Health Promotion and Disease Prevention: Theories and Models influencing Epilepsy Management

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Abstract: **The main objective of this paper was to evaluate theories that support indigenous practices of epilepsy management in Africa. The authors reviewed literature related to the following theories; the Health Belief Model (HBM), the Agency Approach, and the Technological Acceptance Model (TAM). The authors concluded that these theories help to understand why some individuals in Africa opt to use traditional medicines when western medicines are available at hospital centres. For instance, the behaviour of an individual is determined by a number of health threats and beliefs that he/she possesses about his/her well-being as well as the effectiveness and outcomes of particular behaviours or actions. The capability or ability of that same individual is affected by his or her cognitive belief structure that is formulated through his or her experiences and perceptions that are held by the society. The acceptance and the increasing utilisation of indigenous technological innovations in the health care sector are not only crucial, but are beneficial to both the healthcare professionals and patients during their diagnosis and the treatment processes. Culture plays many roles in the sustainable framework. As such, these theories assist in understanding the knowledge gap that exists on traditional medicines in epilepsy management.**

Key Words; **Agency Approach, Indigenous Practices, Health Belief Model (HBM), Technological Acceptance Model (TAM)**

I. INTRODUCTION

This paper provides a nuanced evaluation of theories that can be used in understanding management of epilepsy in Africa by professional counsellors, social workers, psychologists and many other people who want to understand the behaviour of people with epilepsy. Whilst the subject of epilepsy has been heavily contested in the last decades, insignificant attention has been devoted to examining health seeking behaviours of people living with epilepsy in developing countries. This paper will help to understand their behaviour and to this end the authors evaluate the following theories; the Health Belief Model (HBM), the Human Agency approach, the Technological Acceptance Model (TAM) and the Sustainable Livelihoods Approach.

II. THE HEALTH BELIEF MODEL (HBM)

The Health Belief Model (HBM), as a cognitive model posits that the behaviour of an individual can be determined by a number of health threats or beliefs that he/she may possess about his or her well-being and the effectiveness or outcomes of particular behaviours or actions (Becker, 1974, Rosenstock, 1974). The underlying concept of the original HBM is that the health behaviour is determined by one's beliefs and the perceptions that he or she has about that disease and strategies which are available in order to decrease its occurrence. For instance, some people with epilepsy believe that epilepsy is caused by evil spirits and strategies available in some non-western countries to manage the condition are traditional. In other words, the personal perception is influenced by some intrapersonal factors that affect the health behaviour. There are four perceptions that serve as the main constructs of the HBM and these are perceived seriousness, perceived susceptibility, perceived benefits and perceived barriers.

With *perceived severity*, Janz and Becker (1984) and Glanz, Rimer and Viswanath (2008) agree it is a subjective assessment about the severity of a health problem and its potential consequences. The HBM has proposed that people who perceive the health problem to be serious are likely to be engaged in behaviours which prevent a health problem from occurring, or may try to reduce its severity. For instance, people may perceive epilepsy to be a serious health problem because it interferes with their daily social roles and work. Consequently, they are forced to engage in behaviours that prevent this health problem from occurring or they reduce its severity.

Janz & Becker (1984), Rosenstock (1974) and Glanz, Rimer & Viswanath (2008) argue that *perceived susceptibility* refers to subjective assessment of risk of developing a health problem. The HBM predicts people who perceive to be susceptible to particular health problems may engage in behaviours which reduce the risk of developing such health problems. On the contrary, those who have low perceived susceptibility may deny that they are at risk of contracting a particular health problem. For instance in epilepsy, if a family perceive a high risk of developing the epidemic, it is likely to engage in behaviours that decrease the risk of developing the health problem.

There are also *perceived benefits* that promote people with epilepsy to be engaged in health seeking behaviours. As highlighted by Glanz, Rimer & Viswanath (2008), these

health related behaviours are normally influenced with perceived benefits after taking action. Perceived benefits are also described by Glanz, Rimer & Viswanath (2008) as one's assessment about the efficacy of engagement in a certain health-promoting behaviour in order to decrease that risk of the health problem. For example, a person who believes that anti-epilepsy drugs will help to improve his/her condition is likely to take that medication unlike a person who believes they are not useful at all. Similarly, one who believes in traditional doctors will make use of them regardless of the objective facts by medical doctors regarding the effectiveness of the traditional practices in epilepsy management.

Finally, we have *perceived barriers*, described by Glanz, Rimer and Viswanath (2008) as health-related behaviours which are a function of perceived barriers in taking action. This is a one's subjective assessment about obstacles to behaviour change. A person with epilepsy may perceive a health condition as threatening believing that particular action will help to effectively reduce the threat, but barriers may prevent engagement in health-promoting behaviours. For instance, medical doctors may suggest brain surgery for an individual with epilepsy. Perceived side effects associated with medical procedure like danger, expenses and inconvenience may be a barrier to this health seeking behaviour.

A stimulus, better known as a *cue to action* is also of paramount importance in triggering necessary engagements in any health-promoting behaviour (Rosenstock, 1974 and Glanz, Rimer & Viswanath, 2008). According to Janz and Becker (1984) and Carpenter (2010) these cues may be either internal or external. Physiological cues such as pain or symptoms are examples of an internal cue to action. An individual with epilepsy may have symptoms of a mentally disturbed person, or may be suffering from some internal physiological pain after the convulsions. This may drive the individual or fellow family members in support to seek medication, which may be either traditional or western. External cues on the other hand include information from the media, close others or health care providers and these may promote an individual to get engaged in a certain health-related behaviour. For instance, in Africa in general and in Zimbabwe in particular, the media is awash with the spiritual *papa* movement being a panacea to epilepsy management. The media may trigger an individual with epilepsy to be engaged in traditional practices of epilepsy management because of this media. Family members, in particular the elders may also influence an individual to get help from traditional doctors.

From this analysis, it can be observed that the HBM is a suitable theory in understanding why Africans opt for indigenous practices in epilepsy management. As highlighted by Carpenter (2010) and Rosenstock, Stretcher & Becker (1988) HBM has been used towards the development of effective interventions in changing health-related behaviours that are targeting various aspects of key constructs.

Interventions based on HBM try to increase the perceived severity and susceptibility of health conditions such as epilepsy by providing education on the prevalence and incidence of the disease as well as individualised risk and information about the consequences associated with the diseases, such as financial, social and medical consequences.

III. THE HUMAN AGENCY FRAMEWORK

In social science, agency is described as a capacity for individuals to act independently and to make their own free choices. Metcalfe, Eich and Castel (2010) posit that one's agency is an implication of one's independent ability or capability to act. The capability or the ability is affected by an individual's cognitive belief structure that is formulated through his or her experiences and the perceptions that are held by an individual and the society. Bandura (2009) described human agency as a human's capability to exert influence over functioning and the course of events by an individual's actions. Bandura (ibid) also suggest that it is through cognitive self-guidance that human beings may visualise futures which act on the present. Human beings construct, evaluate or modify alternative courses of action to gain valued outcomes and override environmental influences. Bandura (2008) thus concludes that human agency is an agent means which influence intentionally on one's functioning and life circumstances.

Perhaps an example of an individual with epilepsy will help to grasp this definition. This individual has a wide variety of choices for epilepsy treatment. He/she can visit the hospital, Non-Governmental Organisations such as Epilepsy Support Foundation Zimbabwe or any nearest clinic to get treatment in the form of psychological counselling and anti-epilepsy medication. The same individual can also visit a traditional doctor to get treatment in the form of herbs and spiritual treatment.

Epilepsy, described as a mental condition by the western, is attributed to spirituality in African Traditional Practices (Chilopola et al, 1999; Birbeck, 2000; Munthali et al, 2013 and Diop et al 2013; Mutanana and Mutara, 2015). Many people in African countries, Zimbabweans included believe in African traditional practices and have consequently resorted to traditional and spiritual medicines (Maroyi, 2013 and Mutanana & Mutara, 2015). To this end, several studies have demonstrated that people with epilepsy make use of traditional and spiritual medicines as treatment for epilepsy (Watts, 1989, WHO, 2001; Al-Safi, 2007; Luongo, 2008, Shizha and Charema, 2011; Mohammed and Babikir, 2013 and Mutanana and Mutara, 2015). The indigenous healer or the diviner occupy a central place in communities' participation in life events, including epilepsy (Mutswanga and Mafunga, 2009). In some cases, studies have suggested an inter-play between western medication and traditional medication. For instance, Asadi-Pooya (2014), Saburi (2011) agree that traditional medicines may be used to complement western medication. To this end, it would appear the majority

is neglecting western medication. This is evidenced by Epilepsy Support Foundation Zimbabwe (2016) which claims that about 86% of people who are living with epilepsy are still not receiving anti-epilepsy medication. This is in spite of the media reports that have supported western medication ahead of indigenous medicines.

To explain this conception, Bandura (2006) argues that people are the contributors to their life circumstances. Bandura (ibid) insists people create social systems which will in turn organise and influence their lives. Throughout history epilepsy has been perceived to be a mysterious and supernatural disorder (Mpofu, 2003). Studies have also indicated that a widely held notion about epilepsy in Africa is that epilepsy is caused by evil spirits and witchcraft (Carod-Artal & Vazquez- Cabrera, 2007). Mutanana and Mutara (2015) also argue that many communities in Zimbabwe still believe that epilepsy results from witchcraft or possession by evil spirits. These are the social systems that are organising and influencing people with epilepsy. Human agency is thus a cognitive self-guidance which human beings can use in order to visualise the future that act on the present. Bandura (2006) strongly believes it is through cognitive self-regulation that human beings are able to create a visualised future that act on the present. Human beings are able to construct, evaluate and to also modify alternative courses of action to secure valued outcomes. This explains the problem of interplay between western medications and traditional practices of epilepsy management in some reported in some studies.

According to Bandura (1986; 2001) a social cognitive theory has adopted an agentic perspective on human development, change and adaptation. Bandura (ibid) insists that to be an agent is to influence intentionally on an individual's functioning and their life circumstances. What it means is that personal influence is part of the causal structure. This theory, it would appear, is also trying to explain the behaviour of an individual with epilepsy. The government of Zimbabwe offers free medication and psycho-social support at hospital centers, but according to statistics provided by Epilepsy Support Foundation in Zimbabwe 86% of people who are living with epilepsy are still not receiving anti-epilepsy medication. The presumption earlier was that the government is not resourced enough to take care of people with epilepsy and to solve this problem Non-Governmental Organisations such as Epilepsy Support Foundation Zimbabwe were introduced to help with medication, counselling and social services but this development has not yielded any positive results. A possible cause of this problem could be that the reaction to epilepsy in Zimbabwe is shaped by traditional indigenous beliefs and traditional treatment (Mpofu; 2001, 2003 & Mpofu et al, 2011). According to Bandura (2006), as human beings they are self-regulating, self-organising, self-reflecting and they contribute to their life circumstances. They don't need medical doctors, or the media to advise them on the disadvantages of indigenous medicines because they created the social systems which is now organising and influencing them.

IV. THE TECHNOLOGY ACCEPTANCE MODEL (TAM)

Davies (1989) in Ziyu (2014) proposed the Technology Acceptance Model (TAM) in order to explain and predict behaviours of people towards technological innovations, particularly the acceptance of users towards information technology systems. Fishbein and Ajzen (1975) supported by Ziyu (2014) report the technological acceptance model to be originally an extension of the Theory of Reasoned Action (TRA). TRA was a psychological theory that explains an individual's actions by identifying the causal connections between various components of life such as attitudes, beliefs, intentions and the behaviours.

However, with TAM, unlike TRA there are two primary variables; independent and dependent variables. Independent variable includes perceived usefulness (PU and the perceived ease of use (PEOU). The dependant variable is the attitude towards using (AT). The perceived usefulness is defined by Davis (1989) as the degree to which a person believes in using a particular system that would enhance his/her performance. Davies (1989) also defines perceived ease of use as the degree to which people believe using a particular system would be free of effort.

Epilepsy Support Foundation Zimbabwe (2016), for instance has indicated that about 86% of people living with epilepsy are not on anti-epilepsy medication in Zimbabwe. This has been attributed to the fact that many people with epilepsy who live in developing countries have limited access to health care facilities. In this context, it is widely assumed that traditional and spiritual medicine, being easily accessible, plays an important role in treating people with epilepsy. This could be attributed to the perceived usefulness by users, who may be having a feeling that that these traditional medicines are quite useful in enhancing their performance. This can also be attributed to the perceived ease of use (PEOU) described by Davies (1989) as the degree to which people with epilepsy believe in this system would free of effort.

Davies (1993) further theorised that the actual information usage as being determined by behavioural intentions and these intentions were jointly determined by the users' attitudes towards these systems and perceived usefulness. Studies have also highlighted that a widely held notion about epilepsy in African countries is that epilepsy is caused by evil spirits and witchcraft (Carod-Artal & Vazquez- Cabrera, 2007). Mutanana and Mutara (2015) also argue that many communities in Zimbabwe still believe that epilepsy results from witchcraft or possession by evil spirits. There is also a grave social stigma attached to epilepsy with some people believing that it is a contagious disease (Epilepsy Support Foundation, 2016). Thus Mpofu (2001; 2003) is of the opinion that traditional healers and prophets (faith healers) are crucial at community level and they are the first port of call and often the last resort.

Ward (2013) argues that the information and technology (IT) was proposed within the healthcare because of a variety of

reasons that includes benefiting and improving patient care. It also enhances patient care. Ward (2013) also argues that technology acceptance model focus on factors and decision processes which are undertaken by an individual as he or she goes through any decision to accept or use a technology, for instance; indigenous technologies in management of epilepsy in Zimbabwe. According to Ward (2013), the perceived usefulness as well as the perceived ease of use is viewed as key determinants in one's choice for the right treatment. Many studies have placed much emphasis on the attitude and the social factors on a person's behavioural intention. For instance, if these traditional practices are not recognised as part of medication for people with epilepsy, they will continue to live in severe social isolation and discrimination. This will hinder their development psychologically, medically, educationally and economically (Diop et al, 2003). They continue to die prematurely because they are depending on these traditional modes of epilepsy treatment to sustain their livelihoods.

Gucin and Berk (2015) have suggested that the acceptance and the increasing utilisation of technological innovations in the health care sector are not only crucial, but they are beneficial to both the healthcare professionals and patients during their diagnosis and the treatment processes. These authors seem to be supportive of modern technologies of epilepsy treatment because they strongly feel these are helpful in managing the condition of people with epilepsy. However, Gucin and Berkin (2015) agree that there are influencing factors that may differ for both health care professionals and their patients. They observed that perceived ease of use may be affected by personal norms and the perceived control beliefs. Gucin and Berkin (2015) believe suspicions of confidentiality and privacy are some of the influencing factors for refusing technology usage among patients. As such, these factors must be considered when one is designing intervention programs in order to enhance technology acceptance among people with epilepsy.

V. ANALYSIS OF THEORIES THAT SUPPORT INDIGENOUS PRACTICES OF EPILEPSY MANAGEMENT

Based on the discussions above, the authors find the following theories to be suitable in understanding indigenous practices of epilepsy management; Health Belief Model (HBM), the Agency Approach, Technological Acceptance Model (TAM) and Sustainable Livelihood Theory. These theories help to justify why some people opt for indigenous practices of epilepsy management. They also justify why they opt for those practices and finally help to manage the knowledge gap currently in existence on indigenous practices of epilepsy management.

The Health Belief Model (HBM), described by Sharma and Romas (2012) as a psychological model which attempts to predict and explain health behaviours is a cognitive model. The behaviour of an individual is determined by a number of

health threats and beliefs that he/she possesses about his/her well-being as well as the effectiveness and outcomes of particular behaviours or actions. The underlying concept of the HBM is that health behaviour is determined by individual beliefs and perceptions about the disease and strategies that are available to decrease its occurrence. For instance, some people with epilepsy believe that epilepsy is caused by evil spirits and strategies available in some to manage the condition are traditional. In other words, personal perception is influenced by some intrapersonal factors that affect the health behaviour.

Similarly, the agency has been described as the capacity for individuals to act independently as well as to make their own free choices. Metcalfe, Eich & Castel (2010) suggest that one's agency implies one's independent ability or capability to act on one's will. The capability or ability is affected by one's cognitive belief structure formulated through one's experiences and perceptions that are held by the individual and the society. Bandura (2009) described human agency as the human capability to exert influence over one's functioning as well as the course of events by one's actions. Human beings construct, evaluate or modify alternative courses of action in order to gain valued outcomes and to override environmental influences. Human agency is thus an agent means that influences one's intentionality on functioning and life circumstances.

Just like HBM and Agency Theory, Davies (1989) explains that the Technology Acceptance Model (TAM) helps to predict the behaviour of people towards a technological innovation, particularly the acceptance of users towards information technology. This theory is a psychological theory which explains people's actions by identifying causal connections between the various components of life such as attitudes, beliefs, intentions and the behaviours.

VI. CONCLUSION

Based on these discussions, the authors concluded that the HBM, Agency Approach, TAM and Sustainable Development theories help to understand why some individuals opt to use traditional medicines when western medicines are available at hospital centres because of the following reasons;

- The behaviour of an individual is determined by a number of health threats and beliefs that he/she possesses about his/her well-being as well as the effectiveness and outcomes of particular behaviours or actions.
- The capability or ability is affected by one's cognitive belief structure formulated through one's experiences and perceptions that are held by the individual and the society.
- The acceptance and the increasing utilisation of technological innovations in the health care sector are not only crucial, but they are beneficial to both the healthcare professionals and patients during their diagnosis and the treatment processes.

- Culture plays many roles in the sustainable framework.

These theories also assist in understanding the knowledge gap that exists on traditional medicines in epilepsy management.

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