 2003*).* ME is an acronym used mostly in Britain and Canada and is roughly the equivalent of the term, CFS. In addition, the illness must have a definite onset, have persisted for 6 months or

more (3 months timeline for children) with symptoms beginning or exhibiting significant alteration after illness onset. Carruthers et al. (2003) specified that a diagnosis of ME can be made in the absence of pain or sleep dysfunction if the illness presented with an infectious type onset. CFS/ME continues to struggle with classification issues (Jason, Boulton, Porter, Jessen, Njoku & Friedberg, 2010). Epidemiology of CFS/ME from community-based samples indicates a prevalence rate of 0.68% from a Nigerian study (Njoku, Jason and Torres-Harding, 2007), 0.42 from one US study (Jason et al., 1999) and 0.24% from another US study (Reyes et al., 2003). Hospital-based samples produced higher prevalence rates (Jason & Njoku, 2007; Jason, Torres-Harding, & Njoku, 2005-2006, 2007a).

In terms of etiology, two biological bases of the illness have been noted in studies (Jason & Taylor, 2003). The first one is the over activation of the immune system indicated in elevated T lymphocytes (cytotoxic T cells and increased circulating cytokins), reduced cellular function, depressed natural killer cell cytotoxity and deficiencies of immunoglobulin (Evengard, Schacterle & Komaroff, 1999; Patarca, Fletcher & Klimas, 1993; Partaca-Montero, Mark, Fletcher & Klimas, 2000). The second one is the 2`-5` A antiviral pathway of CFS/ME which is associated with the production of RNase-L responsible for degrading viral RNA. RNase-L is elevated in persons with CFS/ME (De Meirleir et al., 2000).

Persons with CFS/ME suffer from stigmatization associated with the nomenclature and lack of clear etiology and prognosis (Jason & Taylor, 2003). Pharmacological and alternative treatment methods have been applied to this illness. Due to the multifaceted nature of the illness and its symptoms, nonpharmacological interventions have been found to be helpful to individuals with this illness. For example, Jason, Torres-Harding, Friedberg, Corradi, Njoku, et al., (2007) found that cognitive-behavioural therapy could be used as adjunctive to pharmacological treatment for this illness. Cognitive coping skills therapy and envelope theory have been implemented for treatment and management of CFS/ME (Friedberg & Krupp, 1994; Jason, Melrose, et al., 1999; Mauro, Njoku, Jason, Klipp, Ystesund, & Bailey, 2006).

Cardiovascular Diseases

Cardiovascular diseases such as coronary heart disease, high blood pressure and stroke are among chronic diseases of major concern to humanity. It is one of the leading causes of mortality in most countries (WHO, 2014). WHO estimated that 17.3 million people died from cardiovascular diseases in 2008 and over 80% of these deaths occurred in low and middle income countries. It is estimated that more than 23.3 million persons will die from cardiovascular diseases annually by the year 2030 (WHO, 2014). The risk factors for mortality due to cardiovascular diseases include high blood pressure, tobacco, high blood glucose, lack of physical activity, overweight and obesity, high cholesterol, unsafe sex, alcohol use, childhood underweight and indoor smoke from solid fuels (WHO, 2014).

Coronary Heart Disease

Coronary heart disease occurs when the coronary arteries that supply blood to the cardiac or myocardial tissue become thinner or narrow due to fatty plaque deposits. This narrowing of the coronary artery as a result of fatty plaque deposits is called atherosclerosis. This condition then leads to myocardial ischemia, which is a lack of adequate supply of blood to cardiac tissue. Myocardial infarction (a.k.a. heart attack) happens as a result of stoppage of blood flow to cardiac tissue due to total blockage of the coronary artery by plaque deposits. In both myocardial ischemia and infarction, the heart's electrical system is vulnerable to disturbances that can become irregular cardiac rhythms (arrhythmia). Many arrhythmias are life-threatening and might lead to sudden cardiac death (Callahan, Andrews & Krantz, 2003).

High Blood Pressure

The normal Blood Pressure (also known as BP) is between 110-120mmHg systolic, and 70-80 mmHg diastolic. Blood pressure that consists systolic pressure greater or equal to 140 mm Hg and diastolic pressure greater than or equal to 90 mm Hg in adults is considered high (Callahan, Andrews & Krantz, 2003). Therefore individuals presenting with these levels of blood pressure are said to have high blood pressure (HBP) or hypertension. High blood pressure increases the risk of coronary artery disease, which might lead to a heart attack and stroke (WHO, 2014). Both adults and children can have high blood pressure. Individuals 35years and older, people of African descent, women who are taking birth control medications, and persons who have high cholesterol and those who drink alcohol heavily are at greater risk for high blood pressure (Njoku, 2012c). Also, individuals who have certain illnesses such as diabetes mellitus, and kidney diseases are more vulnerable to high blood pressure. High blood pressure runs in families (Njoku, 2012a). Therefore, individuals with familial predisposition for high blood pressure are at greater risk for developing the illness.

Many individuals often live with high blood pressure for many years without knowing it. This is because high blood pressure does not have particular symptoms that can alert a person to its presence (WHO, 2014). The only way to ascertain the presence of high blood pressure is to get checked for it. A sphygmomanometer is used to measure blood pressure. Blood pressure can be checked at the physician's office, pharmacist, and community health centers or in one's home. With new technologies that have introduced digital sphygmomanometer, it is now possible for people to monitor their blood pressure as needed (Njoku, 2007b). Even individuals with normal pressure would benefit from checking their blood pressure regularly at least three times a year. Those presenting with any of the risk factors listed above should check theirs' monthly or as prescribed by their physicians. It is a quick process that does not take more than five minutes but saves lives. See Table 3 for additional behavioural recommendations.

Behavioural Health Recommendations for HBP	
Eat balanced or healthy meal	Eat meals that are low in saturated fat, salt and cholesterol
If overweight, lose weight	Be physically active
Limit alcohol intake	Monitor blood pressure as prescribed
Check cholesterol levels	Take blood pressure medicine as prescribed

Table 3: Behavioural Health Recommendations for HBP

Stroke

Stroke occurs when blood flow to the brain stops. The brain cells begin to die within minutes of this stoppage. There are two types of stroke, namely, ischemic and hemorrhagic stroke. Ischemic stroke occurs due to the stoppage of blood flow by a blood clot that blocks a brain blood vessel. When a blood vessel breaks or bleeds into the brain, the result is hemorrhagic stroke (National Institute of Neurological Disorders and Stroke, 2015). The symptoms of stroke include sudden numbness or weakness, sudden confusion, difficulty speaking or comprehending speech, sudden sight difficulty either in one or both eyes, sudden walking difficulties, dizziness, balance or coordination difficulties and sudden severe headache (NINDS, 2015).

Treatment/Prevention of Cardio Vascular Diseases

No cure has been identified for cardiovascular diseases. The focus is on prevention and control. To prevent or delay onset of cardiovascular diseases such as high blood pressure, a healthy lifestyle is important (Njoku, 2007b). Both nutrition and exercise are essential aspects of managing vulnerability and controlling the blood pressure. It is necessary to monitor blood pressure regularly and work with health care professionals including physicians, nurses, mental health professionals and dieticians or nutritionists. Behavioural or lifestyle changes such as losing weight if overweight, and changing to a healthy diet are essential (Callaghan, Andrews & Krantz, 2004). Low-salt diet is recommended for individuals with high blood pressure, excessive alcohol usage is discouraged and regular physical exercise is highly recommended. If blood pressure is above certain levels, antihypertensive medications might need to be prescribed by doctors to control the blood pressure (Njoku, 2007b, 2012c).

Diabetes Mellitus

Diabetes mellitus is a chronic condition, affecting individuals of all ages, ethnic groups and gender (Landel-Graham, Yount & Rudnicki, 2004; Njoku, 2007b, 2012c). Diabetes is associated with high blood glucose and insulin dysregulation. The hormone insulin produced by the adrenal glands, is responsible for regulating blood glucose levels (Landel-Graham et al., 2004). Glucose is needed for the production of energy in the body essential for growth, movement and repair of

damaged tissues. When the insulin regulatory system becomes dysfunctional, it impacts the blood glucose level. Long-term high levels of glucose can lead to adverse effects like blindness, stroke, kidney diseases, heart diseases and loss of feelings in the limbs and loss of limbs (Njoku, 2007b, 2012c).

Four types of diabetes include: Type 1, Type 2, and gestational diabetes and other specific types (Expert Committee on the Diagnosis and Classification of Diabetes Mellitus, 2000, Njoku, 2007b). Individuals with Type 1 diabetes are not able to produce insulin in their body and therefore need daily insulin intake. This type is commonly diagnosed in childhood or early adulthood. People with Type 2 diabetes are able to produce insulin but either do not have enough or the body is resistant to the insulin produced. Gestational diabetes occurs in women during pregnancy. Women who have experienced gestational diabetes are more likely to develop Type 2 diabetes later in life (Akinjinmi et al., 2014). Many individuals with Type 2 diabetes are not aware that they have the illness (Njoku, 2012c).

Potential ways to know one's propensity for diabetes is to pay close attention for signs and symptoms of the illness, explore risk factors and check blood glucose level especially if there are some familial risk factors (Landel-Graham et al., 2004). See Table 4 for signs and symptoms and Table 5 for risk factors. Type 1 diabetes tends to have sudden onset with its symptoms developing over a short period of time. Type 2 diabetes develops more slowly.

Table 4: Signs and Symptoms of Type 1 and 2 Diabetes

Feeling very hungry or tired
Frequent urination
Frequently being very thirsty
Losing or gaining weight without trying
Dry itchy skin
Blurry eyesight
Slow healing sores
Tingling feelings in your feet
Loosing feelings in your feet

The care of persons with diabetes is usually individualized. Some people need monitoring of the glucose level frequently while others require minimal glucose testing. The American Diabetes Association (ADA, 2005) has recommendations for both glucose testing and dietary needs. ADA recommends that persons with Type 1 diabetes monitor their glucose three times or more, and those with gestational diabetes, two times daily. There is no specific recommendation for those with Type 2 diabetes. However, it is important for people with Type 2 diabetes to develop a schedule of blood glucose monitoring with their healthcare team. Individuals can self-monitor their blood glucose. Typically, it is best to test blood glucose before meals, 2 hour later, at bedtime and at or around

Table 5: Risk Factors for Diabetes
Familial factors (e.g., parents or siblings have diabetes)
High blood pressure
History of gestational diabetes Overweight/Obesity
Inactive lifestyle
Age over 45

3 a.m. Also testing is recommended anytime a person experiences the symptoms of the disease. The care of a person with diabetes requires dietary planning (ADA, 2005). The following are recommended by ADA:

- ❖ Lots of vegetables and fruits
- ❖ Whole grain foods Dried beans and lentils
- ❖ Fish at least 2-3 times a week
- ❖ Lean meat (remove fatty skin from chicken and turkey)
- ❖ Non-fat dairy products
- ❖ Water and Calorie-free diet drinks
- ❖ Liquid oils for cooking (less use is better)
- ❖ Reduce intake of high-calorie snacks and desserts
- ❖ Watch portion sizes of even these healthy foods
- ❖ Avoid saturated fatty-acid containing food

A combination of healthy diet, exercise (walking, swimming, running etc), blood glucose monitoring and taking insulin as prescribed (if necessary) are ways of managing diabetes.

Headache

Headache is considered a public health issue because it has a lifetime prevalence of 90% (Andrasik & Walch, 2004). Most headaches are benign but about 3% of people who have headaches experience the life-threatening type (Evans, 2001). There are thirteen classes of headaches identified by the International Headache Society Headache Classification Committee (1988). They are as follows:

- Migraine
- Tension-type headache
- Cluster headache and chronic paroxysmal hemicrania
- Miscellaneous headaches unassociated with structural lesion

- Headaches associated with head trauma
- Headaches associated with vascular disorders
- Headaches associated with nonvascular intracranial disorder
- Headaches associated with substances or their withdrawal
- Headaches associated with noncephalic infection
- Headaches associated with metabolic disorder
- Headaches or facial pain associated with disorder of cranium, neck, eyes, ears, nose, sinuses, teeth, mouth, or other facial or cranial structures
- Cranial neuralgias, nerve trunk pain, and deafferentation pain
- Headaches nonclassifiable

  Sourced from the International Headaches Society Headache Classification Committee (1988), p. 13-17.

Some of these headache types have subtypes. For example, cluster headache has a cluster headache periodicity undetermined, episodic cluster headache and chronic cluster headache (International Headaches Society Headache Classification Committee, 1988). In addition to pharmacological treatments, nonpharmacological treatments such as behavioural treatments, cognitive therapy and relaxation therapy are indicated for headache (Andrasik & Walch, 2004).

HIV/AIDS

The human immunodeficiency virus (HIV) is a virus, which kills the T-helper cells (CD4). These cells help the body fight off common infections and diseases (Myers, 2007). When HIV has destroyed the body's immune system, the result is a disease called Acquired Immune Deficiency Syndrome (AIDS). When the immune system fails, the body is unable to fight off illness so that an infected person can become sick and can die (Myers, 2007).

Anyone can get HIV and it can be passed from person to person through unprotected sexual activities, sharing of needles with persons who are infected, and from mother to a baby invitro or through breastfeeding if the mother is infected. HIV can be detected through blood test. It is strongly recommended that individuals receive counselling before and after testing (Njoku, 2007b; UNAIDS, 2007, 2008).

Table 6: How a person can get HIV

The likelihood of testing positive for HIV is higher for persons who have shared needles/syringes and injection equipment with or had unprotected sexual activities with someone who has HIV and for those who have ever had STDs such as gonorrhea and Chlamydia or have received blood transfusion or blood clotting factor (WHO, 2014). Table 6 summarizes these risks.

1. Unprotected sex with someone who has HIV – Fluid (blood, semen, vaginal secretion) from a person who has HIV can enter another person's body through cuts and sores on the skin, the lining of the vagina, penis, and rectum or the mouth
2. Sharing needle/syringe with someone who is infected by HIV – a person can get HIV by sharing needles/syringe and injection drug equipment with a person who has HIV
3. Invitro/Breastfeeding – a baby can get HIV during pregnancy, birth or breastfeeding if the baby's mother has HIV

A way to avoid getting HIV and other sexually transmitted diseases (STDs) is to abstain from sexual intercourse or maintain a long-term monogamous relationship with a partner who has been tested and found free of HIV and STDs. In addition, avoidance of the sharing injection equipments, and needles/ syringes, used to inject drugs, steroids, vitamins, or for tattooing or body piercing is recommended. Due to the potentials for blood contact it is necessary to avoid sharing razors and or toothbrushes (WHO, 2014).

Although HIV is a serious illness, many people with HIV and AIDS live long lives. With adequate medical care, balanced nutrition, regular exercise and social support, a person with HIV can live long and continue to contribute to the society positively (WHO, 2014).

Irritable Bowel Syndrome

Irritable bowel syndrome (IBS) is a gastroenterological functional disorder. It was previously called spastic colon. According to Maunder (1998), functional gastroenterological disorders are recurring clusters of symptoms that have no structural or biological basis. IBS is a classification given when other gastrointestinal diseases have been excluded. Symptoms of IBS include abdominal pain, disordered bowel habit, bloating, belching, borborygmi and flatulence (Blanchard & Keefer, 2004).

Although the etiology of IBS is still unclear, psychological treatments such as brief psychodynamic psychotherapy, hypnotherapy and cognitive-behavioural interventions have been used successfully to manage IBS (Greene & Blanchard, 1994; Svedlund, Sjodin, Ottosson & Dotevall, 1983; Whorwell, Prior & Faragher, 1984).

Malaria

Malaria is a mosquito-borne disease caused by a parasite. It is estimated that about 584,000 persons die of malaria each year with 54% of them occurring in African countries (WHO, 2014). Populations in regions that have high levels of poverty are at greatest risk, often receive the worst care and tend to have catastrophic consequences from the illness (WHO, 2014). Children are at a greater risk of death due to malaria. Although the mortality rates among African children have been ameliorated by nearly 58% since the year 2000, children continue to experience adverse consequences of malaria as some of them develop learning impairment or brain damage due to malaria (WHO, 2014).

There are four types of malaria parasites (plasmodium) that affects humans, namely, *plasmodium malariae, plasmodium ovale, plasmodium vivax and plasmodium falciparum*. *Plasmodium falciparum* is considered the most deadly type of malaria and it accounts for the high mortality rate in sub Sahara regions of Africa (WHO, 2014).

When the malaria parasite enters the human body, it undergoes several changes and allows the plasmodia to attack the immune system and infect the liver and red blood cells. The plasmodia also develop into a form that facilitates transmission of the parasite to another person through mosquito bites. It takes approximately 10 to 15 days for symptoms of malaria to appear after the parasite enters the human body. However, in persons who do not have malaria immunity, the symptoms can appear within 7 days (WHO, 2014).

The symptoms of malaria which include fever, chills, sweats, headaches, muscle pains, nausea and vomiting are often unspecific and are also found in other diseases like the common cold, viral infections and CFS/ME (WHO, 2014). Likewise, the physical symptoms such as high temperature, perspiration and tiredness are usually not specific. In severe malaria, symptoms of confusion, coma, neurological focal signs, severe anemia, and respiratory difficulties could emerge. The infection progresses rapidly to life-threatening stages in the absence of appropriate treatments. Symptoms of psychosis are present in cerebral malaria (WHO, 2014). See Table 7 for the symptoms of malaria.

Common symptoms		
Fever	Headache	Nausea/vomiting
Fatigue	Muscle pain	Chills
Sweating	Diarrhea	Anemia
Other Rare Symptoms		
Enlarged spleen	Brain impairment	Impaired spinal cord
Seizures/Convulsions	Loss of consciousness	

Table 7: Symptoms of Malaria

Malaria Control and Treatment

No single solution has been found for the prevention and treatment of malaria. The goal of malaria control in malaria-endemic countries is the reduction of the health impacts of malaria on the population (WHO, 2014). Malaria is managed through the following interventions:

- Treatment of individuals with malaria (tertiary prevention)
- Prevention of infection through vector control (primary and secondary prevention)
- Prevention of disease by administration of anti-malarial drugs to infected individuals (tertiary prevention)

Diagnosis and treatment of people suffering from malaria involve early recognition treatment of malaria. WHO (2014) recommends that anyone diagnosed with malaria should be treated within 24 hours of the onset of symptoms.

Prevention of malaria infection is accomplished when malaria-carrying *Anopheles* mosquitoes are prevented from biting humans through the use of insecticide-treated nets and other preventive measures such as maintaining a clean environment, destroying larval breeding sites, spraying insecticide inside homes, and preventive drug therapies. See Table 8.

Prevention/Treatment of Malaria	
Maintain clean environment	
Avoid pool of water outside the house to prevent breeding of mosquitoes	
Use insecticides-treated bed nets	Add protective mosquito nets to windows/doors
Obtain intermittent malaria drug therapy	
Consult health care professionals when infected with malaria	
Complete drug dosage as prescribed	Maintain a healthy diet

Table 8: Prevention/Treatment of Malaria

Pharmacological treatment of malaria is dependent on the type of parasite causing the illness. It also depends on the region where the infection was acquired, the clinical status of the person

infected, and whether the person is pregnant or not. According to WHO (2014), the best pharmacological treatment currently available for malaria due to *plasmodium falciparum* is a combination therapy derived from artemisinin.

Oncology

Cancer describes a variety of tumors characterized by uncontrollable growth and buildup of abnormal cells (Nezu, Nezu, Felgoise & Zwick, 2003). There are currently five major types of cancer, namely, carcinoma, sarcoma, myeloma, lymphoma, and leukemia. Carcinoma is a cancerous tumor or malignant neoplasm originating in the surface of the organs of the body. A cancerous tumor with origin in the bone, cartilage, fatty tissue, fibrous connective tissue or muscle describes sarcoma type. In the myeloma type, the malignant neoplasm originates from the plasma cells of the bone marrow. Lymphoma as the name suggests is a type of cancerous tumor with its origin in the lymph. Leukemia originates in the blood-forming tissues of the body (Nezu, et al., 2003).

Although cancer is a physical health problem, there are noted psychological risk factors involved in its development. These include smoking, alcohol consumption, diet, exposure to the sun, socioeconomic factors, and personality type (American Cancer Society, 2000; Balfour & Kaplan, 1998; Morris & Greer, 1980; Westerdahl, Olsson, & Ingvar, 1994; Winters, 1998). The nature of cancer makes people who have cancer vulnerable to a myriad of psychiatric disorders resulting in comorbidity with depression, anxiety, delirium, suicide, body image disorders, and sexual functioning disorders (Breitbart & Krivo, 1998; Bukberg, Penman & Holland, 1984; Fobair et al., 1986; Jenkins, Massie & Holland, 1987; May & Hughes, 1991).

The subfield of psychosocial oncology or psycho-oncology developed to manage both the impact of cancer on psychological functions and psychological influences on cancer vulnerability and prognosis (Holland, 1990). Psychosocial interventions that are currently implemented in cancer treatment include cognitive behavioural therapy, psychoeducation, problem solving therapy, group therapy and telephone counselling (Nezu, et al., 2003). Psychological services are given to the person with cancer, the caregiver and the entire family where applicable (Nezu, et al., 2003).

Mental Disorders and Conditions

What is Mental Health?

Mental health has been described as the component of health that deals with how people cope with the world (Oxford Advanced Learner's Dictionary, 2010). The mental health of individuals are often inferred from how reasonably they function, capacity to attain cognitive and behavioural development that is consistent with the norms of the society, perception of the self and the world, how they manage life's challenges and their ability to develop and maintain meaningful relationships (Njoku, 2012a).

What is Mental Disorder?

Mental health is considered disordered when harmful thoughts, feelings and actions are present in a person (Myers, 2007). Also, deviant, distressful and dysfunctional behaviours are the hallmarks of mental disorders (Bernstein & Nash, 2005; Myers, 2007). These two definitions suggest that for a problem or behaviour to be considered a disorder, it must have characteristics that are not normally observed in people, violate the social or cultural norms and result in distress, impairment or suffering of the individual (Barlow & Durand, 2005; Bernstein & Nash, 2005).

Prevalence of Mental Disorder and Risk Factors in Nigeria

While several Nigerian studies have examined mental health in the country, only a few investigated prevalence and risk factors. Of these studies, most were done in hospital-based settings. Only one study used community-based sample to ascertain the risk factors of mental illness in Nigeria, finding overall psychiatric morbidity rate of 21.9%, with higher rates in the rural than urban areas (Amoran, Lawoyin, & Oni, 2005). Another study by Njoku (2010e) indicated a psychological distress prevalence rate of 29.1%. This rate is higher than the rates from Australia (17.7%), Canada (19.9%), Chile (17%) and Germany (22.8%) as reported in Bijl et al., (2003) and Henderson, Andrews and Hall (2000). Ohaeri, Odejide, Gureje and Olatawura (1994) found that 28.5% of individuals presenting to rural primary care settings reported comorbid psychiatric conditions and another study reported that psychological distress increased progressively as individuals experience more chronic symptoms of fatigue syndromes (Njoku, Jason & Torres-Harding, 2007). Associated risk factors found in mental illness studies included younger age, poor living conditions, unemployment, physical health problems and large family size (Amoran et al., 2005). Njoku (2010e) found that individuals aged 59 and below had higher rates of psychological distress than those aged 60 and above.

In terms of resources available for mental health, World Health Organization (2001, 2005) stated that mental health is grossly neglected in Africa. Klecha, Barke and Gureje (2004) reported similar predicament in Nigeria. Gureje et al. (2005) reported that less than 10% of persons with mental illness receive treatment with most of the services being provided by non-mental health professionals. The greatest challenge in Nigeria is that crude methods of treatment of mental illness are still in use. These include chaining, flogging and attempting to use spiritual exorcism methods (Glenwick, Njoku, Jason, Hareeimana, Dukoshe et al., 2014).

Etiology of Mental Disorder

In terms of mental disorders, there have been three major approaches, namely, supernatural, biological and psychological perspectives. In the context of the supernatural, these disorders are attributed to agents outside the body or social environment, such as demons, spirits, or the influence of the moon and stars. The biological model associates diseases and biochemical imbalances to mental disorders. The psychological perspective views disorders as primarily due to faulty psychological development and social context (Barlow & Durand, 2005). Advancement in science has led to the understanding that no single approach can completely explain mental disorders. An integrative approach which posits that mental disorder is a function of interaction between psychological, biological and social factors is a preferred model of mental illness (Barlow & Durand, 2005). The diathesis stress model encompasses this integrative approach to mental disorders (Burke et al., 2004).

Classification and Examples of Mental Disorders

The American Psychiatric Association (2013) presented twenty-two major classes of mental disorders. They are as follows:

Neurodevelopmental Disorders: This class of mental disorders include intellectual disabilities, communication disorders, autism spectrum disorder, attention-deficit/hyperactivity disorder, specific learning disorder, motor disorder and other neurodevelopmental disorders.

Schizophrenia spectrum and other psychotic disorders: Schizophrenia, Schizotypal, Delusional, Psychotic, Schizoaffective, Catatonic, and other schizophrenia spectrum disorders make up this class of mental disorders.

Bipolar and Related Disorders: This classification consist Bipolar I, Bipolar II, Cyclothymic, Substance/Medication –Induced Bipolar, other types of Bipolar and Related Disorders and Bipolar due to medical conditions.

Depressive Disorder: Disruptive Mood Dysregulation, Major Depressive Disorder, Persistent Depressive Disorder (a.k.a Dysthymia), Premenstrual Dysphoric Disorder, Substance/Medication-Induced Depressive Disorder and Depressive Disorder due to another medical condition constitute Depressive Disorder class.

Anxiety Disorders: Separation Anxiety Disorder, Selective Mutism, Specific Phobia, Social Anxiety Disorder, Panic Disorder, Agoraphobia, Generalized Anxiety Disorder, Substance/Medication-Induced Anxiety Disorder, and Anxiety Due to another medical condition are in the Anxiety Disorder class.

Obsessive-Compulsive and Related Disorders: These include Obsessive-Compulsive Disorder, Body Dysmorphic Disorder, Hoarding Disorder, Trichotillomania, and Excoriation Disorder.

Trauma-and Stressor-Related Disorders: These are Reactive Attachment Disorder, Disinhibited Social Engagement Disorder, Posttraumatic Stress Disorder, Acute Stress Disorder and Adjustment Disorder.

Dissociative Disorders: Dissociative Identity Disorder, Dissociative Amnesia, and Depersonalization/Derealization Disorder are in this category.

Somatic Symptom and Related Disorders: These are Somatic Symptom Disorder, Illness Anxiety Disorder, Conversion Disorder, and Factitious Disorder.

Feeding and Eating Disorder: Pica, Rumination Disorder, Avoidant/Restrictive Food Intake Disorder, Anorexia Nervosa, Bulimia Nervosa, and Binge-Eating Disorder are in this class of mental disorders.

Elimination Disorder: Enuresis and Encopresis were classified as elimination disorders

Sleep-Wake Disorders: These are Insomnia Disorder, Hypersomnolence Disorder, Narcolepsy, Obstructive Sleep Apnea Hypopnea, Central Sleep Apnea, Sleep-Related Hypoventilation, Circadian Rhythm Sleep-Wake Disorders, Non-Rapid Eye Movement Sleep Arousal Disorders, Nightmare Disorder, Rapid Eye Movement Sleep Behaviour Disorder and Restless Legs Syndrome.

Sexual Dysfunction: This class consist Delayed Ejaculation, Erectile Disorder, Female Orgasmic Disorder, Female Sexual Interest/Arousal Disorder, Genito-Pelvic Pain/Penetration Disorder, Male Hypoactive Sexual Desire Disorder, and Premature (Early) Ejaculation.

Gender Dysphoria: Gender Dysphoria

Disruptive, Impulse-Control, and Conduct Disorders: These are Oppositional Defiant Disorder, Intermittent Explosive Disorder, Conduct Disorder, Antisocial Personality Disorder, Pyromania, and Kleptomania.

Substance-Related and Addictive Disorders: In this category are Alcohol-Use Disorders, Alcohol Intoxication, Alcohol Withdrawal, Caffeine Intoxication, Caffeine Withdrawal, Cannabis Use Disorders, Cannabis Intoxication, Cannabis Withdrawal, Phenycyclidine Use Disorders, Phenycyclidine Intoxication, Inhalant Use Disorder, Inhalant Intoxication, Opioid Use Disorder, Opioid Intoxication, Opioid Withdrawal, Sedative, Hypnotic, or Anxiolytic Use Disorder, Sedative, Hypnotic, or Anxiolytic Intoxication, Sedative, Hypnotic, or Anxiolytic Withdrawal, Stimulant Use Disorder, Stimulant Intoxication, Stimulant Withdrawal, Tobacco Use Disorder, Tobacco Withdrawal, and Gambling Disorder.

Neurocognitive Disorders: These are Delirium, Neurocognitive Disorder due to Alzheimer's Disease, Frontotemporal Neurocognitive Disorder, Neurocognitive Disorder with Lewy Bodies, Vascular Neurocognitive Disorder, Neurocognitive Disorder due to Traumatic Brain Injury,

Neurocognitive Disorder due to HIV Infection, Neurocognitive Disorder due to Prion Disease, Neurocognitive Disorder due to Parkinson's Disease, Neurocognitive Disorder due to Huntington's Disease, Neurocognitive Disorder due to other Medical Condition and Neurocognitive Disorder due to Multiple Etiologies.

Personality Disorders: Cluster A consist Paranoid Personality Disorder, Schizoid Personality Disorder, and Schizotypal Personality Disorder. Antisocial Personality Disorder, Borderline Personality Disorder, Histrionic Personality Disorder and Narcissistic Personality Disorder forms Cluster B. Cluster C are Avoidant Personality Disorder, Dependent Personality Disorder and Obsessive-Compulsive Personality Disorder.

Paraphilic Disorders: These are Voyeuristic Disorder, Exhibitionistic Disorder, Frotteuristic Disorder, Sexual Masochism Disorder, Sexual Sadism Disorder, Pedophilic Disorder, Fetishistic Disorder, and Transvestic Disorder.

Other Mental Disorders: This category captures other specified mental disorders due to another medical condition, unspecified mental disorder due to another medical condition, other specified mental disorders and unspecified mental disorders.

Medication-Induced Movement Disorders and other Adverse Effects of Medication: In this category, there are Neuroleptic-Induced Parkinsonism, Other Medication-Induced Parkinsonism, Neuroleptic Malignant Syndrome, Medication-Induced Acute Dystonia, Medication-Induced Acute Akathisia, Tardive Dyskinesia, Tardive Akathisia, Medication-Induced Postural Tremor, Other Medication-Induced Movement Disorder, Antidepressant Discontinuation Syndrome, Other Adverse Effect of Medication

Note: Substance/medication-induced disorder, disorder due to another medical condition, other specified disorder and unspecified disorder apply to all the categories of mental disorders noted above.

Other Conditions that May be a Focus of Clinical Attention: Within this category are relational problems, abuse and neglect, educational and occupational problems, housing and economic problems, other problems related to the social environment, problems related to crime or interaction with the legal system, other health service encounters for counseling and medical advice, problems related to other psychosocial, personal, and environmental circumstances and other circumstances of personal history.

Examples of Mental Disorders

Anxiety Disorders

Anxiety disorders constitute the most common psychological problem. They tend to be chronic in course and have increased rates of occurring among first-degree relatives. Anxiety disorders are conceptualized as consisting of three dimensions, (i.e., subjective distress, avoidance or escape behaviors and physiological responses). Panic attacks, worry, obsessions, compulsions, and phobias are aspects of anxiety disorders. Excessive or irrational fear is the common underlying factor of all anxiety disorders. Individuals with anxiety disorders present with somatic complaints such as, dizziness, and cognitive symptoms like worry about specific events, ideas and impulses perceived as uncontrollable. They may also present with appetite and sleep difficulties, depressed mood, and concentration and memory difficulties (APA, 2013; Antony & Barlow, 2002; Barlow & Durand, 2005).

To differentiate typical healthy anxiety from anxiety severe enough to be diagnosed as a disorder, it is important to consider symptom severity and level of functional interference or impairment. When examining symptoms, attention should be given to the subjective distress caused by the anxiety symptoms, the physiological response elicited, and behavior changes in relation to its impact on functioning. If the anxiety causes impairment of daily functioning, the attention of a healthcare professional would be necessary to remediate the problem (APA, 2013; Barlow & Durand, 2005).

Often, anxiety disorders tend to co-occur with depression and sometimes individuals wonder whether the disorder is depression or anxiety. Differentiation of anxiety disorders from depression requires the consideration of the etiology of the disorders and the physiological symptoms that are present. Specifically, it requires checking for the presence of fear, panic attacks, obsessions or compulsions. Anxiety disorders can also be confused with personality disorder. To differentiate anxiety disorders from personality disorders, the underlying source of the anxiety is considered. For example, if the anxiety arises from a fear of the motives of others, it is most likely a personality disorder. But if the anxiety arises from fear of embarrassment in social situations, it is most likely an anxiety disorder (APA, 2013; Antony & Barlow, 2002; Barlow & Durand, 2005; Njoku, 2007b, 2012b; 2015).

Mood Disorders

Bipolar and depressive disorders are categories of mood disorders. Mood disorders as the name implies means that there is a problem with an individual's mood. Bipolar disorder is a mood disorder marked by recurrent episodes of mania or hypomania with or without depression (APA, 2013). Mania is an elevated or irritable mood that lasts at least 1 week and is sufficient to cause impairment in varied life spheres and may be accompanied by psychotic symptoms. In contrast, hypomania refers to the presence of a cluster of three or more of same symptoms that lasts at least four days but is not significantly severe to cause impairment and has no psychotic features. When there is an absence of major depression and the presence of chronic sadness or depressed mood for more days than not within at least a two-year period, the presentation is diagnosed as

cyclothymia (APA, 2013). Bipolar disorder is lifelong, usually episodic and with an unpredictable course (APA, 2013; Barlow & Durand, 2005; Njoku, 2007b, 2012b; 2015).

Depressive disorders share common symptoms and clinical features such as feelings of sadness, vegetative symptoms like fatigue and agitation, and cognitive symptoms of concentration difficulty and guilt. In addition, lack of interest in things that are formally enjoyable, feelings of worthlessness, sleep and appetite disturbances, and thoughts of death and dying characterize depressive disorders. They are distinguished from each other based on the number of symptoms and the degree and length of the presence of the features. About 15% of individuals with depression complete suicide. While major depression tends to be recurrent and time limited, dysthymia is marked by chronic depression that lasts 2 or more years (APA, 2013; Barlow & Durand, 2005).

Symptoms of Depression	
Sad, depressed or angry mood	Anhedonia (loss of interest or pleasure in things)
Lack of motivation	Irritability
Weight loss or gain	Eating too much or too little
Sleep problems (hypersomnia or insomnia)	Suicidal ideation ***(See Table 10)***
Tiredness or exhaustion or reduced energy	Memory and concentration difficulties
Difficulty making decisions	Negative thoughts of self and or the world
Feelings of guilt, hopelessness, helplessness, & worthlessness	
Withdrawal from friends, family or social events	

Table 9: Symptoms of Depression

The presence of depression in adolescents increases the probability of finding another disorder by at least 20 times. Previously, depression was considered the illness of only adults. Only within the last 26 years did people begin to acknowledge childhood depression (Anthony & Barlow, 2002). Mid to late adolescence is the most common age of onset of first major depression or significant symptoms. Earlier onset of depression predicts a more severe course of disorder in both children and adults. The majority of adolescents who are depressed recover within a year. Reoccurrence of episodes is common among those with major depression. Occurrence of depression in childhood or adolescence foreshadows future depression in adulthood. Children of mothers who have depression are at risk for suffering from

depression themselves. Children display certain symptoms of depression more than adults. Such symptoms include irritable mood, somatic complaints, uncooperativeness, apathy, and disinterest. Among children, there is a high level of comorbidity with conduct disorder and other disruptive behaviours, and anxiety. Children and preadolescents who are depressed are more likely to display separation anxiety, while adolescents report more eating disorders and substance use. In addition, adolescents tend to have higher rates of somatic complaints, hypersomnia, and weight loss than children do. Symptoms that increase with age are anhedonia, psychomotor retardation and disturbed sleep/wake cycles. Symptoms that decrease with age are depressed appearance, somatic complaints, and poor self-esteem (APA, 2013; Antony & Barlow, 2002; Barlow & Durand, 2005).

Continuum of suicidal Ideation	
I wish I will not wake up tomorrow	I will be better off dead
I wish I were dead	The world will be better off without me
My family will be better off with me dead	My life is unbearable, I want to die
I should die	
I will end all my problems.	I am going to take my life
I will take my life by ……..	I will take my life on …….
Other Signs	
Presence of depressive disorder	Putting affairs in order
Giving away possessions	Abusing alcohol and or other drugs

Table 10: Continuum of Suicidal Ideation

Biological theory suggests that insufficient levels of serotonin and norepinepherine are associated with depression. Also, a deficit in the neurotransmitters at synapses has been implicated and it has been suggested that medications targeting the neurotransmitters are effective in reducing symptoms and preventing relapse. Other studies suggest a link between cortisol dysregulation and depression among youths. Genetic studies posit that bipolar disorders tend to be higher among family members with mood disorders. Learning and modeling theorists posit that individuals who have negative expectations about their ability to cope with problems generally acquire such expectations through learning experiences. When they encounter repeated failures, they tend to feel helpless and hopeless and often abandon their strategies for solving problems and become depressed. Cognitive attributions, coping skills and learned helplessness

have been found to be associated with depression (APA, 2013; Antony & Barlow, 2002; Barlow & Durand, 2005).

The psychoanalytic model posit that depression is a function of anger turned inward because of feelings of loss and abandonment which often has its basis on parent-child relationships. While yet others suggest that depression among children could be linked to environmental factors such as living with families who have depressed members. Environmental models include stress-reaction, diathesis-stress, and stress generation theories. Other environmental factors are parental unemployment, divorce, remarriage of a parent, coming from a large family, early parental loss, and aversive child rearing. The comprehensive model asserts the contribution of early family socialization, working models, and stress vulnerability to the development of depressive disorders in youths. Adolescent vulnerable states such as inflated emotions, less dependence on parental support, independent tendencies, increased social and academic pressures, and identity development issues impact depression among children (Antony & Barlow, 2002; Barlow & Durand, 2005; Njoku, 2007b).

Postpartum Blues/Depression/Psychosis

Varied forms of emotional distress experienced by women after childbirth includes, postpartum blues, postpartum depression and postpartum psychosis (Njoku, 2013c). Postpartum psychosis usually involving hallucinations or delusions and is the most severe disturbances experienced by women within 6 to 12 weeks after child delivery. Postpartum blues, which presents with symptoms such as crying, confusion, and anxiety, is the mildest form of distress experienced by women mainly during the first week after childbirth. Postpartum depression is often marked by the symptoms of major depression (described above) such as appetite and sleep disturbance, severe fatigue, suicidal ideations, and concentration and thought difficulties (APA, 2013; Njoku, 2013c).

Schizophrenia

Schizophrenia occurs mostly at a developmental stage, early adulthood, when individuals are engaged in higher education, development of career, identity formation, separation from parents and formation of close interpersonal relationships (APA, 2013; Pratt & Mueser, 2002). The onset of schizophrenia at this stage disrupts these developments and because it is generally a long-term illness, many individuals with schizophrenia remain impaired for life. Further, premorbid social functioning impairments, childhood incidences of behavioral problems and impulsivity displayed by individuals with schizophrenia tend to create more difficulties in management of the symptoms. Gradual onset of schizophrenia is considered as having worse prognosis than acute onset because of difficulty with distinguishing onset of the disorder. Due to the impairments in social functioning and self-care, most individuals with schizophrenia depend on others particularly family members for their caregiving. Those without family supports usually depend

on mental health, case management and residential services to meet their daily living needs (APA, 2013; Pratt & Mueser, 2002).

Schizophrenia is associated with positive and negative symptoms. Positive symptoms are those that are observable in normal persons. These symptoms include hallucination and delusions, the distinguishing mark being that they tend to be of higher levels in individuals with schizophrenia than in normal persons. Negative symptoms such as social withdrawal, apathy, and anhedonia refer to symptoms that are deficient in persons with schizophrenia (APA, 2013).

Schizoaffective Disorder

Schizoaffective disorders usually begin in early adulthood and present with symptoms of both schizophrenia and mood disorders (APA, 2013). Symptoms include psychotic features (delusions and hallucinations), disorganized symptoms (thinking, talking, walking or behaving in ways that don't make sense), depression and bipolar symptoms (see mood disorder symptoms; APA, 2013).

Insomnia

Sleep is a necessary activity for healthy living (Morin, Savard, Ouellet & Daley, 2003). Two types of sleep exist, namely, nonrapid-eye-movement (NREM) and rapid-eye-movement (REM) sleep. NREM consists of stages 1 to 4 and individuals gradually cycles through the stages several times. Healthy adults experience 25% REM and 75% NREM sleep. Stress, anxiety, depression, pain and medical illnesses or conditions affect sleep. Conversely, chronic sleep problems can lead to medical complications and mental health problems (Morin et al., 2003). Insomnia is characterized chiefly by difficulty falling asleep or staying asleep. Insomnia is implicated in psychopathology, health, longevity, and immune functioning (Morin et al., 2003).

The psychological correlates of insomnia predispose it to psychological treatment and management modalities. Relaxation therapies, cognitive therapies, stimulus control therapies and psychoeducation have been used successfully to treat and manage insomnia and other sleep problems (Bootzin, Epstein, & Wood, 1991; Hauri, 1991; Morin, 1993; Savard & Morin, 2002).

Substance Abuse

Substance abuse is a severe problem that can impact all aspects of health; mental, physical, spiritual and social health. Tobacco, alcohol, marijuana, LSD, heroine, cocaine, amphetamine, and crystal meth are some substances of abuse. Alcohol is one of the most widely used psychoactive substances (WHO, 2014).

Alcohol use problems lie on a continuum ranging from no problem to a severe problem. This is a process that usually involves shame. People who are becoming dependent will hide the fact from

themselves and others, believing that they can, in fact, control their drinking when they actually cannot. It is best to avoid alcohol altogether especially if there is an existing predisposition to become addicted to alcohol such as a family history of alcoholism. As a rough guide, to maintain moderate drinking, it is recommended that young and middle-aged adult men consume no more than two drinks a day and women and those who are elderly are encouraged to limit their alcohol consumption to one drink per day. A "drink" is defined as 12 oz. of regular beer, 1 shot (1.5 oz.) of 80-proof liquor, or 5 oz. of table wine, all containing the same amount of alcohol (Carroll, 2006).

Alcoholism, also known as alcohol dependence, describes people who are unable to limit their drinking, who set limits and go over them, who try to cut down or quit and cannot, and who continue heavy drinking in spite of serious life problems caused or worsened by drinking (such as marital, job, legal, psychological, or physical problems). Persons with alcohol dependence are preoccupied with drinking and may spend a great deal of time anticipating drinking, drinking, and recovering from drinking. In a sense, drinking takes over significant parts of their lives (APA, 2013, Carroll, 2006).

With alcohol use, there is a high comorbidity rate of physical, psychological and behavioral problems. Psychological disorders and behavioral problems associated with alcohol abuse are: mood disorders (depression, mood swings, relapse of mania), poor impulse control, aggression, irritability, anxiety, and panic attacks. Physical problems associated with alcohol abuse are: hypertension, liver diseases, cancer, heartburn, seizures, insomnia and risks of serious injuries. In women, alcohol use could also result in pre-natal complication, menstrual irregularities, gynecological and obstetric problems and fetal alcohol spectrum disorders (Carroll, 2006; Njoku, 2007b).

As drinking increases, serious and repeated problems may develop, including legal, job, family, and health problems. Eventually, loss of control occurs, and drinking becomes compulsive. Alcohol disorders are not all the same. Some people have fairly mild forms while others may have severe progressive types (Carroll, 2006). Many people with alcoholic dependence find it difficult to recognize their need for treatment. They often need help from friends and or family members to recognize and seek treatment. It is important for a person who drinks more than suggested moderate levels to encourage their support network to communicate their observation of the individual's drinking and how it affects them (Carroll, 2006).

Tobacco use is also detrimental to health. Whether used as cigarette, pipe, snuff, waterpipe, bidis, etc, in mild, organic or flavored forms, tobacco tends to have severe health consequences (Carroll, 2006; Njoku, 2007b; Swan, Hudmon & Khroyan, 2004). Smoker's melanosis, which leads to gingival lesions, is seen in people who smoke, Nicotine stomatitis is associated with long-term pipe smoking and cigar and cigarette use. In individuals who use snuff, a condition known as snuff dipper's keratosis or tobacco pouch lesions is noted. Other associated chronic diseases range from coronary heart disease to cancer. See Table 11 for a list of associated

illnesses. Exposure to secondhand smoke produces similar effects in non-smokers and in children is associated with respiratory diseases such as bronchitis, pneumonia and asthma exacerbation, and middle ear infection (Carroll, 2006; Njoku, 2007b)

Worldwide, tobacco use causes nearly 6 million deaths per year and almost 80% of users live in low to middle income countries. Current trends show that tobacco use will cause more than 8 million deaths annually by 2030 (WHO, 2014). Tobacco use is the leading preventable cause of death in many countries and it is responsible for about one in ten deaths annually. Five million deaths are due to direct tobacco use and about 600, 000 deaths are the consequence of second-hand exposure to smoke (WHO, 2014). On average, smokers die 13 to 14 years earlier than nonsmokers. For every person who dies of a smoking-related disease, 20 more people suffer with at least one serious illness from smoking and smoking increases the length of time that people live with a disability by about 2 years (Carroll; 2006).

Family, friends, coworkers, and others can be important sources of support for people who are trying to quit. The person must want to quit and must make the decision to try to quit, but others can contribute to that important decision (Njoku, 2007b; WHO, 2014).

Tobacco Associated Diseases

- Coronary heart disease (e.g., heart attacks)
- Peripheral vascular disease
- Aortic aneurysm
- High cholesterol
- Lung cancer
- Cancer of the mouth, throat and voice box
- Cancer of the pancreas
- Cancer of the kidney, and urinary bladder
- Chronic obstructive pulmonary disease
- Chronic bronchitis
- Emphysema

- Pneumonia
- Influenza
- The common cold
- Peptic ulcers
- Chronic bowel disease (Crohn's disease)
- Tooth decay (cavities)
- Gum disease
- Osteoporosis
- Sleep problems
- Cataracts
- Thyroid disease (Grave's Disease

Table 11: Tobacco Associated Diseases

Other psychoactive substances include marijuana, LSD, heroine, cocaine, amphetamine, and crystal meth. All these substances impact the body functioning in varied ways. Some act as depressants, stimulants and hallucinogens. These effects may change the brain functioning, causing permanent damages to the central nervous system and other body functions (Carroll, 2006)

Because of the addictive nature of these substances, it is best to avoid initial use. Potential treatments for substance abuse include medication, psychotherapy, counseling, support groups (Alcoholics Anonymous, Narcotics Anonymous), and inpatient treatment facilities. Many people relapse once or several times before achieving stable abstinence. Relapses are common and do not mean that a person has failed or cannot eventually recover. Ongoing support from family members and others is very important in substance abuse treatment and recovery (Carroll, 2006; Njoku, 2007b; WHO, 2014).

Prevention of Mental Health Problems

It is paramount for individuals to consider the contributions of their internal characteristics and external factors to their experience of life events. Adequate knowledge of the self and the environment is essential to understanding the interaction between these elements and how they lead to or ameliorate health problems. Even when a person has a genetic predisposition to a mental disorder, the course of the person's life may not include a mental disorder. Therefore

when an individual is aware of vulnerability to dysfunctional health, it would be important to make necessary effort to avoid undue stress that might trigger the familial disorder (Barlow & Durand, 2005; Njoku, 2007a, 2013a).

Further, individuals need to develop social support network for the purpose of accessing emotional and instrumental support. They need to express or process stressors they encounter in life as this could help individuals faced with stressful conditions to cope better with their situations and prevent the occurrence of mental disorder. Developing social support network is also encouraged for its contribution to improved immune functioning and ability to cope with life challenges. Mentorship and spiritual directions are possible ways of accessing social support. Other ways include joining specific prayer and discussion group and developing healthy friendships (Njoku, 2007a; Barlow & Durand, 2005).

Prayers and retreats have been indicated as moderators of stress and mental disorders. All persons who adhere to these ways of life are encouraged to pray as needed and make time for retreats each year (Njoku, 2007a, 2009b; Njoku & Jason, 2004; Njoku, Jason, Cole, Jordan-Green, Miller, Newborough et al., 2005).

Eating proper diet and engaging in physical exercises may also enhance a person's ability to maintain good mental health. Adequate diet, physical exercises and relaxation can boost the immune system. When the immune system functions well, the individual is protected from physical and psychological adverse outcomes (Njoku, 2007a, 2013a; WHO, 2014).

Cognitive factors, specifically, negative thoughts, catastrophizing and viewing stressors as uncontrollable contribute to vulnerability to mental disorders (Lazarus & Folkman, 1984). For this reason, making effort to think positive thoughts, and appraise stressors as short-term and controllable can ameliorate the likelihood of experiencing mental breakdown. Avoidance of catastrophizing is also recommended (Lazarus & Folkman, 1984; Njoku, 2013b).

Treatment of Mental Disorders

Mental disorders can be treated using a combination of the following options:

Medication: A variety of medications is available for treating these disorders. Consultation with a physician is important for initiating medication therapy. Antipsychotic, antidepressant and mood stabilizers are often used in medication management of these disorders (Njoku, 2007a/b).

Psychotherapy: This form of treatment requires working with a trained individual (Therapist) who uses talk to assist individuals with psychological disorders. The focus of treatment is usually on understanding the disorder, knowing the warning signs, learning relevant coping/daily life skills and developing plans for how to manage the symptoms. Varied psychotherapies have been used successfully in treating mental disorders (Antony & Barlow, 2002; Barlow & Durand, 2005; Marks et al., 2003; Njoku, 2013b).

Other Kinds of Treatment: Other forms of treatment include inpatient hospital stay, herbal remedies, and electroconvulsive therapy (ECT). Usually, ECTs are used as a last option when medications do not work (Barlow & Durand, 2005).

Social Health

Social health encompasses both societal and individual health. The social health of an individual refers to the elements of a person's wellbeing relating to interactions with other people, social institutions and traditions. This definition includes aspects of interpersonal relationship, kinship, sense of community, social isolation, social adjustment, social support, and good citizenship (Njoku, 2012b). See Table 12.

All these factors to a great extent are impacted by personality and social skills. Personality is defined here as the way a person thinks, feels and acts. Social skills involve the capacity to use basic relationship ingredients such as accepting/giving compliments, accepting/giving criticism, following directions, and accepting consequences. Also, having a good educational background and knowing where and how to assess community resources is important for social health (Njoku, 2012b).

Another associated factor is social support. Social support is not a simple unitary construct. It represents a collection of social, emotional, cognitive and behavioral processes that occur in personal relationships, which provide aid that promotes adaptive coping. Social support may be generalized (emotional, social integration) or specific (encouragement, informational, tangible). In general, a stable, interested, helpful, available social support system tends to prevent crises, reduce symptomatology and promote wellbeing whereas a dysfunctional support system produces or contributes to the crisis (Manne, 2003; Njoku, 2012b; Uchino, Cacioppo, & Kiecolt-Glaser, 1996).

Aspects of Social Health	
Adequate social skills	Adequate family assets

Stable social support	Sense of community
Education	Secure job
Good housing condition	Adequate financial resources

Table 12: Aspects of Social Health

The impact of social support to a great extent depends on factors such as the nature of the stressor, forms of support available and used in coping, opportunities for reciprocity, characteristics of the social unit (e.g., neighborhood), relationship issues and how they influence the exchange of support, cultural forces that impact the perception of stressors and types of support, and the availability of other personal, social and material resources. Psychological approaches have been applied to social health in varied settings (Njoku, 2012b). For example, social-emotional training has been integrated into school-based learning successfully (Patrikakou et al., 1999).

Spiritual Health

Spiritual health involves the idea of maintaining appropriate balance in the three dimensions of spirituality, namely, the power in men and women to give meaning, purpose and fulfillment to life; the willingness to live; and the capacity to have faith in self, others and one's identified higher power (Njoku, 2007b). Spiritual health in Christian perspective reflects life lived in the presence of God as revealed in his son, our Lord Jesus Christ. In other words, spiritual health is Christocentric and holistic; holistic in the sense that it embraces the whole person – physical, emotional, spiritual and psychic life (Rahner, 1975). Table 13 presents spiritual health dispositions and below are a few spiritual attributes associated with health.

Spiritual Health Factors	
Meaning and purpose	Fulfillment
Self worth/self-acceptance	Adequate self esteem
Hope	Positive/optimistic outlook
Forgiveness	Commitment
Trust/intimacy	Sharing

Giving to others (Charity)	Seeking justice
Tolerance of others	Humility
Peace within oneself	Clear values and goals

Table 13: Spiritual Health

Gratitude

Being grateful often counters negative thinking process, emotional distress, and improve spiritual outlook. The process to feeling grateful requires that one reflect on good things, people, or events experienced. This enables an individual to begin to identify positive aspects of self, nature and the world, which often will influence a person's view of self and the world. In this way, the negative thinking behaviors often associated with emotional distress, hopelessness and helplessness are ameliorated (Njoku, 2007b).

Forgiveness

Forgiveness is another important factor implicated in health outcomes. While forgiveness offers individuals a way to free the self from chronic hate, antagonism and revenge, it appears to be a very important piece in overcoming the impact of abuse, whether physical or emotional. When an individual makes mistakes and is unable to forgive oneself, it is very difficult to go beyond the problem. Likewise, when people are unable to forgive those who have caused them harm, they struggle with both the pain of the harm and emotional distress associated with hate. They then continue to feel angry for a longer duration, which ultimately impact their physical and mental health. Feelings of forgiveness can give individuals the capacity to overcome their problems (Ashford & Dauncey, 2006).

Peacefulness

Peacefulness is an essential component of hope. The daily hassles and stress of life often present with discomforts and disquiet that can increase susceptibility to physical and mental health. It is a good practice to always quiet the self daily, shift the focus from the unsolvable problems of the day, acknowledge the imperfection in and around the self, connect to a higher power, and focus on the problems that are solvable. Peacefulness allows a person to maintain hope (Njoku, 2007b; Njoku & Anieke, 2014).

In the absence of spiritual health, individuals begin to experience loss of meaning and purpose in life, begin to doubt one's self, the world and the higher power. Sometimes spiritual atrophy leads to negativistic outlook that colours ones perception of life situations. This condition tends to precipitate emotional distress, mental and physical breakdown (Njoku, 2007b; Vader, 2006). See Table 14.

Spiritual Atrophy	
Negative outlook	Apathy
Loss of meaning and purpose in life	Conflictual values and goals
Low self-esteem	Self-centeredness
Emptiness	Hopelessness
Discontentment	

Table 14: Signs of Spiritual Atrophy

Developing Spiritual Health

Suggested means of developing spiritual health include the following:

Openness

The pathway to developing spiritual health requires openness to the experience. Skepticism makes the ability to explore and identify the meaning and purpose of life difficult. It also makes it harder to access the inherent power to identify and connect with the higher power or God. Therefore, openness is recommended for spiritual health (Koshuta, 2003-2015; Njoku, 2007b).

Awareness of spiritual moments

Another practice that has the capacity to enhance spiritual health is being aware of the spiritual moments that occur in one's life at different times during the course of each day. These moments can be related to any of the three dimensions of spiritual health listed earlier. For example, making a positive decision and being aware of the pathway to the decision process and outcome can produce serenity even in the midst of stressful life events and can enhance one's spiritual health (Koshuta, 2003-2015; Njoku, 2007b; University of California Riverside, 2014).

Spiritual Activities

There are also specific activities, such as meditation, prayer, visualization or mental imagery, faith sharing and listening that have been found to be helpful with developing and maintaining spiritual health. These are considered active ways of gaining spiritual awareness and growth (Koshuta, 2003-2015; University of California Riverside, 2014).

Regular Exercise

Engaging in regular exercises such as tai chi, yoga, and other body movements can be helpful to spiritual health (Njoku, 2007b; University of California Riverside, 2014).

It is important to note that spiritual health contributes to the overall wellbeing of individuals (Bergin, 1991; Vader, 2006). As posited by Richards and Bergin (2002) psychological approaches could be used to assist individuals with managing their spiritual health. Varied behavioural methods could also be applied to treatment of spirituality-related problems (Njoku, 2011b; Richards & Bergin, 2002).

Conclusion

Health is a global issue and it comprises physical, mental, social and spiritual domains and it requires appropriate techniques and behaviours for optimal wellbeing. Some health behaviours increase the risk of developing illnesses, morbidity and mortality (e.g., smoking, unhealthy eating behaviour, alcoholism, sedentary lifestyle and sexual behaviour) and some behaviours decrease morbidity and mortality (e.g., being physically active, maintaining a healthy weight, eating healthy diet, drinking minimal or no alcohol and managing stress well) (WHO, 2014; Njoku, 2014b). Appendix A presents health conditions, diseases and conditions and their related behavioural interventions.

Several health conditions, diseases and illnesses have associated emotional constellations ranging from anger, sadness, frustration, bitterness to despair. In addition, certain cognitive factors influence illness morbidity and mortality. These include self-esteem (low or adequate), expectations (realistic or unrealistic), thinking patterns (optimistic or pessimistic), world view (peaceful or hostile) and attributions (internal or external). Likewise, comorbities of physical and mental conditions have been noted in several studies. For example, cancer and depression, asthma and anxiety, cardiovascular diseases and substance use, and diabetes and depression are among the cormorbid conditions that have received extensive attention (Burke et al., 2003; Marks et al., 2003).

Health is not just the absence of disease or infirmity (WHO, 1946). It connotes overall wellbeing which requires illness prevention, health promotion and illness management behaviours. It is important to maintain healthy lifestyle choices, develop positive coping behaviours, improve mental processing of information and events, develop a good spiritual balance and maintain an

adequate social support. Behavioural health with its focus on behaviour and health can contribute significantly to the maintenance of overall well being and quality of life and is therefore recommended as adjunctive or primary treatment, management and prevention model for all conditions, diseases and disorders.

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Appendix A: Conditions, Diseases and Disorders and Psychological Interventions

Illness/Disorder	Purpose of Treatment	Psychological Treatment	Research-Based Reference
Adult ADHD	Provides concrete strategies and skills for coping with the core symptoms of ADHD (inattention, hyperactivity, impulsivity) and associated impairment in social, occupational, educational, and other domains.	Cognitive Behavioral Therapy	Emilsson, B., Gudjonsson, G., Sigurdsson, J.F., Baldursson, G., Einarsson, E., Olafsdottir, H., & Young, S. (2011). Cognitive behaviour therapy in medicationtreated adults with ADHD and persistent Symptoms: A randomized controlled trial. *BMC Psychiatry*, *11*, 116.
AIDS/HIV	Focuses on behavior and behavioural change for the purpose of optimizing health and overall quality of life	Coping Interventions	Carey, M. P., Vanable, P. A. (2003). AIDS/HIV. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.
Alcohol Use Disorders	Focus is on improving the client's coping skills and relapse prevention techniques to achieve and maintain abstinence	Behavioral Couples Therapy	McCrady, B. S., Epstein, E. E., Cook, S., Jensen, N. K., & Hildebrandt, T. (2009). A randomized trial of individual and couple behavioral alcohol treatment for women. Journal of Consulting and Clinical Psychology, 77, 243-256.
Alcohol Use Disorders	Guides users to set goals, self-monitor their behavior, and get detailed feedback on their progress on the basis of their input	Moderate Drinking	Hester, R. K., Delaney, H. D., Campbell, W., & Handmaker, N. (2009). A web application for moderation training: Initial results of a randomized clinical trial. Journal of Substance Abuse Treatment, 37, 266-276. doi:10.1016/j.jsat.2009.03.001.
Alcohol Use Disorders	CM involves frequently monitoring the behavior targeted for change and reinforcing the behavior each time it occurs using tangible and escalating reinforcers.	Prize-Based Contingency Management	Petry, N. M., Martin, B., Cooney, J. L., & Kranzler, H. R. (2000). Give them prizes and they will come: Variable-ratio contingency management for treatment of alcohol dependence. Journal of Consulting and Clinical Psychology, 68, 250-257.
Anorexia Nervosa	Focus is on preventing relapse once a patient has gained weight in the context of inpatient treatment.	Cognitive Behavior Therapy	Pike, K.M., Walsh, B.T., Vitousek, K., Wilson, G.T., and Bauer, J. (2003). Cognitive behavior therapy in the posthospitalization treatment of anorexia nervosa. *American Journal of Psychiatry, 160*, 2046-2049.
Anorexia Nervosa	The focus of FBT is not on what caused the anorexia nervosa, but on what can be done to treat it with as little reliance on hospitalization as possible.	Family-Based Treatment	Lock, J., Le Grange, D., Agras, S., Moye, A., Bryson, S.W., & Jo, B. (2010). Randomized clinical trial comparing family-based treatment with adolescent-focused individual therapy for adolescents with Anorexia Nervosa. Archives of General Psychiatry, 67, 1025-1032.

Arthritis and Musculoskeletal Conditions	Focuses on behavior and behavioural change for the purpose of optimizing health and overall quality of life	Cognitive-behavioural Therapy	Burke, H. M., Zautra, A. J., Davis, M. C., Schultz, A. S., & Reich, J. W. (2003). Arthritis and musculoskeletal conditions. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.
Asthma	Focuses on behavior and behavioural change for the purpose of optimizing health and overall quality of life	Psychoeducation, CBT, Relaxation Training	Schmaling, K.B., Lehrer, P. M., Feldman, J. M. & Giardino, N. D. (2003). Asthma. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.
Binge Eating Disorder	Aims to resolve the maladaptive eating patterns that maintain the binge eating.	Cognitive Behavior Therapy	Grilo, C.M., Masheb, R.M. (2005). A randomized controlled comparison of guided self-help cognitive behavioral therapy and behavioral weight loss for binge eating disorder. *Behaviour Research and Therapy, 43(11)*, 1509-1525.
Binge Eating Disorder	Focus is on interpersonal difficulties in the patient's life	Interpersonal Psychotherapy	Wilfley, D.E., Welch, R.R., Stein, R.I., Spurrell, E.B., Cohen, L.R., Saelens, B.E., Dounchis, J.Z., Frank, M.A., Wiseman, C.V., & Matt, G.E. (2002). A randomized comparison of group cognitive-behavioral therapy and group interpersonal psychotherapy for the treatment of overweight individuals with binge-eating disorder. *Archives of General Psychiatry, 59(8)*, 713-721.
Bipolar Disorder	The focus is on identifying maladaptive negative thoughts about the self, and teaching clients skills to challenge these overly negative thoughts.	Cognitive Therapy	Scott, J., Paykel, E., Morriss, R., Bental, R., Kinderman, P., Johnson, T. et al. (2006). Cognitive behavioural therapy for severe and recurrent bipolar disorders: A randomised controlled trial.*British Journal of Psychiatry, 188*, 313-320.
Bipolar Disorder	Focus on getting family members to work with the client to ensure understnding of symptoms and etiology of bipolar disorder and the need for medication adherence	Family Focused Therapy	Miller, I., Solomon, D. A., Ryan, C. E., & Keitner, G. I. (2004). Does adjunctive family therapy enhance recovery from bipolar I mood episodes? Journal of Affective Disorders, 82, 431-436.
Bipolar Disorder	Focus is on mourning the losses associated with bipolar disorder and on resolution of current interpersonal problems, such as unresolved grief, interpersonal disputes, role transitions, and interpersonal isolation.	Interpersonal and Social Rhythm Therapy	Frank, E., Kupfer, D. J., Thase, M. E., Mallinger, A. G., Swartz, H. A., Fagiolini, A. M., et al. (2005). Two-year outcomes for interpersonal and social rhythm therapy in individuals with bipolar I disorder. *Archives of General Psychiatry, 62*, 996-1004.
Bipolar Disorder	Focus is on providing patients with information about bipolar disorder and its treatment, with a primary goal being to improve adherence to pharmacological treatment by helping patients understand the biological roots of the disorder and the rationale for pharmacological treatments	Psychoeducation	Colom, F., Vieta, E., Sanchez-Moreno, J., Martinez-Aran, A., Reinares, M., Goikolea, J. M., & Scott, J. (2005). Stabilizing the stabilizer: group psychoeducation enhances the stability of serum lithium levels. *Bipolar Disorders, 7*, 32-36.

Bipolar Disorder	Teaches patients about their symptoms, the need for medications, and to provide support in achieving occupational and social goals	Systematic Care	Simon, G. E., Ludman, E. J., Bauer, M. S., Unutzer, J., & Operskalski, B. (2006). Long-term effectiveness and cost of a systematic care program for bipolar disorder. *Archives of General Psychiatry, 63*, 500-508.
Borderline Personality Disorder	The learning of new skills and coping adaptively with distress and crises, and identifying and regulating emotional reactions.	Dialectical Behavior Therapy	Linehan, M.M., Comtois, K.A., Murray, A.M., Brown, M.Z., Gallop, R.J., et al. (2006). Two-Year randomized controlled trial and follow-up of Dialectical Behavior Therapy vs. therapy by experts for suicidal behaviors and Borderline Personality Disorder. Archives of General Psychiatry, 63, 757-766.
Borderline Personality Disorder	Promotion of the development of mentalizing	Mentalization-Based Treatment	Bateman, A., & Fonagy, P. (2009). Randomized controlled trial of outpatient mentalization-based treatment versus structured clinical management for borderline personality disorder. American journal of Psychiatry, 166, 1355-64.
Borderline Personality Disorder	Focus on helping patients to change their entrenched, self-defeating life patterns - or schemas - using cognitive, behavioral, and emotion-focused techniques.	Schema-Focused Therapy	Giesen-Bloo, J., van Dyck, R., Spinhoven, P., van Tilburg, W., Dirksen, C., van Asselt, T., et al. (2006). Outpatient psychotherapy for borderline personality disorder: Randomized trial of schema-focused therapy vs. transference-focused psychotherapy. Archives of General Psychiatry, 63, 649–658.
Borderline Personality Disorder	Transference-Focused Therapy (TFP) focuses on revealing the underlying causes of a patient's borderline condition and working to build new, healthier ways for the patient to think and behave.	Transference-Focused Therapy	Doering, S., Horz, S., Rentrop, M., Fishcer-Kern, M. et al. (2010). Transference-focused psychotherapy v. treatment by community psychotherapists for borderline personality disorder: randomised controlled trial. British Journal of Psychiatry, 196, 389-395
Bulimia Nervosa	Treatment focuses on how symptoms cycle to perpetuate themselves in the present, as opposed to why they originally developed in the past.	Cognitive Behavior Therapy	Walsh, B.T., Fairburn, C.G., Mickley, D., Sysko, R., & Parides, M.K. (2004). Treatment of bulimia nervosa in a primary care setting. *American Journal of Psychiatry, 161*, 556-561.
Bulimia Nervosa	The focus of FBT is not on what caused the bulimia nervosa, but on what can be done to resolve this serious disorder.	Family-Based Treatment	Le Grange, D., Crosby, R.D., Rathouz, P.J., & Leventhal, B.L. (2007). A randomized controlled comparison of family-based treatment and supportive psychotherapy for adolescent bulimia nervosa.Archives of General Psychiatry, 64, 1049-1056.
Bulimia Nervosa	The focus is on interpersonal difficulties in the patient's life	Interpersonal Psychotherapy	Agras, W.S., Walsh, T., Fairburn, C.G., Wilson, GT, & Kraemer, H.C. (2000). A multicenter comparison of cognitive-behavioral therapy and interpersonal psychotherapy for bulimia nervosa.*Archives of General Psychiatry, 57(5)*, 459-466.

Cancer	Focuses on behavior and behavioural change for the purpose of optimizing health (minimizing nausea, pain, and emotional distress) and overall quality of life.	Psychoeducation, CBT, Group Therapy, Telephone Counseling	Nezu, A. M., Nezu, C. M., Felgoise, S. H., & Zwick, M. L. (2003). Psychosocial oncology. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.
Chronic Headache	Cognitive coping skills for pain are taught in addition to the relaxation response so as to provide the individual several skills for managing headache pain.	Cognitive Behavioral Therapy	Holroyd, KA, Nash, JM, Pingel, JD, Cordingley, GE, & Jerome, A. (1991). A comparison of pharmacological (amitriptyline HCL) and nonpharmacological (cognitive-behavioral) therapies for chronic tension headaches. Journal of Consulting and Clinical Psychology, 59, 387-393.
Chronic Low Back Pain	To help the patient with pain reduce symptom intensity, regain functioning, and reduce suffering.	Behavioral and Cognitive Behavioral Therapy	Morley, S., Eccleston, C., Williams, A. (1999). Systematic review and meta-analysis of randomized controlled trials of cognitive behaviour therapy and behaviour therapy for chronic pain in adults, excluding headache. Pain, 80 (1-2), 1-13.
Chronic Pain	Improve functioning by increasing psychological flexibility, or the ability to act effectively according to personal values, even in the presence of negative experiences such as pain.	Acceptance and Commitment Therapy	Wetherell, J.L., Afari, N., Rutledge, T., Sorrell, J.T., Stoddard, J.A., Petkus, A.J.,….Atkinson, J.H. (2011). A randomized, controlled trial of acceptance and commitment therapy and cognitive-behavioral therapy for chronic pain. *Pain, 152,* 2098-2107.
Cocaine	CM is a structured behavioral therapy that involves: (1) frequently monitoring the behavior targeted for change, and (2) reinforcing the behavior each time it occurs using tangible and escalating reinforcers.	Prize-Based Contingency Management	Ghitza, U. E., Epstein, D. H., Schmittner, J., Vahabzadeh, M., Lin, J. L., & Preston, K. L. (2007). Randomized trial of prize-based reinforcement density for simultaneous abstinence from cocaine and heroin. Journal of Consulting and Clinical Psychology, 75, 765-774.
Coronary Heart Disease and Hypertension	Focuses on behavior and behavioural change for the purpose of optimizing health and overall quality of life	Cognitive Interventions, Weight Loss Programs, Exercise Training	O'Callahan, M., Andrews, A. M., & Krantz, D. S. (2003). Coronary heart disease and hypertension. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.
Depression	Focuses on decreasing avoidance, attachment to cognitions, and increasing focus on the present. Patients learn to clarify their goals and values and to commit to behavioral change strategies	Acceptance and Commitment Therapy	Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. A. (2007). A randomized controlled effectiveness trial of acceptance and commitment therapy and cognitive therapy for anxiety and depression. Behavior Modification, 31, 772-799.
Depression	Emphasizes behavioural changes.	Behavior Therapy/Behavioral Activation	Coffman, S. J., Martell, C. R., Dimidjian, S., Gallop, R., & Hollon, S. D. (2007) Extreme nonresponse in cognitive therapy: Can behavioral activation succeed where cognitive therapy fails? Journal of Consulting and Clinical Psychology, 75, 531-541.

Depression	Emphasis is on active change with acceptance-based strategies that promote emotional acceptance between partners and decrease their emotional reactivity to each other.	Behavioral Couples Therapy	Christensen, A., Atkins, D. C., Yi, J., Baucom, D. H., & George, W. H. (2006). Couple and individual adjustment for two years following a randomized clinical trial comparing traditional versus integrative behavioral couple therapy. Journal of Consulting and Clinical Psychology, 74, 1180-1191.
Depression	Therapeutic relationship is actively used to help patients generate empathic behavior, identify and change interpersonal patterns related to depression, and heal interpersonal trauma.	Cognitive Behavioral Analysis System of Psychotherapy	Schatzberg, A. F., Rush, A. J., Arnow, B. A., Banks, P. L. C., Blalock, J. A., Borian, F. A., et al. (2005). Chronic depression: Medication (nefazodone) or psychotherapy (CBASP) is effective when the other is not. Archives of General Psychiatry, 62, 513-520.
Depression	Patients learn to recognize the negative thought processes associated with depression and to change their relationship with these thoughts. By unhooking from these thoughts and recognizing their transient nature, patients can learn to prevent the downward spiral from negative mood to rumination to depression.	Cognitive Therapy	Scogin, F, Welsh, D., Hanson, A. Stump, J. & Coates, A. (2005). Evidence-based psychotherapies for depression in older adults. Clinical Psychology: Science and Practice, 12, 222-237.
Depression	Patients learn to increase awareness of their emotions, deepen their emotional experiences, understand unhealthy emotional responses so that they can be regulated or used to generate more adaptive emotion alternatives, and to use healthy emotions to guide action.	Emotion-Focused Therapy	Goldman, R., Greenberg, L. & Angus, L. (2006) The Effects of Adding Emotion-focused Interventions to the Therapeutic Relationship in the Treatment of Depression. Psychotherapy Research. 16, 537–549.
Depression	The emphasis is placed on understanding and treating depression within an interpersonal context.	Interpersonal Therapy	Cutler, J. L., Goldyne, A., Markowitz, J. C., Devlin, M. J., & Glick, R. A. (2004). Comparing cognitive behavioral therapy, interpersonal psychotherapy, and psychodynamic psychotherapy. American Journal of Psychiatry, 161, 1567-1573.
Depression	Problem-solving therapy (PST) teaches patients to more effectively generate solutions for problems, such as interpersonal conflicts or the pursuit of goals.	Problem-Solving Therapy	Cuijpers, P., van Straten, A., & Warmerdam, L. (2007). Problem-solving therapies for depression: A meta-analysis. European Psychiatry, 22, 9-15.
Depression	REBT focuses on unconditional self-acceptance, reducing secondary problems and efforts to reduce demanding beliefs.	Rational Emotive Behavioral Therapy	David, D., Szentagotai, A., Lupu, V., & Cosman, D. (2008). Rational emotive behavior therapy, cognitive therapy, and medication in the treatment of major depressive disorder: A randomized clinical trial, posttreatment outcomes, and six-month follow-up. Journal of Clinical Psychology, 64, 728-746.

Depression	The overall purpose of reminiscence therapies is to provide perspective and acceptance of one's life, including the resolution of past conflicts. The therapy is not stigmatizing and is easy to administer, so it can be used with a variety of geriatric populations.	Reminiscence/Life Review Therapy	Serrano, J. P., Latorre, J. M., Gatz, M., & Montanes, J. (2004). Life review therapy using autobiographical retrieval practice for older adults with depressive symptomatology. Psychology and Aging, 19, 272-277.
Depression	Involves didactic presentations, instructional exercises to teach concepts and skills, and the application of these skills to the day-to-day lives of participants through homework assignments.	Self-Management/ Self-Control Therapy	Dunn, N.J., Rehm, L.P., Schillaci, J., Souchek, J., Mehta, P., Ashton, C.M., Yanasak, E., & Hamilton, J.D. (2007). A randomized trial of self-management and psychoeducational group therapies for comorbid chronic posttraumatic stress disorder and depressive disorder. Journal of Traumatic Stress, 20, 221-237.
Depression	Focuses on regulation and is designed for depressed individuals with problematic self-regulation as a primary factor in the onset and maintenance of depression.	Self-System Therapy	Strauman, T. J., Veith, A. Z., Kolden, G. G., Woods, T. E., Klein, M. H., Papadakis, A. A., et al. (2006). Self-system therapy as an intervention for self-regulatory dysfunction in depression. A randomized comparison with cognitive therapy. Journal of Consulting and Clinical Psychology, 74, 367-376.
Depression	Focus is on increasing patients' awareness and insight about problematic patterns and core relational themes related to depression.	Short-Term Psychodynamic Therapy	Leichsenring, F., & Leibing, E. (2007). Psychodynamic psychotherapy: A systematic review of techniques, indications and empirical evidence. Psychology and Psychotherapy: Theory, Research and Practice, 80, 217-228.
Diabetes Mellitus	Focuses on behavior and behavioural change for the purpose of optimizing health and overall quality of life	Weight Management Techniques	Landel-Graham, J., Yount, S. E., & Rudnicki, S. R. (2003). Diabetes mellitus. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.
Fibromyalgia	CBT emphasizes the learning of adaptive behavioral responses to illness and in so doing, alters thinking styles, experiences, and emotional responses that can maintain or worsen the illness	Multi-Component Cognitive Behavioral Therapy	Williams, D. A., Cary, M. A., Groner, K. H., Chaplin, W., Glazer, L. J., Rodriguez, A. M. et al. (2002). Improving physical functional status in patients with fibromyalgia: a brief cognitive behavioral intervention. *J.Rheumatol*., 29, 1280-1286.
Generalized Anxiety Disorder	Cognitive therapies focus on modifying the catastrophic thinking patterns and beliefs that worrying is serving a useful function. The purpose of these exposures is to help the person learn that their feared outcomes do not come true, and to experience a reduction in anxiety over time.	Cognitive and Behavioral Therapies	Borkovec, T. D., Newman, M. G., Pincus, A. L., & Lytle, R. (2002). A component analysis of cognitive– behavioral therapy for generalized anxiety disorder and the role of interpersonal problems. *Journal of Consulting and Clinical Psychology, 70*, 288–298.

Headache	Focuses on behavior and behavioural change for the purpose of optimizing health and overall quality of life.	Behavioural Treatment, Relaxation Training, CBT	Andrasik, F. & Walch, S. E. (2003). Headaches.In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.
Insomnia	The goal is to help raise patients' awareness of their physiological processes, so that they might gain control over them.	Biofeedback-Based Treatments	Morin, C., Bootzin, R., Buysse, D., Edinger, J., Espie, C., & Lichstein, K. (2006). Psychological and behavioral treatment of insomnia: Update of the recent evidence (1998-2004). *Sleep*, 29, 1398-1414.
Insomnia	Focus is on addressing and changing the many negative beliefs and thoughts about sleep that may exacerbate sleeping difficulties, understanding the different types of sleep and sleep cycles, as well as improving sleep hygiene and other maladaptive behaviours .	Cognitive Behavior Therapy	Morin, C., Bootzin, R., Buysse, D., Edinger, J., Espie, C., & Lichstein, K. (2006). Psychological and behavioral treatment of insomnia: Update of the recent evidence (1998-2004). *Sleep*, 29, 1398-1414.
Insomnia	Focuses on persuading a patient to engage in his or her most feared behaviour.	Paradoxical Intention	Broomfield, N.M., Espie, C.A. (2003). Initial insomnia and paradoxical intention: An experimental investigation of putative mechanisms using subjective and actigraphic measurement of sleep. Behavioural and Cognitive Psychotherapy, 31, 313-324.
Insomnia	Patients are taught formal exercises focused on reducing somatic tension or intrusive thoughts at bedtime.	Relaxation Training	Means, M.K., Lichstein, K.L., Epperson, M.T., & Johnson, C.T. (2000). Relaxation therapy for insomnia: nighttime and day time effects. *Behavior Research and Therapy*, 38, 665-678.
Insomnia	Focus is on establishing a sleep window and maintenance to allow the body to (re)learn proper sleeping dynamics and increase sleep efficiency.	Sleep Restriction Therapy	Friedman, L., Benson, K., Noda, A., Zarcone, V., Wicks, D., O'Connell, K., et al (2000). An actigraphic comparison of sleep restriction and sleep hygiene treatments for insomnia in older adults. *Journal of Geriatric Psychiatry and Neurology*, 13,17-27.
Insomnia	The main goal in stimulus control therapy is to reduce the anxiety or conditioned arousal individuals may feel when attempting to go to bed.	Stimulus Control Therapy	Riedel B., Lichstein, K.L., Peterson, B.A., Means, M.K., Epperson, M.T., & Aguillarel, R.N. (1998). A comparison of the efficacy of stimulus control for medicated and nonmedicated insomniacs. Behavior Modification, 22, 3-28
Irritable Bowel Syndrome	Focuses on behavior and behavioural change for the purpose of optimizing health and overall quality of life.	Brief Psychodynamic Therapy, Hypnotherapy, CBT	Blanchard, E. B., Keefer, L. (2003). Irritable bowel syndrome. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.

Mixed Anxiety	Focus is on changing the relationship individuals have with their own thoughts, feelings, memories, and physical sensations that are feared or avoided. decrease avoidance, attachment to cognitions, and increase focus on the present.	Acceptance and Commitment Therapy	Arch, J.J., Eifert, G.H., Davies, C., Vilardaga, J.C., Rose, R.D., & Craske, M.G. (2012). Randomized Clinical Trial of Cognitive Behavioral Therapy (CBT) Versus Acceptance and Commitment Therapy (ACT) for Mixed Anxiety Disorders. Journal of Consulting and Clinical Psychology
Mixed Substance Abuse/ Dependence	Emphasis is on building community supports to drug free living.	Friends Care	Brown, B.S., O'Grady, K, Battjes, R.J., & Farrell, E.V. (2004). Factors associated with treatment outcomes in an aftercare population. American Journal on Addictions, 13, 447-460.
Mixed Substance Abuse/ Dependence	Focuses on helping individuals functionally analyze their alcohol or other drug problems and develop their own plans for changing.	Guided Self-Change	Sobell, L.C., Sobell, M. B., & Agrawal, S. (2009). Randomized controlled trial of a cognitive-behavioral motivational intervention in a group versus individual format for substance use disorders. Psychology of Addictive Behaviors, 23, 672-683.
Mixed substance Abuse/ Dependence	MI seeks to evoke the client's own motivations, strengths and resources	Motivational Interviewing, Motivational Enhancement Therapy (MET) + CBT	Hettema, J., Steele, J., & Miller, W. R.. (2005). Motivational interviewing. Annual Review of Clinical Psychology, 1, 91-111.
Mixed Substance Abuse/ Dependence	CM is a structured behavioral therapy that involves: (1) frequently monitoring the behavior targeted for change, and (2) reinforcing the behavior each time it occurs using tangible and escalating reinforcers.	Prize-Based Contingency Management	Petry, N. M., Peirce, J. M., Stitzer, M. L., Blaine, J., Roll, J. M., Cohen, A., et al. (2005). Effect of prize-based incentives on outcomes in stimulant abusers in outpatient psychosocial treatment programs: A national drug abuse treatment clinical trials network study. Archives of General Psychiatry, 62, 1148-1156.
Mixed Substance Abuse/ Dependence	A present-focused therapy to help people attain safety from trauma/PTSD and substance abuse.	Seeking Safety	Boden MT, Kimerling R, Jacobs-Lentz J, Bowman D, Weaver C, Carney D, Walser R, Trafton JA. (2012).Seeking Safety treatment for male veterans with a substance use disorder and PTSD symptomatology.Addiction, 107, 578-586.
Obesity & Pediatric Overweight	Emphasis is on achieving acute weight reduction as well as establishing new behavioral patterns to increase the likelihood of sustained maintenance of weight loss.	Behavioral Weight Loss Treatment	Golan, M., Kaufman, V., & Shahar, D.R. (2006). Childhood obesity treatment: targeting parents exclusively v. parents and children. *British Journal of Nutrition*, *95*, 1008-1015. (2) • Wadden, T.A., & The Look AHEAD Research Group. (2006). The Look AHEAD study: A description of the lifestyle intervention and the evidence supporting it. Obesity, 14, 737-752.

Obsessive Compulsive Disorder	Focus is on changing the relationship individuals have with their own thoughts, feelings, memories, and physical sensations that are feared or avoided, decreasing avoidance, attachment to cognitions, and increasing focus on the present.	Acceptance and Commitment Therapy	Twohig, M.P., Hayes, S.C., Plumb, J.C., Pruitt, L.D., Collins, A.B., Hazlett-Stevens, H., & Woidneck, M.R. (2010). A randomized clinical trial of acceptance and commitment therapy versus progressive relaxation training for obsessive-compulsive disorder. Journal of Consulting and Clinical Psychology, 78, 705-716.
Obsessive Compulsive Disorder	Therapy aims to help the person identify, challenge, and modify these dysfunctional ideas.	Cognitive Therapy	Van Oppen, P., de Haan, E., Van Balkom, A. J. L. M., & Spinhoven, P. (1995). Cognitive therapy and exposure in vivo in the treatment of obsessive compulsive disorder. Behaviour Research and Therapy, 33, 379-390.
Obsessive Compulsive Disorder	The purpose of the exposure and response prevention is to allow the patient to habituate to the obsession-related anxiety	Exposure and Response Prevention	Franklin, M.E., Abramowitz, J.S., Kozak, M.J., Levitt, J.T., & Foa, E.B. (2000). Effectiveness of exposure and ritual prevention for obsessive-compulsive disorder: Randomized compared with nonrandomized samples. Journal of Consulting and Clinical Psychology, 68, 594-602
Panic Disorder	Focus is on teaching clients to relax in increasingly stressful situations.	Applied Relaxation	Ost, L.G. & Westling, B.E. (1995). Applied relaxation vs cognitive behavior therapy in the treatment of panic disorder. Behaviour Research and Therapy, 33, 145-158.
Panic Disorder	Cognitive therapy aims to help the person identify, challenge, and modify dysfunctional ideas related to panic symptoms.	Cognitive Behavioral Therapy	Barlow, D.H., Gorman, J.M., Shear, M.K., & Woods, S.W. (2000). Cognitive-behavioral therapy, imipramine, or their combination for panic disorder. Journal of the American Medical Association, 283, 2529-2536
Panic Disorder	Focus is on uncovering the unconscious psychological meaning of panic; the treatment often focuses on psychodynamic conflicts that include separation/autonomy and anger expression/management.	Psychoanalytic Treatment	Milrod, B., Leon, A.C., Busch, F., et al. (2007). A randomized controlled clinical trial of psychoanalytic psychotherapy for panic disorder. American Journal of Psychiatry, 164, 265-272.
Post Traumatic Stress Disorder	Primary focus of therapy is to modify beliefs about the meaning and implications of the traumatic event.	Cognitive Processing Therapy	Monson, C. M., Schnurr, P. P., Resick, P. A., Friedman, M. J., Young-Xu, Y., & Stevens, S. P. (2006). Cognitive Processing Therapy for Veterans With Military-Related Posttraumatic Stress Disorder. Journal of Consulting and Clinical Psychology, 74, 898-907.

Post Traumatic Stress Disorder	Present centered perspective are focused on altering present maladaptive relation patterns/behaviors, providing psycho-education regarding the impact of trauma on the client's life, and teaching the use of problem solving strategies that focus on current issues	Present-Centered Therapy	Classen, C., Cavanaugh, C., Kaupp, J., Aggarwal, R., Palesh, O., Koopman, C., Kraemer, H., Spiegel, D. (2011). A Comparison of Trauma-Focused and Present-Focused Group Therapy for Survivors of Childhood Sexual Abuse: A Randomized Controlled Trial. Psychological Trauma: Theory, Research, Practice and Policy, 3(1) 84-93.
Post Traumatic Stress Disorder	The purpose of this imaginal exposure is to allow the patient to fully process the traumatic event, and to teach the patient that memories/ reminders the trauma are not in themselves dangerous, and are not the same as experiencing the trauma again.	Prolonged Exposure	Foa, E. B., Hembree, E. A., Cahill, S. P., Rauch, S. A. M., Riggs, D. S., Feeny, N. C., et al. (2005). Randomized trial of prolonged exposure for posttraumatic stress disorder with and without cognitive restructuring: Outcome at academic and community clinics. Journal of Consulting and Clinical Psychology, 73, 953-964.
Post-Traumatic Stress Disorder (controversial)	Affect management	Eye Movement Desensitization and Reprocessing	Davidson, P.R. & Parker, K.C. (2001). Eye movement desensitization and reprocessing (EMDR): a meta-analysis. Journal of Consulting and Clinical Psychology, 69, 305-316
Psychosis	ACT aims to improve the ability to cope with psychotic symptoms and to reduce distress associated with psychotic symptoms	Acceptance and Commitment Therapy	Bach, P., Hayes, S. C. & Gallop, R. (2012). Long term effects of brief Acceptance and Commitment Therapy for psychosis. Behavior Modification, 36, 165-181.
PTSD with Substance Use Disorder	Focus is on helping people attain safety from trauma/PTSD and substance abuse.	Seeking Safety	Najavits LM, Gallop RJ, Weiss RD. (2006). Seeking Safety therapy for adolescent girls with PTSD and substance abuse: A randomized controlled trial. Journal of Behavioral Health Services & Research, 33, 453-463.
Rheumatologic Pain	Focus is on gaining personal control over nociceptive, affective, cognitive, and behavioral aspects of the pain experience.	Multi-Component Cognitive Behavioral Therapy	Leibing, E., Pfingsten, M., Bartmann, U., Rueger, U., Schuessler, G. (1999). Cognitive-behavioral treatment in unselected rheumatoid arthritis outpatients. Clinical Journal of Pain, 15(1):58-66.
Schizophrenia	The goals of ACT are to reduce hospitalization rates and help clients adapt to life in the community.	Assertive Community Treatment	Rosenheck, R. & Dennis, D. (2001). Time-limited assertive community treatment for homeless persons with severe mental illness. *Archives of General Psychiatry*, 58(11):1073-1080, 2001.
Schizophrenia	Focus is on improving everyday functioning by teaching the individual with schizophrenia to use strategies that compensate for (or work around) the cognitive deficits associated with schizophrenia.	Cognitive Adaptation Training	Velligan, D.I., Prihoda, T.J., Ritch, J.L., Maples, N., Bow-Thomas, C.C. & Dassori, A. (2002). A randomized single-blind pilot study of compensatory strategies in schizophrenia outpatients. Schizophrenia Bulletin, 28(2), 283-292.

Schizophrenia	The goal is not to "cure" schizophrenia, but rather to improve the person's ability to function independently, manage their schizophrenia, and to reduce the distress they experience in their daily life	Cognitive Behavioral Therapy	Dickerson, F.B. (2004). Update on cognitive behavioral psychotherapy for schizophrenia: Review of recent studies. *Journal of Cognitive Psychotherapy: An International Quarterly*.
Schizophrenia	The goal of CR is to improve cognitive function.	Cognitive Remediation	Medalia A, Richardson R (2005). What Predicts a Good Response to Cognitive Remediation Interventions?Schizophrenia Bulletin, 31: 942-53
Schizophrenia	The patient-centered goals of FP include reduced relapse, fewer hospitalizations, and improved outcomes for the person with schizophrenia. Family-centered goals are to reduce the distress of dealing with a family member's mental illness, improve patient-family relations and decrease the burden of mental illness on family members.	Family Psychoeducation	Dyck, D.G.; Short, R.A.; Hendryx, M.S.; Norell, D.; Myers, M.; Patterson, T.; McDonell, M.G.; Voss, W.D., & McFarlane,W.R. (2000) Management of negative symptoms among patients with schizophrenia attending multiple-family groups. *Psychiatric Services*, 51: 513–519.
Schizophrenia	Focuses on teaching illness self-management to persons with serious mental illness. The emphasis is on recovery by helping clients set and pursue personally meaningful goals.	Illness Management and Recovery	Mueser, K.T. et. al (2006). The illness management and recovery program: Rationale, development, and preliminary findings. Schizophrenia Bulletin, 32, p S32-S43.
Schizophrenia	Primary goals of a token economy program are to increase the presence of adaptive behaviors and reduce the frequency of maladaptive or inappropriate behaviors, with the ultimate goal of preparing each participant for greater independence and improved functioning	Social Learning/Token Economy Programs	Glynn, S. (1990). Token economy approaches for psychiatric patients: Progress and pitfalls over 25 years. *Behavior Modification*, 17,383-407
Schizophrenia	SST uses the principles of behavior therapy to teach communication skills, assertiveness skills, and other skills related to disease management and independent living.	Social Skills Training	Kopelowicz, A., Liberman, R.P., Zarate, R. (2006) Recent advances in social skills training for schizophrenia. Schizophrenia Bulletin, 32, pS12-S23.
Schizophrenia	The goal of supported employment is to assist the person with schizophrenia in attaining competitive, community-based employment.	Supported Employment	Bond, G. R., Dietzen, L.L., McGrew, J. H., & Miller, L.D. (1995). Accelerating entry into suppported employment for persons with severe psychiatric disabilities. Rehabilitation Psychology. 40(2): 75-95.
Social Phobia and Public Speaking Anxiety	Focus is on modifying the catastrophic thinking patterns and beliefs that social failure and rejection are likely.	Cognitive and Behavioral Therapies	Davidson, J. R. T., Foa, E. B., Huppert, J. D., Keefe, F., Franklin, M., Compton, J., et al. (2004). Fluoxetine, comprehensive cognitive behavioral therapy, and placebo in generalized social phobia. Archives of General Psychiatry, 61, 1005-1013.

Specific Phobias	Exposure therapies are thus designed to encourage the individual to enter feared situations (either in reality or through imaginal exercises) and to try to remain in those situations.	Exposure Therapies	Gotestam, K. G., & Hokstad, A. (2002). One session treatment of spider phobia in a group setting with rotating active exposure. European Journal of Psychiatry, 16, 129?134.
Spinal Cord Injury	Focuses on behavior and behavioural change for the purpose of optimizing health and overall quality of life	Vocational Rehabilitation Intervention	Elliot, T. R. & Rivera, P. (2003). Spinal cord injury. In A. M. Nezu, C. M. Nezu, & P. A. Geller (Eds.). Handbook of Psychology: Health Psychology.