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Using Health Beliefs Model as an Intervention to Non Compliance with Hypertension Information among Hypertensive Patient

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Abstract: *This paper aim to present a theoretical framework that can be use to analyze noncompliance with hypertension information. The objective is to enable hypertension information programmer to design hypertension information program that will improve compliance level. To achieve this aim the paper discusses Health Ontology and Health Epistemology, Non compliance with hypertension information. Health Belief Model was use as a theoretical frame work for this paper. The paper also examining the constructs of health belief model to show how this model can be applied to knowledge, health belief and compliance in patients with hypertension.*

Key Words: *Health Epistemology, Health Ontology, Hypertension, Information, Non compliance*.

I. Introduction

Hypertension is the leading cause of death and disability (WHO, 2013), Hypertension affects 1.8 billion people globally. 50% of these people are unaware of their condition. 25% of those who are aware of their hypertension do not comply to hypertension information in preventing and controlling the disease and this results in 75% of the world's hypertensive population being at risk of heart disease, cardiac arrest, stroke or kidney disease, liver failure or even sudden death (WHO, 2013).

To reduce the risk of complications from hypertension scholars have explored the problem from medical, economics, and religion perspective etc (Kabir, Iliyasum, Abubakar and Jibril, 2004, Hashim et al 2014, Narayan, Case and Edward,2011) while these perspective has helped in identifying the factors associated with hypertension in order to improve compliance level. However, compliant level remain low (Reardorn, Kotak, Schwartz 2011, IIloh, Amadi, Okafor, Ikwudinma, Ezinne, 2014, Atulomah and Florence 2010). In order to improve compliance level among hypertensive patient there is need to explore the problem of non compliance from how hypertensive patient understand hypertension information in a socio cultural context. Understanding context and situation of hypertensive patient has the potential of designing hypertension information program that will improve compliance level (Gascono 2004, Kamran, Sadeghieh, Biria, Malepour and Heydari 2014). This paper argue that to improve level of compliance with hypertension information, there must be a proper understanding of context and situation of patient especially health ontology and health epistemology of hypertension.

II. Health Ontology And Health Epistemology

Ontology refers to the study of the existence, nature, or being of a certain entity, while epistemology refers to the body of philosophy that involves with the presence of knowledge (Maraqah, 2014). Epistemology is intimately related to ontology. Ontology involve philosophy of reality, Epistemology addresses how we come to know the reality (Krauss, 2005). Health Ontology and Health Epistemology refer to health workers and non health workers knowledge, attitudes and associated behaviors which pertain to health related topics such as diseases, their prevention, and treatment (Encyclopedia of Medical Concept, 2012)

An important factor that influences how people deal with health knowledge is their body of personal *epistemological beliefs (*Bientzle, Cress and Kimmerle 2014) "Epistemological beliefs are the cognitions (i.e., understandings) individuals have on knowledge and knowing and determine how (new) knowledge is perceived and processed *(*Bientzle, et 'al 2014). People's epistemological beliefs and their therapeutic health concepts are factors that influence how they comply with health knowledge *(*Bientzle, et al 2014). According to Roger (as cited by Narayan et al 2011) noted that individuals generally tend to comply to information that is already in accordance with their interests, needs, or existing attitudes (ontological and epistemological belief) and do not comply to information that contradicts them. Similarly, Ditto (as cited in Narayan et al 2011) stated

that patients more readily comply to information that is consistent with their preferred judgment conclusion (ontological and epistemological belief) and do not comply to information that is inconsistent with their preferred judgment conclusion. Also Spancer, Phillips and Ogedegbe (2005) reveal that patient's ontological and epistemological beliefs were mostly discordant with the traditional medical paradigm of hypertension, therefore, this perception could affect compliance. Spancer (2005) elaborated further that patient whose ontological and epistemological beliefs are discordant with traditional biomedical concepts of hypertension have poor compliance, poor blood pressure control than those whose beliefs are concordant with the biomedical paradigm. For this reason, ontological and epistemological belief is related to non compliance with hypertension information.

III. Noncompliance With Hypertension Information

Noncompliance to information simply means the practice of disobeying, failure or refusal to comply or adhere to information. (Hornby, 2010). Rouse (2010) view non compliance as state in which someone or something is not in accordance with established guidelines, specifications, or legislation. Similarly, Lahdenpera and Kyngas (2000) defined Noncompliance as a constant neglect of treatment or advice rather than mere temporary forgetfulness. While compliance signifies a stance according to which a patient is merely told what to do with regard to treatment and expected to follow the recommendations unquestionably Higgins (2006). Similarly, Garfield and Caro (2000) stated that compliance consists of three components namely, acceptance of medication prescribed, adhering to it and continuing with it. He further explained, that thus compliance is a complex and dynamic health enhancing behavior that involves acts of appointment keeping, obtaining ingesting medications and persisting with health provider recommendation such as life style changes.

Non compliance to hypertension information has been explained by Kabir et al (2004) as a major factor accounting for inadequate treatment of hypertension, he further define compliance as the degree to which patient conforms to medical advice about lifestyle and dietary changes as well as keeping appointment for follow up and taking treatment prescribed, he also stated that poor compliance is common when a patient has poor knowledge, understanding, and perception of hypertension. In the same way, compliance with hypertension information has been view as an indication of a positive behavior in which the patient is motivated sufficiently to adhere to the prescribed treatment because of a perceived self-benefit and positive outcome. (Panesar, 2012).

Furthermore, Non compliance to information behavior has been notice in the sphere of personal health, financial affairs, religious issues, relationship issues, and political issues, and has mostly negative implications (Narayan, Case and Edward,2011). Hence, the consequences or repercussion of non compliance to hypertension information can lead to uncontrolled hypertension on cardiovascular, cerebrovascular, and renal morbidity as well as mortality (Wang et al, 2002).

IV. Consequences Of Noncompliance With Hypertension Information

Complying with hypertension information require a change in behavior which may be extremely difficult. Patient often do not comply with hypertension information in spite of professional advice even when negating such advice is at their own risk (Timothy, 2014). According to Ashford, Eccles, Bond, Hall and Bond (1999) stated that introducing individual behavioral change is often met with some difficult and scepticim which are attributable to personal characteristics such as beliefs, attitudes, knowledge and motivation regarding the behavior. The consequences of non compliance with hypertension information are three fold; first, it leads to resistant or uncontrolled hypertension; secondly it leads to unnecessary hospitalizations and increased workload for health workers and lastly, it results in wastage of resources (Garfild & Caro 2015; Ren et al ,2002). Kim, Hill, Bone and Levine (2000) also report that noncompliance with hypertension information has a great consequences for the individual and the society.

V. Consequences For The Individual

For the individual level, non compliance leads to resistant or uncontrolled hypertension, which when not detected results in the development of complication such as congestive heart failure, coronary heart disease, renal failure and cerebrovascular accidents (Kim eta'l 2000) or the victim may survive with lifelong disabilities resulting in a life of dependence on others. The absolute effects of the complications of hypertension on individuals are enormous and may be difficult to quantify, particularly the physical and psychological suffering inflicted on the victim and the immediate family (edo, 2009).

VI. Consequences For Society

At the societal level, high rates of non compliance increases the cost of treatment, induces inefficient use of health resources and compromises treatment outcome (Kim et al, 2000), Money expended on drugs given to patients and time spent on consultations are wasteful when patients fail to comply with hypertension information, this produce treatment failure and disease deterioration, resulting in preventable hospital

admissions and loss of productivity (Thrall, et al 2004). Namely, hypertension remains the number one cause of significant financial burden, including the cost of caring for all the complications arising from it like stroke, ischemic heart disease and congestive heart failure. The financial burden comes in the form of direct healthcare costs related to treatment of CVD and its risk factors. These costs are borne by the individuals, governments, and the private sector**.** (Vijver et al, 2013).

Furthermore, there are numerous indirect costs related to hypertension, costs include the lost productivity of workers struck by stroke, heart failure, and ischemic heart disease. Other costs include the lost savings and assets that are foregone when families must meet catastrophic healthcare expenditures such as those associated with rehabilitation following stroke or dialysis following renal failure. Added to that are the major economic and social (opportunity) costs to families who - in the near absence of formal care systems - need to provide often intensive long term care to older relatives (Vijver et al, 2013). In addition, the total number of people with hypertension in low and middle income countries (LMICs) is high and a cost analysis of possible anti-hypertensive drug treatment indicates that LMICs cannot afford the same treatment as in high income countries. This is because African countries have limited resources to devote to management of hypertension in light of other competing health priorities**.** (Vijver et al, 2013).

VII. Management Of Hypertension

There is no cure for primary hypertension. However, it can be well controlled with the proper treatment. Therapy with a combination of life style changes and antihypertensive medicines usually can keep blood pressure at levels that will not cause damage to the heart or other organs. The key to avoiding serious complications of hypertension is to detect and treat it before damage occurs, because antihypertensive medicines control blood pressure, but do not cure it, patients must continue taking the medications to maintain reduced blood pressure level and avoid complications. On the other hand, in secondary hypertension, the diseases that is responsible for the hypertension is treated in addition to the hypertension itself. It is noted that successful treatment of the underlying disorder may cure the secondary hypertension. (WHO, 2013; Timothy, 2014)

Lifestyle measures are useful both in the control of high blood pressure and in risk factor management. They include weight reduction, increase in physical activity, reduction in salt intake, moderation of alcohol intake and cessation of smoking. As regards drug treatment, several classes of drugs are recommended for the treatment of hypertension and this is dependent on co-existing disease conditions and on the presence or absence of complications. Often, more than one drug is necessary to achieve control. The five main classes with proven effect are: Beta-blockers (BB), Diuretics (DIU), Calcium channel blockers (CCB), Angiotensin converting enzyme inhibitors (ACEI) and, Angiotensin receptor blockers (ARB) (Vijver et al, 2013).

VIII. Health Belief Model

Health Belief Model has been identified as one of the earliest and most influential models in health promotion; the model has been used with great success for almost half a century to promote greater condom use, seat belt use, medical compliance, and health screening use, to name a few behaviors. Health Belief Model addresses a person's perceptions of the threat of a health problem and the accompanying appraisal of a recommended behavior for preventing or managing the problem. The model asserts that for people to adopt recommended physical activity behaviors, their perceived threat of disease (and its severity) benefits of action must outweigh their perceived barriers to action (Raingruber, 2013)

The HBM was first developed in the 1950s by social psychologists Godfrey Hochbaum, Irwin Rosenstock, and Stephen Kegels working in the U.S. Public Health Services. The model was developed in response to the failure of a free tuberculosis (TB) health screening program. The TB screening program provided adults with free TB screening x-rays from mobile units conveniently located in various neighborhoods. When few adults came out for the free services, program organizers began investigating why more adults did not come out. Hochbaum, however, began to study what motivated the few who did come out. He quickly learned that their perceived risk of disease and perceived benefits of action were crucial factors in their motivation.

The model was first presented with only four key concepts: Perceived Susceptibility, Perceived Severity, Perceived Benefits, and Perceived Barriers. The concept of Cues for Action was added later to "stimulate behavior." Finally, in 1988, the concept of Self-Efficacy was added to address the challenges of habitual unhealthy behaviors such as smoking and overeating. Element in this model are described below (National Institute of Health, 2012)

Perceived Susceptibility: Perceived Susceptibility refers to subjective assessment of risk of developing a health problem. The Health Belief Model predicts that individuals who perceive that they are liable to a particular health problem will engage in behaviors to reduce their risk of developing the health problem while individuals with low perceived susceptibility may deny that they are at risk for contracting a particular illness. Individuals who believe they are at low risk of developing an illness are more likely to engage in

unhealthy, or risky, behaviors and individuals who perceive a high risk that they will be personally affected by a particular health problem are more likely to engage in behaviors to decrease their risk of developing the condition (Raingruber, 2013).

Perceived Severity: Perceived Severity refers to subjective assessment of the severity of a health problem and its potential consequences. The Health Belief Model proposes that individuals who perceive a given health problem as serious are more likely to engage in behaviors to prevent the health problem from occurring (or reduce its severity). Perceived seriousness encompasses beliefs about the disease itself (e.g., whether it is life-threatening or may cause disability or pain) as well as broader impacts of the disease on functioning in work and social roles. For instance, an individual may perceive that hypertension is not medically serious, but if he or she perceives that there would be serious financial consequences as a result of being absent from work for several days, then he or she may perceive hypertension to be a particularly serious condition (National Institute of Health, 2012).

Perceived Benefit: Health-related behaviors are also influenced by the perceived benefits of taking action. Perceived Benefits refer to an individual's assessment of the value or efficacy of engaging in a health-promoting behavior to decrease risk of disease. If an individual believes that a particular action will reduce susceptibility to a health problem or decrease its seriousness, then he or she is likely to engage in that behavior regardless of objective facts regarding the effectiveness of the action. For example, individuals who believe that reducing salt intake help in managing and reduce risk hypertension are more likely to comply than individuals who believe that reducing salt intake will not reduce the risk of hypertension (Raingruber, 2013).

Perceived Barrier: Health-related behaviors are also a function of perceived barriers to taking action. Perceived barriers refer to an individual's assessment of the obstacles to behavior change. Even if an individual perceives a health condition as threatening and believes that a particular action will effectively reduce the threat, barriers may prevent engagement in the health-promoting behavior. In other words, the perceived benefits must outweigh the perceived barriers in order for behavior change to occur. Perceived barriers to taking action include the perceived inconvenience, expense, danger (e.g., side effects of a medical procedure) and discomfort (e.g., pain, emotional upset) involved in engaging in the behavior. For instance, lack of access to affordable health care and the perception that a polio vaccine will cause significant impotent may act as barriers to receiving the polio vaccine (National Institute of Health, 2012).

Cues to Action: The Health Belief Model posits that a cue, or trigger, is necessary for prompting engagement in health-promoting behaviors. Cues to Action can be internal or external. Physiological Cues (e.g., pain, symptoms) are an example of internal cues to action. External Cues include events or information from close others i.e the media, or health care providers promoting engagement in health-related behaviors. Examples of cues to action include a reminder postcard from a dentist, the illness of a friend or family member, and product health warning labels. The intensity of cues needed to prompt action varies between individuals by perceived susceptibility, seriousness, benefits, and barriers. For example, individuals who believe they are at high risk of a serious illness and who have an established relationship with a primary care doctor may be easily persuaded to get screened for the illness after seeing a public service announcement, whereas individuals who believe they are at low risk of the same illness and also do not have reliable access to health care may require more intense external cues in order to get screened (Raingruber, 2013).

Self-efficacy: Self-Efficacy refers to an individual's perception of his or her competence to successfully perform a behavior. Self-efficacy was added to the health belief model in an attempt to better explain individual differences in health behaviors. The model was originally developed in order to explain engagement in one-time health-related behaviors such as being screened for cancer or receiving an immunization. Eventually, the health belief model was applied to more substantial, long-term behavior change such as diet modification, exercise, and smoking. Developers of the model recognized that confidence in one's ability to effect change in outcomes (i.e., self-efficacy) was a key component of health behavior change. (National Institute of Health, 2012)

IX. Health Belief Model And Non Compliance To Hypertension Information

The health believe model (HBM) was initially developed in an effort to explain the widespread failure of people to participate in programs to prevent or to detect disease (Hochbaum. 1958: Rosenstock. 1960. 1966.1974), Later, the model was extended to apply to people responses to symptoms (Kirscht.1974), and to their behavior in response to diagnosed illness, particularly compliance with medical regimens. In a study conducted by Hur (2012), **t**he results of the study indicated that health belief and compliance are significantly strongly correlated. The construct of the model can be use to examine non compliance to hypertension information and also help hypertension information programmer in designing hypertension information program that will bring about compliance. The six construct are examine below in context of the present study:

Perceived Susceptibility is very important in order to ensure compliance, before one will accept a diagnosis of hypertension and follow a prescribed treatment regimen, one must believe that one can have the condition without symptoms, According to Alpha (as cited in Peltzer, 2004), it is the degree to which an

individual perceive her/himself to be vulnerable to consequence of uncontrolled hypertension. An hypertension information programmer who is interested in designing a program that will ensure compliance can apply this construct to ask the following question: What are the perceptions of hypertensive patient about hypertension and its complications? What are the cultural beliefs that guide the knowledge of hypertensions among hypertensive patient?

Perceived Severity is the sense of seriousness of the disease, before one will comply with hypertension information one must perceived that it can lead to strokes, heart attack; it is dangerous to ignore high blood pressure, because this increases the chances of life threatening complication. Lee (2012) stated that when patients had more knowledge about hypertension, or higher perceived severity of hypertension, the attitude toward the treatment of hypertension will be more favorable significantly. Hence, Hypertension information programmer applying construct of perceived severity can ask the following question: How do hypertensive patient in a particular setting understand the consequences of hypertension?

The construct of Perceived Benefit symbolize the necessity of an hypertension information designer to design hypertension information program that will be superior in benefit when compare with barrier to action, the belief that compliance to hypertension information will reduce the risk without negative side effect or excessive difficulty is necessary in order to ensure compliance. Lee (2012) asserted that when patients had experience of health information, they had more knowledge, higher perceived susceptibility of complication, perceived severity for hypertension, and perceived benefit of treatment, compare to patients without health information. Scholars who are interested in why noncompliance to hypertension information can apply this construct to ask the following question. How do hypertensive patient in an area make sense of information about benefit of complying with hypertension information?

Another factor in promoting compliance to hypertension information is Perceive Barrier, the belief that benefit of complying with hypertension information must outweigh challenges of complying with hypertension information, e.g patient who belief that hypertension medication are too expensive (barrier) but realize that without taking the drugs he will fall ill and be unable to participate in economic activities might comply to hypertension information. Walsh (2008) stated that barriers to effective blood pressure control can affect the patient, the physician, the system, and cues to action. Scholars who are interested in why noncompliance to hypertension information can apply this construct to ask the following question. What challenges do hypertensive patient in a particular context experience using information about hypertension? How do hypertensive patient overcome the challenges they experience in their attempt to comply with hypertension information?

To promote and ensure consistent compliance in patient with hypertension Cues to Action such as symptoms, print material, reminder letter, or pill calendar, text messages, television, radio, social media can be use to instigate compliance to hypertension information. Chou (2010) noted that reading about illness information, knowing about services, and consulting with others about one's illness triggers compliance. Hypertension information designer applying construct of cues to action can ask the following question. What are the internal and external factors that make hypertensive patient in a certain setting to act promptly on information about hypertension?

The last and most critical construct that shapes compliance with hypertension information is Self Efficacy, people are more likely to adopt a health behavior if they think they will be successful. Hypertension information programmer can break down skills to be learned into small and manageable task so that it is likely the task will be done successfully. In a study conducted by Lee et al (2010) Hypertension control self efficacy emerged as the most significant contributing factor to hypertension self care. This concept will help us find answers to question like: what are the factors that shape hypertensive patient self confidence to comply with hypertension information?

X. Conclusion

This paper concludes that Health Beliefs Model is important guides for understanding Non compliance to hypertension information. All the constructs are eminent factors for examining non compliance to hypertension information. The paper also raised some question which hypertension information programmer can ask in order to design hypertension information programs that will improve compliance level.

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