EFFECTS OF A MENTAL HEALTH TRAINING PROGRAMME FOR COMMUNITY PHARMACISTS TO RECOGNIZE COMMON MENTAL DISORDERS AMONG YOUNG PERSONS IN LAGOS

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DECLARATION

I hereby declare that this research project is my original work and that it has not been submitted anywhere else for diploma or degree. Where other sources of information has been used, it was acknowledged.

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CERTIFICATION

I certify that this work was carried out by Miss Rukayat.O Ogunbiyi in the Centre for Child and Adolescent Mental Health, University of Ibadan in partial fulfillment of the requirement for the award of Masters of Science degree

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DEDICATION

This work is dedicated to children and young persons with mental health problems. It is my belief that through this work a step further towards your better mental health will be achieved. Together we can.

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LIST OF ABBREVIATIONS

WHO – World Health Organization

CMDs – Common Mental Disorders

PHC – Primary Health Centers

GBD – Global Burden of Diseases

NICE – The National Institute for Health and Care Excellence

CPs – Community Pharmacists

UI – University of Ibadan

UCH – University College Hospital

ACPN – Association of Community Pharmacists in Nigeria

SPSS- Statistical Package for the Social Sciences

LGA- Local Government Area

ABSTRACT

Background: Current evidence indicates that common mental disorders are the greatest cause of disability in young people. The disability associated with common mental disorders in young people have considerable impact on personal wellness, social interaction and workplace productivity. Early recognition of common mental disorders in young people have been shown to

improve treatment outcomes and reduce effects of long duration of untreated illness. Task shifting intervention programs among lay health workers have been reported to help with improved access to appropriate mental healthcare. However there is paucity of studies exploring the potential utility of task shifting interventions for mental health among community pharmacists. The aim of this study is to determine the effect of a mental health training program for community pharmacists to recognize common mental disorders among young persons in Lagos, Nigeria.

Methodology: This was a quasi-experimental study with community pharmacists from three local government areas in Lagos State. The community pharmacists in Lagos have been administratively grouped into twenty two zones. In each local government area of Lagos there is one zone, but large local government area like Alimosho Local Government have two zones. Four zones out of the twenty two zones were conveniently selected based on their size and active participation of her members in zonal meetings, the zones were then selected into control and intervention groups. The community pharmacists who consequently participated in the study were recruited from the zonal monthly meetings. The community pharmacists in the intervention group received a 5-hour training on mental health adapted from Mental Health Action Gap (MH-GAP) intervention guide for lay health workers. The study instrument used was the Adapted Teachers' Knowledge, Attitude and Practice Questionnaire which had case vignettes and Likert scale questions. This was administered to the control and intervention at baseline, immediate post intervention and 4-weeks post intervention. Data was analyzed using Statistical Package for the Social Sciences (SPSS- 23). The Socio-demographic variables such as age, sex and level of education were analyzed using frequencies and chi square for comparison between the two groups. Paired t-test and ANOVA were used to analyze the responses between the intervention and control groups and across the

three time frames. The qualitative responses in the data were coded using themes and then analyzed. The level of significance was placed at statistical significance (p value) of 0.05.

Results: A total of 140 pharmacists participated in the study with an average age of 34.5 years and 73.1% have only the B.pharm degree and more than half (66.4%) had no prior knowledge on mental health. There was no significant difference between socio-demographic variables between control and intervention groups (p=0.81). The participants in the control and intervention groups were not significantly different on baseline measures on knowledge and attitude to common mental disorders (p>0.05). The post intervention comparison of the intervention and control groups on recognition of common mental disorders as presented in the case vignettes showed significant difference (p<0.05). Post intervention comparison on knowledge scores showed difference which were not statistically significant at immediate post intervention on knowledge (p=0.08) but showed significant difference at 4-weeks post intervention on knowledge scores (p<0.05). The intervention and control groups differed significantly across immediate post intervention and 4-weeks post intervention on attitude scores (p<0.05). ANOVA analysis revealed significant difference in both knowledge and attitude scores across the three time frames as both knowledge and attitude mean scores increased {F (1, 138) = 64.89, p <.001}.

Conclusion: A brief mental health training was found to be feasible and effective in increasing knowledge and attitude about common mental disorders among community pharmacists. The beneficial effects of a mental health training on the knowledge and attitude of community pharmacists, agrees with similar reports for other non-specialist healthcare professionals. Thus, with more comprehensive training and follow up, community pharmacists will be able to recognize and provide linkage service to young people with common mental disorders to access appropriate mental healthcare in Nigeria.

Key words:- Intervention, common mental disorders, community pharmacists, Nigeria.

CHAPTER ONE

INTRODUCTION

1.1.Background

The global burden of diseases (GBD) study brought to limelight, the significant burden of mental disorders; with depressive disorders ranking first amongst the leading causes of disability among youths (Gore *et al.*, 2011). The prevalence rates of common mental disorders (CMDs) defined as depression, anxiety, stress related and somatoform disorders, have been steadily increasing since the 1970s and has continued to exert tremendous impact on the lives of young people (Klerman and Welsaman, 1988; Americans *et al.*, 2013). The peculiar characteristic symptoms of CMDs, presenting with non-psychotic symptoms such as fatigue, insomnia, irritability, difficulty concentrating makes them easily missed as most professionals often times focus on the complaint. As such, CMDs can lead to high social, economic and individual costs, and they account for one third of the days missed at work and one fifth of all primary health center (PHC) visit (Gomes *et. al* 2013; Fortes *et al.*, 2007).

Young people have been defined as persons between ages 10-24years (Das Gupta *et al.*, 2014). In today's world population, there are more young people than any other time in history (Das Gupta *et al.*, 2014). In the United Nations brochure of adolescent demography, there are a little under 1.8 billion young people in the world today, more than three quarters of whom live in developing countries. India and China have over 200 million youth population. The population of young people in Africa is also on the increase with an expected rise from 18% in 2012 to 28% in 2040 (Asia and Asia, 2010).The period of adolescence up until early adulthood is a transitory phase into adulthood characterized by many psychological developmental events and major life decisions

such as applying for university, new found freedom and exploring relationships (Das Gupta *et al.*, 2014).

Even though the period of adolescence through early adulthood is in general, the healthiest period of life (Das Gupta *et al.*, 2014) it is estimated that one in five young people are experiencing at least one significant substance use or mental health issue, and suicide is the second leading cause of death among young people (Gore *et al.*, 2011; Henderson *et a*l., 2017). Studies have also further shown that many mental disorders that manifest during adulthood have first onset during adolescence and hence understanding and detecting mental illness at this stage could mean preventing further deterioration of mental health (McGorry *et al.*, 2011; Henderson *et al.*, 2017).

Many young people with a mental health disorder, do not receive mental health treatment, despite the poor outcomes and high costs associated with unmet mental disorders (Steel *et al.*, 2014). A major contributing factor to low rates of treatment is the paucity of current systems to identify and refer young people with mental health issues to appropriate services (Gulliver *et al.*, 2010). Studies have also shown that screening for mental health disorders should be part of routine care in adults. However, effective and efficient screening and intervention programs for young people, are only beginning to develop (Henderson *et al*., 2017). Another contributing factor is the mode of presentation of CMDs- insomnia, irritability, difficulty concentrating are non-specific and vague complaints that predisposes them to being easily missed, as most professionals often times focus on the immediate complaint (Fortes *et al*., 2008).

In Nigeria, a commonly utilized health care professional as a first-line for health complaints are the community pharmacists. They are in the unique position to recognize common mental disorders in the community setting due to their accessibility (no appointments needed, no protocols

of registration and opening a folder etc.) and the general public's high level of trust in them (Rubio-Valera, *et al*., 2014).

1.2. Problem Statement

The age of onset of common mental disorders begin in adolescence with a larger proportion being in the years of youth (McGorry *et al.*, 2011). The global burden of diseases report have extensively highlighted that the common mental disorders accounts for the highest cause of disability in youth, yet treatment initiation were significantly delayed for longer than what obtain with adult onset mental disorders (Patton, *et al*., 2007; Gore *et al.*, 2011). Recent studies have also shown that most neuropsychiatric diseases begin before age 25 with greater incidence in adolescence (McGorry *et al*., 2011). Yet, treatment initiation is often times delayed compared to adult onset mental health disorders, largely due to absence of screening services for young people (McGorry, *et al.*, 2007).

1.3 Justification

A major barrier to treatment initiation could be the presentation of the symptoms of common mental disorders which mimic some infectious disease in sub-Sahara Africa particularly malaria and thus, a large proportion of individuals seek treatment without blood tests in community pharmacies (Tesfaye *et al.*, 2014; Ladner *et al.*, 2017). Yet many individuals including young persons with common mental health problems who consult at these pharmacies are likely to request inappropriate self-care, on account of their similar presentations to other common physical illnesses such as malaria. At the moment, there is no available studies that have explored the knowledge of community pharmacists about common mental disorders or their potential utility in screening for these disorders. Community pharmacist were chosen because of their access to large number of persons seeking self-care and prescription medicines. Previous research has concluded

that trained pharmacists may be equipped with the skills and knowledge to assist in the identification and support of persons with mental illness such as depression (Rubio-Valera, *et al.*, 2014). A series of screening services for chronic conditions such as hypertension, diabetes and obesity are already available in community pharmacists majorly facilitated by pharmacists (Offu *et al*., 2015).

Therefore, there is a need to develop ways to screen for common mental disorders in community pharmacies and establish referral systems that will ensure that at risk young persons get appropriate treatment and burden and the duration of untreated illness can be significantly reduced. There is currently no study in Nigeria that has explored the potential utility of task sharing interventions for mental health using community pharmacists; despite the similarities in the physical symptoms of common mental disorders with many other physical illnesses. Thus, the potential for significant misdiagnoses when the individuals' seek self-care in community pharmacies is very high.

1.4 Aim of the study

The aim of this study is to determine the effect of a mental health training program for community pharmacists to recognize common mental disorders among young persons in Lagos, Nigeria.

1.5 Specific Objectives

1. To assess the baseline knowledge of community pharmacists about common mental disorders.
2. To assess the baseline attitude of community pharmacists about common mental disorders.
3. To carry out a mental health gap action program intervention guide (MHGAP-IG) based, training program for community pharmacists

4. To determine the effects of a mental health training program on the knowledge and attitude of community pharmacists.

1.6 Null Hypothesis

1. There would be no statistically significant difference before and after intervention in the knowledge of community pharmacists to common mental disorders.

2. There would be no statistically significant difference before and after intervention in the attitudes of community pharmacists to common mental disorders.

1.7 Primary outcome measures

The primary outcome of this study is to measure the change in knowledge and attitude of community pharmacists to recognize for common mental disorders in young people.

CHAPTER TWO

LITERATURE REVIEW

2.1 Young People

The United Nations define young people as persons between age 10-24years comprising adolescents and youth (Asia and Asia, 2010). More than any time in human history, the population of young people is highest at this time, with the report by UNDESA recording slightly less than 1.8billion young people in a total world population of 7.3 billion (Das Gupta *et al*., 2014). Globally, population of young people is expected to decline from about 17% in 2010 to 13.5% in 2040, Asia and the Pacific region have been predicted to have an estimated sharp decline of 9% by 2040 (UNDESA, 2014).

Africa however, is estimated to have an increase in her young people's population by about 10%. The size of this population is of particular interest as the not only predict the future health population but also because the health of these population determine socio-economic development as the future the labor force is highly dependent on them (Das Gupta et al., 2014). Health is indeed wealth

Individuals within this age group are characterized by rapid physiological, sexual and emotional changes (Caskey and Anfara, 2014). It is the period of transition from childhood into adolescence and the adulthood. This period is sensitive and is depicted by struggles of identity formation, development of autonomy, peer intimacy and pressure. It is also the age where major life events such as end of high school education and initiation of tertiary education begin (Das Gupta *et al.*, 2014).

2.2 Common mental disorders

Common mental disorders have been defined according to the International Statistical Classification of Disease to include depression, anxiety disorders and somatoform disorders (World Health Organization (WHO), 2011). Although panic disorders, obsessive compulsive disorders, specific phobias are encapsulated in the NICE guideline for definition of common mental disorders (National Collaborating Centre for Mental Health (Great Britain) and Royal College of Psychiatrists, 2011). Most studies often define common mental disorders as depression, anxiety and somatoform disorders. While somatoform disorders may be considered as features of peculiar diagnostic criteria (Henningsen *et al.*, 2005). It could alternatively be assessed in the clinical context of emotional disorders like depression and anxiety (Goldberg and Bridges, 1988a).

Common mental disorders have been found to be highly prevalent with approximately one in four people meeting criteria of common mental disorders at least once in the past year and about one in five for life time prevalence, studies also show that there is a high prevalence of comorbidity of common mental disorders (Steel *et al.*, 2014). Depression have been shown to affect one in twenty persons annually and anxiety affecting one in fifteen persons. Anxiety disorders had the highest life time prevalence followed by mood disorders (World Health Organization, 2017). Common mental disorders have been shown to be one of the major causes of work absentism and frequent PHC visits (Fortes, Villano and Lopes, 2008).

2.3 Common mental disorders in young people

The burden of disease before the 2000s was based largely on the degree of mortality of an illness and as such communicable diseases such as HIV, malaria, tuberculosis amongst others were the major public health concerns consuming a large portion of resources allocated for health globally. Also, the period of adolescence up until early adulthood have been considered generally as the healthiest part of human lives (Das Gupta et al., 2014). The introduction of a new metric -Years Lost because of Disability (YLDs) in the WHO Global burden of disease study changed the narrative of burden of diseases (Cossio *et al.*, 2012). This worldwide study showed that neuropsychiatric disorders were the leading cause of disability in young people with common mental disorders ranking first among the neuropsychiatric illnesses (Gore *et al*., 2011). Recent studies have also shown that most neuropsychiatric diseases begin before age 25 with greater incidence in adolescence (McGorry *et al*., 2011). Yet, treatment initiation is often times delayed compared to adult onset mental health disorders, largely due to absence of screening services for young people (McGorry, *et al.*, 2007).

Although the period of adolescence up until early adult years have been said to be the healthiest, the physiological, emotional and psychological changes during this phase influences health and health determinants in later life (Schriver *et al.*, 2014). Also, the cumulative effect of childhood experiences begin to reflect in young people, with studies showing a dose-response relationship between cumulative adversity and cumulative consequence (Mersky *et al.*, 2013). The psychosocial and emotional task of young adulthood and childhood experiences largely influence predisposition to mental health problems in young people.

2.4 Prevalence of common mental disorders in young people

The exact prevalence of common mental disorders in young people is quite difficult to establish. Most studies have different age group focus with many focusing more on late adolescence to early adulthood and fewer studies incorporating all the age groups within the definition of young people ('United Nations Population Fund Adolescent Mental Health in Resource-Constrained Settings : A Review of the Evidence', 2011). Globally, it is predicted that 4.4% of the world's population suffer from depressive disorders and about 3.6% suffer from anxiety disorders. Rates differ from region to region with, Western Pacific Region having estimates of 3.6% and Africa having 5.4% for depressive disorders and almost similar rates for anxiety disorders (World Health Organization, 2017).

In a review of community and school based epidemiological studies, Patel et al. (2007) concluded that at least 20% of young people will experience at least one common mental disorder in a year, with late adolescence and early adulthood having higher rates than adolescents aged 10-17 ('United Nations Population Fund Adolescent Mental Health in Resource-Constrained Settings : A Review of the Evidence', 2011).

2.5 Presentation of CMDs in young people

The predominance of somatic complaints in patients with acute anxiety, depressive disorders following stressful life events have been found in many community studies done across several countries (Goldberg and Bridges, 1988b). In a study done on rural women in Ethiopia, strong association was found between maternal common mental disorders and complaints of fatigue (Smartt *et al.*, 2016). Evidence suggests that the mode of presentation of CMDs include insomnia,

irritability, difficulty concentrating makes them easily missed as most professionals often times focus on the immediate complaint (Fortes, *et al.*, 2008).

Also symptoms of common mental disorders mimic some infectious disease in sub-Sahara Africa particularly malaria and large proportion of individuals seek treatment without blood tests in community pharmacies (Tesfaye *et al.*, 2014; Ladner *et al.*, 2017). The somatization often associated with common mental disorders affects patient perception of illness, behavior and perceived needs for treatment (Henningsen *et al.*, 2005).

2.6 Health seeking behavior in young people

The burden and disability caused by common mental disorders is greatest in young people yet treatment initiation is delayed (McGorry *et al.*, 2011). Research has estimated that only about 18-34% of young people with diagnosable common mental disorders seek professional help. In a survey of young people in Australia only about 25% of the young people sought professional help (Gulliver *et al.*, 2010). Studies on adolescents in parts of Europe also showed that only about 30% of the young people with diagnosable mental disorder sought professional help (Essau, 2005; Zachrisson, *et al*., 2006).

Many reasons have been proposed for not seeking help, in a systematic review by Gulliver *et al.*, 2010, prominent barrier themes were identified as stigma and embarrassment, problem recognizing symptoms and preference for self-reliance (Gulliver *et al.*, 2010). These barriers particularly self-reliance extends to their preference for self-help as a treatment for psychological distress.

2.7 Consequences of Unmet Mental Health Needs in Young Persons.

Epidemiological studies done across communities, outpatient and primary health care setting have reported significant association between common mental disorders and functionality (Sen, 2003). The global burden of disease study shows that that young people live with the greatest burden and disability cause by common mental disorders (Gore *et al.*, 2011). In studies done in a primary care setting found that there was corresponding changes in the disability caused by common mental disorders as the illness improve. The disability associated with common mental disorders have considerable impact on personal wellness, social interaction and workplace productivity (Sen, 2003).

These disabilities impacts through limitation in cognitive and motivational activities. It affects self-regulation, social perception and have tendencies to worsen physical symptoms like pain and fatigue (Sen, 2003). In a 21-year long longitudinal study in New Zealand, results showed that young people with common mental disorders were at high risk of developing major depressive disorders, anxiety, suicidal behavior, substance use and academic and employment underachievement. It also found strong correlation of adolescent on set common mental disorders with adverse social and family circumstance, lower IQ scores, higher rates of co morbidity, early parenthood and conduct disorder (Rai *et al.*, 2010). Common mental disorders no doubt have adverse outcomes in young people.

2.8 Consequences of unmet mental health needs on the society

Common mental disorders pose enormous risk on functional disability manifesting in work absenteeism and academic underachievement (Weich and Lewis, 1998; Ryan *et al.*, 2007; Rai *et al.*, 2010). Mental ill health often lead individuals and their families into poverty causing a

consequent effect on economic development at the national level (Patel and Kleinman, 2003). A recent analysis estimates global economic loss due to mental disorders as US$ 16 000 billion over the next two decades (World Health Organization, 2012).

In a study done in 2009, the financial cost of common mental disorders in young people in Australia was $10.6 billion. 70% of this cost was productivity lost due to lower employment opportunity, work absenteeism and premature death of young persons who suffer from mental illness. The other 30% is associated to welfare, direct healthcare cost and informal careers costs (Economics and Limited, 2009). Indeed health is wealth.

Although, few data exist in low to middle income countries on the cost implication of mental ill health in young people. In a review of studies on association between poverty and common mental disorders, they found a significant association with lower levels of education and correlates of poverty such as poor households and low incomes (Patel and Kleinman, 2003). It was also concluded that while poverty can be a major predictor for common mental disorders, CMDs can also worsen socio-economic status which in turn reflects nationally (Patel and Kleinman, 2003).

2.9 Task shifting in healthcare

One of the major constraints to combating global health challenges and access to healthcare is the shortage of healthcare workers. About 57 countries in the world have these healthcare challenges with 36 of them been in Africa, task shifting is the solution to these crises (WHO, 2011). The World Health Organization, defines task shifting as the ‘’rational redistribution of tasks among health workforce team’’(WHO, 2008). It involves moving where appropriate, specific tasks from specialist healthcare workers to non-specialized healthcare workers with fewer qualifications in order to create efficient and sufficient human resource for healthcare(WHO, 2008). Quality of the

care delivered by non-specialist healthcare workers are assure through standardized training, supervision and certification where necessary, thereby ensuring that quality care is provided. (WHO, 2008).

Task-shifting is presently been employed as a pragmatic response to various global health challenges in HIV/AIDS for example, task shifting has been proposed and used to increase access to antiretroviral medication and health services in countries in sub-Saharan Africa (Zachariah *et al.,* 2009). Task shifting has also been employed in cardiovascular health where community healthcare workers have been trained and supervised in conducting noninvasive screening for cardiovascular disease (Bloomfield *et al.,* 2016). Maternal health have also initiated task shifting interventions, training traditional birth attendants in home deliveries and referral to training community health workers in early detection of preeclampsia (Salam *et al.,* 2016). Studies in Bangladesh have also employed task shifting in prevention of postpartum hemorrhage (Bell *et al.,* 2014).

2.10 Task Shifting in Mental Healthcare

The burden of mental disorders and the insufficient human resources led to the launch of the MHGAP intervention guide in 2008. The guide was designed by the WHO for low resource setting to cater for the mental health needs (WHO, 2008). Treatment gap- the difference in the number of people who require and those who receive treatment is large even more in young people. Studies have shown widened treatment gap as high has 75% in South Africa to 90% in Ethiopia (Lund et al., 2015). Treatment gap have numerous reasons a prominent one of which is the paucity of mental health specialist (World Health Organization, 2011; Lund et al., 2015).

The WHO in 2008 led an international agreement on a task sharing model to meet the growing needs for mental health care in LMICs (Lund et al., 2015). The task sharing model consists of mental health interventions delivered by non- mental health specialist healthcare workers who are trained by mental health specialists (Lancet, 2011). This approach is potentially advantageous as it improves access to appropriate care, reduces stigma and creates opportunity for integration of mental health care into general healthcare (Lund et al., 2015).

Task shifting have since then been employed in sub-Saharan Africa, training non-specialist healthcare workers like nurses, community health workers even teachers in screening and clinical interventions with recorded success in delivery and health outcomes in the community (Kagee *et al.*, 2013; Chibanda *et al.*, 2015; Nyatsanza *et al.*, 2016) and in some parts like in Ghana, an entire new cadre- Community Mental Health Workers was formed to accommodate the growing need for psychiatry services (Agyapong *et al.*, 2015).

2.9 Community Pharmacists

The community pharmacist also known as the retail or dispensing pharmacist, counsels, dispenses and manage patients medication and healthcare plan in drug store within a community (Adnan and Saud, 2014). Community pharmacists are integral health resource that could deliver health promotion and various public health promotion (Offu *et al.*, 2015). Community pharmacists like all pharmacists holds a degree in pharmacy and is duly registered in accordance to the laws of the regulatory bodies of pharmacists in each country.

In Nigeria, every community pharmacy is registered by a pharmacist who is called the superintendent who is in charge of all activities in the pharmacy. Community pharmacies are beginning to gain grounds in low to middle income countries like Pakistan and India providing

access to individuals with poor and optimal health who may not have contact with other healthcare professionals (Blenkinsopp, *et al.*, 2002; Adnan and Saud, 2014).

2.12 Roles of community pharmacists

"A degree in pharmacy seems to be an over qualification for reading a label on a box and comparing it with details on a prescription form" (Roberts, 1988). Several studies have described the emerging roles of community pharmacists, a peer reviewed literature showed that community pharmacists can make impactful contribution in health improvement. The evidence in the reviewed literature show significant results in areas such as lipid management, emergency contraception, immunization, blood pressure control, and smoking cessation (Blenkinsopp *et al.*, 2002).

The role of community pharmacists has expanded from product delivery to patient care which include public health services which could be categorized into 3 levels. Primary prevention in preventing adverse health outcomes such as involvement in vaccination distribution and immunization in some countries. Secondary prevention involving early recognition and screening of diseases. Tertiary preventive activities include medication management and support in targeted groups with comorbidity (Offu *et al.*, 2015)

2.13 Community Pharmacists' potential in recognizing CMDs in young people.

Early intervention for young people require early detection of common mental disorders in youth (Henderson, *et al*., 2017). Self-reliance and the somatic presentation of common mental disorders (Gulliver *et al.*, 2010; Tesfaye *et al.*, 2014) have been identified as reason young people do not seek professional help for common mental disorders. There has been increasing evidence for

community based, task sharing interventions for mental health in Africa (Lund *et al.*, 2015). Community pharmacists are community based and are highly accessible to young people and are available for health information and preventive and management of minor ailments (Rubio-Valera, Chen and O'Reilly, 2014). These roles positions pharmacists as first point of contact within the healthcare in the community and serve as a link between other health professional particularly physicians (Rubio-Valera, Chen and O'Reilly, 2014).

Many cadres of healthcare professionals have been trained to render services within the task shifting-sharing models in mental health. Nurses, community health workers, public health nurses, community extension workers, lay providers have been trained to provide screening and therapeutic services for mental health within the community (Kagee *et al.*, 2013; Chibanda *et al.*, 2015; Israel *et al.*, 2016; Nyatsanza *et al.*, 2016). An under explored pathway to care in the community are the pharmacies (*Primary Care and Community Pharmacy - NHS Alliance : NHS Alliance*) and such community pharmacists services for common mental disorders in young people are not out of place as community pharmacist have been providing routine screening for chronic disorders like hypertension, diabetes and acute illness like malaria (Offu *et al.*, 2015). In a study done on the impact of psychotropic medication management and support in community pharmacies in Australia, statistical improvement were found on patient/consumer perception of illness and medication satisfaction and adherence (McMillan *et al.*, 2017). Trained community pharmacists in Thailand have also been found to effectively offer screening and counseling services for young people with depression in a tertiary institution in Thailand (Phimarn *et al.*, 2015).

In a study carried out on community pharmacists in Australia, community pharmacist express the need for mental heal health first aid training but acknowledged lack of knowledge, time and

resource as hindrance (Kirschbaum, *et al.*, 2016). This is consistent with findings from UK that showed continue education and training were essential for pharmacists to be able to provide public mental health services (Eades, *et al*., 2011). In a study carried out on Nigerian Community pharmacists showed that they had positive attitudes to providing public health services but many lacked the knowledge in providing these services (Offu *et al.*, 2015).. Community pharmacists in Ghana also reported that the greatest barrier to delivering mental health services is adequate knowledge (Owusu-Daaku *et al.*, 2010). The findings from a study on community pharmacists in Nigeria, found that community pharmacists would be useful in early detection of disease conditions (Offu *et al.*, 2015).

CHAPTER THREE

METHODOLOGY

3.1 Study area

The study was carried out in Lagos, South West Nigeria. Lagos is the commercial capital Nigeria, accounts for about 10% of Nigeria's population and is the largest city in Africa. The metropolitan area has its origins from islands and expanded to the mainland on the west side of the lagoon. Historically, Lagos is inhabited by the 'Awori group' of the Yoruba people, however Lagos is home to all ethnic groups across the nation and has a very diverse population because of rural-urban migrants from other parts of Nigeria and surrounding countries. Yoruba is the dominant ethnic group, but virtually all the 250 ethnic groups are represented in Lagos.

There are 20 local government areas in Lagos state; the study was carried out in 3 of these LGAs- Alimosho, Ikorodu and Ajeromi-Ifelodun LGAs. These local government consist of 4 zones of the 22 zones of the Association of Community Pharmacists Lagos state chapter. The zones meet at least once every month with an average of about 40 community pharmacists per meeting. Most local government consists of one zone but large local government areas such as Alimosho have two zones.

3.2 Study Design

This study employed a quasi-experimental design with a control and was conducted in three phases: - baseline phase, intervention and post intervention phases.

The baseline phase involved administering the study instrument to both groups of the study, the intervention phase was a training delivered to the intervention group of the study. The post

intervention consisted of an immediate post intervention posttest and 4- weeks post intervention follow up for both the control and the intervention group

4.3 Study Population

Community pharmacists in Lagos all belong to a registered body, known as the Association of Community Pharmacists of Nigeria (ACPN). The study population for this study are superintendent pharmacists in Alimosho, Ikorodu and Ajeromi-Ifelodun local government areas of Lagos. There are different cadres of community pharmacists, the superintendent pharmacists are the community pharmacists who registered the premise and are often times the managers of the premise, their registration is usually for a year. The locum pharmacists stand in for the superintendent pharmacists and often work restricted hours, these group of pharmacists have high turnover as many are either awaiting full employment in other places. Also, a community pharmacy can either be a retail store or a wholesale store. The superintendent pharmacists in the later do not tend to retailers they often sell to other retail pharmacy stores or hospitals.

4.3.1 Inclusion criteria

Inclusion criteria for participation in the study was:

1. Superintendent pharmacists
2. Provides informed consent

4.3.2 Exclusion criteria

Participants excluded from this study included:

1. Locum pharmacists
2. Superintendent pharmacists for wholesale outlets

4.4 Sample size determination

The sample size was calculated using the sample size calculation for comparing two proportions using (Wang, 2007)

$$n = \frac{(Z_{\alpha/2}+Z_{\beta})^2 * [P_1(1- P_1)+P_2(1- P_2)],}{(P_1-P_2)^2}$$

Where,

$Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$ for a confidence level of 95%, α is 0.05 and the critical value is 1.96

Z_{β} is the critical value of the Normal distribution at β for a power of 80%, β is 0.2 and the critical value is 0.84) and

P_1 = Proportion with outcome in the intervention group= 75%

P_2 = Proportion with outcome the control group= 50%

A conservation value of 50% is assumed for the outcome in the control group. It is anticipated that the intervention will translate into a change of 25%, hence P_2 = 75%

$$n = \frac{(1.96+0.84)^2*[0.75(1-0.75) + 0.5(1-0.50)]}{(0.75-0.25)^2}$$

n = 66

Upon adjustment for 15% attrition

n = 78

A minimum of 78 participants was required for each group, and the minimum calculated size was 156.

3.5 Sampling method and Data Collection

All registered community pharmacies in Lagos belong to the Lagos state chapter of the Association of Community Pharmacists in Nigeria. These pharmacists meet monthly in many cohorts across the state in zones. A list of all the zones, their zonal chairman, phone numbers and venue of meeting was obtained from the Chairman of the Lagos state chapter of the association of community pharmacists. Recruitment and data collection from participants was conducted in phases.

Phase 1:- Community pharmacists have been administratively divided into zones by the ACPN. These zones were used as the sampling frame, out of which 4 zones were purposively selected because of their size and active participation of the members of the association. The zones were further allocated conveniently into control and intervention on the basis of distance to prevent contamination. IDEA and Ikotun zones were chosen to be the intervention arm while Ikorodu and Ajeromi-Ifelodun were chosen to be control arm.

Phase 2:- Pharmacists who participated in the research were recruited from the monthly meeting. Each zone had an estimated number of participants ranging from 50 to 110 members. The pharmacists who met the inclusion criteria were then recruited into the study.

3.6 Data Collection

The instrument was administered to the control groups- Ikorodu and Ajeromi Ifelodun zones two days apart as they had their monthly meetings on the last Wednesday and Friday of the month respectively. The intervention groups were recruited one week after the control because their monthly meeting was on first Tuesday of the month. The study instrument was administered before the training and immediately after the training. A 4-weeks post intervention follow up was carried out via phone call because the meetings did not hold the following month.

The Intervention

The intervention was a 5-hour training that was delivered by the researcher. The training guide was adapted from Mental Health Action Gap (MH-GAP) intervention guide for lay health workers. The manual for the training was adapted from the Mental Health Gap Action Training modules. These materials contained case vignettes and scenarios (Appendix C) that describe presentation, causes and treatment of common mental disorders- depression, anxiety and somatoform disorders. The schedule used for the training is as follows:

Teaching aids: Lecture Slides, power-point, case vignettes.

Teaching methods: Interactive session

Duration: 5- hours.

Steps

a. Determine participants' knowledge, attitude and practice using study instrument
b. Determine participants' ability to recognize common mental disorders in young people.

c. Discuss ways participants can recognize common mental disorders in young people using the GHQ-12
d. Discuss referral centers available in Lagos
e. Interactive session

3.6 Study Instruments

Data was collected using the Socio-demographic questionnaire (appendix b1) and a questionnaire designed to assess knowledge, attitude and practice of community pharmacists to common mental disorders (appendix b2)

3.6.1. The Socio demographic questionnaire: The socio-demographic questionnaire was used to obtain information about participants and their backgrounds. It contained questions about their age, gender, level of qualification and other certification, and prior exposure to mental health information. The questions in the instrument required respondents to choose options relevant to them from a provided list, and to give extra information in short sentences where needed

3.6.2. Adapted Teachers' knowledge and attitude Questionnaire: This questionnaire was developed by Adejumo *et al.*, 2014. It employed a "mixed" method. The first section included the presentation of three case vignettes, each followed by a series of questions assessing the respondents' perception about the severity of presenting problems, recognition of the nature of the problem in the vignette, and approach used to tackle these problems. While two of these questions are 5 point Likert scale-based, the others require open-texted responses. The vignettes presented case scenarios of presentations of common mental disorders with somatic complaints in pharmacies. Each of these descriptions was chosen from actual presentations in the pharmacies with fictitious names. These presentations were obtained from personal interaction of the

researcher and young people seeking self-help in pharmacies with signs mimicking common mental disorders. The response to the knowledge item was scored 3 for right option/answer, 2 for wrong answer and 1 for responses with "I don't know". The maximum obtainable score on knowledge was 72 and minimum 24. The knowledge was then graded by the researcher with less than or equal to 30 being poor knowledge; greater than 30 but less than 40 being average and greater than 40 being good knowledge. Responses to attitude items were also scored using 5 for right answer/option, 3 for wrong answer, and 1 for "I don't know". The maximum obtainable score was 100 and the lowest was 20. The attitude was also graded by the researcher. Less than or equal to 30 was rated negative attitude, greater than 30 but less than 60 was rated indifferent while greater than 60 was rated positive attitude.

The responses to the case vignettes were categorized into themes. The first question under the cases required the study participants to state what might be wrong with the person. The responses to each of these cases were categorized, mental health problem was used for any response that had depression, anxiety or any other mental health problem so used. The second category was psychological/emotional problem this was used to represent all responses the included the term "psychological", "emotional", and or "mentally disturbed. 'Others' was used to categorize responses that were indicative of physical health problems like "malaria", "blood pressure", "CNS problems", also the last category was sleep disorder, this was used for any response with "sleep" or "insomnia". This categorization was adapted from Adejumo (2014). The second question to each case aimed at revealing the part of the vignette that informed the participants' knowledge of the problem. The responses to this question were again categorized according to the case. Sleep problem was used to categorize responses with "sleep", duration was used to categorize responses that referred to the duration of the problem "6-weeks is quite a long time", self-medication was

used to categorize responses that had “drug abuse” “frequency of requesting the drug”, “self-medicating”.

“The number of weeks she has been having sleep problems”

Another question on the case vignette, “How would you help Ayomide” enquires about the current self-reported practice of participants to signs of common mental disorders. The responses were again categorized into:

1. Counsel: - For all responses that implied “advise her”, “counsel her”.
2. Referral: - for all responses that implied “refer her”, “call a doctor friend”, “introduce her to a specialist”.
3. Medication: - For all responses with “drug”- “I’ll give sedative”, “multivitamin”.
4. Test: - For all responses that implied “do mRDT” “send her to the lab”.
5. No response: - For all responses with “I ‘don’t know”, “No idea”, or no response.

The question “Apart from you, who else can help Ayomide” aimed to ascertain the knowledge of study participants of professionals that might be able to help Ayomide. The responses were also categorized into:

1. Doctor: - For all responses that had physician, general practitioner, doctor.
2. Family/parent: - For all responses that include relatives “parents “siblings”.
3. Mental health professional: - For all responses that highlights a mental health specialist “psychologist”, “psychiatrist”, “clinical psychologists”.
4. Others include responses such as lab scientist, neurologist.
5. No response: - For all responses with “I ‘don’t know”, “No idea”, or no response.

This categorization was repeated for all the case studies. This questionnaire was initially developed for use among teachers in Ibadan (Adejumo O., 2014). Some modification were made to this instrument to allow for its use among pharmacists.

These modifications include;

i. The case vignettes were changed to suite the common mental disorders as opposed to just depression as originally used by Adejumo *et.al* (2014).

ii. Students were replaced with customer/patient.

3.6 Study Procedure

The study participants in the control and intervention groups were administered the study instrument at the zonal meeting for the two groups. This questionnaire obtained their socio-demographic characteristics and their knowledge and attitude to common mental disorders at baseline and immediate post intervention. The 4- weeks post intervention data was obtained from both the control and intervention groups via phone call.

The intervention was a 5 hour mental health training delivered by the researcher. The content of the training was adapted from the Mental Health Action Gap (MH-GAP) intervention guide for lay health workers. This material contained case vignettes on possible presentation and treatment of common mental disorders. The first 2-hour discussed myths and misconceptions surrounding mental illnesses in our society, facts about mental illness and the WHO concept of task sharing in low to middle income countries. The last 2 hours was used to discuss case vignettes and typical presentations in pharmacies, early signs of common mental disorders and treatment centers in Lagos.

The teaching method employed was power point presentations, group discussions and case studies. The participants were grouped in 5-6 persons per group according to how they were seated and each group was encouraged to come up with one myth and misconception, one fact as well as discuss one case study. The last hour was used to recap and volunteer representatives from each group was selected to give summaries of the different aspects of the training.

3.7 Data Analysis

The data generated was entered, coded and cleaned into a computer and analyzed using the Statistical Package for the Social Sciences 2015 (SPSS- 23). The socio-demographic characteristics of the study participants was analyzed using descriptive statistics. Inferential statistical methods such as paired t test was used to compare the socio-demographic responses of the control and intervention groups. The Chi square test of significance was used to explore relationships between socio-demographic variables such as sex, age, and educational qualification, prior training on mental health or interaction with someone living with mental illnesses and response to items on the outcome measures (knowledge and attitude). ANOVA for repeated measures were used to compare the means of each group within the groups and between control and intervention groups. The Student's t-test of significance was performed to determine differences in mean scores for the instrument used and the level of significance was set at 0.05.

3.9 Ethical Consideration

Ethical clearance was obtained from the UI-UCH Joint Research Ethics Committee. While permission to engage the community pharmacists was obtained from the leadership of the association of community pharmacists, Lagos state chapter. Permission and cooperation of zonal executives was sought before the pharmacists were approached and recruited for the study. The study participants were assured that all data collected from them will be treated as confidential.

Autonomy

Participation in this study was voluntary and verbal informed consent form (appendix a) was obtained from the study participants after explaining clearly in details the purpose of the study. Explicit explanations was given that they could withdraw at any point they so desired, without any consequences. Information about the study and their participation was provided in simple language that the respondents could easily understand. There was no need for translation as all the participants were professionals with high literacy levels.

Confidentiality of data collected from subjects

The researcher ensured confidentiality to all the data that were collected from respondents. Participants' data was kept confidential. No names or forms of identification was used on the questionnaires, but each one was identified by a code number to allow for appropriate matching across the time frame for data collection. Also the study participants phone number was obtained as the later part of data collection was via phone call. Participants were assured that their identity and information obtained during the course of the study would be kept in confidence by the investigator.

Beneficence to participants

The findings from this study would provide the basis for the development of the training package for community pharmacists on common mental disorders. The participants in this study would be the first benefactors of the findings of this study.

Non-maleficence to the participants

The research ensured that the study posed no more than minimal risk to study participants. Furthermore, steps were taken to ensure that inconveniences were reduced to the barest minimum for the participants. Also, data collection from participants did not involve any invasive procedure or collection of physical biological samples.

Justice

The researcher ensured that methods for the selection of participants was objective and fair to all community pharmacists within the sampling frame. All the study participants were offered equal opportunity to participate under the same conditions.

Inducement

Inducement provided for the study was appropriate and were not used as a means of coercion into participating in the study. Light refreshments was served to the respondents during the training following the questionnaire administration process. This did not constitute exaggerated or undue compulsion as refreshments are often routine provision for participation in trainings and workshops of similar nature

CHAPTER FOUR

RESULTS

This chapter gives a detailed account of the findings of this study. These findings have been reported in three sections. The first section gives an overview of the study respondents and comparison. The second section compares the control and intervention groups at baseline, post intervention and at follow-up. The third section describes the effect of the intervention on the outcome measures.

4.1 Socio-demographics characteristics of respondents

A total of 140 respondents participated in the study. There were more males (52.3%) than females (47.7%), with half of the respondents between ages 25-29 years (50.0%) and a mean age of 34.5 years and standard deviation of 21.3. Most of the respondents had B.Pharm degree only (73.1%). More than half had no prior training on mental health (66.4%) or any interaction with someone with a mental illness (70%). The details of the socio-demographics are shown in Table 4.1.

4.2 Comparison of socio-demographic variables between control and intervention groups at baseline

There was no statistically significant difference between the socio demographic variables See table 4.2 and 4.3. The mean ages of the control and intervention groups (mean/SD control: 34.3 (21.5); intervention 35.1(22.0); t (df) 2.4(208); p=0.81) was also not statistically significant different. See Tables 4.2 and 4.3.

Table 4.1: Socio-Demographic Characteristics of Respondents (N = 140)

Variable	Category	Frequency (n)	Percent(%)
Sex	Male	74	52.9
	Female	66	47.1
Age group (years)	25-29	70	50.0
	30-34	38	27.3
	≥ 35	32	22.7
Educational qualification	B.Pharm	102	73.1
	Pharm.D	18	12.5
	MSc	16	11.6
	WAPCP	4	2.8
Religion	Christianity	75	54.2
	Islam	65	45.8
Interaction with someone with mental illness	Yes	42	30
	No	98	70
Prior training on mental health	Yes	47	33.6
	No	93	66.4

Table 4.2: Comparison of baseline demographic variables between control and intervention groups.

Socio-demographics	Control n(%)	Intervention n(%)	X^2 (df)	p
Sex				
Male	38(54.3)	36(51.4)	1.76(3)	0.08
Female	32(45.7)	34(48.6)		
Educational Qualification				
B.Pharm	45(64.3)	57(81.4)	0.37(5)	0.71
Pharm.D	7(10)	11(15.7)		
MSc.	1(1.4)	1(1.4)		
WAPCP	3(4.3)	4(5.7)		
Religion				
Islam	31(44.3)	34(48.6)	0.29(3)	0.77
Christianity	39(55.7)	36(51.4)		

Table 4.3: Comparison of knowledge variables between the two groups at baseline

Variables	Intervention group (N=70) n (%)	Control group (N=70) n (%)	X^2	p value
Had prior training on mental health				
Yes	23(32.9)	24(34.3)	0.03	0.86
No	47(67.1)	46(65.7)		
Where was the training received				
Psychiatric Hospital	2(8.7)	1(4.2)	0.13	1.000
Pharmacy School	12(52.2)	16(66.7)		
Seminar/Workshop/Conference	9(39.1)	6(25)		
Had interaction with someone living with mental illness				
Yes	26(37.1)	16(22.9)	3.40	0.65
No	44(32.9)	54(77.1)		
Relationship with someone living with mental illness				
Family	25(35.7)	28(40)		
School	21(30)	23(32.9)		
Friends	9(12.9)	10(14.3)	1.40	0,994
Magazines and newspapers	2(2.9)	2(2.9)		
T.V and Home Video	11(15.7)	13(18.6)		
Other	1(1.4)	9(12.9)		

4.3 Comparison of responses of study participants to knowledge and attitude items at baseline.

The participants' knowledge and attitude to mental disorders were ascertained according to their responses to questions under the items in the instrument used (see appendix B2). Participants in the intervention and control groups did not differ significantly in their responses to all items on knowledge and attitude p-value was ≥ 0.05 in all the responses. It was found that almost all respondents in both groups correctly disagreed on the item "Mental illness is caused by spiritual attack" (91.4%) an average of both groups as comprehensively detailed in Table 4.4. The respondents in both control and intervention groups also correctly disagreed on the item (94.3%, 85.7%) "People with mental illness are weak and have themselves to blame" See Table 4.5.

4.4 Recognition of common mental disorders in case vignette at baseline.

The responses to the questions at baseline for the intervention and control group was similar. About 25% in both groups identified lack of sleep as a problem. About 30% of the respondents said they would refer to a doctor. Only about 10% chose mental health professional as a professional that can help. About 30% in both intervention and control group didn't have a response to the questions.

4.5 Responses on self-reported practice to signs of common mental disorders depicted in case vignette at baseline.

The question "How would you help Ayomide" aimed to enquire about the current action of the respondents to some signs suggestive of common mental disorders. The intervention and control groups did not differ significantly on their response to the item (X^2= 2.69, p= 0.10). About half of the participants in both control and intervention groups reported they would refer to a doctor. See Figure 4.3.

Table 4.4: Comparison of responses on knowledge items in intervention and control groups at baseline N=140

Items	Intervention N=70		Control N= 70		X^2	p
	Agree n(%)	Disagree/ Not sure n(%)	Agree n(%)	Disagree/ Not sure n(%)		
One in four people will have mental illness over the course of a lifetime	21(30)	49(70)	22(31.4)	48(68.57)	0.034	0.855
People with schizophrenia(a type of mental illness) have split personality	59(84.3)	11(15.7)	51(72.9)	15(27.1)	2.715	0.099
Mental illness is caused by spiritual attack	5(7.1)	65(92.9)	7(10)	63(90)	0.365	0.546
Mental health problems are caused by stress	33(47.1)	37(52.9)	31(44.3)	39(55.7)	0.115	0.734
People can recover from mental health problems	59(84.3)	11(15.7)	65(92.9)	5(7.1)	2.540	0.110
Parents with mental illness always transmit it to their children	21(30)	49(70)	18(25.7)	52(74.3)	0.319	0.572

Table 4.5: Comparison of responses on attitude items in intervention and control groups at baseline. N =140

Items	Intervention N=70		Control N= 70		X^2	p
	Agree n(%)	Disagree/ Not sure n(%)	Agree n(%)	Disagree/ Not sure n(%)		
People with mental illness are difficult to talk to	39(55.7)	31(44.3)	29(41.4)	41(58.6)	2.859	0.091
People with mental illness are likely to become violent	46(65.7)	24(34.3)	51(72.9)	19(27.1)	0.8391	0.359
People with mental health problems are unpredictable	55(78.6)	15(21.4)	50(71.4)	20(28.6)	0.9524	0.329
People with mental health problems are weak and have themselves to blame	10(14.2)	60(85.7)	6(8.6)	66(94.3)	1.257	0.262

*Level of significant is 5% P<0.05

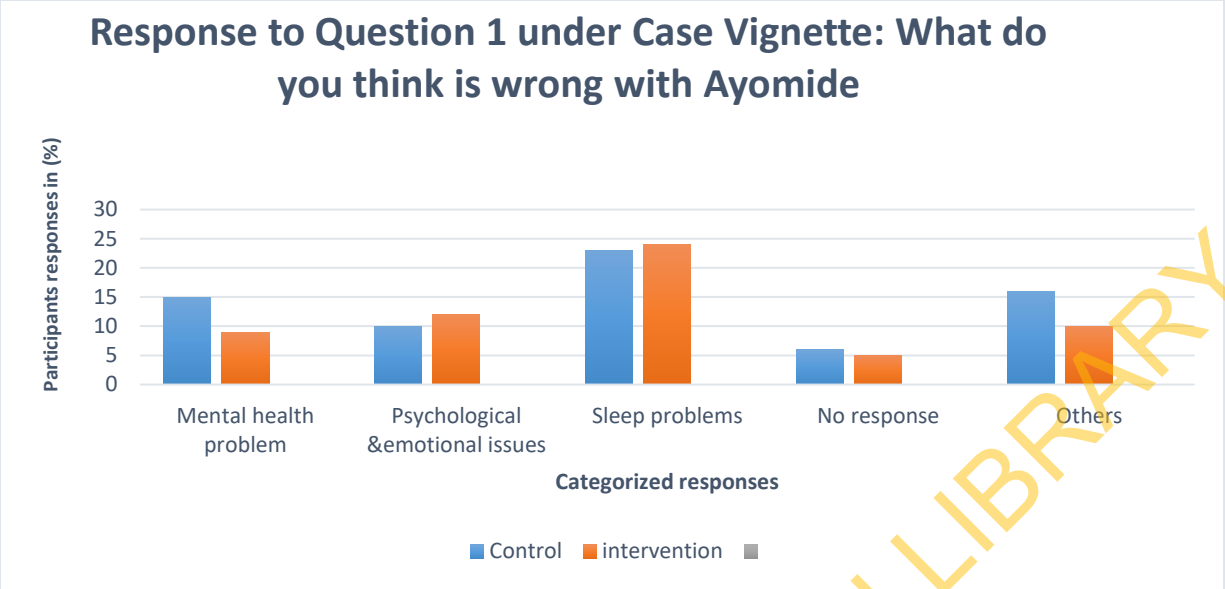


Figure 4.1: Responses on recognition of possible signs of common mental disorders in case vignette at baseline.

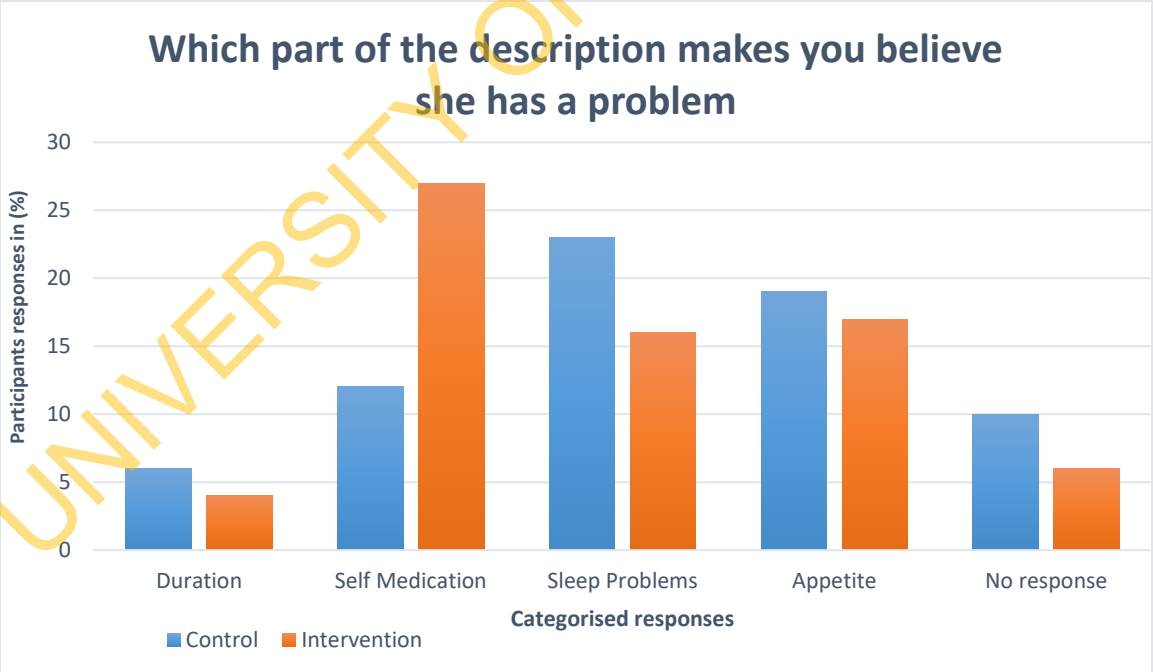


Figure 4.2: Responses to item 2 in case vignette at baseline.

4.6 Response to other care centers known to the community pharmacists as depicted by the case vignette at baseline

Both the intervention and control groups identified doctors and mental health professionals' as individuals that can help Ayomide, only a few identified family. The two groups did not differ significantly in their response to "Apart from you, who else can help Ayomide" (X^2=1.24, p= 0.27). Figure 4.4 gives detailed description of the respondents'. The responses on all the three case vignettes were categorized as described with the case vignette 1. Only one case was described in details here to reduce repetition and clumsiness.

4.7 Comparison of baseline outcome measures of study participants

The outcome measures for this study were the knowledge and attitude of the study respondents' to common mental disorders. The baseline scores on the outcome measures (knowledge and attitude score) between the intervention and control groups were not significantly different (p=0.90 for knowledge scores, p=0.59 for attitude scores). See Table 4.6.

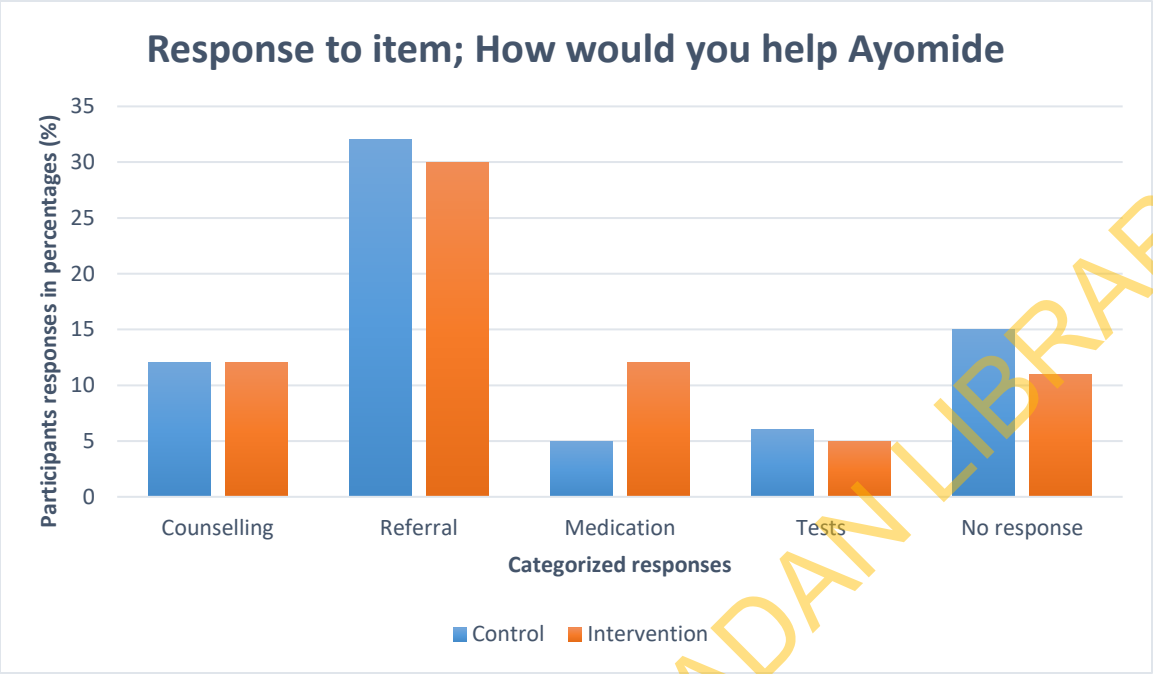
4.8 Socio-demographic factors associated with baseline responses of all participants.

The sociodemographic characteristics of all the study participants were cross matched with the responses given. There were no significant association between sociodemographic characteristics obtained- sex (p= 0.82), religion (p= 0.97), educational qualification (p= 0.76), previous training on mental health (p= 0.44) or interaction with someone living with a mental disorder (p= 0.48) and the study participants responses to the knowledge and attitude items on the instrument used.

About 40% of the study participants had average knowledge on mental health across all sociodemographic variables. One- third had poor knowledge and less than 25% had good knowledge. Also the statistic is similar with the study participants' attitude to mental disorders.

About 50% were indifferent to mental disorders and about 25% had positive attitude and less than a quarter had negative attitude to mental disorders.

Figure 4.3: Responses to item 6 in case vignette at baseline.



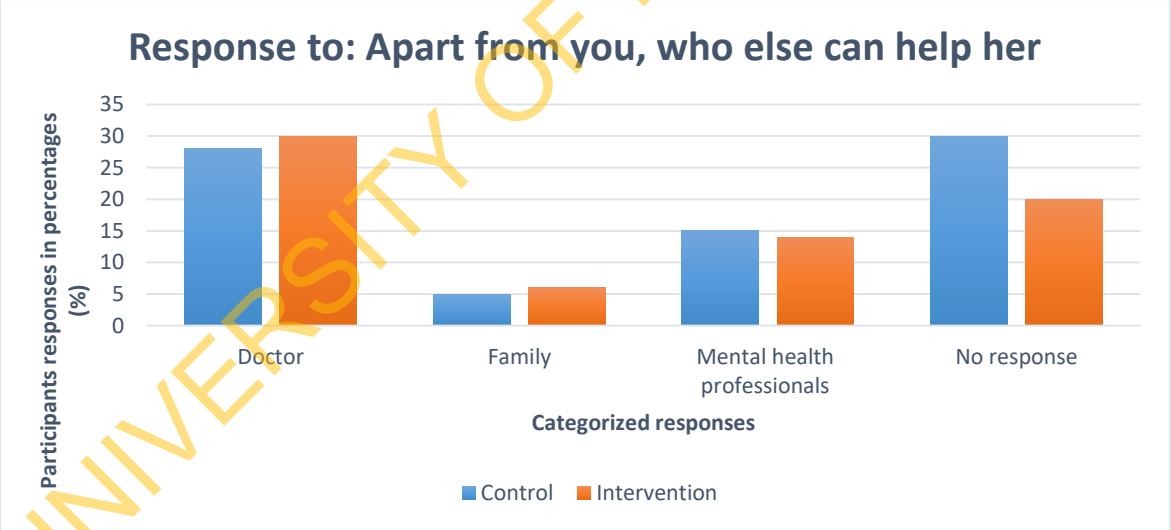


Figure 4.4: Responses to item 8 in case vignette at baseline.

Table 4.6: Socio-demographic factors associated with knowledge of common mental disorders of participants at baseline.

Variables	Poor n(%)	Average n(%)	Good n(%)	Total n(%)	X^2	p
Age group (years)						
25 -29	21(48.8)	39(51.3)	10(40)	70(50.0)	1.53	0.82
30 -34	12(27.9)	18(23.7)	8(32)	38(27.1)		
>35	10(23.3)	15(19.7)	7(28)	32(22.9)		
Total	43(100)	76(100)	25(100)	140(100.0)		
Sex						
Male	23(16.4)	40(28.6)	14(10.0)	74(52.9)	0.052.	0.97
Female	18(12.9)	34(24.3)	12(8.6)	66(47.1)		
Total	41(29.3)	74(52.9)	26(18.6)	140(100.0)		
Educational Qualification						
B.Pharm	37(71.2)	53(77.9)	12(60)	102(72.9)	0.34	0.76
Pharm.D	6(11.5)	8(11.8)	4(20)	18(12.9)		
MSc.	7(13.5)	6(8.8)	3(15)	16(11.4)		
WAPCP	2(3.8)	1(1.5)	1(5)	4(2.9)		
Total	52(100)	68(100)	20(100)	140(100.0)		
Interaction with anyone Living with mental illness						
Yes	10(31.3)	25(33.3)	7(21.2)	42(30)	1.63	0.44
No	22(68.8)	50(66.7)	26(78.8)	98(70.0)		
Total	32(100)	75(100)	33(100)	140(100.0)		
Previous training on mental health						
Yes	12(28.6)	25(33.3)	10(43.5)	47(33.6)	1.49	0.48
No	30(71.4)	50(66.7)	13(56.5)	93(66.4)		
Total	42(100)	75(100)	23(100)	140(100.0)		

*P<0.05

Table 4.7: Socio-demographic factors associated with attitude to common mental disorders of participants at baseline.

Variables	Negative n(%)	Indifferent n(%)	Positive n(%)	X^2	p
Age group (years)					
25 -29	21(48.8)	33(50)	16(51.6)	0.06	0.99
30 -34	12(27.9)	18(27.3)	8(25.8)		
>35	10(23.3)	15(22.7)	7(22.6)		
Total	43(100)	66(100)	31(100)		
Sex					
Male	29(59.1)	40(54.8)	8(44.4)	1.47	0.54
Female	20(40.9)	33(45.2)	10(55.6)		
Total	49(100)	73(100)	18(100)		
Educational Qualification					
B.Pharm	21(75)	58(82.9)	23(54.8)	11.27	0.08
Pharm.D	3(10.7)	5(7.1)	10(23.8)		
MSc.	3(10.7)	6(8.6)	7(16.7)		
WAPCP	1(3.6)	1(1.4)	2(4.8)		
Total	28(100)	70(100)	42(100)		
Interaction with anyone Living with mental illness					
Yes	7(29.2)	25(27.5)	10(40)	4.56	0.10
No	22(70.8)	66(72.5)	15(60)		
Total	24(100)	91(100)	25(100)		
Previous training on mental health					
Yes	17(40.5)	20(28.6)	10(35.7)	1.94	0.38
No	30(59.5)	50(71.4)	18(64.3)		
Total	47(100)	70(100)	28(100)		

Level of significance is 5% ($p<0.05$)

Table 4.8: Comparison of baseline scores on outcome measures

Variable	Control group	Intervention group	t-test (t-df)	p-value
Knowledge (mean, SD)	36.41(7. 85)	36.26(8.98)	.12(2)	0.90
Attitude (mean, SD)	43.60(14.99)	44.93(17.82)	-.54(2)	0.59

4.9 Responses on knowledge and attitude items in control and intervention groups at immediate post intervention.

The participants' knowledge and attitude were assessed after the intervention has been administered to the intervention group. Responses of the study participants on the knowledge items in the intervention group differed significantly except for the item "Mental illness are caused by spiritual attack" ($p>0.245$) which majority of the participants in both groups disagreed with. See Table 4.9. Responses of the participants on the attitude items in the intervention group differed significantly except for the item "People with mental health problems are weak and have themselves to blame" ($p>0.172$) which majority of the participants in both groups disagreed with. See Table 4.10.

4.10 Immediate post intervention responses to recognition of common mental disorders in case vignette.

The responses to each of these cases were again ascertained in both groups immediately after intervention. There were significant differences in the responses of both control and intervention groups to items under the case vignettes ($X^2 =38.762$, $p <0.000$). The responses in the intervention group showed more indication of suspicion of psychological distress as oppose to physical health option given previously by the control group. Figure 4.5 and 4.6 gives represents the responses given.

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Table 4.9: **Responses on participants to knowledge items in control and intervention group at immediate post intervention. N=140**

Items	Intervention N=70		Control N= 70		X^2	p
	Agree n(%)	Disagree/ Not sure n(%)	Agree n(%)	Disagree/ Not sure n(%)		
One in four people will have mental illness over the course of a lifetime	59(78.6)	11(21.4)	11(31.4)	49(68.57)	42.117	<0.005*
People with schizophrenia(a type of mental illness) have split personality	14(20)	56(80)	51(72.9)	19(27.1)	6.430	0.01*
Mental illness is caused by spiritual attack	2(2.9)	68(97.1)	5(7.1)	65(92.9)	1.353	0.245
Mental health problems are caused by stress	13(18.6)	57(81.4)	39(55.7)	31(44.3)	51.395	0.01*
People can recover from mental health problems	67(95.7)	3(4.3)	58(82.9)	12(17.1)	16.108	0.05*
Parents with mental illness always transmit it to their children	7(8.6)	63(91.4)	21(28.6)	49(71.4)	52.51	<0.05*

*P>0.05

Table 4.10: **Responses of participants to attitude items in control and intervention group at immediate post intervention.**

Items	Intervention N=70		Control N= 70		X^2	p
	Agree n(%)	Disagree/ Not sure n(%)	Agree n(%)	Disagree/ Not sure n(%)		
People with mental illness are difficult to talk to	11(15.7)	59(84.3)	56(80.0)	14(20.0)	57.964	0.00*
People with mental illness are likely to become violent	15(21.4)	55(78.6)	62(88.5)	8(11.5)	63.725	0.00*
People with mental health problems are unpredictable	25(35.7)	45(64.3)	47(67.1)	23(32.9)	13.839	0.00*
People with mental health problems are weak and have themselves to blame	1(1.4)	69(98.6)	4(5.7)	66(94.3)	1.867	0.172

*P<0.05

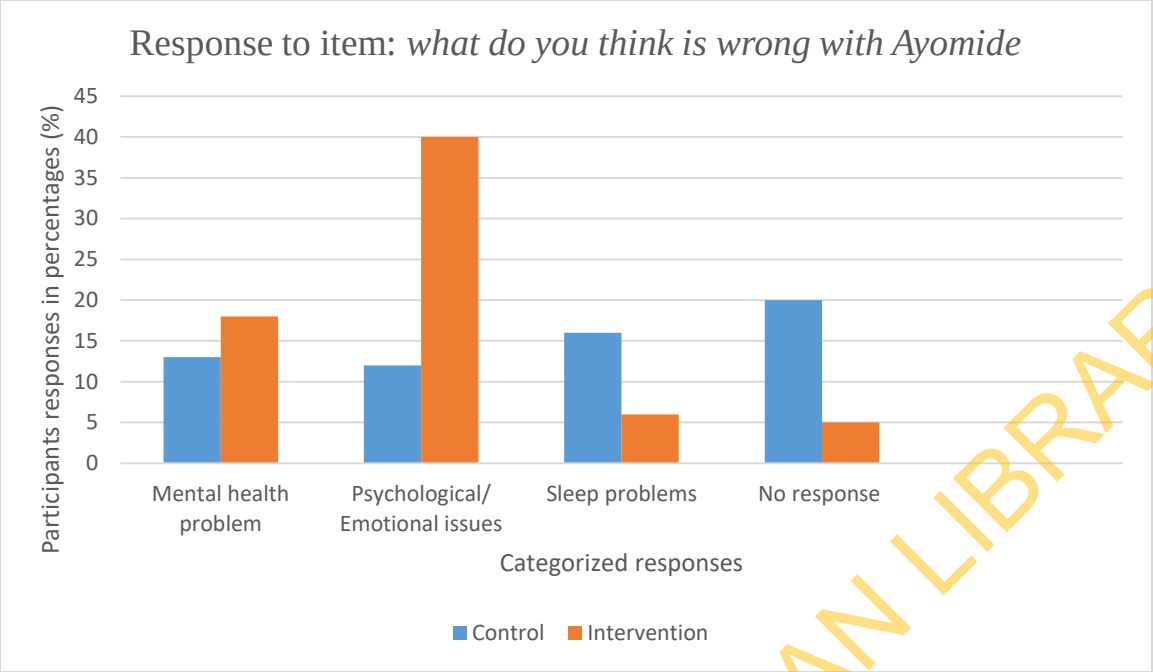

Figure 4.5: Immediate post intervention responses to item 2 in case vignette.

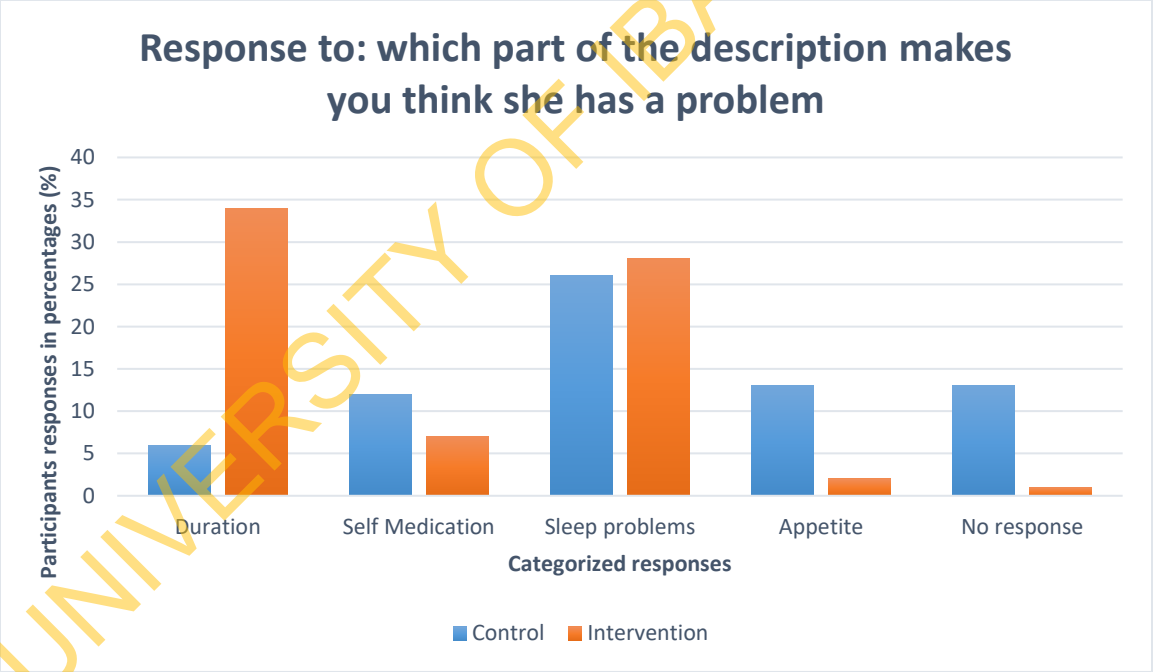

Figure 4.6: Immediate post intervention responses to item 3 in case vignette.

4.11 Responses on self-reported practice to signs of common mental disorders depicted in case vignette at immediate post intervention.

The response to the question "How would you help Ayomide" aimed at elucidating the current practice of the respondents to some signs suggestive of common mental disorders were also significantly different. The intervention and control groups were significantly different on their response to the item (X^2= 10.82, p= 0.02). See figure 4.7.

4.12 Response to other care centers known to the community pharmacists as depicted by the case vignette at immediate post intervention

Although both the intervention and control groups identified Doctors and mental health professionals' as individuals that can help Ayomide but less than 40% identified this in the control group and over 65% identified this in the intervention group. The percentage of the responses under "no response" in the intervention group had reduced by 30% compared to that in control group to that in the control group at baseline. The two groups differ significantly in their response to "Apart from you, who else can help Ayomide". About 60% of the intervention group identified doctors and mental health professionals as professionals who can help Ayomide. See Figure 4.8 for more details.

4.13 Comparison of knowledge outcome measure scores at immediate post intervention and 4-weeks post intervention.

The intervention group had higher mean scores on knowledge items but not statistically significant at immediate post intervention (t = -1.76, df = 208, p = 0.08). The scores on the knowledge outcome measure between the intervention and control groups at 4- weeks post intervention were statistically significant. (t = -5.04, df = 208, p < 0.01 See Table 4.11).

4.14 Comparison of attitude scores at pre intervention, immediate post intervention and 4-weeks post intervention.

The post intervention scores on the attitude outcome measure between the intervention and control group were statistically significant ($t = -6.04$, $df = 208$, $p < 0.01$) across the three time frame See Table 4.11.

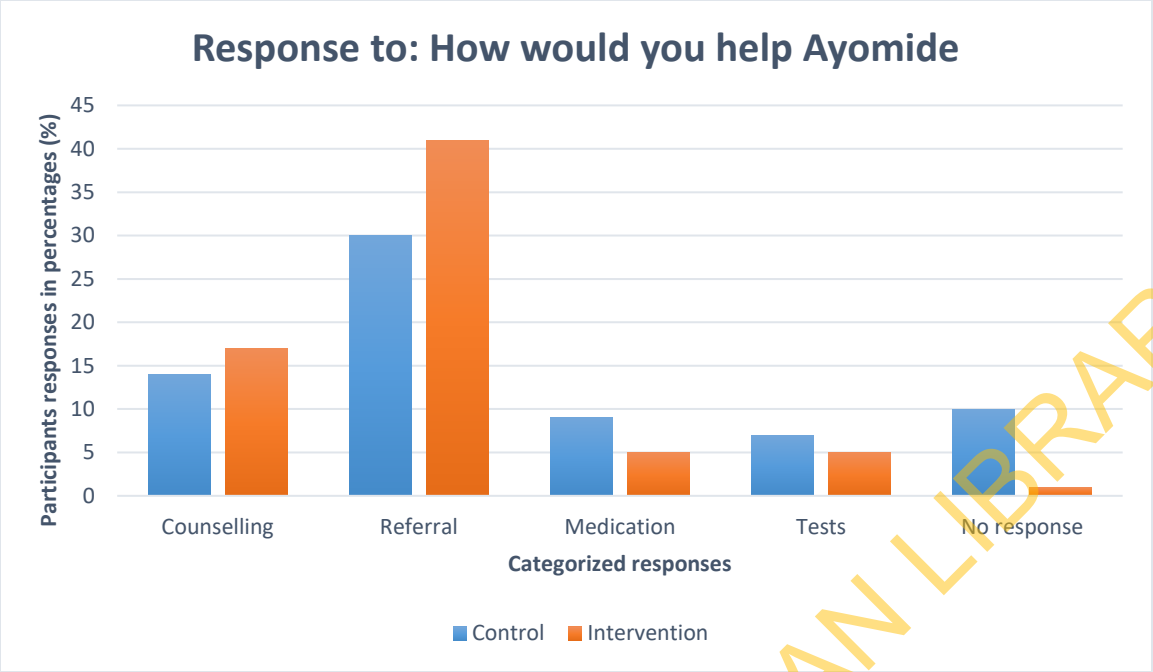

Figure 4.7: Responses to item 6 in case vignette at immediate post intervention.

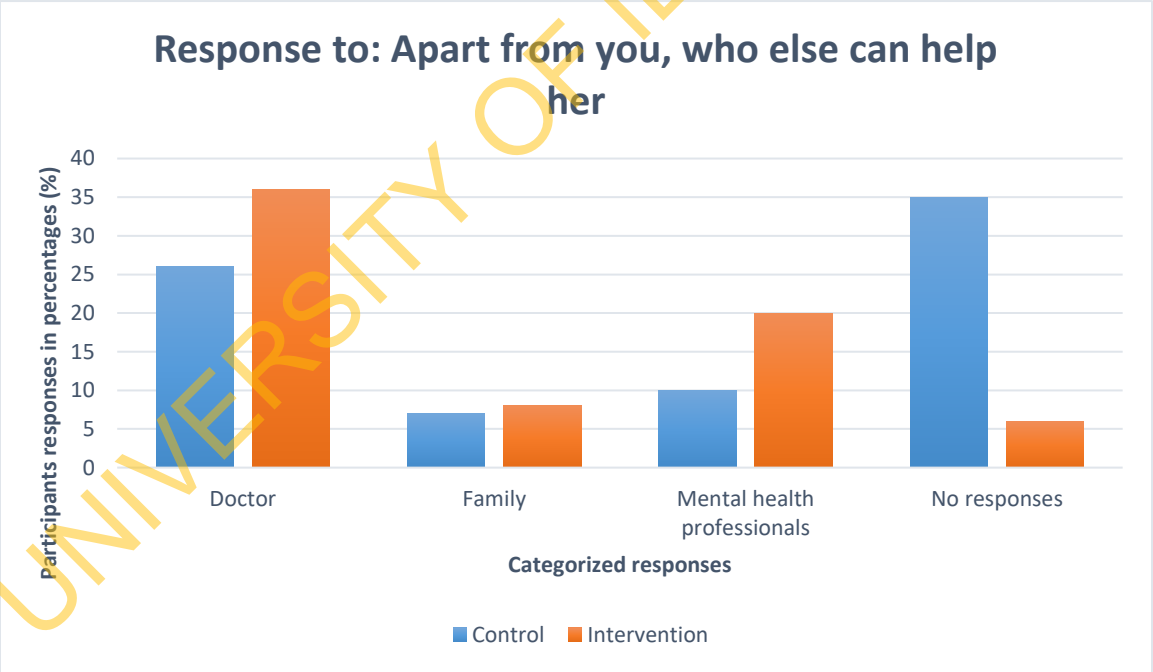

Figure 4.8: Responses to item 7 in case vignette at immediate post intervention

Table 4.11: Comparison of knowledge and attitude scores at pre intervention, immediate post intervention and 4-weeks post intervention.

Variable	Control group	Intervention group	t-test (t-df)	p-value
Knowledge (mean, SD)				
Pre test	36.4(7. 9)	36.3(8.9)	.12(208)	0.90
Post-test	37.5(9.4)	40.7(14.0)	-1.8(208)	0.08
Follow-up	36.9(7.1)	45.1(12.6)	-5.0(208)	**0.00***
Attitude (mean, SD)				
Pre test	43.6(14.9)	44.9(17.8)	-.54(208)	0.59
Post-test	43.4(18.2)	60.9(20.5)	-6.0(208	**0.00***
Follow-up	45.6(18.1)	67.9(22.6)	-7.2(208)	**0.00***

*p<0.05

4.14 Effectiveness of the intervention

Analysis of the variance (ANOVA) was carried out to determine the effect of the intervention on the outcome measures by comparing the intervention and control group mean scores. The 3-way ANOVA was used to show the effect of the intervention on the knowledge and attitude outcome measures.

Effect on knowledge scores

The main effect comparing the two groups was significant, suggesting difference between the intervention and control participants' scores on knowledge of pharmacist on mental health disorders, across three time periods (baseline, post-test and 1-month follow-up). There was significant interaction between intervention and time, $F(1, 138) = 64.89$, $p < .001$ see Table 4.12). There was increase in the mean scores for both intervention and control groups but the intervention had more increase than the control group (See Figure 4.9).

Effect on attitude scores

There was significant difference between the experimental and control participants' scores on attitude of pharmacist towards mental health disorders, across three time periods (baseline, post-test and 1-month follow-up). There was significant interaction between intervention and time, $F(1, 138) = 26.80$, $p < .001$ (See table 4.13: See figure 4.10).

Table 4.12: Summary of 3-way ANOVA for repeated measures showing the effect of intervention on Knowledge of pharmacists on mental health disorders

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Subjects					
Group	1986.289	1	1986.289	15.655	.000
Error	26391.210	208	126.881		
Within Subjects					
TIME	2030.519	1	2030.519	35.114	.000
TIME * Intervention	1629.643	1	1629.643	28.181	.000
Error(TIME)	12028.014	208	57.827		

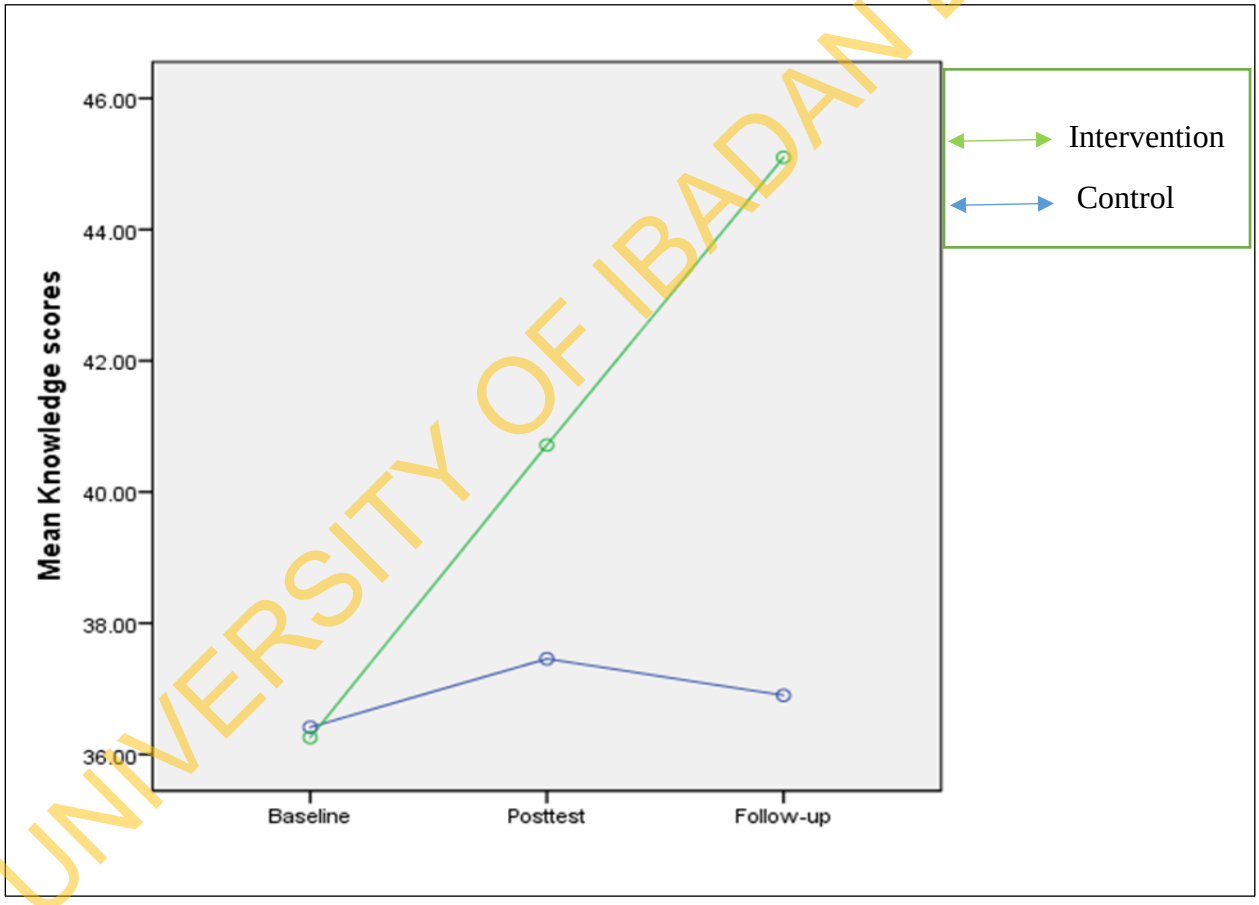

Figure 4.9: Pre, post and 4-weeks follow up mean on Knowledge scores for both groups

Table 4.13: Summary of 3-way ANOVA for repeated measures showing the effect of intervention on attitude of pharmacists towards mental health disorders

Source	Sum of Squares	df	Mean Square	F	Sig.
Between Subjects					
Group	35097.222	1	35097.222	66.556	.000
Error	109685.586	208	527.335		
Within Subjects					
TIME	8234.405	1	8234.405	23.005	.000
TIME * INTERVENTION	5061.719	1	5061.719	14.141	.000
Error(TIME)	74450.843	208	357.937		

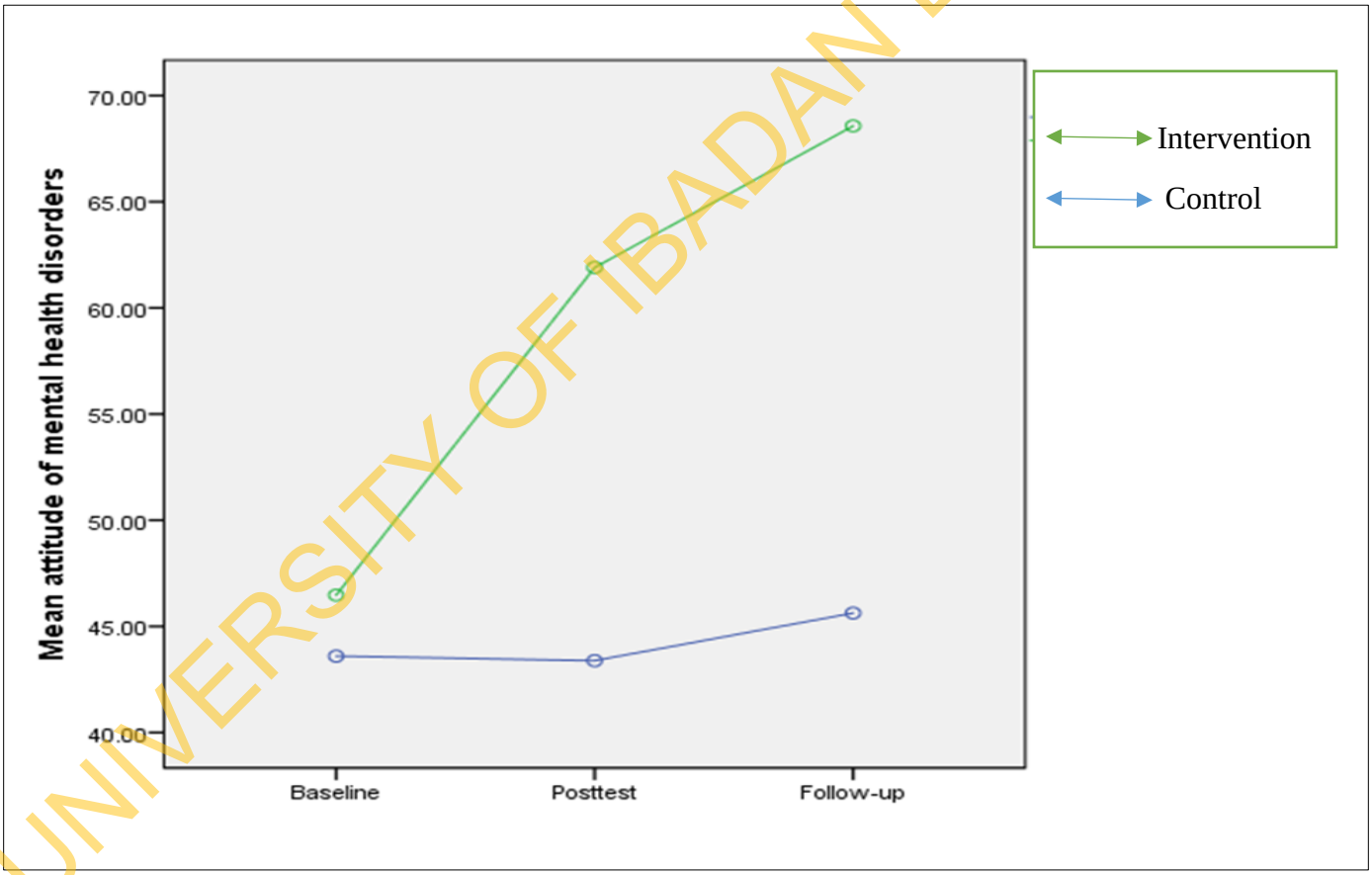

Figure 4.10: Pre, post and 4-weeks post intervention mean on attitude scores

4.15 Summary of findings

1. Majority of the respondents in this study were young graduates (73.1%) with no prior training in mental health (66.4%).
2. There was no statistically significant difference in the outcome measures :knowledge and attitude of the study participants at baseline ($p>0.90$; $p>0.59$).
3. There were no association between socio-demographic characteristics (age sex and educational qualification) and knowledge and attitude of the participants to common mental disorders ($p>0.05$).
4. The intervention respondents had statistically significant difference on outcome measures at 4-weeks post intervention phone call follow up on knowledge score ($p<0.05$) but not at immediate post intervention ($p>0.09$).
5. The intervention group showed statistically significant difference on the attitude outcome measure at both immediate and 4-weeks post intervention phone call follow-up ($p<0.005$)
6. The intervention had effect with time, as both outcome measures had statistically significant difference at 4-weeks post intervention.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 DISCUSSION

This study was carried out to determine the effect of mental health training programme on the knowledge and attitude of community pharmacists to common mental disorders in young people in Lagos, Nigeria. The findings from the study showed that the intervention administered had a statistically significant difference on the outcome measures of this study. This chapter will explore the findings from this study based on the specific objectives of the study and also compare the findings with literature in different parts of the world. It would also proffer recommendations for future studies as well as highlight the limitations of this research.

Mental health literacy of Community Pharmacists

The findings from this study showed that majority of the respondent had average knowledge about common mental disorders. The two groups- control and intervention groups, did not differ in their responses to various items aimed at testing knowledge of the respondents about mental health problems at baseline. However average knowledge about mental health disorders is not enough to recognize common mental disorders. Studies have shown that good knowledge of mental disorders among health workers within the community in low to middle income countries was particularly important for early recognition and appropriate treatment of mental disorders (Ganasen *et al.*, 2008).

Since majority of the study respondents had no prior training on mental health and more than half had only the B.Pharm degree, it would be safe to assume that most of the study participants' knowledge were got from school and other information sources such as electronic and print media. A review of the B.Pharm curriculum in Nigeria showed that the only exposure pharmacy students have to mental health was in pharmacology of the drugs used in treatment of mental disorders. This is similar to a review of Ghana's curriculum which also shows that, the undergraduate degree do not equip the students sufficiently in knowledge of mental health (Owusu-Daaku, 2014). Evidence also shows that community pharmacists had recommended that mental health training should be included in the later part of undergraduate study or immediately after with continued education (Kirschbaum *et al.*, 2016).

The lack of previous training in mental health in this finding is not surprising as findings in a study in Ethiopia reported that lack of clinical knowledge were the greatest barrier for community pharmacists in rendering screening services (Erku and Mersha, 2017) . The mental health gap action plan- intervention guide (MH-GAP IG) and other training modules for mental health and task shifting, were majorly developed for lay healthcare workers in primary and secondary health care settings (Gureje *et al.*, 2015). Hence, the involvement of pharmacists was limited and largely because new roles of pharmacists in community mental health are just beginning to emerge (Rubio-Valera, *et al.*, 2014; Murphy *et al.*, 2015).

Responses to the knowledge items on the instruments at baseline showed that a relatively large number of pharmacists were not aware of the burden of mental disorders in young people and quite a number attributed stress to the cause of mental disorders. This is similar to findings in a study conducted on the South African populace, it was found that majority of the respondents attributed stress as a causative factor for mental disorders and believed that a "talk over" was sufficient for

treatment of common mental disorders (Ganasen *et al.*, 2008). The resulting increase on knowledge scores at post intervention and at follow up show that with adequate information, community pharmacists could recognize and develop screening services in community pharmacies for common mental disorders, this is in keeping with the finding in the More than Meds program in Canada, an initiative aimed to increase the capacities and competencies of community pharmacists in mental healthcare services and support (Murphy *et al.*, 2015). This is particularly important because quite a number of young people and return customers in the community pharmacies are well known to pharmacy staffs. Thus follow-up on initiated referral would be possible as this is already in place for other screening services available at community pharmacies (Blenkinsopp, Anderson and Armstrong, 2002).

Attitudes and beliefs of community pharmacists

The findings from this study showed that many community pharmacists were indifferent to mental health problems. This is in keeping with findings from many research indicating negative, indifferent and desire for social distance to individuals living with mental illness among healthcare professional (Ahmedani, 2011). A study on community pharmacists showed they had positive attitude to mental illness, but were less willing to develop services for mental health (Morral and Morral, 2016). This further shows that positive attitude does not translate to service provision.

Responses on the attitude item revealed that a large proportion of community pharmacists believe that people with mental illness can be difficult to talk to, violent and unpredictable. This is similar to the findings of Morral (2017) who reported that community pharmacists expressed discomfort in providing services to people with mental illness as oppose to people with physical illness and with less discomfort providing services for common mental disorders as oppose to severe mental health conditions like schizophrenia.

Given that attitudes are extensions of thought and knowledge, the attitudes of community pharmacists to mental disorders were in line with the mental health literacy of community pharmacists. Mental health literacy has been associated with positive attitudes to common mental disorders (Svensson and Hansson, 2016). At baseline community pharmacists in the control and intervention groups had average knowledge and indifferent attitudes. But at post intervention, after the intervention group had received a mental health training, the attitude score increased reaching scores for positive attitude. This further reinforces the fact that mental health literacy could be the solution to stigmatizing and negative attitudes to common mental disorders (Svensson and Hansson, 2016).

Recognition of Common Mental disorders in young people

Majority of the participants insinuated that the young persons in the case vignettes had physical health problems, this is in agreement with studies that showed somatic presentation of common mental disorders in young people was a prominent reason they do not seek professional help (Gulliver *et al.*, 2010). A number of the community pharmacists identified the that they would refer the individuals in the case vignettes to a physician, this is in agreement with studies that have shown that community pharmacists serve as one of the first point of contact and link to other healthcare professionals (Rubio-Valera, Chen and O'Reily, 2014).

The findings from this study showed that majority of the respondent had average knowledge about common mental disorders in young people and research have shown that good knowledge of mental disorders among health workers within the community in low to middle income countries was particularly important for early recognition and appropriate treatment of mental disorders (Ganasen *et al.*, 2008).

Sociodemographic variables and baseline outcome measures

Half of the respondents in this study were aged 25-29 years of age with the mean age of all study participants was 34.6 SD 22.5. A probable explanation is because community pharmacies provide the greatest opportunity for quickly securing a job for young pharmacists, compared to other aspects of pharmacy. This is in keeping with a study done on Nigerian pharmacy students, which showed that community pharmacy practice was their preferred career path after graduation (Ubaka *et.al*, 2013).

More than two-third of the participants reported to have no interaction with someone with a mental illness. The fact that majority of the respondents mentioned to have had no interaction with someone with a mental illness is surprising because mental health problems are quite common. The global prevalence estimates that 1 in 4 people will have a mental disorder (Steel *et al.*, 2014). Possible explanations may include the fact that mental health problems are not "visible" (Reuben and Schaefer, 2017). It may also be that the study participants avoided admitting any experience or relationship with someone who has a mental illness as a result of the associated stigma and shame.

Furthermore, the majority of the respondent had no additional degree beyond the B.Pharm degree, this is similar to finding in Saudi Arabia where about 90% of the community pharmacists had no additional qualification (Al-jedai *et al*., 2016). It was also observed from the findings of this study that a large proportion of the participants had no prior training in mental health. This maybe because the roles of the pharmacists are just beginning to evolve from solely drug delivery, to now also include service delivery. New roles for pharmacists in community mental healthcare are just beginning to emerge (Rubio-Valera, *et.al.*, 2014). The percentage of the study participants who had prior training had additional educational degree, either the Pharm.D or the fellowship of West

African Postgraduate College of Pharmacists (WAPCP), or MSc degree reported prior exposure to mental health training. Although this did not have any significant effect on knowledge and attitude partly because less than 20% of the respondent had these additional qualification, it could also be that the additional qualification did not translate to adequate mental health training.

The study respondents in the control and intervention groups did not differ significantly in knowledge and attitude of common mental disorders across the variables of the socio-demographic questionnaire which included: sex, age, religion, educational qualification, prior training to mental health, interaction with someone with mental illness and information source for mental health. In this study, there was no association between socio-demographics and the average knowledge of the respondent at baseline. This is in keeping with the findings that the level of knowledge about mental health disorders were irrespective of socio-demographic characteristics (Cooper *et al*., 2003).

Post intervention comparisons and intervention effect

At baseline, the findings from this study revealed that the respondents in both intervention and control groups no significant differences in knowledge and attitude to common mental disorders as measured by the instrument used. The similarity of intervention and control groups at baseline with regards to outcome measures or variable of interest rules out any doubt or unintended bias in the study. Thus difference in post intervention scores can be expressly attributed to the intervention given. The post intervention scores on the outcome measures were statistically significant immediately post intervention and 4- weeks post intervention. Knowledge and attitude of the intervention group respondents to common mental disorders were significantly increased. Also it is noteworthy that there were increase in mean scores in the control group at post intervention but this was not maintained at 4-weeks post intervention.

The fact that knowledge scores of the intervention group was significantly higher than that of the control implies that recognition of common mental health disorders were possible in community pharmacies where the pharmacists have been trained. The increase in mean score post intervention further shows knowledge retention which is important for long term service delivery. The overall increase in knowledge scores across the three time frame- pre, post and 4-weeks post intervention is in keeping with findings from (Adebowale, 2014) who recorded statistically significance difference during the pre and post intervention using a similar manual four nurses in a primary health care center. The significant knowledge retention is similar to the finding by (Gureje, 2015) who studied the effect of the MHGAP-IG course on the knowledge and skills of primary health workers with substantial retention 9-months post training.

The second outcome measure was also significant, attitudes of the respondents to common mental disorders was statistically significant between the intervention and control groups post intervention and at follow-up. The significant difference in attitude shows that perception and attitude to mental health problems are largely due to inadequate knowledge and attitudes can be learned, unlearned and relearned. The short duration of the study did not allow for measure of corresponding attitude with service provision for common mental disorders as studies have shown that positive attitudes to mental illnesses does not translate to service provision by community pharmacists (Rickles *et al.*, 2010).

Effects of the Intervention

The ANOVA for 3-way repeated measure was used to determine the effectiveness of the intervention. The measure indicated statistically significant difference on both knowledge and attitude scores across the time frame this is consistent with findings from trainings using the same training manual on lay health workers in Pakistan and Nigeria (Emotional, Health and Course,

2014). The findings from this research further affirms the fact that short trainings are feasible and also effective means of impacting mental health information on lay health workers. Similar studies among different cadre of health workers within the health care have recorded similar results, with some having longer contact sessions with the respondents (Adebowale *et al.*, 2014; Gureje *et al.*, 2015).

The comparison of mean scores within the intervention group at the pre, post and 4- weeks follow up mean scores were significantly different, this scores were also significantly different from the mean scores obtained from the control groups across the three time frames, pre, post and 4-weeks post intervention further buttress that the changes in mean scores was as a result of the training received since no statistical difference was recorded at baseline.

The significant change in knowledge and attitude could also be because of the mode of the training, the training used case samples of walking customers with presentations suggestive of common mental disorders similar to that on the instrument used. This could have been responsible for the increase mean scores at the post intervention and 4-weeks follow up as many of the respondent showed verbal affirmation during the training recounting similar experiences. This could have also accounted for the increase in mean scores of the outcome measures 4 weeks posy intervention.

The follow up method employed was via phone call and this recorded an 100% response rate, this is quite higher than what is obtainable in literature 50% (Jorge Matías-Guiu, *et al.,* 2014).

Hypothesis Testing

The null hypotheses were tested in this study. It was hypothesized that there would be no significant difference between the control and intervention groups in the knowledge of common mental disorders after mental health training intervention. It was also hypothesized that there

would be no significant difference between the control and intervention groups in the attitude towards common mental disorders after the mental health training intervention. The two null hypotheses were rejected because the study found that among the study respondents there was statistically significant difference between the control and intervention groups in their knowledge of common mental disorders. It was also found that there was statistically significant difference between the control and intervention groups in their attitude towards common mental disorders.

Limitations

A major limitation of this study was that it did not measure the practice of the knowledge gained. Another limitation was that post intervention follow up was conducted via phone calls, which was a deviation of the initial protocol which could have caused some bias upon follow up. It would be more informative to explore the sustainability of the intervention over 3-months post intervention, duration of this research were limiting factors.

5.2 CONCLUSION

The knowledge and attitude of community pharmacists to common mental disorders in young people were found to be average. The consequent significant difference in knowledge and attitude of community pharmacists to common mental disorders in young people showed that a brief mental health training was found to be feasible and effective in increasing knowledge and attitude about common mental disorders among community pharmacists. The effects of the findings of a mental health training on the knowledge and attitude of community pharmacists corresponds with other studies done using the training manual on other lay healthcare workers and would be a right step towards provision of referral services in community pharmacies.

5.3 RECOMMENDATIONS

1. Inclusion of a mental health training program in the pharmacy undergraduate curriculum should be considered by the Pharmacists' Council as well as the National Universities Commission.
2. Longitudinal studies that evaluate pattern of practice over long period of time post intervention would be useful.
3. Further studies should explore the feasibility of effective screening and referral services to physicians and psychiatric facilities.

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APPENDIX A

INFORMED CONSENT FORM

Effects of a Mental Health Training Program for Community Pharmacists to Recognize Common Mental Disorders among Young Persons in Lagos.

This study is being carried out by Pharm Rukayat O. Ogunbiyi of the Centre for Child and Adolescent Mental Health, University College Hospital, Ibadan.

The purpose of this study is to train community pharmacists in recognition of common mental disorders in young people in Lagos. A total of 156 community pharmacists will be recruited into the study. We will use a lottery to divide participants in this study into 2 groups. One group shall receive a mental health training while the other would not be trained. At the end of the training and 6 weeks after, the research will use a questionnaire to assess the effect of the training of your knowledge and attitude to common mental disorders in young people. In total we expect you to be involved in this research for 8 weeks. . In the course of this study you will be asked some questions in relation to your personal information, and your views about common mental disorders in young people.

Your participation in this research will not cost you anything, but you will be required to participate for few minutes to hours for the training.

The goal of this research is to find ways to incorporate early recognition of common mental disorders in young people in community pharmacies. All information collected in this study will be given code numbers and no names will be recorded. This cannot be linked to you in any way. Your participation in this research is entirely voluntary and if you choose not to participate, it will not affect you adversely in any way. You can also choose to withdraw from the research at any time. Refreshments and training materials will be given during the training, but you would not be paid for participating in this research.

Your honest answers to the questions will help us to better understand what community pharmacists know or do with respect to common mental disorders among healthcare customers who visit their pharmacies. We will greatly appreciate your help in responding to the survey, and taking part in the study. The researcher will inform you of the outcome of the research through a communique. The outcome of this research will be used to develop the curriculum for continued education for community pharmacists, one which you would be the first beneficiaries. There are no conflict of interest in this research.

I have fully explained this research to you and I have given sufficient information, including about the risks and benefits, to make informed decision.

Signature_____

Date_____

APPENDIX B 1

Identification

Serial No _____ Date of Interview _____

Identifier: **DEIB67** (The first two letters of your middle name e.g. **DE**sola, followed by first letter of the name of the University you graduated from e.g. University of Ibadan will be **IB**adan, and the year you were born e.g. 19**67)**

SOCIO-DEMOGRAPHICS QUESTIONNAIRE

1. Sex ( ) Male ( ) Female?
2. Age (in years)_____
3. What is your highest level of education:

   B.Pharm ( ) Pharm.D ( ) MSc ( ) WACP ( ) PhD ( )

   Other certifications (please specify) _____
4. Religion : Islam ( ) Christianity ( ) Traditional ( )
5. Where have you obtained *most* of your understanding and knowledge of mental health problems from? ( )Family ( ) Friends ( ) School ( )Magazines and newspapers ( ) T.V and Home Videos
   Other_____
6. Do you know anybody with a mental health problem? YES ( ) NO ( )
7. If YES (above), what's your relationship _____
8. Have you had any prior training on mental health? YES ( ) NO ( )
9. If YES (above), where _____

APPENDIX B 2

TEACHERS' KNOWLEDGE, ATTITUDE AND PRACTICE QUESTIONNAIRE

Section I

Please read the following information carefully, and kindly answer the following each, based on your understanding about the problems in each case.

Case 1. Ayomide

Ayomide is a 17-years old girl, in the last 6 weeks, Ayomide has requested for medication for sleep and has refilled it more than twice. She said she has not been sleeping well. On one occasion she requested for multivitamin to improve her appetite.

1a. Would you be worried about Ayomide's complaints?

I Don't Know	Few Days(2-5)	A Few Weeks (1-3)	A Few Months(1-3)	Several Months

1b. What do you think may be wrong with Ayomide?

_____

1c. Which parts of the description make you believe she has this problem?

_____

1d. How long will it take for Ayomide to feel better?

1. I Don't Know	2. Not At All Worried	3. Slightly Worried	4. Very Worried

1e. Do you think Ayomide needs help? YES ( ) NO ( )

1f. How would you help Ayomide? _____

1g. If you believe Ayomide needs help, what would you do?

_____

1h. Apart from you, who else can help Ayomide?

_____

_____

1i. HOW? _____

Case 2. ***Obinna***

Obinna is a 24-year old computer programmer at Bioku Computers in Lagos. He has a history of treating malaria every month. He complained of fatigue, headaches and joint pain. He had bought antimalarial twice in 8 weeks. On his 3rd visit in 3 months, you advised that he took the rapid malaria test which he agreed to, his result was negative but he, however insisted on getting antimalarial because he did not feel good.

2a. Would you be worried about Obinna's complaints?

I Don't Know	Not at All Worried	3. Slightly Worried	4. Very Worried

2b. What do you think may be wrong with Obinna?

_____

2c. Which parts of the description make you believe he has this problem?

_____

2d. How long will it take for Obinna to feel better?

I Don't Know	Few Days(2-5)	A Few Weeks (1-3)	A Few Months(1-3)	Several Months

2e. Do you think Obinna needs help? YES ( ) NO ( )

2f. How would you help Obinna? _____

2g. If you believe Obinna needs help, what would you do?

_____

2h. Apart from you, who else can help Obinna?

_____

2i. HOW? _____

Case 3. Aishatu

Aishatu is a 12-year old J.S.2 student who lives close to your pharmacy. Her mother, Mrs Bala had come to seek your advice concerning her daughter's health. She said Aishatu has been complaining of chest pain and racing heartbeat for about 2 months and they had done scans, and seen a doctor at the closest government hospital according to her. She claimed the doctor said nothing is wrong with Aishatu. She's confused and has come to you to ask for advice and possibly multivitamins that may help her.

3a. Would you be worried about Aishatu's complaints?

I Don't Know	Not At All Worried	Slightly Worried	4. Very Worried

3b. What do you think may be wrong with Aishatu?
_____

3c. Which parts of the description make you believe she has this problem?
_____

3d. How long will it take for Aishatu to feel better?

I Don't Know	Few Days(2-5)	A Few Weeks (1-3)	A Few Months(1-3)	Several Months

3e. Do you think Aishatu needs help? YES ( ) NO ( )

3f. How would you help Aishatu? _____

3g. Apart from you, who else can help Aishatu?
_____

3h. HOW? _____

Section II

1. The following statements are commonly-held beliefs about mental health problems. Can you tell us whether *you* personally agree or disagree with each statement?

S/N	Statements	Agree	Disagree	Not Sure
1.	People with mental health problems are difficult to talk to			
2.	People with mental health problems are likely to become violent			
3.	Mental health problems are caused by stress			
4.	People with Schizophrenia (one form of mental health problem) have a split personality			
5.	People can recover from mental health problems			
6.	People with mental health problems are weak and have only themselves to blame			
7.	People with mental health problems are unpredictable			
8.	There is a stigma (shame) attached to people with mental health problems			
9.	One in four people will develop mental illness over the course of a lifetime			
10.	Mental problems are caused by spiritual attack			
11.	Parents with mental illness always transmit it to their children			
12.	Depression is a type of mental illness			
13.	People with depression like to be alone, feel sad			
14.	People with depression wish to die			
15.	Mental illness cannot be treated			

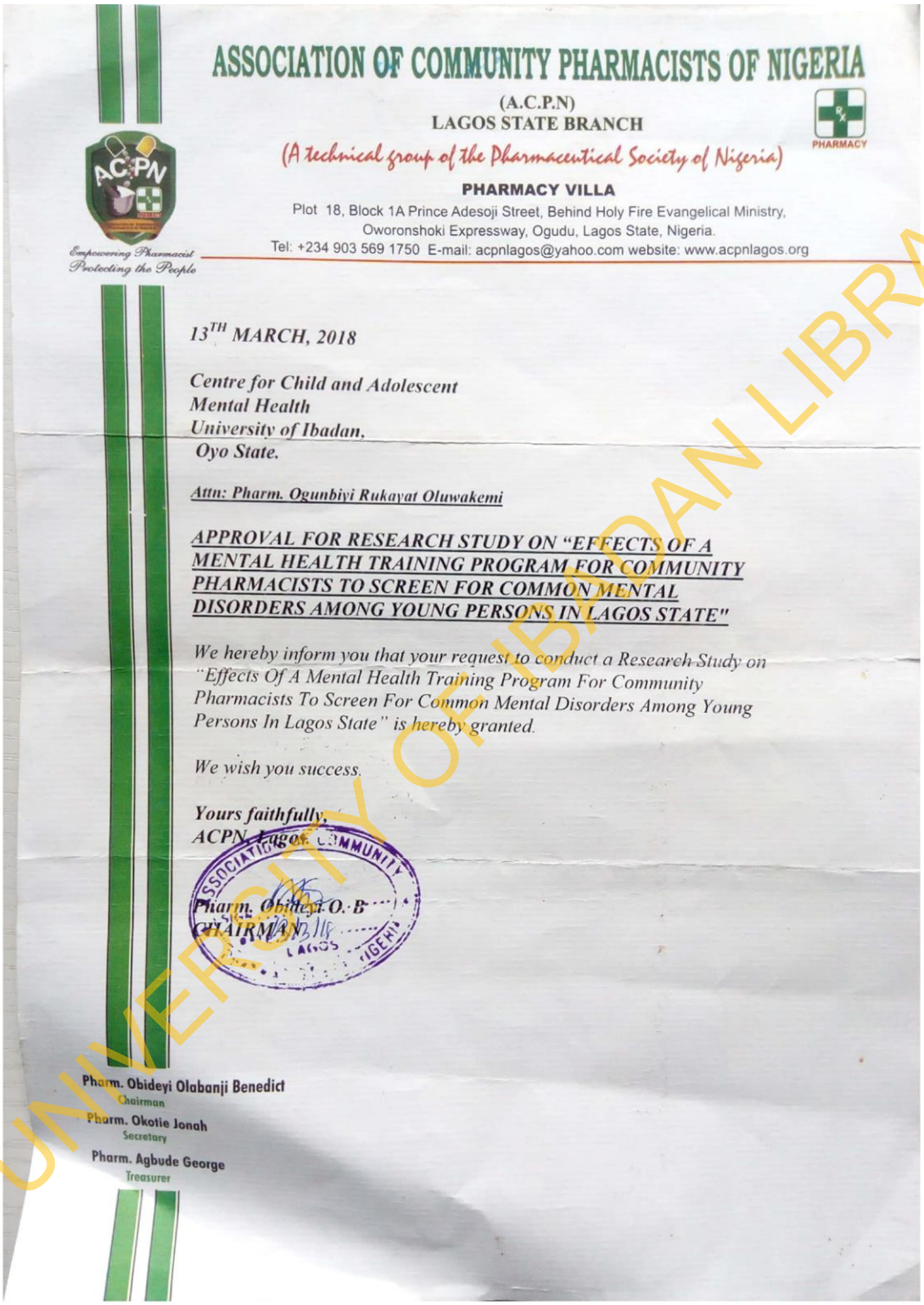
People react to those who have mental problems in different ways (please tick only <u>one</u> box for each statement)

S/N	Questions	Definitely	Probably	Probably not	Definitely not	Don't Know
16.	Would you feel afraid to talk to someone with mental health problems?					
17.	Would you be upset or disturbed to be in the same class with someone who had mental health problems?					
18.	Would you be embarrassed if your friend knew that someone in your close family had mental health problems?					
19.	Would you be able to be friends with someone who had mental health problems?					

Thank you for participating!

APPENDIX C

APPENDIX D



ASSOCIATION OF COMMUNITY PHARMACISTS OF NIGERIA

(A.C.P.N)
LAGOS STATE BRANCH

(A technical group of the Pharmaceutical Society of Nigeria)

PHARMACY

PHARMACY VILLA
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Oworonshoki Expressway, Ogudu, Lagos State, Nigeria.
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Empowering Pharmacist
Protecting the People

13TH MARCH, 2018

Centre for Child and Adolescent
Mental Health
University of Ibadan,
Oyo State.

Attn: Pharm. Ogunbiyi Rukayat Oluwakemi

APPROVAL FOR RESEARCH STUDY ON "EFFECTS OF A MENTAL HEALTH TRAINING PROGRAM FOR COMMUNITY PHARMACISTS TO SCREEN FOR COMMON MENTAL DISORDERS AMONG YOUNG PERSONS IN LAGOS STATE"

We hereby inform you that your request to conduct a Research Study on "Effects Of A Mental Health Training Program For Community Pharmacists To Screen For Common Mental Disorders Among Young Persons In Lagos State" is hereby granted.

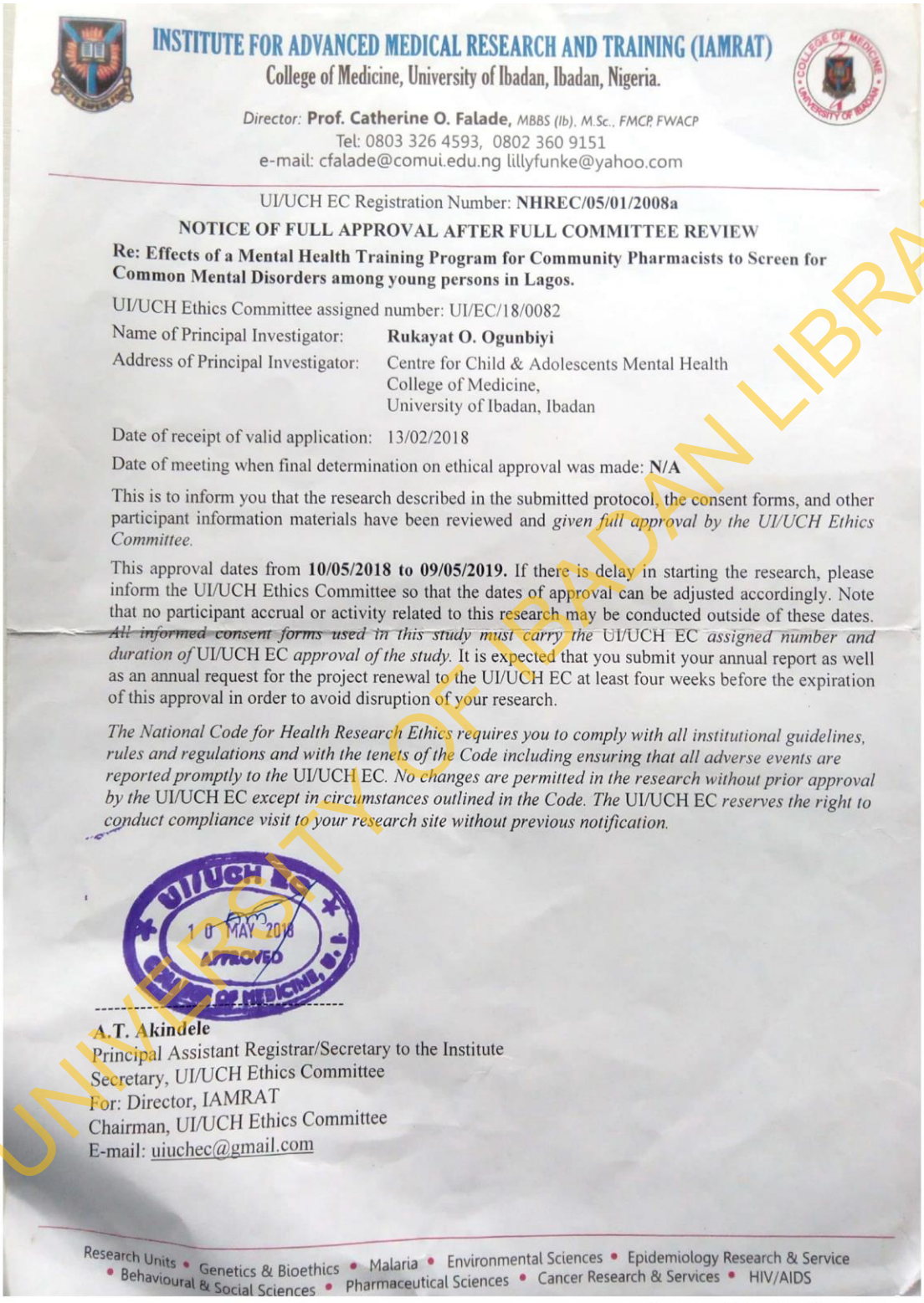
We wish you success.

Yours faithfully,
ACPN, Lagos.

Pharm. Obideyi O. B
CHAIRMAN

Pharm. Obideyi Olabanji Benedict
Chairman
Pharm. Okotie Jonah
Secretary
Pharm. Agbude George
Treasurer

APPENDIX E



INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)
College of Medicine, University of Ibadan, Ibadan, Nigeria.

Director: **Prof. Catherine O. Falade,** *MBBS (Ib), M.Sc., FMCP, FWACP*
Tel: 0803 326 4593, 0802 360 9151
e-mail: cfalade@comui.edu.ng lillyfunke@yahoo.com

UI/UCH EC Registration Number: **NHREC/05/01/2008a**

NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW

Re: Effects of a Mental Health Training Program for Community Pharmacists to Screen for Common Mental Disorders among young persons in Lagos.

UI/UCH Ethics Committee assigned number: UI/EC/18/0082

Name of Principal Investigator: **Rukayat O. Ogunbiyi**

Address of Principal Investigator: Centre for Child & Adolescents Mental Health
College of Medicine,
University of Ibadan, Ibadan

Date of receipt of valid application: 13/02/2018

Date of meeting when final determination on ethical approval was made: **N/A**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and *given full approval by the UI/UCH Ethics Committee.*

This approval dates from **10/05/2018 to 09/05/2019.** If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the* UI/UCH EC *assigned number and duration of* UI/UCH EC *approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC at least four weeks before the expiration of this approval in order to avoid disruption of your research.

The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. *No changes are permitted in the research without prior approval by the* UI/UCH EC *except in circumstances outlined in the Code. The* UI/UCH EC *reserves the right to conduct compliance visit to your research site without previous notification.*

UI/UCH EC
10 MAY 2018
APPROVED
COLLEGE OF MEDICINE, U.I.

A.T. Akindele
Principal Assistant Registrar/Secretary to the Institute
Secretary, UI/UCH Ethics Committee
For: Director, IAMRAT
Chairman, UI/UCH Ethics Committee
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Research Units • Genetics & Bioethics • Malaria • Environmental Sciences • Epidemiology Research & Service • Behavioural & Social Sciences • Pharmaceutical Sciences • Cancer Research & Services • HIV/AIDS