SUPPORTIVE DESIGN MODEL: AN APPROACH TO PROMOTE WELLNESS OF PYCHIATRIC PATIENTS.

CASE STUDY: MATHARI NATIONAL HOSPITAL, NAIROBI COUNTY, KENYA.

RUTH.C.CHERUIYOT

B51/88788/2016

SCHOOL OF ARTS AND DESIGN

A Research Project submitted in partial fulfillment for degree of Master of Arts in Design, University of Nairobi.

10th of August, 2018

DECLARATION

I, Ruth Cherotich Cheruiyot, declare that this project is my original work and has not been presented in any other institution or conference. The ownership of any intellectual property rights which may be described in this project is vested in University of Nairobi, School of Arts and Design, subject to prior agreement to the contrary, and may not be made available for use by third parties without the written permission of the University which will prescribe the terms and conditions of such agreements.

CHERUIYOT RUTH CHEROTICH

Signature……………………………………………………

Date …………………………………………………………...

This project has been submitted after examination with my approval as University supervisor

SUPERVISOR

DR. LILAC OSANJO

Signature………………………………………………

Date …………………………………………………..

School of Arts and Design, University of Nairobi.

DIRECTOR

DR. LILAC OSANJO

Signature………………………………………………

Date …………………………………………………..

School of Arts and Design, University of Nairobi.

DEDICATION

I dedicate this work to my loving parents Mr. and Mrs. John Cheruiyot.

ACKNOWLEDGMENT

ABSTRACT

The study is an investigation of supportive design model: an approach to promote wellness of psychiatric patients in Mathari National Hospital. The interior design of a space and its exterior environment has tremendous effects on mental health. It is argued that poor quality design increases psychological distress, but methodological issues make it difficult, to draw clear conclusions. The state of interior and exterior spaces has been directly linked to mental health of psychiatric patients. The objectives are; to establish the outcome of therapeutic design on wellness of psychiatric patients, to establish the importance of positive work environment on the productivity of staff at Mathari hospital and to identify the challenges faced by stakeholders in implementing therapeutic design features on the facility.

This study seeks to use supportive design model to foster sense of control, allow access to social support, access to positive distractions in physical surroundings and enhance spiritual well-being. The literature review will discuss the aspects of built environment and mental health, healthcare interior design and exteriors and its impact on patients and challenges faced by authorities to have therapeutic spaces in healthcare facilities. The research will employ descriptive survey design. Critique inquiry method will be used to obtain information from the respondents. It will entail administering questionnaires to the counseling psychologists, interview conducted with an interior designer and secondary data will be collected. The data will be collected, sorted and tabulated. Thematic, descriptive and content methods will be used to analyze data collected. The conclusion and recommendations will be drawn from the findings of the study.

ABBREVIATIONS AND ACRONYMS

WHO   World Health Organization

KNHRC   Kenya National Human Rights Commission

UNCRD   United Nations Centre for Regional Development

MTRH   Mathari Teaching and Referral Hospital

PWC   PricewaterhouseCoopers

UNODC   United Nation Office of Drug and Crime

TABLE OF CONTENTS

Page

CHAPTER TWO: LITERATURE REVIEW

CHAPTER THREE: RESEARCH METHODOLOGY

LIST OF FIGURES

LIST OF TABLES

CHAPTER ONE

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 Introduction

This chapter contains an elaborate background of the study, outlining clearly the problem statement, research objectives and questions. It also states the significance of the study, theoretical framework, conceptual assumptions and the scope of the study.

1.2 Background to the study

Psychiatric disorder is defined as mental pattern that may result in malfunction in life. Many psychiatric disorders have been defined with "signs and symptoms that vary widely between specific disorders"(WHO, 2015).According to Hamilton&Watkins (2009, p.78), when a design demonstrates "measurable improvements in the physical and psychological states of patients and staff", a healing environment is nurtured. The environment in hospitals has a vital role in patient and staff functioning (Karlin & Zeiss, 2006). Hospital environments should boost the health of patients, advance well-being for friends and families and create an enjoyable, comfortable and safe work environment for staff. One of the most important and comforting aspects in the life of patients in hospitals is having relatives and friends who visit and spend time with them.

Since healthcare is advancing, majority of patients have treatment in an outpatient setting, and then return to their homes. Modern patients are likely to have serious conditions which require admission for a period of several days or even months. This requires the creation of healthcare environments that make the patients and their families relax and make them forget that they are in a healing center. It has been established that when one experiences comfort, he or she will recuperate easily and quickly. Race (2012) observes that the healing center's surroundings may have tremendous results on the outcome of the patient recovery. Design aspects which influence moods and health of the patient comprise of light, space, color, acoustics, levels of noise and the control level a patient has on the settings.

Hospitals should be well-designed to enable health practices to be carried out easily, although most stakeholders do not appreciate how design may affect patients, Rice (2010). The spaces patients occupy and their exposure to natural features for instance fresh air and sunlight, add to the patient's process of recuperating. Designing spaces that stimulate healing consequently enhance quick recovery. Environments created that minimize stress eventually enhance healing since they make the immune system of a body stronger. Therefore, understanding the different environments that boost the patients' health is critical in enhancing the quality of any healthcare facility, Sternberg (2009).

The study focuses on Mathari Teaching and Referral Hospital (hereinafter 'Mathari hospital') for two primary reasons. First, its Kenya's topmost referral facility for psychiatric patients. Secondly, it's well known for its poor and unattractive interiors. It has capacity for six hundred and seventy five patients and is located near the slum area of Mathari district in Nairobi (Grohol, 2016).It was established in 1904 as a small pox isolation center and later became a lunatic asylum. In 1924, it became Mathari mental hospital. It is situated in Nairobi along Thika Road about 5 Km North of the City Centre.

It has many departments and the total number of staff is four hundred and eighty three. The national health committee established as a house committee under the national assembly (the "Health Committee") visited the Hospital in February 2016 and were shocked by the deplorable living conditions of patients. They noted that the facility with a bed capacity of seven hundred had a population of over four thousand. The committee further noted the fact that the facility has never been expanded to cater for the ever rising population. According to the Medical Superintendent Julius Ogatu, the facility requires one hundred million to improve its services including renovation,(Njenga, 2016).

Ndetei et al., (2008) examined some workers at Mathari hospital who experience burnout. They discovered that increased burnout was as a result of heavy workload, understaffing, and low morale. All the above were attributed to the fact that Mathari Hospital has the poorest physical infrastructure compared to other national hospitals. The challenges therefore facing Mathari hospital justify the need for conducting this research.

1.3 STRUCTURE OF MATHARI NATIONAL TEACHING AND REFERRAL HOSPITAL

```
                                          ┌─────────────────────────────┐
                                          │ Clinical research and ethics,│
        ┌──────────────────────┐          │ Finance, Human resource,    │
        │ Board of Management  │─────────►│ Risk and audit, Pension and │
        └──────────────────────┘          │ Enterprise.                 │
                    │                      └─────────────────────────────┘
                    ▼                         │                    │
        ┌──────────────────────┐              │                    ▼
        │      Director        │              │          ┌──────────────────┐
        └──────────────────────┘              │          │  Risk and audit  │
                                              │          └──────────────────┘
                                              │                    ▼
                                              │          ┌──────────────────┐
                                              │          │ Corporate secretary │
                                              │          └──────────────────┘
                                              │                    ▼
                                              │          ┌──────────────────┐
                                              │          │ Special programs │
                                              │          └──────────────────┘
                                              │                    ▼
                                              │          ┌──────────────────┐
                                              │          │    Security      │
                                              │          └──────────────────┘
```

Deputy Director clinical services	Deputy Director nursing services	Deputy Director administrative service

Dental unit	Out-patient clinics	General administration
Pharmacy unit	In patient female side	Accounts
Laboratory unit	In patient male side	Procurement
X-ray unit	In patient forensic side	Bio-engineering
Public health	Continuing medical education	Transport
Occupational therapy	Nursing commodities	Catering
Social work unit		Compound maintenance
In patient unit		ICT
Out-patient unit		Record unit
Nutrition unit		
Social work unit		
Physiotherapy unit		
Orthopedic unit		

Source: MTRH Records (2017)

1.4 Statement of the problem

The Health committee visited Mathari Hospital in February 2016 and established that the facility was in a poor state. They observed that ventilation in the hospital structures was lacking and there were many sewerage blockages (KNHRC, 2013). Buildings were dilapidated, roofs caving in and posing a danger to the users. The lice-infested wards had not been fumigated for months (Njenga, 2016).

Moreover, insecurity was at its peak and there were reports of thefts from the Mathari slum. For instance, on May 12th 2016, seventy male patients fought the security guards and with the view to escape from Mathari hospital. About forty of them were successful. Despite the fact that half the patients in Mathari hospital have been diagnosed with mental illness, the incident shows that the patients were fed up with the horrifying living environment hence they planned to escape. Their concerns included poor quality medication, infrastructure, poor hygiene and inadequate food.

An earlier report by the Kenya report released in 2011 noted that the poor conditions were affecting the morale of both the staff and patients. MTRH is well known for its poor and unattractive indoor and outdoor spaces. The problem therefore is that the interiors and exteriors of Mathari hospital are in a deplorable state hence worsening the mental health of patients. Therapeutic design is lacking since MTRH does not support psycho-social and spiritual needs of the users. Staff effectiveness and clinical outcome of patients is wanting and hampered by the lack of a therapeutic environment (ref to chapter four).

1.5 Case study

Mathari hospital is the case study because it is the topmost referral facility for psychiatric patients(ref to page 2).The research was done at Mathari hospital, along Thika road about 5 Km north of the city center, Nairobi county. The hospital is both a referral hospital and a teaching institution. It sits on a 30 acre piece of land. From observation,it is evident that the structure of the facility is worn out,neglected and old. Mathari hospital has not served its primary purpose which is to ensure the patients' timely recovery and healing. Previous studies have confirmed that the very structures –in this case Mathari hospital that is intended to promote healing could contribute to the diseases trying to be cured (Sita, 2008).

1.6 Purpose

To establish the benefits of therapeutic design on wellness of psychiatric patients.

1.7 Objectives

- To investigate the design considerations of mental hospitals in Kenya.
- To establish the impact of work environment on the productivity of staff at MTRH.
- To identify the challenges faced by stakeholders in implementing therapeutic design features at MTRH.
- The study seeks to propose a supportive design model that will help reduce stress and foster wellness at MTRH.

1.8 Research Questions

- How do the interiors and exteriors of Mathari hospital influence the wellness of the patients?

- What is the importance of positive work environment on the staff productivity of the hospital?

- What are some of the challenges faced by stakeholders in the process of implementing therapeutic design features?

- What can be done by designers to improve health outcomes in rehabilitation centers?

1.9 Significance of the study

This study will show the importance of having therapeutic design in spaces used by the mentally disabled. The researcher hopes to initiate an academic and policy conversation on the connection between therapeutic designs and mental health of patients in Mathari hospital. The recommendations of this study may be used to transform the interior spaces of MTRH. This study seeks to use design model to foster sense of control, allow access to positive distractions in the physical environment and social support.

1.10 Limitations and delimitations

1.10.1 Limitations

The study was constrained by the mental health of the patients. Most of the patients were mentally disabled therefore had challenges in responding to the questionnaires. The limitation was minimized by involving recovered patients.

1.10.2 Delimitations

The study analyzed the interior design of Mathari wards for the mentally handicapped, nursing stations and the outdoor spaces.

1.11 Assumptions

The assumption is that the interiors as well as the exteriors of hospital spaces in this case, Mathari hospital, influences the patients, caregivers and nurses positively or negatively. Good features in hospital interior and outdoor spaces can affect the patients positively, decrease stress and promote faster healing.

1.12 Theoretical and conceptual framework

1.12.1 Theoretical framework

Healing centers affect a patients' stress levels,(Andrade & Delvin, 2015).This study is based on Ulrich's (2014) supportive design theory which is linked to characteristics of the environment that enhance restoration and coping with regards to stress that accompanies sickness. Supportive design theory suggests that the environment of healthcare facilities is effective in boosting stress reduction and restoration of health(Michelle, 2013).

The aim of the theory is to utilize the environment to reduce stress. Healthcare environment will enhance good health if intended to nurture a sense of control of physical surroundings, nature and positive distractions and access to social support. "Supportive designs are functional to the specific space and its user group" (Smith, 2007).

1.12.2 Conceptual framework

According to Mugenda(2008), a conceptual framework is a "brief description of the phenomenon under study accompanied by a visual depiction of the variables of the study". Young(2009) describes a conceptual framework as a "diagrammatical representation that shows the relationship between independent and dependent variables".

Fig.1.1

Independent Variable   **Dependent Variables**

```
                                              ┌─────────────────────┐
                                         ┌───▶│ Wellness of patients │
┌──────────────────┐                     │    └─────────────────────┘
│ Supportive design│──────────────────────┤
│ model            │                     │    ┌─────────────────────┐
└──────────────────┘                     └───▶│ Nurses' productivity │
                                              └─────────────────────┘
```
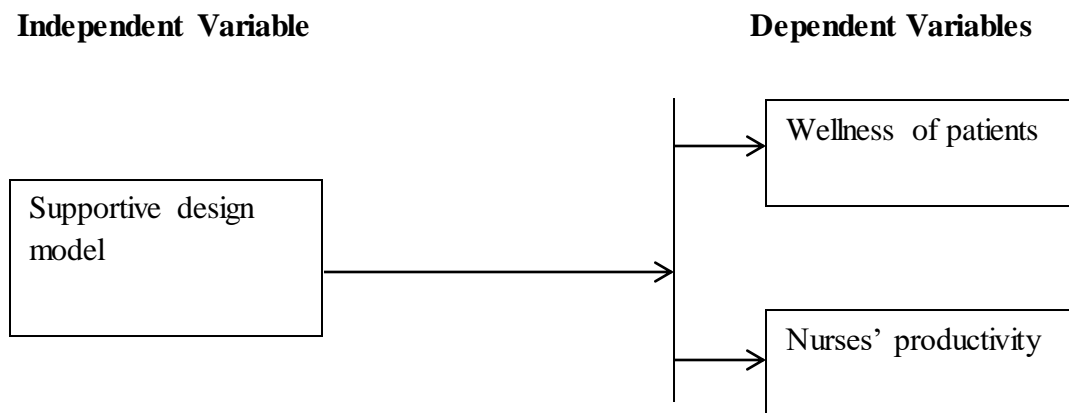
Source: Author (2017)

CHAPTER TWO

<u>LITERATURE REVIEW</u>

2.1 Introduction

This chapter discusses literature in alignment with the research objectives. The issues raised are design strategy/model to foster wellness of patients, the importance of positive work environment on the staff performance, challenges faced by stakeholders in implementing design concepts on the facility and the effects of therapeutic design on wellness of psychiatric patients. The researcher will consult primary and secondary sources of information in order to appreciate what has been done by others in interior design and to gain knowledge. Dictionaries and encyclopedias will shed light on the definition of terms. Print magazines and newspapers, online journals and books will contribute to the information required.

2.2 Stress as a major obstacle to healing

Healing centers affect levels of stress of patients. The theory of supportive design by Ulrich suggests that the healthcare setting will decrease the level of stress if it nurtures a sense of control, social support and positive distractions, (Andrade & Delvin, 2015).To stimulate well-being, hospital structures should be designed to deal with stress. Ulrich (2014) states that a starting point for the supportive design theory is the fact that stress is experienced by many patients. The main sources of stresses for patients are; physical–social environments that can be noisy, painful medical procedures, illnesses that involve reduced physical capabilities, or no social support.

Patients' stress leads to physiological, psychological and behavioral manifestations that are negative and work against progressive health. Feelings of helplessness and anxiety are the psychological manifestations. Behaviorally, stress lead to withdrawal, sleeplessness and non-compliance with medics. Research has shown that stress may work against the process of healing by increasing pain, suppressing the immune system and causing additional health problems such as insomnia and depression. On the other hand, research has shown that stress levels of patients' can be reduced through the use of comfortable designs, a beautiful and visually stimulating environment (Geimer, 2009).

In poorly designed waiting areas, patients who experience longer wait times, tend to have high levels of anxiety and eventually stress. Stress not only contributes to heart diseases and other illnesses, but also has great effects on the immune system. High stress levels are generally a challenge for visitors and staff. Supportive design in work places can be a good aspect in reducing turnover, increasing productivity and job satisfaction.

2.3 Wholesome wellness

There are six dimensions of life and health — physical, social, environmental, emotional, spiritual, and intellectual. When one area becomes out of balance, wellness is compromised. One common result of being out of balance is experiencing stress. The World Health Organization (1948, p. 100) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." Michael O'Donnell (1988), a healthcare consultant, states that optimal health reflects a balance among emotional, physical, spiritual, intellectual, and social health. This concept of optimal health focuses on nutrition, exercise, mental health, and healthful interpersonal relationships (Jenkins, 2016).

Figure 2.1: Six dimensions of wellness model

Categories

Occupational-Recognizing personal satisfaction and enrichment in one's life through work.

Social-Encouraging contributing to one's environment and community.

Emotional -Recognizing awareness and acceptance of one's feelings.

Spiritual- Recognizing our search for meaning and purpose in human existence.

Intellectual- Recognizing one's creative, stimulating mental activities.

Physical- Recognizing the need for regular physical activity.
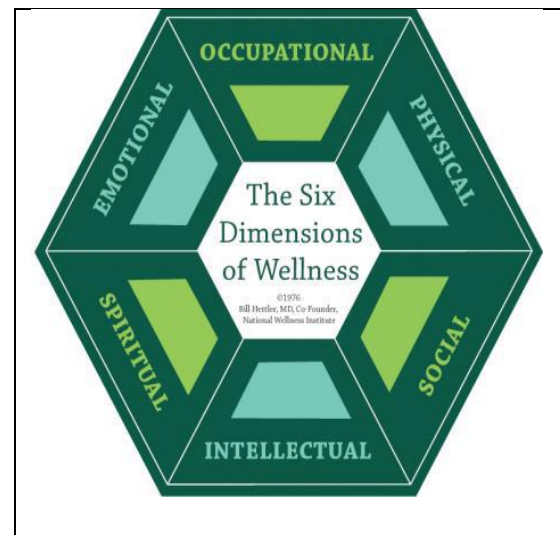
2.4 Supportive design

Supportive design is a theory that design of environment will support management of stress and thus promoting wellness. They are: a sense of control over physical-social surroundings, access to social support, and access to positive distractions in physical surroundings (Ulrich, 1991).In health related contexts, stress is a concept proven by several studies to be connected with almost all aspects of wellness. To make stress concept a center of interest, supportive design theory has been established to conceptualize influence of people on design directly linked to interpretations of wellness. Ulrich (2014) indicates that environmental healthcare should enhance well-being and deal with stress if made to promote the following:

- "A sense of control with respect to physical-social surroundings.
- Access to social support
- Access to positive distraction"

Design strategies

Fig 2.2: Ulrich theory of supportive design
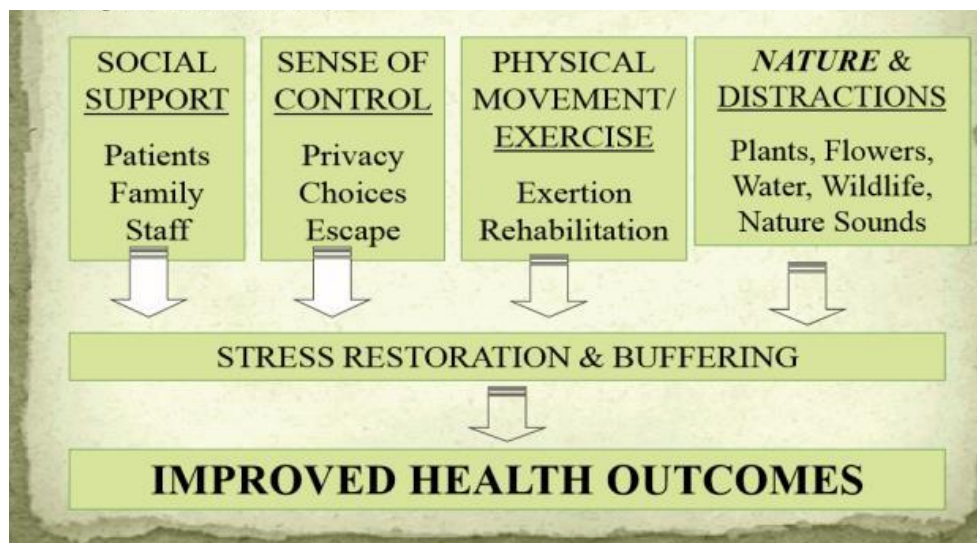
Source:Ulrich(2012)

Fig 2.3: Supportive design model
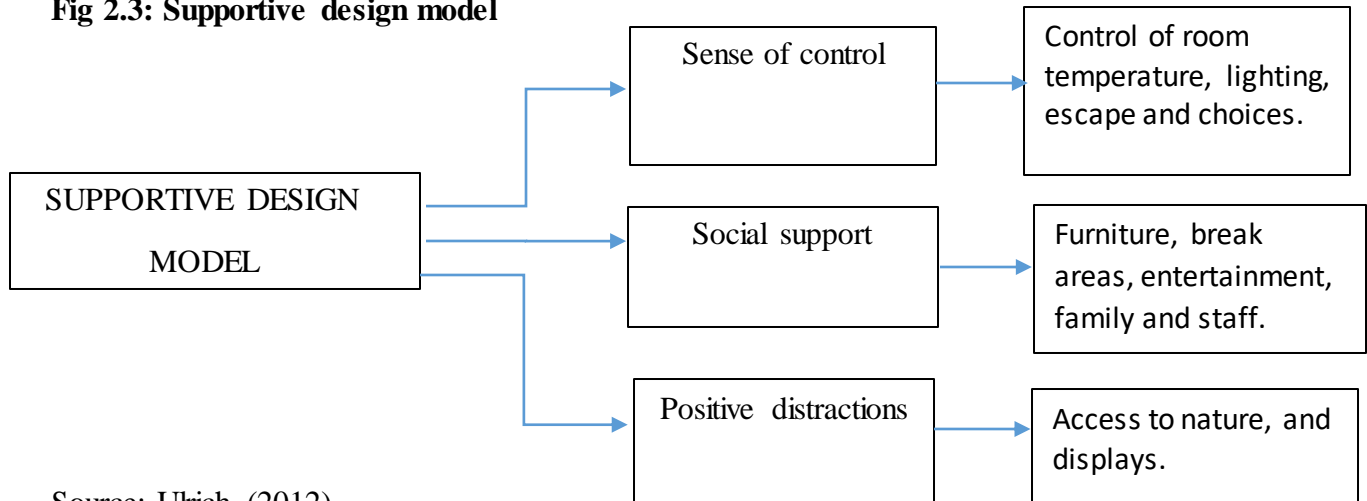
Source: Ulrich (2012).

2.4.1 Sense of control

Control over the environment, is defined as an individual's capacity to make their choices without interference and influence their own outcome. Humans have a strong need for control and the need of self-efficacy with respect to environments. In healthcare contexts,lack of contol is a problem that increases stress and affects wellness. Usually, individuals manage stress better if they have a degree of control over the environment. Eventually, they experience better health status compared to them that do not experience some sense of control,(Erickson, 2012).

For instance, levels of noise should be controlled in hospitals to facilitate holistic healing in a patient. Noise can have negative effects on patient sleep patterns. When alzheimer's patients are placed in private rooms, they exhibit less aggression, anxiety and fewer psychotic symptoms, Race (2012).A sense of control has an impact on a wide range group of people. Major studies in healthcare contexts reveal that man is more often than not in need of control. Lack of control is linked to negative outcome such as depression and anxiety.

Patients are exposed to two stressors: illness and physical-social environments. Illness confronts patients with stress due to uncontrollable disorders for example chronic pain, (Andrade & Delvin, 2015).By way of illustration, an administrator in a reception would want to regulate the television channels; on the other hand, in the room, the users may undergo stress if they don't have the liberty to choose tv programs.

Furthermore, nurses and healthcare workers often times experience burnout because of their lack of control and many responsibilities in their work, (Reginaldo, 2013).Bedside lighting can allow for control of lighting in the room. The situation could be worsened by a work-place that is poorly designed. For example, the absence of break areas or lounge makes it hard for workers to retreat from work demands, regulation of room temperature by the users who feel hot or cold among other factors. Having controllable TV's in patients' and nurses' rooms, and easily convertible workstations are examples of design approach that will increase control. The theory can be applied in various settings in Mathari hospital by using design strategies that foster control. Control can only be applied to specific mentally ill patients. They are categorized into three groups:

- Mild patients
- Moderate patients
- Severe patients

These illnesses are medically judged according to their type, severity and number of the symptoms present. Not all the mentally ill patients should have control over their surroundings. For instance, severe mental patients such as insane patients, severe psychotic and schizophrenic patients are violent, lack sense of control and should be given little control over their environment. Mild depression, mild and moderate addictions that are clinically diagnosed fall under moderate and mild patients. Choice over what kind of environment the mild and moderate patients want is necessary for their recovery since they function normally (Author, 2018).

2.4.2 Social support

Social support involves practical assistance and psychological support that sick persons acquire from caregivers. Benefits are derived from extended contact with relatives and friends who are extremely supportive. Studies have shown that people with high social support have higher level of wellness since they experience less stress,(Kroska et al., 2017).For instance, people with demanding jobs who have supportive families experience less stress. Possible design approaches for increasing social support can be applied to the study by providing features which encourage the presence of users. These include reception areas that are comfortable with flexible seats; easy access to meals, inviting gardens with outdoor seats that enhance socialization of patients and visitors,(Ulrich et al, 2004).

Studies have indicated that lounges which have unmovable furniture inhibit social interaction. Few studies in psychiatric wards and nursing homes have found that appropriate arrangement of movable seating in dining areas enhances social interaction and also improves eating behaviors, such as increasing the amount of food consumed by patients. In other studies, some patients stated a preference for multi-bedded accommodation; because there was interaction with patients.

Majority of them felt the advantages of the single room in terms of comfort and control outweighed any disadvantages in relation to connection with staff and isolation, and having en suite facilities and a television was particularly important to them. Prolonged exposure to low levels of environmental stimulation produces boredom hence negative feelings.Chronic understimulation or overstimulation can worsen the condition of a patient.Ulrich (2004) indicate that "people will seek less challenging environments when they become stressed. When a patient's internal emotional stimulation increases, a stressed individual will seek a less stimulating external environment, in order to balance the overall experience.

The initial social support given to the patients is also a determining factor in successfully overcoming life stress. The presence of social support significantly predicts the individual's ability to cope with stress. Knowing that they are valued by others is an important psychological factor in helping them to forget the negative aspects of their lives, and thinking more positively about their environment. Social support not only helps improve a person's well-being but also affects the immune system as well. Thus, it also a major factor in preventing negative symptoms such as depression and anxiety from developing".

Lack of a social support is associated with anxiety,lonliness and withdrawal symptoms on the patients. For some patients, lack of interaction with other patients was a striking feature of their stay in hospital, and led to strong feelings of isolation .On the nurses, social support enhances satisfaction and retention.Most importantly,those nurses whose work is demanding and who have supportive family experience less stress compared to people with similar jobs but no support.I contend that designs should be avoided that over emphasize social interaction to the point of denying privacy.This will work against wellness.

Figure 2.4

Source: Modified from a book published in Shepley.

Sociofugal seating arrangements   Sociopetal seating arrangements
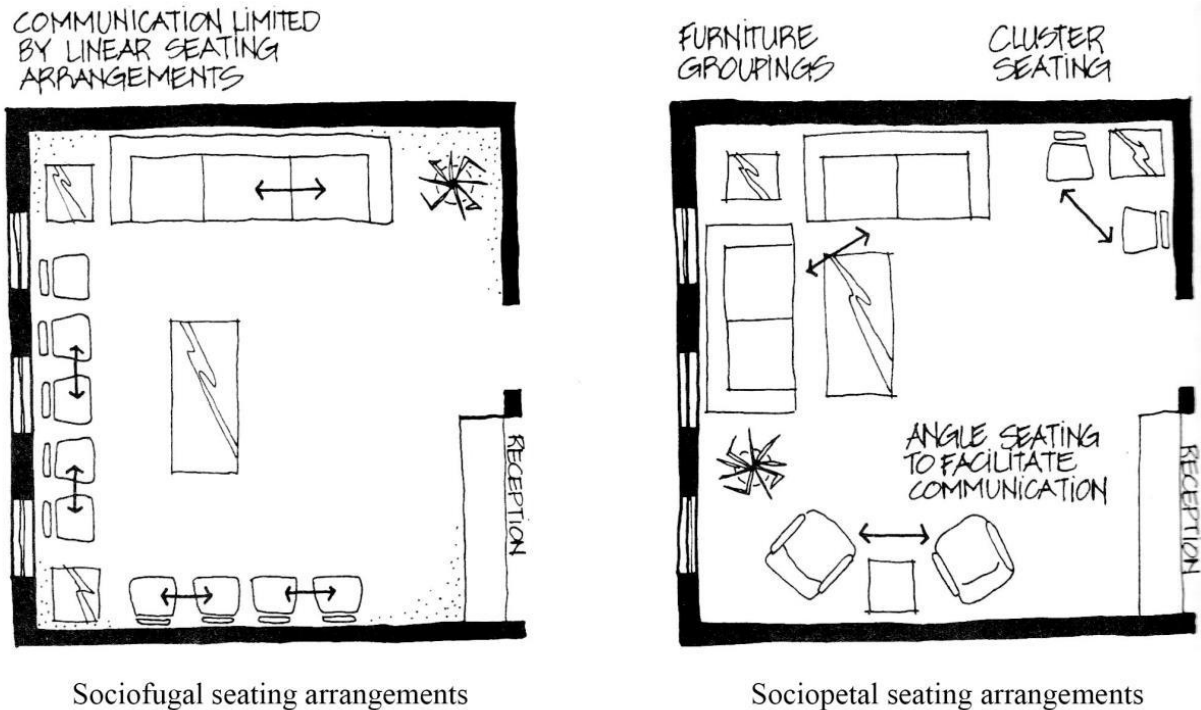
Clustered seating arrangements may encourage social interaction while a linear seating organization will limit communication.

2.4.3 Provide access to positive distractions

Positive distractions by definition is a set of conditions or features of the environment that are effective when reducing stress levels(Ulrich et al,2004).In theory, the distractions have been linked with essential benefits for people for many centuries. Today's humans, respond positively and pay attention to features for instance comedy, music, animals, smiling human faces and nature for instance trees, flowers, and water (Annerstedt & Währborg, 2011).When a person who experiences stress or worry, looks at nature scenes, he instantly experiences improvement of mood and exhibits physiological changes like reduced heart rate and lower blood pressure(Ulrich, 2002).

An investigation on invalids who had undergone surgical procedure, established that buildings that are made of bricks result to low recovery chances of patients compared to those with a bedside window overlooking green scenery(Ulrich,2002).

Sick people with natural window view, compared to the brick wall view lot, stayed in hospitals for a few days, had less complications after surgery, and required less amount of pain-killers. Apart from attractive gardens that patients and visitors can access easily, different approaches of design enhancing nature access in that research included provision of: nature window views for patient rooms, a sculpture or greenery in an atrium; and a wall hanging attached where invalids can view and has calming nature.

Positive distractions help people attend to stimuli other than their own discomfort and anxiety,(Berman et al,2008).Research in environmental psychology indicate that people are fostered when physical surroundings provide moderate stimulation(neither too low nor too high).Stimulation levels will be high due to sounds,intense lighting,bright colors-the impact o patients will be stressful.Prolonged exposure to low levels of environmental stimulation produces boredom hence negative feelings.Chronic understimulation or overstimulation can worsen the condition of a patient.

Outcome of therapeutic design on wellness of psychiatric patients

Interior design in hospital spaces plays a significant role in patients' wellness and nurses' performance. Interior design aspects in a hospital are the temporal features of the hospital environment, which include furniture arrangements, color and art, (Eisen et al, 2008).Such features can be changed easily in order to achieve improved outcomes .The goal of the interior design features is to provide a therapeutic environment by reducing stress, enhancing social support and interaction as well as enhancing privacy. Designers of healthcare environment should therefore design with the patient as top priority.

Even though much consideration has been given to the medical care of patients in health settings, until recent times, little focus has been given to the physical space where patients remain for long. Hospital buildings may accelerate or decrease the diseases being cured, (Sita, 2008).It is the multifaceted environment that should accommodate all its occupants and serves their needs well without sidelining any user group (Malkin, 2003). In a certain investigation, Novotna et al (2011) offered workers a structure based on client-centered design. They reported that patients' recovery was contributed by increasing patient privacy and control over the space. However, they noted that the designed environment made the nurses observations challenging and raised safety implications.

In another study, Curtis et al (2007) established that the priorities of the different interior designers corresponded with other studies on structure designs of healthcare: specifically invalids and workers valued accessibility of private spaces, sufficient light, facilitation of social interaction and contact with nature. "They further observed a conflict between patient and staff requirements. While the patients desired privacy, cherished free access to different parts of the ward, and craved for home-like features for instance plants and aquarium, the staff noted that in cooperating these compromised the safety of in-patients and makes their tasks more tedious.

Furthermore, responses to certain features of the ward were a paradox for instance, the homely aspects of the space were seen both as favorable to the patients' health and as a discouragement for patients to go back to their homes. On the other hand, the high fences and other security features were seen to produce a feeling of imprisonment and a refuge from external danger", Curtis et al (2007). Wood et al (2013) did a research on incorporating the views of the patients' families. They established that care givers prioritized a ward's accessibility to relatives and friends.

They noted that visitor areas that are private and prayer rooms make a vital contribution to continuation of patient recovery. A research to discover the experiences of people who were held unwillingly in an Australian inpatient psychiatric unit, those that escaped or tried to escape was undertaken. The intention of the research was to discover the reason behind the lunatics' escape from inpatient psychiatric units. The results showed that the wards were viewed as secure or unsecure space, depending on the connection between the social and physical aspects of the space. Patients escaped when the ward felt unsecure.

An environment that is comfortable, and worthwhile experiences with other users enhanced views that the space was secure hence reducing frequency of escaping, Muir-Cochrane et al (2013).Curtis et al (2007) indicated that to enhance wellness, psychiatric units must be built-in such a way that the caregivers and patients encounter social relationships. Further, they observed today's mental healthcare units therapeutic potential is majorly hindered by the fact that different users having needs must be accommodated. First, they act as spaces of isolation, second they help in transitioning back to the community. Aspects of design that lessen stress levels and weaken aggression are; provision of single bedrooms as a vital design solution to reduce stress (in the inpatient psychiatric wards) and aggression.

The patients' face many needs and the healthcare facilities' physical environment plays a vital part in addressing the same, Papoulias et al., (2014).The design approach of healthcare (that aims at patient-centered care) should incorporate elements designed to alleviate the illness that is stressful in nature. The features range from a center of resource to provision of big space where members of families can be with their patients, to features that have ambience such as lighting and water features. Another feature that could be used is healing gardens because nature as a tool for healing is not a new idea, (Smith 2012).

In conclusion, the concept of healing has gained dramatic popularity in the last century. It has led the combination of physical healing, with mental, spiritual, emotional, and social care, thus creating a complex system of relationships that are vital and necessary. "In-patient psychiatric wards should: support, therapeutic and caring environment, prepares patients to return to the community, provide a place of safety from external hazards, and be a home where people live, work and visit".

2.5.1 Reception area

The healthcare waiting area may be both the first and the last area a user sees and experiences. However, it sometimes is one of the last areas to which hospital workers direct their attention (Morgan, 2015 et al). While patients and visitors waiting in the entry lobby can sometimes get frustrated by the length of the time they must wait and by the tedious nature of environment, good design can help lessen some of these negative aspects of the experience. Providing arrangement that make it possible for friends and family to sit together comfortably in reception areas while waiting to be served allows intimate conversations thus promoting social support. Wall hangings in the area that have abstract art which is soothing act as positive distractor. Potted plants purify the air, enhances mood and add color to the room. The durability of the chairs is important and upholstered furniture can stand the test of time.

Fig.2.5: Reception area

Source: www.renrayhealthcare.com

2.5.2. Single room Wards

Ulrich (1991) notes that minimal control is a challenge that increase stress and badly affect wellness. The privacy of the single room makes the patients feel that they have their independence and freedom. The cool colors used on the walls and the backdrop tend to be more calming and brings a sense of sense of tranquility. Quality of the lighting, ventilation and views from the bed are important factors in the overall levels of comfort experience. Patients with bedside windows looking out on nature heal faster.Nowander the need for large windows in a patient's room. Extra chairs and sofa for visitors are essential as far as interaction and comfort is concerned. These design aspects promote social interaction, control and privacy hence improve the health of patients.

Fig. 2.6: Single room Wards
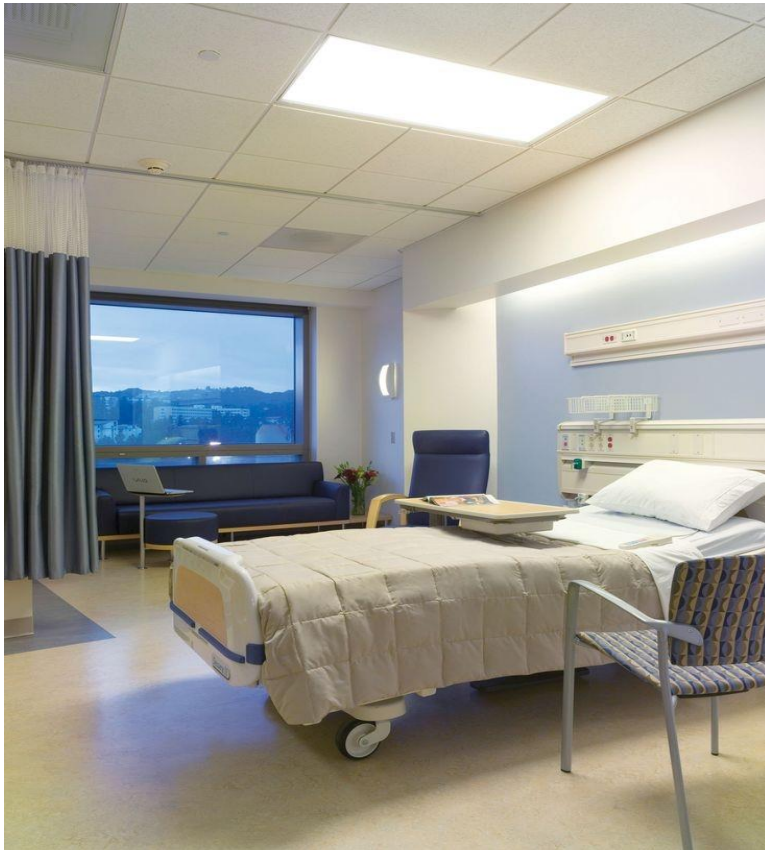
Source: www.renrayhealthcare.com

2.5.3 Sleepover recliner

To enhance contact with family and the patients, a recliner sofa can be introduced. It reclines when the occupant lowers the chair's back and raises its front. Caregivers can use when they stay overnight. It has a backrest that can be tilted back, and often a footrest that may be extended by means of a lever on the side of the chair, or may extend automatically when the back is reclined.

Fig. 2.7: Sleepover recliner
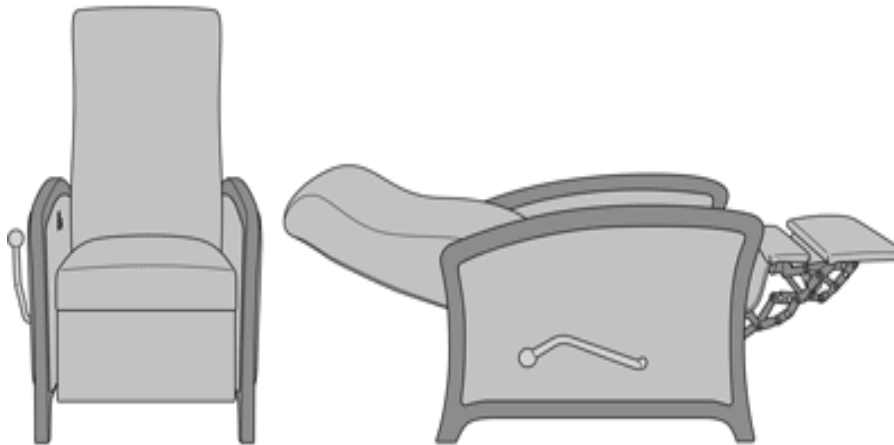
Source: www.kwalu.com/product

2.5.4 Furniture design

Furniture designed specifically for mental health and secure units should be carefully and thoughtfully designed, tested rigorously to meet the needs of the challenging environment. Furniture that is robust, safe and attractive should be adopted in a facility that has a therapeutic environment.

Fig.2.8: Dining space   **Fig.2.9: Glides on chairs.**

Source: www.renrayhealthcare.com   Source: www.kwalu.com/product

2.5.5 Landscape design

Health care facilities ought to consider shade, tranquility, and the opportunity to mingle with nature. The spaces should have clearly defined areas since it is vital for the users. Outdoor common areas with planting beds or large-scale planters invite conversation with staff or patients. Garden paths allow a chance for exercise and fresh air during breaks. Paths should be wide enough to accommodate wheelchairs and pedestrians strolling in pairs. They should be smooth, so they don't obstruct wheelchair wheels.

A front entrance featuring colorful flowers and lush plants starts a stress-filled day with calm and beauty. Healing plants can be added to the therapeutic landscaping since some plants have been associated with healing. In a healing garden, waterfalls and fountains is important as a feature. They should be designed in such a way that they can be smelled, touched and heard too.

Fig.2.10: Landscape design.
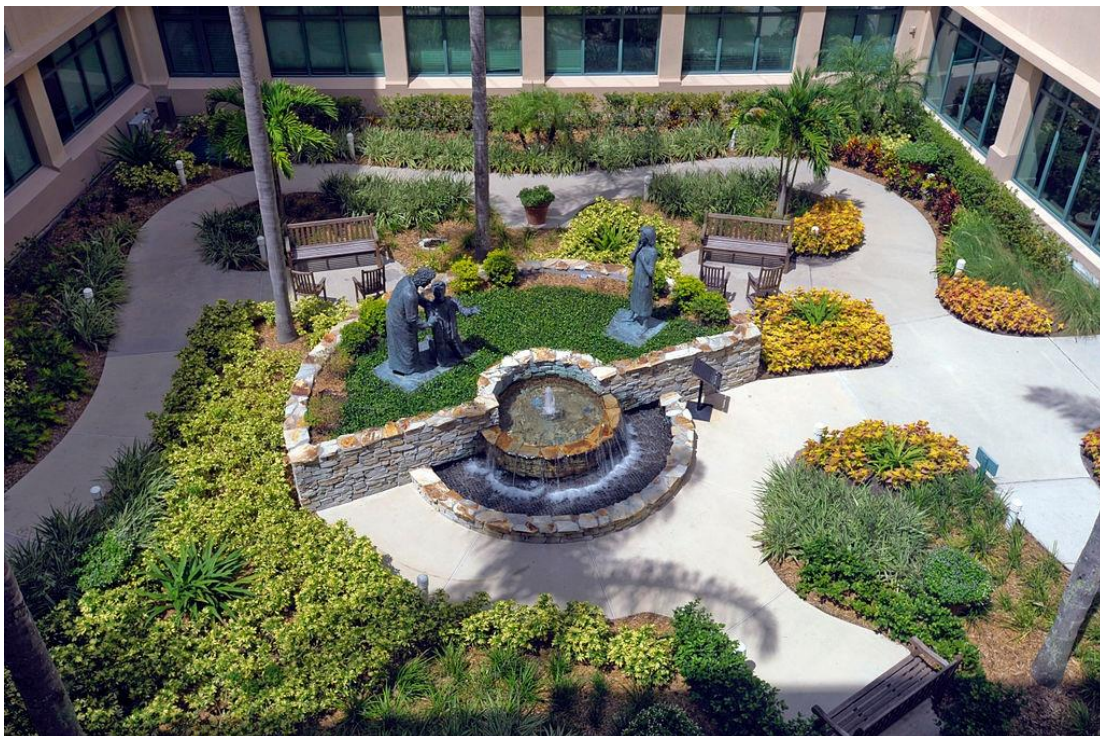
Source: www.levelgreenlandscaping.com

2.6 Importance of positive work environment on staff (nurses and counseling psychologists) performance.

Mroczek et al., (2005) observes that without healthcare professionals, good health care cannot be administered. However, issues for example job pressure and burnout can undermine both the physical and psychological well-being of workers. The physical and emotional health of a nurse eventually affects the quality of care delivered. Huxta (2016), on studying the impact of flooring on nurse wellness, indicate that it is vital for hospitals to focus on and enhance the ergonomic conditions of their staff's environment to improve perfomance.Comfortable seating, accessorizing spaces, presence of break areas, contribute to a more ergonomically-friendly healthcare space.

Averagely, the modern nurse is fifty years old. They work ten to twelve hour shifts, walk many miles in one day and experience other physically tedious aspects of their job. According to the Bureau of Labor Statistics, injuries among healthcare workers rank among the highest by industry. Musculoskeletal disorders account for one-third of all occupational injuries reported to employers, while back, leg and foot fatigue follow closely behind. It's a main reason why designers, facility managers and healthcare administrators should pay more attention to create environments that support the healthcare workforce. On the other hand, Princeton (2014) reveals that a recent study done by the foundation of Robert Johnson, noted that job satisfaction is related to a positive work environment that facilitates nurses' efficiency, teamwork, and motivation to sustain them.

The study further revealed that the physical setting had a major indirect influence for the completion of work by nurses without interference. It also affected communication with nurses and physicians. A study on nurses in hospitals reveal that nurses exposure to a nature window view daily had reduced stress levels than nurses without windows overlooking nature, Pati et al., (2008).A survey of nurses in the United States of America was carried out to explore the connection between the nurses' physical workplace and performance.

They established that those nurses who gave their places of work high rankings were likely to register excellent teamwork, and other factors related to job performance. The physical features were assessed based on the design elements of the place of work that is: congestion, ventilation, lighting, furniture arrangement, aesthetic value and the need for refurbishing.Specific designs was not recommended by the survey, but recommended the use of design in general to positively influence nurses' job retention and satisfaction. A study on nurses in hospitals reveal that nurses'

exposure to a nature window view daily had reduced stress levels than nurses without windows overlooking nature, Pati et al., (2008).

2.6.1 Break areas

The provision of comfortable areas for meal breaks (separate from, the clinical area) are an important inclusion to combat the intense nature of work that workers confront daily. U-shape and L-shape arrangement enhances social contact. Potted plants and flowers and color and interest to the room. They add to the overall design and create ambience. Provision of carpets help in sound absorption. Colors chosen should not be intimidating and having negative psychological impact.

Fig. 2.11: Break areas

Source: www.pinterest.com

2.7 Challenges faced by stakeholders in implementing therapeutic design features.

Besides restaurants, hospitals are the most energy-intensive buildings and costs of health are rising globally. Increasing world populations, high energy costs and challenges of finance are pressurizing hospitals to accomplish more with less affecting healthcare outcomes, Sullivan (2013). Healthcare organizations are not immune to present day economic conditions. While health care has for quite some time been believed to be 'recession-proof' due to the endless supply of

patients and dependence on government support, health care institutions are susceptible to the tightened debt market like any industry.

According to McKenzie and Formanek (2011), "the Kenyan government spends less than one percent of its health budget on mental wellness, however its own figures demonstrate that one-fourth of all patients going to health care institutions have mental health cases. Most of the budget is spent on administrative costs. Health ministry has been plagued by series of corruption scandals in recent years. More than $3 billion in public money was stolen in 2009, according to the Kenyan Ministry of Finance. This could have funded the entire ministry responsible for mental health for 10 years.

The ministry of health acknowledges that mental health is a high priority, but it needs more funding from the central government". According to KNHRC (2013), "Kenya's mental health sector lag far behind physical health primarily due to gross underfunding by the government. Apart from underfunding, the report found that available services were insufficient in quality and facilities were not conducive to recovery.

Mental health services were found to be over centralized with almost 70% of inpatient beds concentrated in Nairobi limiting national accessibility. At the time of the audit, remote counties of North Eastern had neither a psychiatrist nor a psychiatric nurse. The report concluded that the legislative, policy, programmatic and budgetary steps taken by the Kenyan government were important in delivering the right to mental health and the right of the mentally ill to have their dignity respected as provided by Kenya's constitution. When corruption infiltrates the health sector locally, it devastates, threatens, hard gained improvements in human and economic development, international security and population health".

It is extremely hard to tackle corruption in health sector because of its complex nature despite costs that accompanies corruption. A media station recently portrayed the health sector of Kenya as the most corrupt. The doctors indicate that the deaths of the patients in Mathari hospital have not been caused by strikes of the medics in public hospitals but rather by the grand corruption and looting of public coffers that have left hospitals bereft of facilities and the staff.

"Health-related corruption is manifested in several types: From 'petty' corruption such as absenteeism of healthcare workers to 'systematic' corruption involving multinational companies engaged in widespread healthcare fraud and abuse, and 'grand' corruption occurring at high levels of government. Once it invades, it is often difficult to detect or diagnose and, most importantly, is hard to treat", Lubano (2016).Access to quality health care and in particular conducive environment for wellness is generally hampered through "poverty, political instability, corruption, and rapid population increase", Marangu et al, (2014).

Currently little attention is paid to the general design of Mathari hospital (ref to page 60).The government has done little to maintain the interiors and exteriors of the hospital since its inception. For instance, the wards are still limited in number yet there is increase in the patients' population. Plain colors have been used on the walls of the reception and wards. This is contrary to ideal hospital colors that have positive effects to users. Recently, safaricom foundation has come in and contributed by overhauling the interiors of the hospital.

2.8 Role of spirituality in healthcare

Supportive design model by Ulrich (2012) has three main pillars: Positive distractions, social support and a sense of control. The researcher proposes a fourth pillar of spiritual wellness that will contribute to holistic wellness of psychiatric patients. There are six dimensions of life and health — physical, social, environmental, emotional, spiritual, and intellectual. When one area becomes out of balance, wellness is compromised. One common result of being out of balance is experiencing stress.

2.9 Spiritual wellness

It is the ability to establish inner peace and involves seeking of purpose in life. It can be defined through religious faith, values and morals. Some studies have also looked at the role of spirituality regarding pain. One study showed that spiritual well-being was related to the ability to enjoy life even in the midst of symptoms, including pain. Some studies indicate that those who are spiritual tend to have a more positive outlook and a better quality of life. Some observational studies suggest that people who have regular spiritual practices tend to live longer.

Outdoor areas that have meditation areas are important to allow patients reflect about the whole meaning and purpose of life as they connect with their God. Chapels that have artifacts that represent their religion and design features enhance spiritual growth. Gardens should be designed with meditation areas to provide additional places for people to be alone or in groupings and have prayers (ref to fig.2.8.2).Healing gardens provide a new way of living, a regime change, for its users. It urges its users to engage in more activities.

2.10 Gardens for holistic wellness

A healing garden refers to an enclosed space, a maintained environment that is thoughtfully designed to treat the patient on a spiritual level, just as a prescription drug is engineered to heal on a biological level. Elements that encourage people to interact on spiritual aspects, to spend desired time alone, to do prayer walks should be incorporated in gardens. Gardens should be designed with meditation areas to provide additional places for people to be alone or in groupings and have prayers (ref to fig.2.8.2).Healing gardens provide a new way of living, a regime change, for its users. It urges its users to engage in more activities. Gardens can have different defined areas for spiritual purposes. Ulrich (2012) indicate that nature is connected to human spirituality. Nature connects to entities beyond ourselves and prompts patients to reflect on the ever-changing nature.

Fig 2.12

Source: Journal of Art and Design Discourse

2.11 Interfaith chapel

Chapels should exist to encourage prayers and spiritual nourishment amongst the patients. Chapels also serve as a place for spiritual activities that improve self-esteem and to worry less about the illness. Arguably, spirituality make patients worry less, to let go and live in the present moment. Chapels can also have bookstores that store literature for spiritual nourishment hence changing the world view of patients. Stained glass windows depicting nature scenes, movable chairs, space for rugs for prayers can also be included in the chapels.

At Santa Barbara cottage hospital (ref to fig.2.8.3), interfaith chapel with spiritual symbols of all faiths in the entrance foyer. Chapels enhance mediation and spiritual activities to take place there. Having meditative space in hospitals plays a vital role in patients' recovery and physical wellness.

Fig 2.13: Santa Barbara cottage

Source: Journal of Art and Design Discourse

2.12 Research gaps

There exists a developing literature on the role of hospital designs to outcome of treatment. In a number of them, efforts have been made to find a greater or lesser connection with designs as well as outcome. According to MOH, (2013), there exists a general agreement that for hospitals to be promoting healing, they should promote seclusion and self-esteem, enhance security and make the patients stable. Nevertheless, connections between design elements and outcome of treatments are not final; Dijkstra et al (2006).

A study by Ulrich et al (2012) takes another approach for psychiatric wellness. That study progresses a theory for the design of psychiatry hospitals towards reduction of patients' hostility. This theory recommends a setting for patients will generate reduction of hostility if it made to reduce stressing factors. Availing attractive interiors in hospitals spurs patient recovery and a distinctly higher patient satisfaction with both the facility and the healthcare provider. These potential benefits result in increased job satisfaction among staff, which advances the healthcare organization's ability to attract and retain top notch medical professionals.

Many reviews on the matter is in existence for over-all hospital but the researcher undertaking the current study acknowledges the fact that there is need to examine psychiatric wards and outdoors differently, because the requirements of the mentally ill and staffs are particular. The literature reviewed from diverse sources show that there is no study that has covered the outcome of therapeutic design on wellness of psychiatric patients in the targeted locale.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The chapter covers the methodology used, location of the study, the population studied and the sample population. In the methodology, the research tools and validity of instruments are explained, data collection procedures and data analysis.

3.2 Research Design

Research design can be explained as the structure of the research. It puts together the features in a research project, Mugenda and Mugenda (2003).The study used descriptive survey as the design. Descriptive design is concerned with the facts and characteristics about and individual,(Kothari, 2005).Mugenda and Mugenda (2010) propose descriptive design to gather data with the aim of answering questions in relation to existing condition of the subject in the study. This method was used in this research because the questions prompt the respondents to give information required. Critique inquiry method was used obtain information from the respondents. In depth understanding of the phenomena was achieved through this method.

3.3 Location of the study

The research was done at Mathari hospital (ref to pg 90), along Thika road about 5 Km north of the city center, Nairobi County. The Hospital is both a referral hospital and a teaching institution. It sits on a 30 acre piece of land. The hospital is owned by the government and has over 20 departments. It has capacity for six hundred and seventy five patients and is located near the slum area of Mathari district in Nairobi (Grohol, 2016).

In Mathari, there are approximately 4000 patients administered by the clinical psychologists, occupational therapists, medical social workers, psychiatrist nurses and specialist psychiatrists. It was established in 1904 as a small pox isolation center and later became a lunatic asylum. In 1924, it became Mathari mental hospital. The government in conjunction with the United Nation Office of Drug and Crime (UNODC) started the Mathari Drug Treatment and Rehabilitation Centre in May 2003, with a bed capacity of 15 clients all male.

However, in 2006 there was a growing need for treatment of female patients and in October 2006 a male wing, of a 32 bed capacity, was upgraded leaving the 15 bed capacity initially occupied by males to the females patients. There are three psychologists that serve the mentally ill patients and seven more on attachment. Severe mental patients are in isolated wards while the mild and moderate patients are in a different wing.

3.4 Target Population

By definition it is the entirety of objects, subjects of elements which conform to a set of specification, (Pilot and Hungler, 2011).This is the population from which a study sample will be drawn from. The population studied comprised of seventy counseling psychologists, ten psychiatric patients and twenty professional designers.

3.4.1 Inclusion Criteria

- Those who gave consent to participate in the study.

- Recovered patient.

- Those above 18 years of age.

3.4.2 Exclusion Criteria

Patients who are admitted to the hospital were not eligible for the interview.

3.5 Sampling Technique and sample size

3.5.1 Sampling Techniques

A sample is a subset of population that has been chosen to represent characteristics of any population. Purposive sampling technique was used since the study was sensitive and it required information from specific subjects to participate. The representative sample of counseling psychologists was taken. Since the key respondents number was small (recovered patient), the size was sufficient for use. Two interior designers from public works were also interviewed.

3.5.2 Sample size

With reference to Mugenda and Mugenda (2010), "a sample of 10-30% is ideal if well-chosen and the elements in the sample are more than thirty. They explain simplified formula for calculating sample size of a population that is less than 10,000 as below:

nf=

1+n/N

Where nf=the desired sample size is less than 10,000

n=the desired sample when the population is more than 10,000

N=estimate of the population size"

10/100*70=7

Therefore, 7 counseling psychologists was the sample size.

2 male and 5 female were given the questionnaire.

The table below shows the different sample groups to be used in the study.

Table 3.1: Population and sample size

CATEGORIES	POPULATION	SAMPLE PROPORTION	SAMPLE SIZE
Counseling psychologists	70	10%	7
Recovered patients	10	10%	1
Professional designers	20	10%	2
Total			**10**

Source: Mathari Hospital Records (2017)

3.6 Variables

The interrelated variables are patients' wellness, staff productivity (dependent variables), and supportive design model (independent variable).The hospital under study was Mathari hospital, specifically the patients.

3.7 Data collection methods and instruments

The tools used in collecting data were semi-structured questionnaires, which were formulated according to research questions and objectives, Gatara (2010).The interview schedule was prepared by the researcher to address one of the objectives. Unstructured observation also was used in which the researcher designed a checklist of items to be observed, Devarajan (2011).

A notepad was used to record results instantly. Collection of data was done through questionnaires with typed questions both open and closed ended to be generated from research questions. This tool was selected because it did not require someone to guide through the completion of the form; thus the respondent is independent, Mugenda and Mugenda (2010).Questionnaires enabled the investigator to get first-hand information regarding the issue at hand.

The questionnaire tool will reach a wider audience and it's economical and an interview will take at least twenty five minutes. The interview method was structured, thus the use of pre-determined questions standardized recording, (Devarajan, 2011).The observation method was also be applied, and the checklist had aspects of the study that the researcher was interested. Images were collected from secondary data. Numerous studies have used photography as one of the ways to collect data, (Thompson et al., 2008).

Table 3.2: Data collection methods

DATA COLLECTION METHODS	TOOLS	ADVANTAGES	PARTICIPANTS
Survey	Semi-structured questionnaire	Highly reliable and valid. Easily generates quantitative data.	Seven counselling psychologists.

		Enables the researcher to get first-hand information regarding the issue at hand.	One recovered patient.
Key informant interview	Interview guide	The researcher can probe beyond the received answers. Issues are explored in-depth. There are opportunities to clarify responses.	One professional Interior designer.
Observation	Observation checklist	Consistency in data collected. Direct access to research phenomena. Strong on validity and in depth understanding.	Researcher
Documents and records	Documents and records	Large amount of reliable information obtained. Allows for historical comparisons. Low cost.	N/A

Source: Author (2018)

3.7.1 Observation

In observation, the events are in a natural setting and allow the researcher to get actual view of the activities. Uncontrolled observation method was employed and the observation recorded instantly. A notebook was used to record. The researcher made three trips to Mathari hospital in a span of three months (June 2017-August 2017). The first month the researcher was able to do uncontrolled observation on the outside setting (landscape) of Mathari wards. The second month the researcher closely examined the architecture of the structures and the third month the researcher was able to

examine the users in Mathari hospital. The objective of observation method was to assist the researcher in proposing a supportive design model that will help reduce stress and foster wellness.

3.7.2 Interviews

Interview schedule was made for key respondent who is an interior designer from the ministry of public works who was interviewed. A phone call was made to the key informant three times at different intervals. Each phone call took about fifteen minutes and it was an in depth interview. It was an unstructured interview since the researcher was able to probe beyond the received answers. The objective of this interview was to identify the challenges faced by stakeholders in implementing therapeutic design features on the facility.

3.7.3 Questionnaires

The questionnaires were administered to sample groups that comprise of seven psychologists and the recovered patient. Semi-structured questionnaires were used, which was formulated according to research questions and objectives, Gatara (2010).All the questionnaires were given to the respondents and all of them were returned. Some questions were answered by respondents and some were not answered. The objective of the survey was to establish the outcome of therapeutic design on wellness of psychiatric patients and to establish the importance of positive work environment on the productivity of staff at MTRH.

3.7.4 Documents and Records

The researcher did a review of existing literature, videos and photographs from sources that were relevant. The research was continuous and the main objective was to get enough information for the four main objectives.

3.8 Pilot and pre testing

Pre testing ensures reliability of data collected since the researcher will gain from the response whether to improve the instrument or not, (Gatara, 2010).Undeclared pre testing was used in that the sample had no idea they're being sampled for a pre-test survey. Therefore, pre testing of this tool will determine relevance of questions, order and clarity. "The rule of thumb is that 1% of the sample ought to comprise the pilot test" (Gituma, 2017).Pre-testing of the instruments was done in July 2017 by administering questionnaires to two counselling psychologists in different settings

(outside Mathari hospital). The researcher also did a pilot test to the recovered patient. Some of the questions were not answered by the sample population. The researcher improved by having more specific questions and use of familiar terms that the respondents were conversant with.

3.9 Reliability

The researcher adopted the test retest method of assessing reliability of data between July 2017 and August 2017.This involved administering the questionnaire on two occasions on the same population at different time intervals. The instruments were given to seven counselling psychologists and one recovered patient in July 2017 and the same instruments were given to the same respondents in August 2017.The results/responses were consistent therefore they were reliable.

3.10 Data analysis

It is a method of obtaining data that is raw and converting it into information useful for users. According to Mugenda and Mugenda (2010) "data obtained from the field in raw form is difficult to interpret unless it is cleaned, coded and analyzed". In qualitative studies, the researcher gets information about the phenomenon being studied by establishing patterns, trends and relationship from information gathered, Mugenda (2003).

Table 3.3: Data analysis

DATA COLLECTION METHODS	TOOLS	DATA ANALYSIS
Survey	Semi-structured questionnaire	Thematic analysis
In-depth Interview	Interview schedule	Thematic and descriptive analysis
Observation	Observation checklist	Descriptive analysis
Documents and records	Documents and records	Document and content analysis

Source: Author (2018)

3.10.1 Thematic analysis

Semi-structured questionnaires were given to the eight respondents (counseling psychologists and the recovered patient).The most appropriate method of data analysis in this case was a thematic analysis. The respondents were few therefore themes were derived from the information from data collected.

3.10.2 Descriptive and thematic analysis

Interview schedule was used as a tool for in depth interview and the most appropriate method of data analysis was a thematic and descriptive analysis. The questions were in line with the objective-to identify the challenges faced by stakeholders in implementing therapeutic design features on the facility.

3.10.3 Descriptive analysis

The researcher took notes and the data collected that were in a natural setting. The observations were made systematically at three different intervals and the observations were summarized in a notepad.

3.10.4 Documents and content analysis

Document analysis was done in that information from literature, videos and photographs were interpreted by the researcher. The research was a qualitative research. Large amounts of textual information were summarized and analyzed by the researcher.

3.11 Ethical consideration

The researcher sought consent from ERC at KNH as well as MOH to be enabled to execute the research for scholarly purposes. Due to the sensitive nature of the research i.e. the subjects (psychiatric patients), ERC has to give consent. The process seemed futile since the nurses were on strike for close to a year and the process of getting consent took long.Therefore; the researcher relied on snowballing and secondary sources to collect data. The respondents were informed on the purpose of the research and assured of anonymity in the questionnaires and interviews. Risks were reduced by ensuring that the patient who was interviewed had recovered and discharged. Respondents volunteered information, no coercion or force was used neither was there any compensation given to participants of the Study.

CHAPTER FOUR

ANALYSIS AND FINDINGS OF THE STUDY

4.1 Introduction

This chapter focuses on findings, interpretations and discussions as per the objectives and research questions of the study. Data was collected from respondents of Mathari hospital and Ministry of public works. The data was organized, analyzed and presented in form of themes and images. Thematic analysis was done based on the responses. This is because the respondents were few and accessing the hospital to interview nurses proved futile. Content and descriptive analysis was done too for the existing data. The questions and observation were in line with objectives that guided the research.

The objectives were: To establish the outcome of therapeutic design on wellness of psychiatric patients, to establish the importance of positive work environment on the productivity of staff at MTRH, to identify the challenges faced by stakeholders in implementing therapeutic design features in the facility. The study seeks to use supportive design model to foster sense of control, allow access to social support and access to positive distractions in physical surroundings. Structured and unstructured questions were used to obtain data. Both primary and secondary data was used. Qualitative analysis of the site will be provided in the form of pictures and narrative description. A presentation of findings, highlighting the problems found within the site was looked into.

4.2 General and Demographic Information

The researcher found it important to establish the background information of the respondents because this forms the basis of the kind of respondents. The background information include: response rate, gender, and age of the respondents.

4.2.1 Response rate

The sampled groups of the recovered patient, counselling psychologists and a professional interior designer had the opportunity to participate in the research. All the seven counseling psychologists participated in the survey.

The recovered patient who was discharged and a professional interior designer also participated in the survey. The nurses and the medical superintendent did not participate since the nurses were on strike for many months and the process of getting permission from the ethics committee in Kenyatta hospital to conduct research in the locale proved futile. This resulted to relying on counseling psychologists who used to work at Mathari hospital for collection of data. The results are based on information from the interior designer who is a key informant and snowballing sampling method.

4.2.2 Demographic Characteristics

4.2.2.1 Gender and age of the respondents

The aim of the research was to study adults in the 20-70 age brackets. The age distribution shows that the highest representation in percentage terms was between 20-30 with 43%.31-40 years constituted 29%,41-50 years constituted 14% and 51-70 years constituted 14%.The motivation for selecting these age groups was that different age groups had different experiences in their field. On gender, there were more female than male respondents.

Fig 4.1
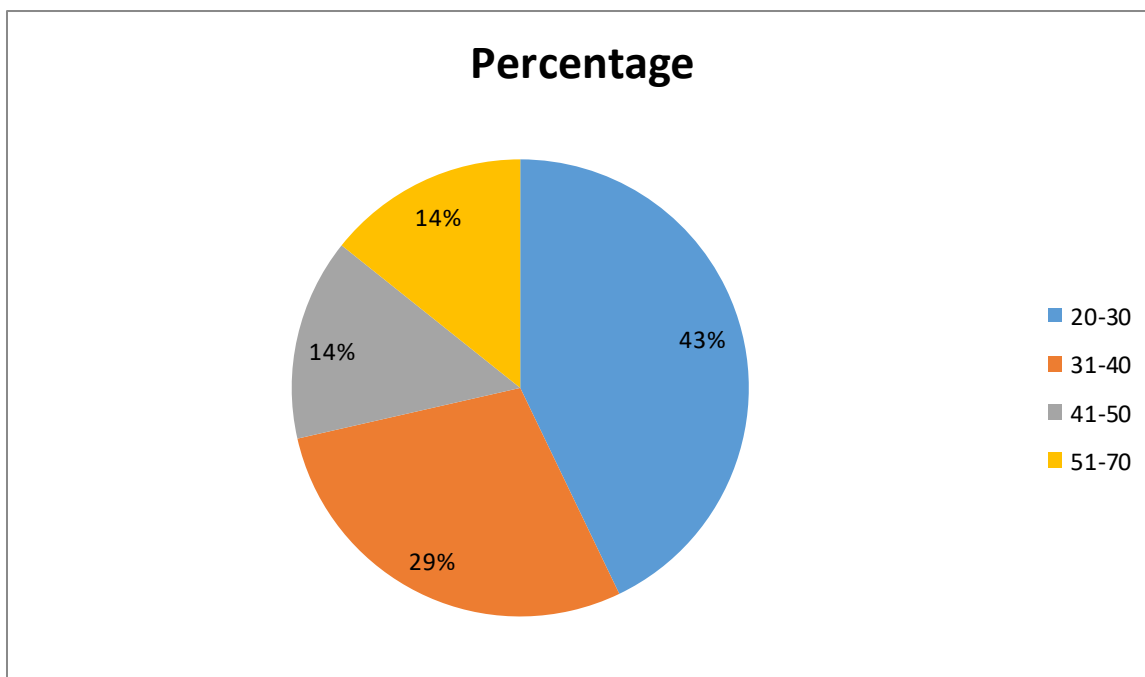
Source: Author (2018)

4.2.3 Environment of Mathari hospital

Fig.4.2

Source:www.citizentv.co.ke.

Fig.4.3

Source:www.citizentv.co.ke.

4.3 Sense of control

Four wards were chosen as sample rooms by the researcher to expound on elements of control.

The design elements potentially related to perceived control are:

Category	Detail
Wayfinding	Signage and colour
Privacy	Break areas,private patients rooms.
Entertainment	Tv units and music.
User control	Temperature,lighting,windows,metallic grills

4.3.1 Way finding

In my experience at Mathari hospital,there are a few signage to help visitors and patients in way finding.This makes individuals end up wasting time hence leading to stress.Some are unclear but majority are clear.One of the psychologists states that because patients and visitors, inside and outside the facility, are usually in a heightened state of anxiety and are thus worried about finding their way to their intended destination. This is worsened by the fact that the hospital grounds are large. For first-time visitors and patients, this heightened state of anxiety is multiplied.

4.3.2 Privacy

The staff do not have break areas where they can unwind,take tea and catch up.They eventually experience burnout due to low control.Lack of break areas makes it difficult to escape from work demands.The pychologists working at Mathari admit that they cannot control the temperature of the room(nursing station) incase the room becomes to hot or too cold.The nursing station's proximity to the wards is close and under the same building but the problem is that one nursing station serves many wards which exhausts the nurses especially at night.Since most of the time they spend indoors(stations) because of no break areas,they end up getting unusually tired before midday.The researcher established that because of the worn out working stations and poor designated eating areas,one respondent preffered to eat her meals from home which in turn slows her productivity.

4.3.2.1 Female ward

There are no emergency doors which could come in handy in case of fire break out. Since the wards have patients with different needs,majority of the pychologists describe some patients as violent and some are bullying.This result to noise which can not be controlled because the flooring is made of tiles which do not have sound reduction qualities.This also applies to the existing walls.There are no closet to store clothes and personal items. Control is minimized when there are no side tables for storage of small items like books, photo frames or gifts from friends and family. Unclassified spaces may also allow bullying to happen among patients which both patients and nurses cannot control. This result to unnecessary noise and disturbance. The floors and walls do not have sound proof materials which minimizes the level of noise both from within and without. The patients do not have a side table where they can have accessories and place books without.

Fig. 4.4:Female ward

Source: www.citizentv.co.ke.

4.3.2.2 Washrooms

The patient indicated that the washrooms are within the confines of the ward which he admits that there is good proximity.This allows the patients to visit the washrooms at whichever time because of its close proximity. The walls are worn out because of poor maintenance.

Fig.4.5:Washrooms

Source:www.citizentv.co.ke.

4.3.3 Entertainment

One recovered patient stated that some wards did not have tv units because of the kind of patients it hosts. A counseling psychologist stated that those patients need a serene, quiet environment to reflect and recuperate. According to the recovered patient's experience, tv is a torture to a schizophrenic mind and too much stimuli to process. In other wards the television unit is controlled by the staff only yet its meant to serve the patients in the room.

This limits the patients in terms of the programs they desire to watch.The television tends towards the positive if patients are allowed to change the volume and programs.One of the psychologists said that not every ward has a tv because of the kind of patients it hosts. He further noted that not everyone can control tv stations and the unit is so small which can discourage a patient or staff from watching. Some patients are sensitive to noise and therefore tv is counterproductive. In addition, one psychologist stated that source of music (radio) is lacking in the nursing stations and the patients' room.

Fig 4.6:T.v unit

Source:Achieng,(2016).

4.3.3.1 High windows

According to the recovered patient,windows are too high which blocks access to window views. They are unable to open and close the windows at their pleasure.They can not therefore control the temperature of the wards.He indicated that this reduces the number of times they can open and close. Whenever the window is closed, the wards remain stuffy which is unhealthy for the users.

Fig. 4.7:High windows

Source:Achieng,(2016).

4.3.3.2 Broken windows

Several windows in some of the wards are broken which means light, water, heat and anything can enter the room. The frame has rusted due to long exposure of heat and water. This poses a danger to the users since at night they experience cold because they cannot control the environment (temperature).Broken windows is a threat to security. The patient indicated that they experience noise at night because of the broken windows which cannot be opened or closed. One psychologist stated that probably the windows are broken by violent patients and neighboring slum dwellers.

Fig. 4.8:Broken windows

Source:www.citizentv.co.ke.

4.3.4 User control

4.3.4.1 Metallic grills

The recovered patient describes the place as 'prison' other than a hospital. The facility is designed like a jail, in which the victims are treated as inmates. They wards are separated by metallic grills which acts like barriers. The metal grids was intended to prevent them from sneaking out. These grills separate the wards from the verandah. The psychologists indicate that this limits the movement of patients with less extreme conditions from moving freely. The grills are also in bad condition because of the rust that is eating away the metallic part. This can result to loneliness and withdrawal symptoms especially for mild and moderate patients.

Fig.4.9:Metallic grills

Source:www.citizentv.co.ke.

4.3.4.2 Broken ceiling

Part of the ceiling is broken and exposes the users to pests, cold, water and heat. The users therefore cannot exert control over this environment. Only one ward has a broken ceiling and some of the patients are sleeping in that ward.

Fig 4.10:Broken ceiling

Source:www.citizentv.co.ke.

4.3.4.3 Lighting in male ward

Some of the lights are not working therefore other wards become dark at night. This in itself is lack of control on the part of the patients because they are not able to switch on or off. There are a few fluorescent lights working in this ward, making the room to look dark both daytime and at night. The windows do not have curtains which act as a shade from sunlight especially during the day. This aspect of light renders the users helpless because they cannot control both the natural and artificial light entering the room. No emergency doors in case of fire break out limiting the users to one door.

Fig 4.11: Lighting in male ward

Source: www.citizentv.co.ke.

4.4 Access to social support

The design elements potentially related to social support include:

Design Elements	Detail
Family centered care	Family zone in patients' room,sleeping sofa for family and friends
Furniture layout	Configurable furniture,movable furniture arrangement.
Entertainment	Tv unit ,music,extra curricula activities.

4.4.1 Family centered care

4.4.1.1 Family zone

Lack of beds where family and friends can sleep besides them denies the familiy members from prolonged contact with their patient. Lack of sleeping sofas for family members discourages interaction and care.In my observation,the only designated place for family and friends is the reception and outdoor spaces.The wards have only spaces for patients to sleep and not their family and friends.

Fig:4.12

Source: www.citizentv.co.ke.

4.4.2 Furniture layout

4.4.2.1 Crowded and uninhabitable wards

Five of the respondents said that the wards were crowded because the number of patients in a ward is more compared to the beds. Some wards don't have beds and some have beds but lacked mattresses. The patient felt stressed whenever he was indoors. The respondents also pointed out additional space when it came to changes that could be made to improve the spaces in Mathari hospital. The beds are broken and loose on one side which is uncomfortable foor the users. The furniture is simple and basic and cannot offer a wonderful experience. Some wards have no mattresses on the bed. This uncomfortable conditions discourages social support among the patients.

Fig 4.13   **Fig.4.14**

Source: www.citizentv.co.ke.   Source: www.citizentv.co.ke

4.4.3.1 Dining room furniture

The chairs in the dining room are heavy,unmovable.Some are torn because of lack of maintenance and discourages the users from sitting for long.Lack of chairs in the dining room promotes anti-social nature among patients. This can result to loneliness among the patients.

Fig.4.15: Dining room tables   **4.16: Dining room chairs**

Source:Achieng,(2016).

Some of the seats lacked armrests which increases falls and injuries, Salonen et al (2013). The furniture is not upholstered quite tiresome to sit on as described by the patient. One the other hand, the dining areas had very few seats and some are inappropriately placed.

4.4.3.2 Unclassified spaces

An intern from Kenyatta University visited one of the wards and reported that they were stuffy like a public toilet,the beds were present but no mattresses.The mattresses look like doormats.These uncomfortable conditions discourages social support among the patients.The beds in the wards are made of metal and are simple geometric shaped. The fact that the wards were meant for 47 patients each, they are holding double that.According to the psychologists,patients derive benefits from prolonged contact with family and friends who are caring and supportive.Unclassified spaces may allow bullying and lack of privacy for patients with different needs. The beds are made of metal and are simple geometric shaped. The metallic bed is worn out and can result to patients having sleepless nights.

Fig.4.17: Unclassified spaces

Source:Achieng,(2016)

4.4.3 Entertainment

One way hospitals can foster sense of connection between community and them is through televisions.Televisions are used to foster a sense of continuity between home and hospital hence deinstitutionalizing the space,(Faqua,2012).According to Letourneau,it helps the patient take his mind off his ailments and stress.The recovered patient pointed out that some wards did not have T.v units which in his opinion worked out for his good.The schizophrenic patient said that media was overwhelming his thoughts to the extent of seeing the bill board ads was taxing his mind.

One of the pyschologist assert that media should be exposed to a certain group of patients because for some,it works against them.For them that do not have extreme pyschological cases,they should be exposed to some t.v programs which fosters continuity and shifts their minds to a different world.Majority of the psychologists contend that t.v units should be introduced in break areas for the nurses to allow them watch programs that bring them together.I observed that there is no radio in any ward or any public space in the hospital.

For some pyschologists,music calms the mind and helps one to pass time.It also helps one to be busy psychologically hence the experience is therapeutic.Studies have shown that hospitals where television has been installed in the wards,nurses have observed that patient calls are less especially time of a popular t.v programme.This helps nurses to do their job from a watchful distance.I argue that excessive amounts of television viewing is harmful therefore,the administeration can regulate the timings and the programs which the pyschiatric patients should view.

4.5 Positive distracters

A positive distraction is an environmental feature that elicit positive feelings,holds attention without stressing the person.The researcher sampled four rooms and nature(landscaping)to explore the issue of positive distracters.Elements related to positive distractions are:

Category	Details
Access to nature	Healing gardens,hardscape
Views of nature	Windows,verandah
Displays	Murals,mosaic painting,wall hangings
Colour	Wall paints

4.5.1 Access to nature

Mathari hospital is located at an elevation of 1688m above sea level. The slope is generally flat and the level of activity can be sustained by the land. The soil surface is well protected by the vegetation in the existing site. Structures like the buildings and parking are placed in areas of low productivity i.e. thin soil. The slight slope helps in managing floods which occur occasionally during heavy rains without causing erosion. Some of the existing drainages are not good enough to manage runoffs and flooding.

The ground-stabilizing roots and tendrils of living plants knit the soils and absorb precipitation. The fallen twigs and leaves also form an absorption mat to keep the soil moist and cool the air.

4.5.1.1 Landscape

The manholes are situated on the outside of the compound to drain away waste water. Noise is caused by traffic from Thika superhighway, noisy medical equipment and the constant footsteps of nurses and practitioners. As reported by the psychologists, having more permanent features outside the wards is wise rather than less permanent for instance potted plants because some patients are violent and can tamper or throw to each other. Currently, the landscape does not have design elements for adding texture, formality and interest. There are few shrubs which are spaced unevenly. The spaces are not defined. There are no outdoor lights to illuminate the outdoor space.

Some psychologists further said that for immobilized patients, views of trees as opposed to the brick wall of the adjacent building can result in better patient progress, and shorter length of stay. Some of the buildings outside are dilapidated-they are leaking and some are worn out. There is nothing attractive about them since they are old and neglected. This can be a bad view for them that are recuperating from inside the walls. The recovered patient says that they spend the better part of the day outside the wards. The outside environment is bear with no canopy to protect them from heat or rain. They do not have seats (street furniture) to sit on but they sit on grass.

The lawn is not well-manicured and there is nothing breathtaking about the environment. The grass around the wards is long and uneven which it's not well maintained. Plants in the landscape are either those existing in their natural habitat or those which have been introduced. This is negative distraction in itself and stimulates depression. Uneven grass, the lawn is not well manicured. There is no important feature to draw attention to e.g. fountain, sculpture. There are no artificial plants and flowers to blend with the natural/indigenous plants. There is no street furniture that patients can seat on hence they are forced to carry chairs from the inside

Fig 4.18: Landscape

Source: www.citizentv.co.ke.

4.5.1.2: Hardscape

The walls are deteriorated because of many reasons. The building is cracked, looks damp and there is discoloration because of mildew. This furniture arrangement does not better interaction since the arrangement is side by side along the wall. The shrub is out of place because is it neither acting as a neither hedge nor accent plant. The shrubs are not proportional and are not aesthetically pleasing.

Fig 4.19: Hardscape   **Fig 4.20: Hardscape**

Source: www.citizentv.co.ke.   Source: www.citizentv.co.ke.

4.5.2 Views of nature

The presence of windows is an extension of the concept of access to nature. Windows may impact a patient's health outcomes and psychological condition. Some of the windows inside the wards are broken and some cannot be opened.Some are too high and small in size which means that no user can view outside. Those broken windows are unpleasant and discourage viewing of nature. The small and high windows do not provide access to nature outside which is a positive distracter. The hanging socket is a negative distracter.

Fig 4.21: High windows

Source:Achieng,(2016).

4.5.2.1 Verandah

There are trees that act as shade. The verandas are long but the surroundings are not well maintained. There are no lights to illuminate especially at night. There is open drainage which poses a threat to people. In my experience in MTRH, the verandas look old and leads to different parts of the building. However, it does not have defined paths that lead to the garden.

Fig 4.22

Source: www.citizentv.co.ke.

4.5.3: Displays

4.5.3.1 Murals

The murals in the game room are written by creative patients using felt pens on regular wall paint hence they are not aesthetic enough to look at. The creative patients are trying to express themselves in the wrong platform. This is more of a primitive art and the management has not taken steps to train cultivate their talents. This is a negative distracter.

Fig 4.23: Murals

Source:Achieng,(2016).

4.5.3.2 Mosaic painting

The mosaic painting on the landscape is falling of due to lack of maintenance by the management team at the rehab. This is a negative distracter. It evokes a bad feeling instead of a good feeling. In Mathari Hospital,I noted that there are a few art works on corridors.Most of them are worn out,some are works expressed by the patients.They look misplaced and the works on the wall make the walls dirty. All wards do not have any kind of art work on the wall which makes the patients stare at the bare wall.

Fig 4.24: Mosaic painting

Source:Achieng,(2016).

4.5.3.3 Wall exhibitions

The wall clock is out of place and the murals are written by creative patients using felt pens on regular wall paint hence they are not aesthetic enough to look it. This dirty and unattractive wall is a negative distracter to people in the space. The existing exhibitions and displays are in poor conditions due to lack of maintenance and poor finishes. Some wall exhibitions in the session room are made of manila paper which is a material that wears.

Fig 4.25: Wall clock

Source:Achieng,(2016).

According to four psychologists, some wall art will have a positive influence on patients and others will not. Since abstract paintings are unclear and ambiguous for the patients, they attack them. They recommend view of nature that has water or trees; these reduce anxiety and enhance wellness. Majority of the respondents pointed out that that the environment is dull because of lack of wall hangings that are positively distracting and the color around the nursing stations.

They pointed out that "if art is to be used for positive distraction, the choice of genre (e.g., modern, primitive or representational) and topic is critical". The psychologists submit that, if visual art is to play the role of reducing stress, it must be placed where it's visible for the patients. The management has not intentionally bought art works or works of nature to incorporate in wards and corridors. The ones that are there are old. According to a psychologist who has practiced for over 5 years, she noted that it may be safer to provide realistic or 'gentle' abstract art. Apart from genre, the subject matter is important.

4.5.4 Color

During the process of perceiving colors, an associated feeling or emotion is induced in the brain- a color emotion. There are three functions of color

Indicative function: Color thus suggests the real qualities and functions of an object.
Symbolic function: Color communicates imaginary object qualities.

Aesthetic function: Color can serve as a decorative element or as a part of a formal composition.

4.5.4.1 Male ward

The chief colors of Mathari hospital wards are; green and yellow. The patient described the colors of the inside of the ward as unnoticeable. The colors didn't affect him negatively. The psychologists on the other hand stated that one of the things that should be improved in the interiors is color coordination. Two colors in the ward. Blue and pale yellow that needs to be repainted. The existing colors evoke both negative and positive feelings.

Fig 4.26: Male ward

Source: www.citizentv.co.ke.

4.5.4.2 Game room

Some of the walls especially in the game room and dining room off white in color but it's discolored because of writings by the patients and dumping on the wall. Dumping leads to crack on the walls and growth of mildews. These factors are in itself a negative distractor. Since there is no distinctive colors which acts as indicative function in different spaces in Mathari hospital, blind psychiatric patients might have challenges in moving from one place to the other.

Fig 4.27: Game room

Source:Achieng,(2016).

4.6 To identify the challenges faced by stakeholders in implementing therapeutic design features in the facility

The researcher sought to identify the challenges faced by various stakeholders in having therapeutic design features in the hospital. Some of the challenges the management is facing currently is underfunding by the government. The medical superintendent states that since the buildings are old, expensive to maintain and they currently need one hundred million to renovate which the government is not willing to fund. The facility owes other institutions over thirty million and is receiving about six million a year from the government. Patients pay for treatment when they can or when they have a health insurance. This derails any effort they are trying to make as far as refurbishment and having therapeutic design is concerned.

Atwoli (2015) states that "for many years this hospital has been unable to live up to its extensive mandate due to chronic neglect and underfunding. While things have improved marginally in the recent years, a lot more remains to be done. According to him, more resources need to be deployed in order to establish highly specialized units at the facility. Sadly, the ministry of health has recently taken steps that threaten to not only negate the few gains Mathari hospital has made in recent years, but also to risk further running down the facility .

At the ministry, the former mental health division has been further split into tiny units ostensibly to deal with specific issues, but in reality these simply appear to be efforts aimed at creating space for individuals at the ministry headquarters". This act undermines efforts of refurbishing and

expanding the facility. According to the chair of parliamentary health committee, the facility has never been expanded since its inception yet there is a population crisis. A bed capacity of 700 people now accommodates three to four times the number.

The large number of capital offenders the hospital is forced to admit as they await mandatory medical assessments has further strained the facilities and budgetary allocation. The medical superintendent states that since the buildings are old, it is expensive to maintain and they currently need 100 million to renovate which the government is not willing to fund. The facility owes other institutions over 30 million and is receiving about six million shillings a year from the government. Patients pay for treatment when they can or when they have a health insurance.

This derails any effort they are trying to make as far as refurbishment and having good interiors is concerned. Dr Lukoye Atwoli, the secretary of the Kenya Psychiatric Association, says that the government does not really fund the mental health department since it spends less than one per cent of its health budget on mental health. Stigma from family and friends is also a factor as far as having good design features in the hospital is concerned. The society associate mental illness with witchcraft.

Caretakers neglect those patients which leaves the management to focus more on treating the patients with drugs overlooking the environmental factors which is pathetic. Another factor is that 50 per cent of the patients in the hospital are abandoned by their relatives because they are too poor to pay. The staffs are generally overwhelmed by the number of patients and the conditions they are working affect their performance. This is counterproductive on the part of the management and government which has the responsibility of creating an environment that restores dignity and honor.

According to the designer from the ministry of public works, the government, recently been incorporating interior design services within the premise of various Government installations including hospitals. This is evident in most of the new public hospitals being put up as well as ongoing renovations with the national and county government levels. However, much work is still awaiting the public works design teams to fully appreciate interior design discipline within these projects. Mostly, there is lack of adequate funding for the projects.

Another factor is high turnover of the young technical staff due to various underlying factors including better remunerations and staff morale. According to him the possible solutions to these challenges are proper funding, better remunerations and continuous trainings for skilled development. Recently, safaricom foundation donated 50 million to renovate 3 wards out of 15 wards, purchased beds and office furniture and upgrade laundry facilities at the hospital. This effort is commendable and all the blame can shift from the government and serves as a wakeup call for the private sector to get involved in refurbishing the facility.

4.8.1: REFURBISHED SPACES COURTESY OF SAFARICOM FOUNDATION

Before   After

Fig: 4.8.2: Exterior   Fig: 4.8.3: Refurbished exterior

Source: www.citizentv.co.ke.

Before   After

Fig: 4.8.4: Old dining area   Fig: 4.8.5: New dining area

Source: www.citizentv.co.ke.

Before   After

Fig.4.8.6: Old Ward   Fig.4.8.7: Refurbished ward

Source: www.citizentv.co.ke.

Before   After

Fig.4.8.8: Old beddings   Fig.4.8.9: New beddings
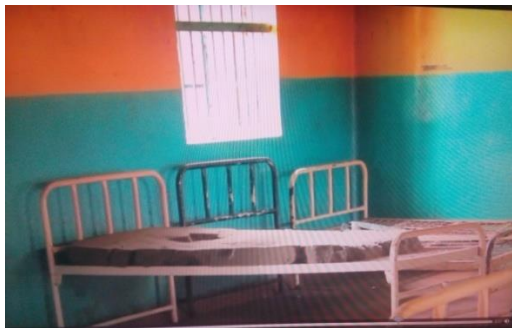
Source: www.citizentv.co.ke.

Fig. 4.36

Source: Author (2018)

```
                        ┌─────────────────────────────┐
                        │  LACK OF SENSE OF CONTROL   │
                        └──────────────┬──────────────┘
                   ┌───────────────────┴───────────────────┐
                   ▼                                        ▼
         ┌──────────────────┐                    ┌──────────────────┐
         │    PATIENTS      │                    │  PSYCHOLOGISTS   │
         └────────┬─────────┘                    └────────┬─────────┘
                  ▼                                       ▼
  ┌──────────────────────────┐          ┌──────────────────────────┐
  │ Depression               │          │ Burn out                 │
  │ Passivity                │          │ Low performance          │
  │ Blood pressure           │          │ High-turnover rate       │
  │ Sense of helplessness    │          │ Lack of Morale           │
  └──────────────────────────┘          └──────────────────────────┘
```
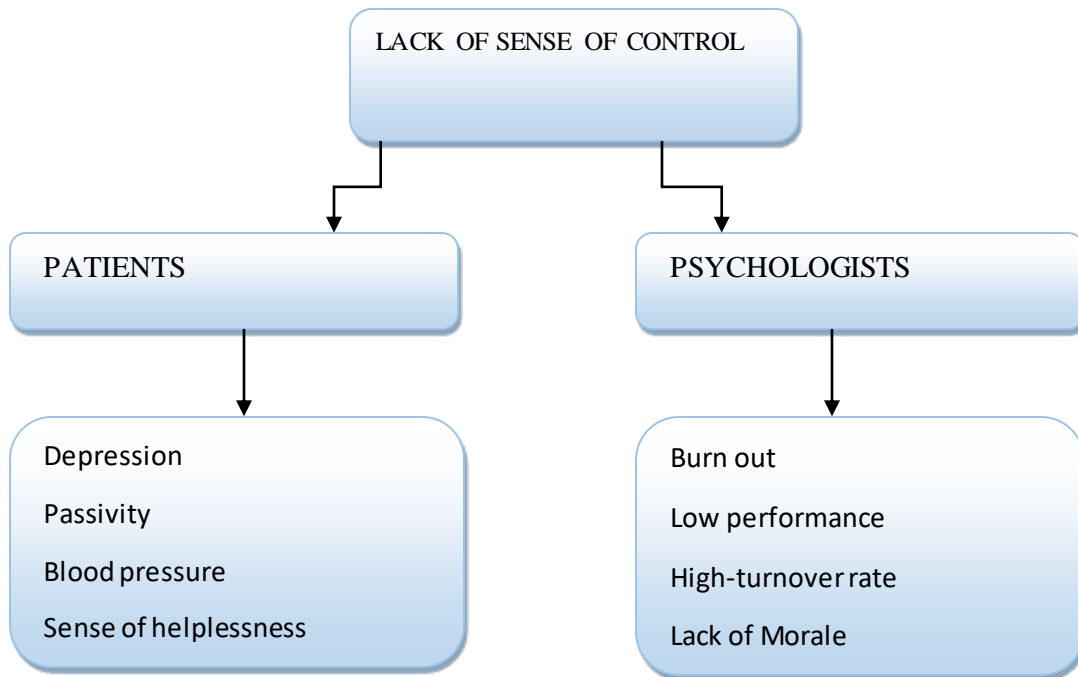
Fig.4.37

Source: Author (2018)

```
                        ┌─────────────────────────────┐
                        │   LACK OF SOCIAL SUPPORT    │
                        └──────────────┬──────────────┘
                   ┌───────────────────┴───────────────────┐
                   ▼                                        ▼
         ┌──────────────────┐                    ┌──────────────────┐
         │    PATIENTS      │                    │  PSYCHOLOGISTS   │
         └────────┬─────────┘                    └────────┬─────────┘
                  ▼                                       ▼
  ┌──────────────────────────┐          ┌──────────────────────────┐
  │ Anxiety                  │          │ Unproductive             │
  │ Loneliness               │          │ Affects retention        │
  │ Withdrawal symptoms      │          │ Affects satisfaction     │
  └──────────────────────────┘          └──────────────────────────┘
```

Fig.4.38

Source: Author (2018)

LACK OF POSITIVE DISTRACTERS

PATIENTS

Boredom

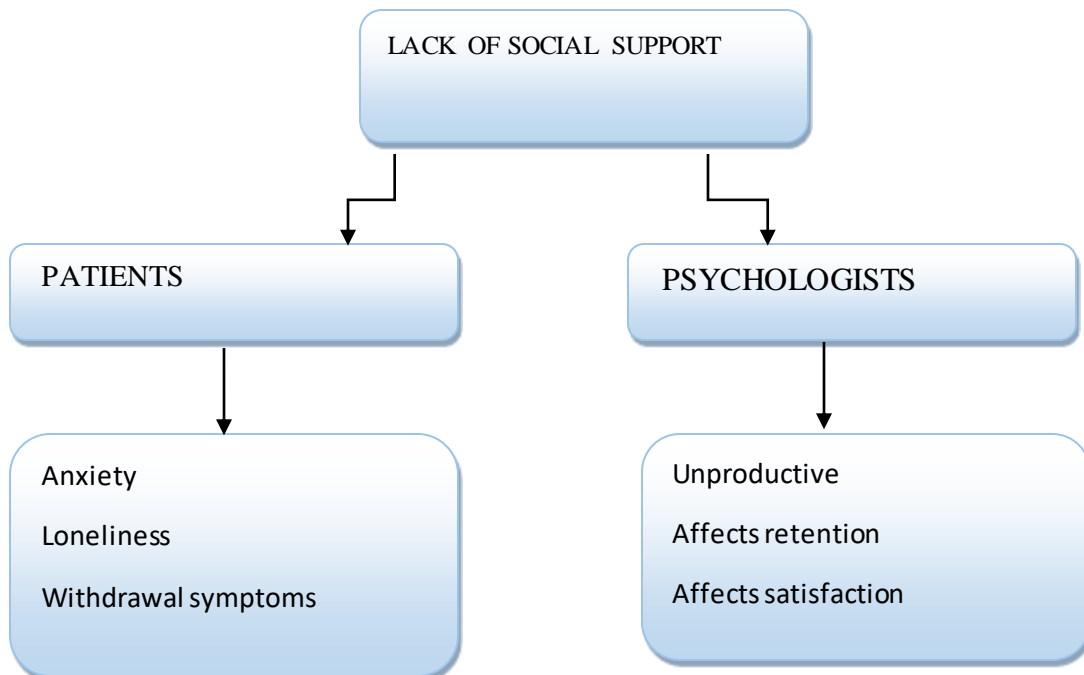Negative feelings

Worsen situation

PSYCHOLOGISTS

Moody

Boredom

Discomfort
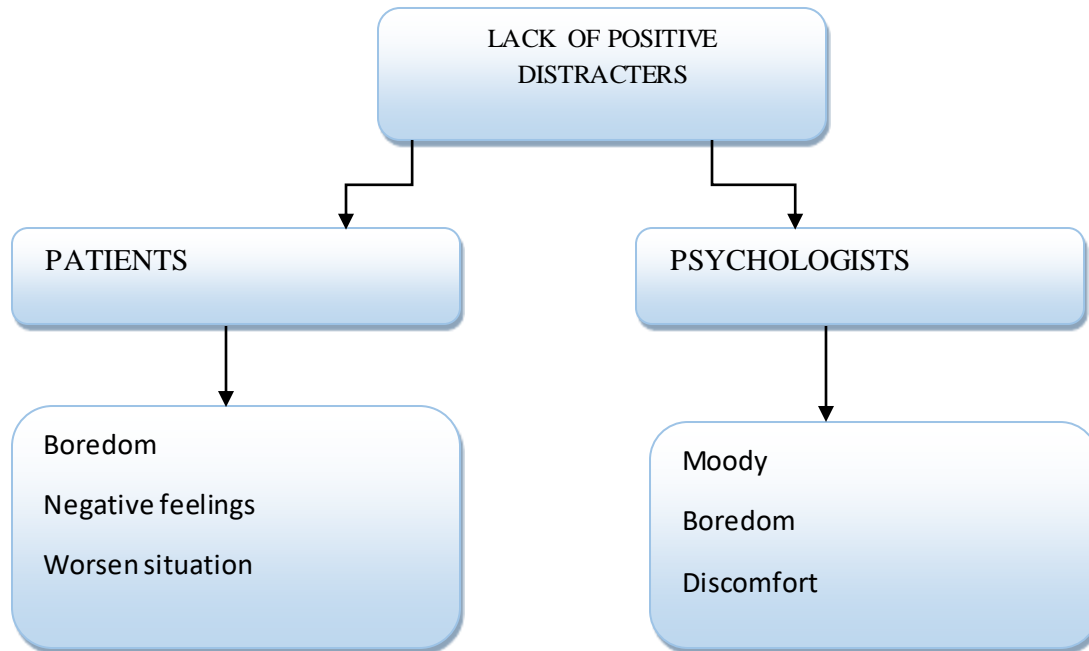
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives the discussions, summary and conclusions of findings of the research. The summary and conclusions are based on objectives of the study which comprise; to establish the outcome of therapeutic design on wellness of psychiatric patients, to establish the importance of positive work environment on the productivity of staff at MTRH, to identify the challenges faced by stakeholders in implementing therapeutic design features on the facility. Recommendations of the study are also made in this chapter.

5.2.1 Sense of control

Inside Mathari hospital,control is undermined by among other factors noise(because of lack of soundproof materials on walls),over crowding,arrangements that prevents self-regulation of privacy and social interaction.In my experience in Mathari hospital,there are a few signage to help visitors and patients in way finding.This makes individuals end up wasting time hence leading to stress.Some are unclear because of lack of maintainance but majority are clear.One of the psychologists states that because patients and visitors, inside and outside the facility, are usually in a heightened state of anxiety and are thus worried about finding their way to their intended destination.

This is worsened by the fact that the hospital grounds are large. Visitors visiting for first-time experience increase in anxiety as they try to find their way .On the outside of the building, clearly understood pathways and points of entry and exits are especially critical to fostering mobility and feelings of security, while the absence of these features often breeds confusion and anxiety. Studies have shown that if visitors do not have direction or reassurance of their direction every 30 feet while traveling through a facility, they will likely stop and ask an employee for directions. Thus, an effective way finding signage system is crucial to keeping a hospital staff focused, and free from interruptions. This aspect helps an individual to have control over the environment.

The staff do not have break areas where they can unwind,take tea and catch up.They eventually experience burnout due to low control.Lack of break areas makes it difficult to escape from work demands.The pychologists working at Mathari admit that they cannot control the temperature of the room(nursing station) incase the room becomes to hot or too cold.The nursing station's proximity to the wards is close and under the same building but the problem is that one nursing station serves many wards which exhausts the nurses especially at night.Since most of the time they spend indoors(stations) because of no break areas,they end up getting unusually tired before midday.

The researcher established that because of the worn out working stations and poor designated eating areas,one respondent preffered to eat her meals from home which in turn slows her productivity.In the public wing in Mathari,there are no single room wards.These factors, decreases privacy, patients' control over personal information and characteristics of the environment, an opportunity to rest and to discuss their needs with family members and staff.Sound,temperature,windows,television and privacy were some of the aspects the patient and the pychologists wanted to be changed to give them a sense of control.One practising pychologist submitted that lack of these affected their morale,moods and productivity.

The ventilations are attached to the wooden ceilings which are very high for the patients to control the room temperature. There is congestion do to over population in the wards which leads to stress. Many studies have found that lack of control is associated with depression,passivity and high blood pressure.On the nurses stations,lack of control is associated with burn out,low performance,high turnover and lack of morale.Situations that are uncontrollable are usually stressful.Whether the concern is staff or patients,stress stemming from lack of self control can be mitigated by supportive design-design strategies that fosters control.Example of design approaches that increases control include:access to visual privacy for very sick patients;controllable televisions in patients room;having break areas for staff and control of room temperature by patients and staff.

5.2.2 Social support

Generally, rooms, furniture arrangement,doors,windows in Mathari hospital do not foster social support.Most of them are in poor state due to various mishandles. Majority of the respondents cited reduction of social interaction in Mathari hospital by placement of furniture in big, not flexible groupings in public spaces such as waiting areas and resting areas. Nursing stations' furniture needs improvement according to a psychologist. All of them suggested that the seating arrangement should be changed to enhance social support and communication for patients.

In Mathari hospital, one of the psychologists pointed out that social interaction is reduced because most chairs are arranged side by side along the walls.The chairs outside are not movable hence reduces the levels of interaction with other patients.The visitors do not have comfortable waiting areas that allows the patients and family members to stay for long. The recovered patient says that they would leave the dormitory at 8 a.m and stay within the confines of the ward the whole day.They rest under a roof shade with no chairs yet their family visit them and sit with them there.

There are a few street furniture outside to enhance social interaction with friends and family outside.The benches outside the wards are few yet the in-patients are many.Majority of the patients engage in games as a lesiure activity which enhances social interaction.Social support is one of most important factors in predicting the physical health and well-being of everyone, ranging from childhood through older adults. The absence of social support shows some disadvantages among the impacted individuals. In most cases, it leads to the deterioration of physical and mental health among the victims. The physical environment can facilitate or hinder the possibility to establish or to use a network of social support.

5.2.3 Positive distractions

Colour,art work,views of nature and access to nature in MTRH bring negative distraction to the patients and staff.The high windows existing does not enhance view to the outside environment. "Naturalistic views to nature and natural air flow, sunlight also provide inhabitants with a connection to the outside world", (Day, 2004).The existing nature is not a healing garden since it is not well manicured and does not have elements that promote healing for instance healing plants,water features etc.

The colors are faded and is plain which pyschologically affects the users negatively.One psychologist stated that when there is lack of external positive distracter,the patient may end up focusing on their own troubles leading to worsening condition of mental health.Clinically,they end up with increased blood pressure,depression,boredom among other factors. Positive distractions help people attend to stimuli other than their own discomfort and anxiety,(Berman et al,2008).Research in environmental psychology indicate that people are fostered when physical surroundings provide moderate stimulation(neither too low nor too high).Stimulation levels will be high due to sounds,intense lighting,bright colors-the impact o patients will be stressful.

Prolonged exposure to low levels of environmental stimulation produces boredom hence negative feelings.Chronic understimulation or overstimulation can worsen the condition of a patient. On art work, it is recommended that works of art communicate a soothing experience or provide nature content. Elements such as trees,water,animals are the most effective positive distractions.Lastly, it is important to remember that the art preferences of designers, who have extensive exposure to contemporary art, may be different from those of laypersons. Therefore, the population (nurses and patients) who will be experiencing the art should be consulted during the selection process.

5.3 Summary

Mathari Hospital in Nairobi remains the premier training and referral facility for mental health in Kenya. Some of the challenges the management is facing currently is underfunding by the government. The medical superintendent states that since the buildings are old, expensive to maintain and they currently need one hundred million to renovate which the government is not willing to fund. The facility owes other institutions over thirty million and is receiving about six million a year from the government. Patients pay for treatment when they can or when they have a health insurance. This derails any effort they are trying to make as far as refurbishment and having therapeutic design is concerned.

On the outcome of therapeutic design on wellness of psychiatric patients and staff productivity, the researcher found out that the wellness of patients depend on a number of factors. One of the factors is having a balance between attractive, home-like features, and safe and secure features. Having design elements that improves health outcomes in hospitals include; good furniture design and arrangement, appropriate artwork, entertainment, access to nature, having appropriate color scheme and door signs and signage.

When these factors are not in place, it results to unproductively, boredom and high turnover rate on the nurses' and psychologists' end. On the psychiatric patients end, it results to depression, passivity, anxiety, sense of helplessness and lonliness.When they are in place, there will be stress reduction, improved health outcomes and readiness to transit to the community. One of the key themes emerging from the survey was that poor hospital design can contribute to a culture that de-values what nurses and psychologists' do and how they work.

This affects job satisfaction, and in turn, staff attraction and retention. Nurses and psychologists perceive a lack of respect for their work consequently. This research proposes that one of the expectations of staff in their psychological agreement is the provision of a safe, comfortable and effective workspace, for the benefit of both the patients and staff. Therefore design can be used as a tool to address not only physical health, but social, spiritual, psychological, occupational, and intellectual health.

5.4 Conclusion

In conclusion, present day mental hospital design address settings that enhance recovery, foster shorter stays as well as enabling patients to take part in their treatment. Many needs must be balanced in nursing stations and psychiatric wards. This includes having a therapeutic, supportive and patient friendly environment, preparing mentally ill for transitioning back to the society, and giving security from external, threats. Generally, design can have an impact on anxiety levels, vulnerability among the mentally disabled as well as the overall cost incurred by a hospital, Levin (2007).

When the needs of users are prioritized by designers, then recovery of patients will be quicker and a sense of productivity will be experienced by the nurses. Since Mathari Hospital has a sensitive group of people, it is imperative to have design strategies that will improve health outcomes having the patients' needs in mind. Healthcare environments should foster sense of control, social support and access to positive distractions. Negative effects of stress can be reduced by having perceived or actual sense of control over the same. On the other hand, conditions that are uncontrollable can lead to stress.

More attention should be given to foster social support through design strategies as mentioned above. It is proven that positive distracters have a way of moving human beings away from their problems and stress factors. Natured-theme distractions have a positive influence on nurses' and patients' stay in hospitals. Research has demonstrated that patients' stress levels can be reduced or managed through the use of comfortable and attractive environment (Geimer, 2009).Newer rehabs are attempting to solve this issue by re-thinking the rehabs' overall function and organization.

Future rehabs may deviate from the scary fortresses having mazes of corridors and move in the direction of a more homely environment having functions that are not usually found in a hospital. Examples of functions are spas, wellness centers, art displays, parks and movie theaters. The environment of healthcare is a healing place for patients and caregivers, work environment for hospital staff, a business environment for the suppliers of medical services and a cultural environment for the organization to realize its mission and vision. Therefore it is an environment that is multifaceted which should serve and accommodate the needs of the users without leaving out any user group, (Malkin 2003).In sum, these four areas are linked to the physical environment to patient and staff outcomes:

1. Reduced staff stress and fatigue; increased effectiveness in delivering care.
2. Improved patient safety
3. Reduced stress and improved outcomes
4. Improvement in overall healthcare quality.

5.5 Recommendations

It is evident that there is need to refurbish and expand the facility since the hospital has vast land. Majority of the respondents admitted that the facility is old, worn out and unattractive. These have resulted to bullying of patients, escape of patients from hospital, death, worsening of mental health among other issues. The researcher is recommending supportive design strategies whose pillar will be social support, sense of control and positive distractions.

The researcher's recommendations are as follows:

5.5.1 Enhancement of sense of control

The management should provide access to music or white noise for patients and their families. It is critical that the potential listener also have a choice to be able to select a particular type of music. Studies suggest that music, especially when controllable, can reduce anxiety or stress and helps some patients cope with pain. Control of noise can be regulated by the flooring with rubber in the patients' room. Carpets are expensive to maintain. Special ceiling tiles that absorb noise better than regular ceiling tiles can be in cooperated. To avoid bullying of patients, single wards can be introduced alternatively, the beds can be separated by gypsum wall to create privacy and enhance security.

5.5.2 Enhancement of social support

Since not all patients need to watch TV, other wards should have TV units to foster a sense of continuity between home and hospital hence deinstitutionalizing the space,(Faqua,2012).The programs and the timings to watch should be regulated though since one might be a victim of addiction.Furniture in the hospital should be replaced with upholstered, configurable ones and arranged in small flexible groupings. Care givers should be given talks once in a while by counseling psychologists on the need to increase social interactions with the patients and the role they can play in the healing process. Mathari should have instituted programs to provide social support for both patients and care givers e.g. Team building, counseling sessions etc.

5.5.3 Access to positive distractions

In Mathari hospital positive distractions can be a beautiful water feature, inviting landscapes, healing gardens or a pleasant view from windows. All staff and patients should have views outdoors through windows somewhere on the space. In the case of psychologists and nurses, views should be provided from the break areas and the nursing station (where staff spend extended periods of time). When that is not possible, natural light can be brought in through skylights, supplemented by art that includes nature images. The windows in some of the wards should be increased in size and the height should be opening.

Broken windows should be repaired and replaced with ones that can withstand the test of time. Interior spaces of Mathari hospital should accommodate interaction with nature for instance providing a space for interior flowers and plants. The management in conjunction with artists should cultivate talents especially patients who are gifted in art and allow them to have their own wall hangings. The patients and nurses also need to be consulted incase the management wants to acquire new art.Designers should be involved in creating supportive design in psychiatric hospitals. On the other hand, designers should consult the users to find out what works for them and their perspective.

5.5.4 Recommendations for further research

As with research on control, there is lack of studies that have used experimental methods to investigate whether interaction actually improves health outcomes. Further research is needed in this area. Despite this gap, there is medical evidence that social support improves medical outcomes. Several studies have investigated stress reducing settings having nature(water,trees,shrubs and grass).Very few studies have explored the role of flowers in fostering restoration. Further studies are required to examine the advantages or disadvantages of the variety of distractions used indiscriminately in hospital environments.

5.6 Adequate Storage Space, Nursing and Psychologists' Space.

Currently, the counselling psychologists do not have their own room to carry out their work. Mostly, they share with the nurses. The nurses too do not have adequate storage units for medicine etc. Below is a proposal of de-centralized storage model that captures both the nurses' space and psychologists' space. This model will allow for close proximity between the wards and the staffs' stations. One nurse will serve only a maximum of six patients in this model. The ideal ratio of nurses to patients should be 1:6.
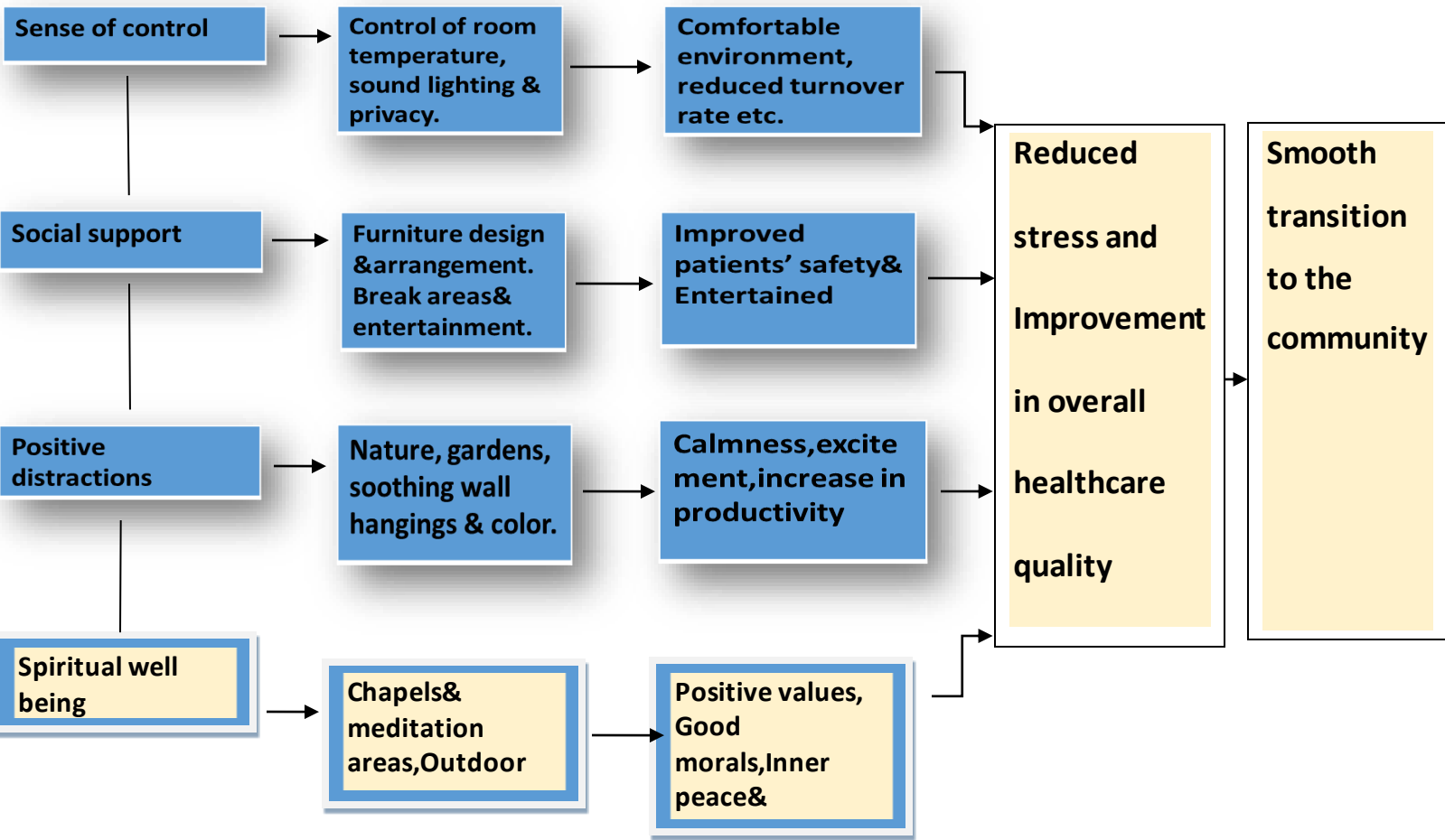
Fig 5.1:De-centralized model

Ward Entry
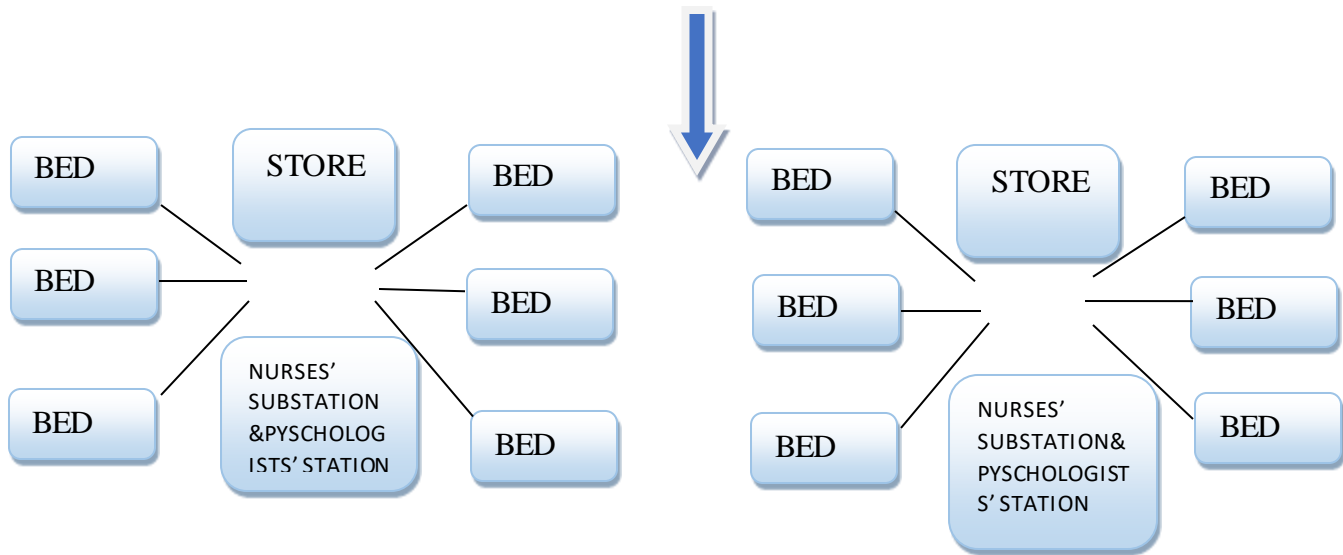
Source: Author (2018)

5.7 ENHANCED SUPPORTIVE DESIGN MODEL

The researcher proposes a model that provides holistic wellness to mental patients. An important pillar is introduced by the researcher and that is the spiritual wellness. It is the ability to establish inner peace and involves seeking of purpose in life. It can be defined through religious faith, values and morals. Outdoor areas that have meditation areas are important to allow patients reflect about the whole meaning and purpose of life as they connect with their God. Chapels that have artifacts that represent their religion and design features enhance spiritual growth.

Supportive design model by Ulrich (2012) has three main pillars: Positive distractions, social support and a sense of control. The researcher proposes a fourth pillar of spiritual wellness that will contribute to holistic wellness of psychiatric patients. Spiritual care entails giving services to the individual as a whole. Different patients have different spiritual views and backgrounds. Areas in hospitals should be designed to accommodate and enhance spiritual wellbeing, (Author, 2018).

Fig 5.2: ENHANCED SUPPORTIVE DESIGN MODEL

Sense of control	→	Control of room temperature, sound lighting & privacy.	→	Comfortable environment, reduced turnover rate etc.	
Social support	→	Furniture design &arrangement. Break areas& entertainment.	→	Improved patients' safety& Entertained	Reduced stress and Improvement in overall healthcare quality
Positive distractions	→	Nature, gardens, soothing wall hangings & color.	→	Calmness,excitement,increase in productivity	
Spiritual well being	→	Chapels& meditation areas,Outdoor	→	Positive values, Good morals,Inner peace&	Smooth transition to the community

Source: Author (2018)

REFERENCES AND BIBLIOGAPHIES

- Andrade, C., & Delvin, A. (2015). Stress reduction in the hospital room: Applying Ulrich's theory of supportive design. *Journal of Environmental Psychology*, *41*, 125–134.

- Annerstedt, M., & Währborg, P. (2011). Nature-assisted therapy: Systematic review of controlled and observational studies. *Scandinavian Journal of Public Health*, *39*(4), 371–388.

- Atwoli.L. (2015, October 17th).Reasons to take mental health more seriously. *Daily Nation*. Retrieved from http://www.nation.co.ke.

- Curtis, S., Gesler, W., Fabian, K., Francis, S., &Priebe, S. (2007). Therapeutic landscapes in hospital design: a qualitative assessment by staff and service users of the design of a new mental health inpatient unit. *Environment and Planning C: Government and Policy*, *25*(4), 591-610.

- Devarajan, G (2011) Prolegomena to Research Methodology. New Delhi: Ess

- Department of Health. Health Building Note 03-01: Adult Acute Mental Health Units. TSO (The Stationery Office), 2013.

- Dijkstra, K., Pieterse, M., &Pruyn, A. (2006). Physical environmental stimuli that turn healthcare facilities into healing environments through psychologically mediated effects: Systematic Review. *Journal of Advanced Nursing* 56(2), 166-181

- Eisen, S. L., Ulrich, R., Shepley, M. M.Varni, J. W., & Sherman, S. (2008). The stress reducing effects of art in pediatric health care: Art preferences of healthy children and hospitalized children. *Journal of Child Health Care*, 12(3), 173-190.

- Erickson, M. (2012). Restorative garden design: Enhancing wellness through healing spaces. *Journal of Art and Design Discourse*, *2*, 89–101.

- Fuqua, J. V. (2012). *Prescription TV: Therapeutic discourse in the hospital and at home*. Duke University Press.

- Gatara, T. (2010). Introduction to Research Methodology. Nairobi, Kenya: The Olive Marketing and Publishing Company.

- Georgi, N. J., &Anthopoulos, P. K. (2011). Landscape preference evaluation for hospital environmental design. *Journal of Environmental Protection, Vol 2,*639-647.

- Gituma, K. P. (2016). *Entrepreneurial Determinants Affecting Sustainability Of Women Owned Small And Medium Enterprises In Kenya* (Unpublished doctoral dissertation).Jomo Kenyatta University of Agriculture and Technology. Nairobi, Kenya.

- Grohol, John M. Locked. World of Psychology. Psych Central. Retrieved on 14th April, 2016.

- Hamilton, Kirk.D&Watkins, David .H (2009).Evidence Based Design for Multiple Building Types. Hoboken, New Jersey: John Wiley &Sons, Inc.

- Huxter, M. (2016, December, 2nd).The impact of flooring on nurse wellness. Retrieved from http://www.healthcarefacilitiestoday.com.

- Ibrahim, M. (2017). Mental Health in Kenya: Not yet Uhuru.*Disability and the Global South*, 1(2), 393-400.

- Joseph, A. (2006). *Health promotion by design in long-term care settings* (pp. 1-19). Concord, CA: Center for Health Design.

- Karlin, B. E., & Zeiss, R. A. (2006). Best Practices: Environmental and Therapeutic Issues in Psychiatric Hospital Design: Toward Best Practices. *Psychiatric Services*, *57*(10), 1376–1378.

- Kothari, C. R. (2005). Research Methodology: New Age International (3rd Ed.). London: Longman Publishers.

- Kroska, E. B., O'Hara, M. W., Elgbeili, G., Hart, K. J., Laplante, D. P., Dancause, K. N., & King, S. (2017). The impact of maternal flood-related stress and social support on offspring weight in early childhood. *Archives of Women's Mental Health*, 1–9.

- Lubano, K. (Dec 28th, 2016).Standard digital. The disease of corruption hits Kenya's health sector hardest. Retrieved fromhttps://www.standardmedia.co.ke.

- Marcus, C. C., & Barnes, M. (Eds.) (1999).Healing gardens: Therapeutic benefits and design recommendations. John Wiley & Sons.

- Marangu E, Sands N, Rolley J, Ndetei D, Mansouri F. (2015).Mental healthcare in Kenya: Exploring optimal conditions for capacity building. *African Journal of Primary Health Care & Family Medicine*. 2014 6(1).

- Michelle, P. (2013). The Role of Altered Window Views on Feelings and Preferences of Pediatric Patients and Parents (Doctoral dissertation). Texas Tech University. Retrieved from https://ttu-ir.tdl.org/ttu-ir/bitstream/handle/2346/.../Pinson_Michelle_Thesis.

- Mugenda, A. G. (2008). *Social science research: Theory and principles*. Nairobi: Kijabe printing press.

- Mugenda and Mugenda (2003).Research Methods, Quantitative and Qualitative Approaches. Nairobi: ACTS

- Muir-Cochrane, E., Oster, C., Grotto, J., Gerace, A., & Jones, J. (2013). The inpatient psychiatric unit as both a safe and unsafe place: Implications for absconding. *International Journal of Mental Health Nursing*, *22*(4), 304-312.

- Mroczek, J., Mikitarian, G., Vieira, E. K., &Rotarius, T. (2005). Hospital design and staff perceptions: An exploratory analysis. *The health care manager*, *24*(3), 233-244.

- Ndetei, D. M., Pizzo, M., Maru, H., Ongecha, F. A., Khasakhala, L. I., Mutiso, V., & Kokonya, D. A. (2008). Burnout in staff working at the Mathari psychiatric hospital. *African Journal of Psychiatry*, *11*(3), 199–203.

- Novotná, G., Urbanoski, K. A., & Rush, B. R. (2011). Client-centered design of residential addiction and mental health care facilities: staff perceptions of their work environment. *Qualitative Health Research*, *21*(11), 1527-1538.

- Njenga, F. (2002). Focus on psychiatry in East Africa. *The British Journal of Psychiatry*, *181*(4), 354-359.

- Njenga, M. (2016). Mathari hospital in deplorable state. Retrieved February 8, 2018, from https://citizentv.co.ke/news/mathari-hospital-in-deplorable-state-115728.

- Papoulias, C., Csipke, E., Rose, D., McKellar, S., & Wykes, T. (2014). The psychiatric ward as a therapeutic space: systematic review. *The British Journal of Psychiatry*, *205*(3), 171-176.

- PricewaterhouseCoopers, L. L. P. (2004). The role of hospital design in the recruitment, retention and performance of NHS nurses in England. *Retrieved from: http://webarchive. nationalarchives.gov.uk*

- Princeton, N.J. (2014, June, 6th). Retrieved from http://www.rwjf.org/en/library/articles-and-news/2014/07/physical-work-environment-in-hospitals-affects-nurses-job-satisf.html.

- Pilot, M. and Hungler, B.(2011). Entrepreneurship and Microfinance: A Tool for Empowerment of Poor - Case of Akhuwat-Pakistan, (unpublished MSc Thesis).Malardalen University, Karachi.

- Race, M. (25th September 2012). *If hospital environments affect patients, what about their impact on staff?* The Guardian. Retrieved from https://www.theguardian.com/sustainable-business/hospital-environment-affect-patients-staff.

- Reginaldo, K. (2013). Redefining healing spaces: A case study of creating a therapeutic environment.Mapua Institute of Technology Intramuros, Manila. Retrieved from fs.mapua.edu.ph/MapuaLibrary/Thesis.

- Rice, C. R. (2010). *Observing Healthcare Interior Environments and the Effect on Patient Behavior* (Published Doctoral dissertation), Texas A & M University.

- Salonen, Heidi, Marjaana Lahtinen, Sanna Lappalainen, Nina Nevala, Luke D. Knibbs, Lidia Morawska, and Kari Reijula. "Physical characteristics of the indoor environment that affect health and wellbeing in healthcare facilities: A review." *Intelligent Buildings International* 5, no. 1 (2013): 3-25.

- Shepley, M. M. (2006). The role of positive distraction in neonatal intensive care unit settings. *Journal of Perinatology*, *26*, S34-S37.

- Smith, J. (2007). Health and nature: The influence of nature on design of the environment of care. *The Center for Health Design*, 1–19.

- Sullivan, M. (October 17ᵗʰ, 2013).The top five challenges facing today's hospitals. Retrieved from http://blog.schneider-electric.com/building-management/2013/10/17/top-five-challenges-facing-todays-hospitals.

- Thompson, N. C., Hunter, E. E., Murray, L., Ninci, L., Rolfs, E. M., & Pallikkathayil, L. (2008).The experience of living with chronic mental illness. *Perspectives in psychiatric care*, *44*(1), 14-24.

- The Kenya National Commission for Human Rights, 2011. Silenced Minds: The Systemic neglect of Mental patients in Kenya. Nairobi, Kenya. Retrieved from http://www.knchr.org/Portals.

- United Nations Centre for Regional Development. (2004).Research Design, Data collection and Analysis: A training manual. Nairobi: Author.

- Ulrich, R. S., Bogren, L., & Lundin, S. (2012). Towards a design theory for reducing aggression in psychiatric facilities. *ARCH12*.

- Ulrich, R. (2002). Health benefits of gardens in hospitals. In *In Paper for conference, Plants for People International Exhibition Floriade* (Vol. 17, p. 2010). Texas A & M University College State, TX 77843.

- Ulrich, R., Zimring, C., Quan, X., Joseph, A., & Choudhary, (2004). The role of the physical environment in the hospital of the 21st century (Report sponsored by The Robert Wood Johnson Foundation and The Center for Health Design).

- World Health Organization. (2015). *Mental disorders Fact sheet N°396"*. (p. N°396".).

QUESTIONNAIRE FOR THE RECOVERED PATIENT

Dear Respondent,

I am a student at University of Nairobi pursuing Masters Degree in Design. I am collecting data on effects of interior design in hospital spaces. Your response will be confidential. Kindly complete this form.

Yours sincerely,

Ruth Cheruiyot.

Instructions

Tick where appropriate and hand it over to the researcher. Thank You for your cooperation

1. What is your age?
   20-30 ☐ 30-40 ☐ 40-60 ☐ 60-70 ☐

2. What is your gender?

   Male ☐   Female   ☐

4. What do you like best about this facility?

   _____

5. How can you describe the interiors of this hospital?

   Good design ☐   Poor design ☐

   If your answer is option B, kindly expound on the same.

6. Generally, did the interior design of the ward you were in affect your health?
                  Yes ☐   No ☐   Not sure ☐

If yes, did it affect you positively or negatively?

Positively ☐   Negatively ☐

7. Did the ward you were in have a T.V unit?

Yes ☐   No ☐

What is your opinion on the same?

8. Were you able to easily access the spaces (e.g. washrooms and nursing room) that were important to you as a patient?

Yes ☐   No ☐

9. Were there art work displayed on corridors and wards?

Yes ☐   No ☐

If yes, how can you describe them?

Were they evoking any positive feelings?

Yes ☐   No ☐

10. How can you describe the chairs you came across in Mathari hospital? Tick where applicable.

Old and uncomfortable   ☐
New and comfortable   ☐

Old and comfortable ☐

New and uncomfortable ☐

Heavy and immovable ☐

Light and movable ☐

None of the above ☐

11. In your opinion, do you prefer a single-ward room or multiple bed wards?

Single ward ☐   Multiple bed ward ☐

12. Where did you spend most of the time?

Outdoors ☐   Indoors ☐

How was the experience?

13. How often did your family members visit you?

Very often ☐   Often ☐   Rarely ☐

14. Please tick where necessary.

	Agree	Undecided	Disagree
I feel relaxed in this room	☐	☐	☐
I feel stressed in this room	☐	☐	☐
This room is crowded	☐	☐	☐
This room is less crowded	☐	☐	☐

15. Would you want to change any of the following aspects in this hospital?

Check all that apply.

Lighting ☐

Seating Arrangement ☐

Privacy ☐

Sound ☐

Temperature ☐

Decorations ☐

Color ☐

Other: ☐

Thank you for finishing this questionnaire.

APPENDIX II

QUESTIONNAIRE FOR THE COUNSELLING PSYCHOLOGISTS

Dear Respondent,

I am a student at University of Nairobi pursuing Masters Degree in Design. I am collecting data on effects of interior design in hospital spaces. Your response will be confidential. Kindly complete this form.

Yours sincerely,

Ruth Cheruiyot

Instructions

Tick where appropriate and hand it over to the researcher. Thank You for your cooperation

1. What is your age?
    20-30 ☐ 30-40 ☐ 40-60 ☐ 60-70 ☐

2. What is your gender?

    Male ☐   Female ☐

2. For how long have you worked in Mathari hospital?
    0-1 Year ☐   1-2 Years ☐   2-4 years ☐   More than 5 years ☐

3. How can you describe the interiors of this nursing station?
    Good design ☐   Poor design ☐

4. How do you feel about the following aspects of the nursing/psychologists station?

	Dislike	Neutral	Like
Lighting	☐	☐	☐
Furniture	☐	☐	☐
Decorations	☐	☐	☐

Sound/Noise ☐ ☐ ☐

Temperature ☐ ☐ ☐

Personal space/proximity ☐ ☐ ☐

Color ☐ ☐ ☐

Windows ☐ ☐ ☐

Television ☐ ☐ ☐

5. In your opinion, is art therapeutic for the patients?

Yes ☐   No ☐

If yes which kind of art is appropriate?

Nature ☐   Abstract ☐   Other ☐

6. Is it wise for the patients to be involved in choosing the kind of wall art appropriate for them?

Yes ☐   No ☐

If yes, give reasons.

7. In your opinion, is it appropriate to have what kind of landscape features outside the wards?

Permanent ☐   Less permanent ☐

Give reasons for your answer

8. In your opinion, does the interior design of this hospital affect the performance/morale of nurses and psychologists?

Yes ☐　　　No ☐　　　Not sure ☐

If yes, has it affected you positively or negatively?

Positively ☐　　　　　Negatively ☐

9. List some of the changes that can be made to improve the interiors of your working station.

10. Are you consulted when in terms to the face-lifting of Mathari hospital?

Yes ☐　　　　No ☐

What is your take on that?

_____

Thank you for finishing this questionnaire.

INTERVIEW SCHEDULE FOR THE PROFESSIONAL INTERIOR DESIGNER AT THE MINISTRY OF PUBLIC WORKS

Dear Respondent,

I am a student at University of Nairobi pursuing Masters Degree in Design. I am collecting data on interiors and exteriors of Mathari hospital spaces. Your response will be confidential.

Yours sincerely,

Ruth Cheruiyot.

1. What is your age?

   ☐ 20-30   ☐ 30-40   ☐ 40-60   ☐ 60-70

2. What is your gender?

   ☐ Male   ☐ Female

3. As a designer, how can you describe the interiors of Mathari hospital?

   Good design   ☐   Poor design   ☐

4. In your assessment, does the design (interiors and exteriors) of the Mathari hospital affect the health of the patients, if yes in what way?

5. Has any major renovation been carried out since its inception?

6. In your view, are nurses/psychologists consulted when designing and renovating Mathari hospital, wards or units?

   Very often ☐   Quite often ☐   Rarely ☐

7. In your opinion, has the government done anything regarding the problem of the general design of the hospital, if so in what way?

8. What challenges does the government encounter in the process of implementing therapeutic design in the facility?

9. What steps should be taken in addressing the challenges?

10. Has the private sector come in as a solution to help address some of these challenges?

Thank You for your cooperation

OBSERVATION CHECKLIST

APPENDIX IV

FIG.IV

	Areas to be observed	Fill in appropriately
1	Describe the corridors	
2	Rate the quality of the flooring outside the wards	Good quality ☐ Poor quality ☐
3	Are there signage to help in maneuvering? If there are, how many are they?	YesNo ☐ ☐ A few ☐ Many ☐
4	Describe the exteriors(color, window, and furniture) Describe the existing lawn.	Inviting ☐ Unattractive ☐ Manicured ☐ Not maintained ☐
5	The moods of the patients and staff while in Mathari hospital.	Calm ☐ Moody ☐

APPENDIX V

WORK PLAN

ACTIVITY	PERIOD
PROPOSAL PREPARATION AND PRESENTATION	APRIL-MAY 2017
PROPOSAL DEFENCE	JUNE 2017
PROPOSAL WRITING	JUNE 2017
DATA COLLECTION	JULY 2017-SEP 2017
PROJECT WRITING	SEPT 2017-DECEMBER 2017
FINAL PROJECT DEFENSE	FEBRUARY,2018

APPENDIX VI

BUDGET FOR THE PROJECT

ITEM	COST(KSH)
RESEARCH INSTRUMENTS(QUESTIONNAIRES,INTERVIEWS&OBSERVATION)	3000
STATIONERY	3500
TRAVEL	3000
PROPOSAL AND PROJECT WRITING	6000
TOTAL	15,500

MATHARI HOSPITAL-THIKA ROAD

Source: Google map