

KNOWLEDGE AND ATTITUDES IN RELATION TO CHILD AND ADOLESCENT MENTAL HEALTH AMONG DOCTORS AND NURSES WORKING IN PEDIATRIC UNITS AT TERTIARY HEALTH FACILITIES IN RWANDA

A PROJECT SUBMITTED TO THE CENTRE FOR CHILD AND ADOLESCENT MENTAL
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MASTER OF SCIENCE IN CHILD AND ADOLESCENT MENTAL HEALTH, UNIVERSITY OF
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DECLARATION

I hereby declare that this project titled Knowledge and Attitudes in Relation to Child and Adolescent Mental Health among Doctors and Nurses Working in Pediatric Units at Tertiary Health Facilities in Rwanda is my own work and that it has not been submitted in any other institution.

Dr HATEGEKIMANA Athanase

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SUPERVISORS CERTIFICATION

I hereby certify that this project was carried out by HATEGEKIMANA Athanase at Center for Child and Adolescent Mental Health, University of Ibadan, Nigeria.

Date:

1. Haleem A. Abdurrahman
MBBS, MSc (CAMH), FWACP
Ibadan, Nigeria

Date:

2. Olurotimi Adejumo
MBBS (Ib.), FWACP (Psychiatry), FMCPsy, ACCAPsych, MSc (CAMH), MSc (Northwestern)
Hertfordshire Partnership University NHS Foundation Trust
Hertfordshire, United Kingdom

Date:

3. Cornelius Ani
MBBS, MSc, DCH, MRCP (Pediatrics), FRCPsych, FHEA, MD (Res), PGC (Medical Law)
Honorary Clinical Senior Lecturer,
Center for Psychiatry,
Hammersmith Hospital Campus,
Imperial College, London

DEDICATION

This work is dedicated to Marthe my wife and to our children Clement and Carmen.

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KEY TO ABBREVIATIONS

AIDS: Acquired Immunodeficiency Syndrome

ANOVA: Analysis of variance

BNF: British National Formulary

BUTH: Butare University Teaching Hospital

CAMH: Child and Adolescent Mental Health

CAMHS: Child and Adolescent Mental Health Specialist

CPD: Continuous Professional Development

DSM: Diagnostic and Statistical Manual (of Mental Disorders)

ECG: Electrocardiography

GP: General Practitioner

HC: Health Care

HIV: Human Immunodeficiency Virus

HRH: Human Resources for Health

IACAPAP: International Association for Child and Adolescent Psychiatry and Allied Professions

ICD: International Classification of Diseases

IUGR: Intrauterine Growth Restriction

KFH: King Faisal Hospital

KUTH: Kigali University Teaching Hospital

LMIC: Low and Middle-income Countries

MSE (Root): Mean-Squared Error

mhGAP: Mental Health Gap Action Programme

NICE: National Institute for Health and Care Excellence

PCP: Primary Care Providers

PHC: Primary Health Care

PICU: Pediatric Intensive Care Unit

PTSD: Post Traumatic Stress Disorder

RCN: Royal College of Nursing

RMH: Rwanda Military Hospital

RWF: Rwandan Franc

SD: Standard Deviation

SDG: Sustainable Development Goals

SPSS: Statistical Package for Social Sciences

STATA: Statistics and data

UK: United Kingdom

USA: United States of America

USD: United States Dollar

WHO: World Health Organization

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ABSTRACT

Background

Mental health problems are prevalent in pediatric patients and are often not recognized or well managed. These problems may be a reason for consultation by themselves or may develop on background of existing physical illnesses. The lack of knowledge and stigma towards Child and Adolescent Mental Health among healthcare providers can be barriers to accurate identification and treatment of mental disorders in pediatric population. For this end, sufficient knowledge of CAMH and positive attitude towards children with mental health problems is required for efficient care. The aim of this study was to determine the level of knowledge and attitudes in relation to CAMH among doctors and nurses working in pediatric units at tertiary health facilities in Rwanda.

Methodology

This was a cross-sectional study conducted in 3 of 4 national referral hospitals offering tertiary healthcare services in Rwanda. A total of 155 nurses and 48 doctors who were involved in patients care in pediatric units at Kigali University Teaching Hospital (KUTH), Rwanda Military Hospital (RMH), and Butare University Hospital (BUTH) were included in the study. Following written consent, participants completed a questionnaire which was designed to collect information on participants' socio-demographic characteristics, information about knowledge of CAMH and information about attitudes towards children or adolescents with mental health problems. To each question a score was assigned such that knowledge of Child and Adolescent Mental Health was measured by considering proportions of answers to each single item or summation of scores for both knowledge measures (higher scores indicating higher level of information). Attitude was measured by considering proportions of

answers to each single item or by summation scores on attitude scales such that higher scores indicate more negative attitude towards children and adolescents with mental health problems.

Data were analyzed using STATA version 15. Univariate, bivariate and multiple linear regressions analyses were computed. Significance testing for all inferential tests was set at $p < 0.05$, two-tailed, and 95% Confidence Interval.

This study was approved by Rwanda National Ethics Committee and by respective Ethics and Research Committees at KUTH, BUTH and RMH.

Results

A total of 199 (out of 264 target population) completed the questionnaire making a response rate of 75%. The participants comprised of 151 nurses and 48 doctors. Nurses were predominantly female (89.4%), whereas 33 (70.2 %) doctors were male. The analysis found that 95 (62.9%) nurses and 27 (56.3%) doctors believed that people with mental health problems are difficult to talk to, 46 (30.5 %) nurses and 9 (18.8%) doctors believed that people with mental disorders do not recover, 87 (57.6%) nurses and 14 (29.2%) doctors thought that mental disorders are rare in children. A total of 59 (39.1%) nurses and 22 (45.8 %) doctors did not know that spiritual attack is not a cause of mental health problems. We found also that 11 (67.3%) nurses and 13 (27.1%) doctors did not agree that mental problems can be treated by pediatricians and the awareness of mental health problems in younger children was also a challenge for 57 (38%) nurses and 16 (33.3%) doctors. Being a nurse and working at BUTH or RMH were identified as predictors of insufficient knowledge.

As far as attitude is concerned, a staff of 49 (32.7%) nurses and 6(12.5%) doctors would feel that an adolescent with psychotic illness is very much dangerous and at least 58(38.4%) nurses and 6(12.5%) doctors thought very much it would be best for the adolescent's community if he was put away in a

psychiatric hospital. We also found that a large number (74.7% of nurses and 70.8% of doctors) thought that children and adolescents with mental illness can be dangerous to the society and that 58 (38.7%) nurses and 18(37.5%) doctors would be concerned if they find their children or relative walking home from school together with a child or adolescent with mental illness while 41 (27.3%) nurses and 13 (27.1%) doctors will be worried about working on the ward that admits children and adolescents with mental illness. Being a nurse, insufficient knowledge of CAMH and a shorter length of working experience were the independent predictors of negative attitudes towards children and adolescents with mental health problems.

Conclusion

The study highlighted that doctors and nurses working in pediatric units at tertiary hospitals in Rwanda had insufficient knowledge of Child and Adolescent Mental Health and negative attitudes towards children and adolescents with mental health problems. Among other attitudes, we can note the negative attitudes towards the management of mental illnesses in pediatric units. Working at Butare University Teaching Hospital or Rwanda Military Hospital, being a nurse and having stigmatizing attitudes were the independent predictors of insufficient knowledge of CAMH. Being a nurse and a shorter length of work experience were the independent predictors of negative attitudes towards children or adolescents with mental health problems.

Key words: Knowledge and attitudes, child and adolescent mental health, doctors and nurses, Rwanda.

Word count: 807

CHAPTER ONE

INTRODUCTION

1.1. Background

The WHO defines health as a state of complete physical, mental and social wellbeing, and not merely as the absence of disease or infirmity. According to this definition mental health is an essential element of health and the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being (WHO, 2006).

WHO recognizes the interrelation of physical and mental health and current trends in health promotion include the integration of mental health into general health services in order to encourage early identification and treatment of mental disorders associated with physical disorders. Thus, Human Resources development should build the knowledge and skills of general and specialized health workers to deliver evidence-based, culturally appropriate and human rights-oriented mental health and social care services for children and adolescents (WHO, 2013).

Actually, ensuring healthy lives requires the consideration of both aspects of body and mind as it is on the United Nations (UN) agenda through its sustainable millennium development goals. The third SDG specifically and all seventeen SDGs in general contribute to the promotion of child and adolescent mental health (CAMH) by tackling the social determinants of mental health which include: demographic factors; economic status of individuals and societies; social aspect including infrastructures, safety, leisure opportunities, social cohesion; environmental events such as natural hazards, armed conflicts, and disasters (Lund *et al.*, 2018).

Nonetheless, the implementation of UN and WHO recommendations hit many obstacles in LMIC, especially in Sub-Saharan Africa.

Primarily, in this part of the world, mental health is not a priority in health policies of many countries and the budget allocated to this sector is always limited (Rathod *et al.*, 2017). A large proportion of mental disorders in children are associated with low socio-economic status as it has been proven in South Africa (Raman *et al.*, 2013) such that any effort to tackle mental disorders should be coupled with poverty reduction strategies as well.

Secondarily, there is a remarkable gap in training of health care providers in regard to Child and Adolescent Mental Health. In USA, it was proven that pediatric residents' training does not consider CAMH as priority and they are not trained as those who are supposed to assume responsibilities such as counseling of patients and families (Mcmillan, Jr and Leslie, 2017). Consequent to this gap in medical training, most General Practitioners or pediatricians do not participate in assessment or management of pediatric mental disorders, rather they prefer to refer their patients to mental health professionals and rarely make a follow-up of their referrals (Hinrichs *et al.*, 2012).

Thirdly, mental health stigma hinders the effectiveness of intervention directed at mental health promotion. Mental health stigma has been conceptualized as comprised of ignorance, prejudice and discrimination and often manifests as labeling, stereotyping, setting apart, emotional responses, status loss and discrimination (Yang and Link, 2015; Evans-lacko *et al.*, 2010). This conceptualization would be not comprehensive because mental health stigma exist at all ecological levels: intrapersonal, interpersonal, community, institutional and governmental levels. In some conditions, stigma intervention may target a single level or different levels (Rao *et al.*, 2019).

Stigmatizing attitudes by health workers can result directly in poor care for patients affected with a stigmatizing condition (Clarke, Dusome and Hughes, 2007; Boekel, Brouwers and Garretsen, 2013). Measuring stigma in health professionals is one step of reducing stigma and improving mental health care (Evans-lacko *et al.*, 2010). Despite, there are still issues of standardization of stigma measures for different categories of study populations. This means that a measure standardized for the public is also used for measuring health professionals' stigma (Loch et al, 2012; Henderson et al., 2014). A systematic analysis conducted to evaluate the health stigma drivers that can be target by intervention in health facilities found that knowledge was the most commonly targeted condition (Nyblade *et al.*, 2019). However, other anti-stigma programmes that emphasize recovery and which include multiple types of social contact and contact-based education have been developed for healthcare providers (Knaak et al, 2017, Moll et al, 2018).

Insufficient CAMH knowledge and stigmatizing attitudes towards children or adolescents with mental health problems among doctors and nurses have been highlighted by previous studies conducted in Nigeria, Liberia and Sierra Leone (Tungchama, 2014; Quiah, 2014; Onileimo, 2014). In these studies, doctors or nurses were found to have limited knowledge in terms of recognizing mental health problems in children or adolescents, causes and treatment of children' or adolescents' mental disorders. Child and adolescent mental health assessment constitutes also a challenge for doctors and nurses in developed countries as it was found by a study conducted in Australia (Jelinek *et al.*, 2013).

The efforts for increasing awareness of CAMH among healthcare providers should be intensified. A study conducted in Uganda among health managers found that they perceived national laws which protect children as sufficient for supporting CAMH and they were not aware of a necessity for integration of CAMH services within and outside the health sector as a way of children' and

adolescents' mental health promotion. This inadequate knowledge among health managers contributes to the weakness of CAMH services in Uganda (Akol *et al.*, 2015).

1.2. Health services and Child and Adolescent Mental Health in Rwanda

Rwanda is a low income country situated in Sub-Saharan Africa. In this densely populated country, the joint national policies coupled to culture of performance in all domains of public sector have resulted in tremendous development of the health sector during the past 5-10 years (Sayinzoga and Bijlmakers, 2016). With the new health system reforms, pediatric services at tertiary level are provided by pediatricians, pediatric specialists or consultants, medical officers, general nurses or pediatric nurses, whereas mental health services are provided by psychiatrists, consultants, clinical psychologists and mental health nurses. These new changes operated in health system have integrated Mental Health in secondary and primary health services packages where mental health services are provided by psychiatrist nurses or trained general nurses. Even if there are some challenges with this system, the MH services offered at PC (Primary level of health care) level are also consistent and rapid thanks to the training which was provided to PHC nurses (Nyirandagijimana *et al.*, 2017). As far as Child and Adolescent Mental Health is concerned, the Ministry of Health has planned to integrate treatment of children mental disorders into existing mental care structures and to include CAMH into the medical and nursing curriculum (Ministry of Health, 2011). However, there is a big treatment gap for children and adolescent mental problems in general hospitals due to paucity of CAMH specialists. Even if the government of Rwanda has made efforts to train medical and nursing professionals, there is no one receiving a formal training in CAMH.

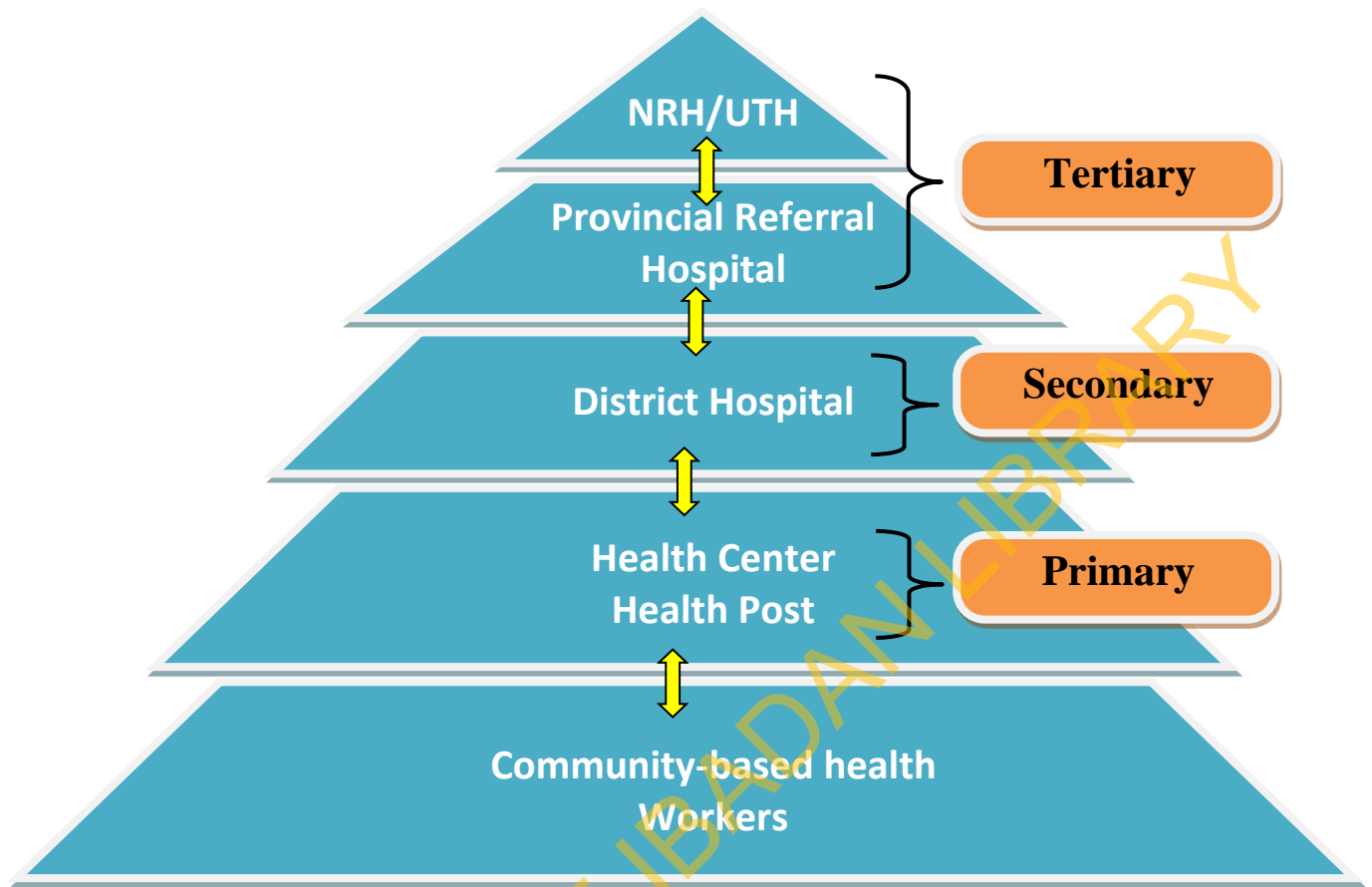


Figure 1. Health system organization and structure in Rwanda

1.3. Statement of the problem

The World Health Organizations estimates that 1 in every 5 children and adolescents has a recognizable and treatable mental disorder (WHO, 2005) whereas in physically ill children a random psychiatric assessment of hospitalized children suggested that as many as two-thirds of children admitted to pediatric wards would benefit from a mental health consultation (Melvin, 1996).

Nevertheless, mental disorders have always been underestimated especially their connectedness with physical disorders (Prince *et al.*, 2007). The estimation of child mental disorders has been always biased by their classification. The ICD and DSM diagnostic classification for children and adolescents are

inadequate and of limited applicability in epidemiological studies because these tools lack precision in diagnostic nomenclature. The diagnoses are most of the time categorical instead of integrating biological, environmental and cultural understanding of causation of mental disorders (Nurcombe *et al.*, 2007).

Alongside this underestimation of children's mental disorders, we can also note a mismanagement of children mental disorders due to lack of guidelines for diagnosis. In UK, Hinrichs *et al.* (2012) found that GPs face a challenge regarding detection of signs and symptoms of a mental illness in pediatric age group (Hinrichs *et al.*, 2012). In Sierra Leone, mental health care providers provide diagnoses which are not in line with classic psychiatric diagnostic tools and there are still informal mental health care providers in Sierra Leone like traditional Healers and Christian Healing Ministries (Yoder *et al.*, 2016). Another example is Uganda where traditional healers are managing children mental disorders on grounds that they are caused by spiritual attack and they brag that they are superior to modern clinicians (Akol *et al.*, 2018).

1.4. Justification of the study

During the past few decades, different political and financial efforts have been concentrated on reduction of under-5 mortality by tackling the communicable and non-communicable diseases in order to achieve the Millennium Development Goal 4. Rwanda is among African countries with tremendous achievements in this field (Golding *et al.*, 2017). However mental problems especially Major Depressive Disorders lead the top five causes of years lived with disability in Rwanda and are predominant in the young population (Mohand and Kayiteshonga, 2015). The burden of mental health problems in Rwandan pediatric population cannot clearly be estimated because of dearth of researches in this field. The health funding discrepancies may suggest that much attention is not paid to CAMH.

According to OECD (Organization for Economic Cooperation and Development) CRS (Creditor Reporting System), the level of development assistance for CAMH as primary target in Rwanda between 2007 and 2015 was 0.01USD per capita. The large amount of this was related to HIV/AIDS projects (Lu, Li and Patel, 2018). However, by acknowledging that mind and body in children are closer than in any other age group (Melvin, 1991), the increasing number of non-communicable diseases and potential increase in associated mental health problems in children should justify the necessity of a particular awareness of mental disorders in pediatric services in order to plan to mitigate them (Berry *et al.*, 2017).

One of the challenges that face the Mental Health sector in Rwanda is the shortage of human resources. Currently among the Mental Health care providers in Rwanda, no one has received a formal training in Child and Adolescent Mental Health. This situation is far from what Lund in South Africa has estimated as ideal minimal expected CAMH Human Resources per 100,000 population which is supposed to be 5.8 for primary health care facilities, 0.6 in a general hospital outpatient department and 0.1 in general hospital inpatient facility (Lund *et al.*, 2009). This shortage of qualified mental health professionals is enough to understand the treatment gap for children and adolescents mental disorders (IACAPAP, 2012).

In order to close this gap, the participation of general doctors and nurses in assessment and treatment of mental disorders in pediatric setting is very important (IACAPAP, 2012) and it should be based on evidence. Information on doctor's and nurses' knowledge and attitude in relation to CAMH will determine the effectiveness of eventual intervention.

1.5. Research questions:

1. What are the existing knowledge and attitudes in relation to CAMH among doctors working with children in pediatric units at tertiary health facilities in Rwanda?
2. What are the existing knowledge and attitudes in relation to CAMH among nurses working with children in pediatric units at tertiary health facilities in Rwanda?
3. What are the factors associated with knowledge and attitude in relation to CAMH among doctors and nurses working in pediatric units at tertiary health facilities in Rwanda?

1.6. Aim of the study

To determine the level of knowledge and attitudes in relation to CAMH among doctors and nurses who work in pediatric units at tertiary health facilities in Rwanda.

1.7. Specific objectives

1. To determine existing knowledge and attitudes in relation to CAMH among doctors working with children in pediatric units at tertiary health facilities in Rwanda.
2. To determine the existing knowledge and attitudes in relation to CAMH among nurses working with children in pediatric units at tertiary health facilities in Rwanda.
3. To identify factors associated with knowledge and attitude in relation to CAMH among doctors and nurses working in pediatric units at tertiary health facilities in Rwanda.

1.8. Primary outcome measures

Scores on scales measuring knowledge and attitudes in relation to Child and Adolescent Mental Health.

Word count: 1996

CHAPTER TWO

LITERATURE REVIEW

2.1. Concept of Mental Health and mental disorders

WHO defines mental health as a state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community (WHO, 2013). Children and adolescents with good mental health are able to achieve and maintain optimal psychological and social functioning and well-being. They have a sense of identity and self-worth, sound family and peer relationships, an ability to be productive and to learn, and a capacity to tackle developmental challenges and use cultural resources to maximize growth (WHO, 2005).

On the contrary, mental, behavioral and neurodevelopment disorders are syndromes characterized by clinically significant disturbance in an individual's cognition, emotional regulation, or behaviour that reflects a dysfunction in the psychological, biological, or developmental processes that underlie mental and behavioral functioning. These disturbances are usually associated with distress or impairment in personal, family, social, educational, occupational, or other important areas of functioning (ICD-11).

The dynamic interaction of genetic, biological and psychosocial influences explains the impact of different risks factors on children developing mental health problem. Studies have demonstrated that inadequate cognitive stimulation, stunting, iodine deficiency; iron-deficiency anemia, malaria, HIV, IUGR, lead exposure, maternal depression, institutionalization and exposure to violence are key risk factors that prevent young children from attaining their developmental potential whereas some other factors are considered as protective (Walker *et al.*, 2011). The list of protective factors is not exhaustive

and we can mention among other factors the biological factors (e.g. good physical health, good intellectual development), the psychological factors (e.g. good self-esteem, high level of problem-solving ability), the social factors (e.g. family attachment, opportunities for involvement in school life, connectedness to community). These risk and protective factors vary among children according to the developmental stages (WHO, 2005).

Even if physical health is cited as one of the determinants of mental health, for many years, Global Health policy makers concentrated their efforts at addressing pediatric physical conditions which have a direct impact on children mortality and did not recognize Child and Adolescent Mental Health as a subspecialty which should be considered apart instead of being confused in the mainstream of adult mental health (Omigbodun, 2012).

2.2. Child and Adolescent Mental Health services

Pre-modern societies have neither recognized disparities among children nor considered disparities as a serious issue. It is in recent decades that societies have started to recognize the implication of child developmental stages on particular children needs. Following this awareness, advocacy for these children has started, research in CAMH has started to proliferate, services for special needs and social exceptionalities like adverse childhood experiences have started to be available in governmental and nongovernmental organizations and initiatives to decrease disparities have been implemented. Then it was time to elaborate the interventions in order to mitigate these disparities. For this end, a focus of national policy was required. Nowadays, professional and political awareness is increasing; one of the remaining challenges is to deliver effective services (Rey *et al.*, 2015).

There is evidence that the provision of mental health services is not the same in all countries for different reasons. However, WHO recommends an optimal mix of mental health services in the community with

highest concentration at the individual level, followed by services provided in primary care, community mental health services and services in general hospitals, then the mental hospitals being the last level where less mental health services are needed (WHO, 2005)

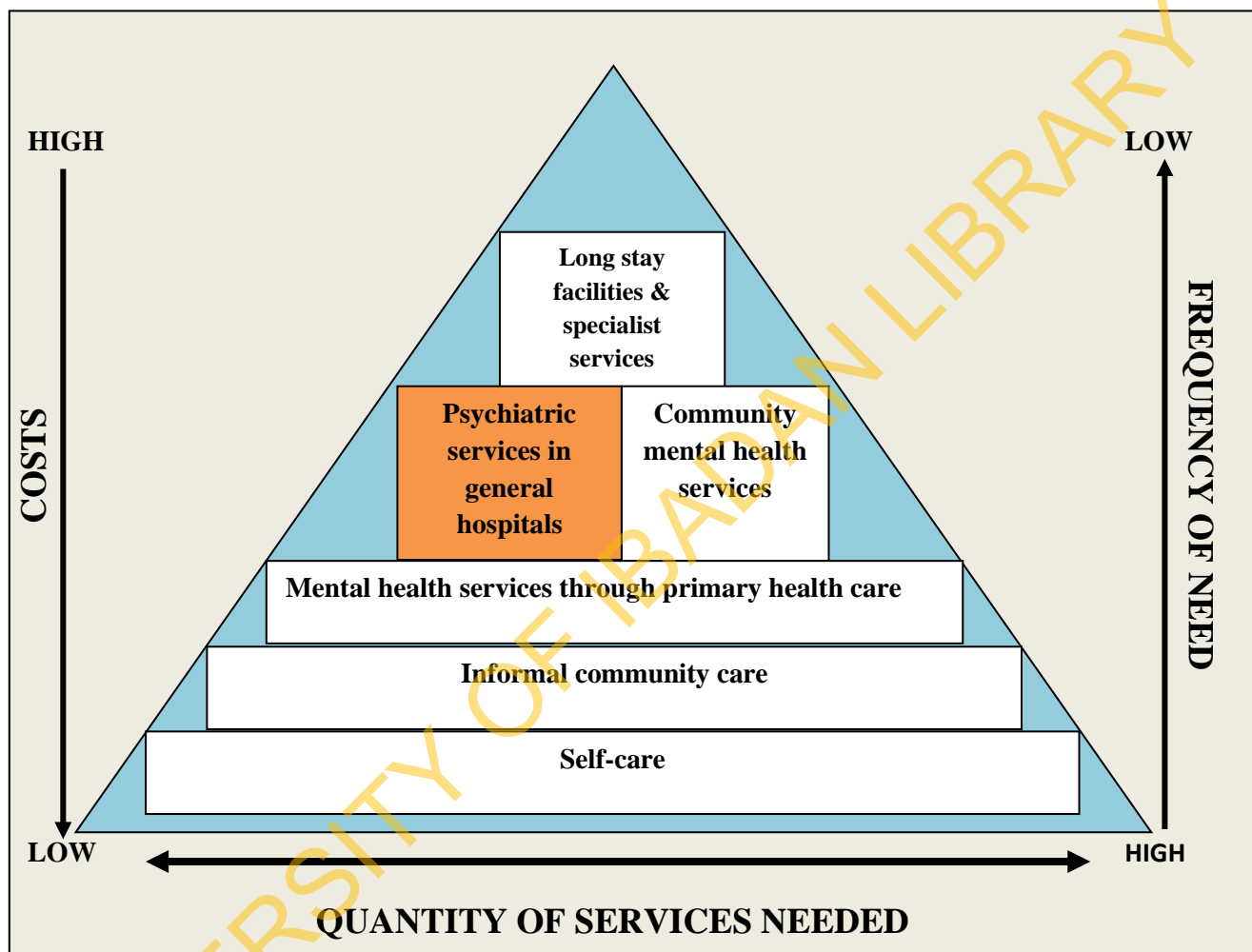


Figure 2.2. Quantity of mental health services hierarchy

2.3. Knowledge of and attitudes in relation to Mental Health

The concept of knowledge has been defined as understanding or information about a subject which a person gets by experience or study and which is either in a person’s mind or known by people generally; the concept of attitude is defined as a feeling or opinion about something or someone or a way of

behaving that is caused by this (Cambridge Advanced Learner's Dictionary, 3rd Ed.). This definition of attitude includes both psychological and social definition of attitude and raises the issue of misunderstanding about the relationship between attitude and behaviour. Referring to the psychological definition, attitude is a direct determinant of behaviour while, referring to social definition, attitude should be simply an intention that doesn't necessarily lead to action. Taking into account both definitions, prejudice or discrimination can be reduced by changing attitude or by changing behaviour (Chaiklin, 2011).

Attitude and knowledge are included in mental health literacy which includes the ability of identification of mental disorders, their treatment and etiologies and having attitude in favor of mental health promotion (Wu *et al.*, 2017). Therefore, attitude and knowledge are interrelated with behaviour. Psychologists have described behaviour as comprised of capability (physical or psychological), opportunity (social or physical) and motivation (automatic or reflective) to perform an act (Michie, Stralen and West, 2011). The interrelation of attitude and behaviour has motivated some researchers to state that intervention aiming at behavioural change should focus first on knowledge and attitudes as determinants of the intervention successfulness (Varnell, Haas, Duke and Hudson, 2008).

As far as mental health stigma is concerned, Corrigan (2008) has classified mental health stigma into three groups: The first group is the *public stigma* which consists of harmful acts to people with mental illness by the way of prejudice and discrimination from general population such as employers, health care providers, governmental officials or faith community members. The second group is the *self-stigma* which consists of that harm that can occur when people have set some barriers against achieving some of their potentials either by low self-esteem or when they are underestimated by their family members. The third group is *label avoidance*. This may not be necessarily attributed to a physical person

but it is a kind of social segregation by which a group of people who have mental disorders are receiving services at a specific place without mixing with other people (Corrigan, 2008).

The issue of stigma has also been studied according to the level of social layer where stigma is found. We can find stigma at intrapersonal level, stigma at interpersonal level, stigma at community level, stigma at organizational and stigma at governmental level. There are appropriate interventions for each level (Rao et al., 2019).

Researchers have used or modified existing different knowledge or stigma measures depending on the research questions that they wanted to address and the target group of people where they are intended to be used. We can cite as example the Social Distance Scale, Opinions about the Mental Illness (OMI) and the Community Attitudes towards the Mentally Ill (CAMI), Attribution Measures, Emotional Reaction to Mental Illness Scale, etc. (Yang and Link, 2015). A systematic review of 401 studies on mental health literacy found that the most widely used knowledge measure was the Mental Health Literacy Questionnaire while the most widely used measure for stigma was the Social Distance. There is however still a concern of validation of existing tools because even if most of the existing tools were validated, there are still to be adapted on cultural context where they are intended to be used (Wei *et al.*, 2016). Apart from that, still there are some questions to solve in the future with regard to development of attitude measure such as distinguishing stigma of the “label” vs. stigma of mental illness “symptoms and experience”; implicit attitude of stigma; assessment of structural discrimination related to mental illness; assessment of culture-specific aspects of stigma. Another issue which was highlighted is that some measures cannot exclude social desirability bias; self-reported bias and sometimes can confound intentions and actual behaviour (Wei *et al.*, 2015; Yang and Link, 2015).

2.4. Importance of training for change of knowledge and attitude in relation to CAMH

Given the shortage of child and adolescent mental health specialists, general health care providers such as doctors and nurses need to be trained in order to help children and adolescents within the limits of their functions (WHO, 2005).

A meta-analysis conducted in Iran to assess the effect of educational intervention on change of knowledge and attitudes among health personnel in the program of integration of mental health in PHC has highlighted both a short and long term (one year) positive change (Mansouri *et al.*, 2009). A study conducted in Uganda among cadres of non-specialist health workers has proven a difference in CAMH knowledge between clinical officers and general nurses as well as a difference in change of knowledge after an in-service CAMH training programme (Akol *et al.*, 2017). In New York, a training programme was provided to primary health care providers aiming at encouraging and sustaining the integration of Child Mental Health into Primary Care. For most of them, the awareness of burden of children mental health problems as well as some families' needs for their children to be treated in Primary Health Care facilities were among the motives to participate in this training. The majority of participants were pediatricians and they demonstrated positive attitudes regarding inclusion of Mental Health care in pediatric primary care. They demonstrated also a change in knowledge, confidence and comfort with regard to addressing mental health problems (Gadomski *et al.*, 2015). A study conducted in Netherlands among GPs by introducing Mental Health programme besides routine care in primary health care to assess the effect of intervention on change of awareness and practices revealed a change in identification of mental problems in children and adolescent as well as a shift in referral from the specialized health care providers to MH care providers at primary level (Verhaak *et al.*, 2015).

Some barriers have been identified in relation to adoption of innovation and evidence-based practices for children and adolescents. In a study conducted with 75 agency chief executive officers and

programme directors of 34 New York State-licensed mental health clinics serving children and adolescents, the staff training cost was found to be the main barrier of implementation of a new program or practices. Staff turnover is another challenge associated with training. Certainly, lack of trained staff is an important barrier to implementation of evidence-based practices (Gadomski *et al.*, 2015).

2.5. Mental disorders at Pediatric Emergency

Emergent psychiatric problems in children that visit pediatric or general emergency unit include: delirium, aggression, violence, psychosis, self-harm, physical and sexual abuse, drug abuse, conduct disorder, anxiety disorders, and conversion disorders (Tolulope, Ibeziako and Omigbodun, 2012). A 4-year study conducted in Alberta (Canada) found that a high number of mental health cases were predominantly due to substance misuses (41.3%), anxiety disorders (32.5%) and mood disorders (21,4%) (Newton *et al.*, 2009). As far as gender distribution is concerned, a 2-year cross-sectional study conducted in one hospital in Spain revealed that 18% of pediatric emergency visits were psychiatric cases. Of this number, 52.4% of emergent cases were male predominantly visiting for Behavioural Disorders, Substance Use Disorders and Psychosis whereas female patients were 30.2% predominantly visiting for Self- harm Behaviours and Eating Disorders (Montserrat, Rebecca and Joan-Carles, *et al.*, 2016). A study carried out in Canada among adolescents to evaluate the likelihood for revisiting the Pediatric Emergency department for psychotic symptoms revealed that adolescents who underwent multiple physician visits after discharge are prone to sooner revisit the Emergency department (Soleimani, Rosychuk and Newton, 2016).

2.6. Correlation between a physical pediatric illness and mental illness

Psychiatric assessments conducted on randomly selected hospitalized pediatric patients suggested that as many as two-thirds of children admitted to pediatric wards would benefit from a child or adolescent

psychiatry consultation. In fact, the child or adolescent age determines the conception of illness and this can have effect on psychological reaction. Infants don't conceive what illness is, they consider it as external agent. For young children, illness may be a punishment for misdeeds committed or imagined, while preschool children start to understand the contagion theory of illness. Paradoxically, in adolescents who are older and are supposed to have an advanced understanding of what illness is, somewhat immature the understanding may reappear or persist. This is because adolescents may behave as if they were invincible and immortal. This understanding of illness has something to do with developing a mental problem and the more serious the illness or injury (especially head injury), the more likely it is that behavioral reaction will arise (Melvin, 1996).

The connectedness between mental and some communicable and non-communicable diseases may be explained by the fact that both categories of disorders can have a common genetic or environmental risk factor while other mental disorders may be caused by a direct affection of the brain by an illness like malaria, HIV, cancer, etc. There is also a hormonal and neurotransmitters effect as in case of depression where a physical disorder may be induced via serotonin and cortisol metabolisms or via cell-mediated immunity. Hence, depression has been found to be associated with cardiovascular diseases, obesity or diabetes (Prince *et al.*, 2007). A study conducted in USA to evaluate the contribution of multiple chronic conditions to pediatric hospitalizations has demonstrated that children with a mental health condition and at least 1 additional chronic condition accounted for 20.2% and children with a mental health condition without an additional chronic condition were 13.3%. The most common mental health conditions were substance use disorders and depression (Berry *et al.*, 2017). When the chronic illness starts in early childhood, the child is more likely to have a developmental retardation and subsequently delayed school readiness regardless of the number or severity of the chronic disease. As an example having chronic otitis media is enough to cause developmental delay (Bell *et al.*, 2016).

Chronic malnutrition may also predispose to developmental delay especially if it starts between 6-30 months (Deepak *et al.*, 2017).

HIV has been reported as one chronic disorder which is associated with mental disorders. However HIV- affected children (whose caregiver is HIV positive or died of HIV/AIDS) have also the same mental disorders as children who are living with HIV and any public health intervention intended for HIV positive children should be intended at the same extent for HIV affected children (Betancourt *et al.*, 2016).

Children affected by mental disorders may develop physical illnesses as side-effect of psychotropic medications. The antipsychotics and antidepressants are common prescribed medications and were found to be associated with parkinsonian symptoms (tremor), dystonia (abnormal face and body movement), tardive dyskinesia (rhythmic, involuntary movement of the tongue, face and jaw), hypotension and interference with temperature are dose related side-effects, neuroleptic malignant syndrome (hyperthermia, confusion, pallor, tachycardia) . Other side effects including agitation, convulsion, headache, confusions, gastrointestinal disturbances, hyponatremia, arrhythmias, heart block, postural hypotension, tachycardia, ECG changes were also cited (BNF 2010-2011). Nevertheless, clinicians are not complying with therapeutic guidelines on physical health monitoring in children and adolescents who are taking these medications as it has been found in UK (Pasha, Saeed and Drewek, 2015; Sundar and Sharafat, 2018).

The caregiver (most of the time the mother)'s mental status can also impact on the child's physical problem in case the affected mother will not comply with preventive measures. A typical example is a depressed mother who may not be cautious to use mosquito nets in malaria-endemic regions

(Omigbodun, 2012). Depression can also develop among caregivers of chronically severely ill children (Vicentic *et al.*, 2016).

The correlation between physical and mental health in pediatric population has motivated some youth protection organizations to recommend universal mental health screening in pediatric primary care. However, the ethical aspect of this intervention is not yet taken into account (Comer and Kelleher, 2014). The Pediatric Symptoms Checklist is a tool that includes items to screen for psychosocial problems but the tool needs to be adapted because some behavioural health problems are not recognized (Chaffin M. *et al.*, 2016). A research conducted among children with Pediatric Acute-onset Neuropsychiatric Syndrome associated with streptococcal infection has highlighted that the management of mental disorders in pediatric settings is a key for a better prognosis of physical condition as it results in good compliance and adherence to therapeutic interventions (Thienemann *et al.*, 2017).

2.7. Mental problems associated with use of pediatric services

We can understand the relationship between young people's mental vulnerability and chronic illnesses or hospital stay duration by a couple of studies conducted among young adults: In a study conducted in USA, young adult survivors of childhood leukemia have been demonstrated to have symptoms of depression and symptoms of Post-Traumatic Stress more than their older peers (Zeltzer *et al.*, 2009). Another study conducted in Tasmania Hospital (Australia) to assess the hospital length of stay variation and co-morbidity mental illness found that the younger the patients were, the higher was the prevalence of mental illness (Siddiqui *et al.*, 2018).

Not only can a physical disorder contribute to a mental disorder, but also a co morbid mood and anxiety disorder can develop at the time of diagnosis of a physical illness or during hospitalization. In pediatric patients hospitalized for pneumonia, a co morbid mood or anxiety disorder was found to be associated

with increased odds of complications and longer hospital stay (Mayne *et al.*, 2016). A study conducted in Ontario, Canada, found that the time of diagnosis for a physical disorder is associated with development of mental problems mainly the anxiety disorders. However the proportion of mental disorders appears to decrease six months later. This co morbidity (both physical and mental disorders) is attributed to poor psychological wellbeing (Butler *et al.*, 2018). Anxiety disorders can also occur as a reaction to major pediatric treatment technique (example: bone marrow transplantation, extensive surgical repair) (Jonathan and Melvin, 1996) while the intensive therapeutic procedures was found to be one of the predisposing factor to developing mental problems especially PTSD (Zebrack *et al.*, 2002).

Anxiety disorders and depression were identified to be associated with asthma crises as well as elevated medical service use for asthma. However a causal relationship was not established because the study was not able to control for confounding factors (Godwin, 2009; Goodwin, 2012). Melvin *et al.* (1996) mentioned this relationship in a way where a psychological stress precipitates the acute episodes of asthma, diabetic acidosis or ulcerative colitis. This development of mental disorders associated with asthma extends far to the developmental problems (learning developmental delay, hearing impairment, and sleep and speech problems) as asthma co morbidities (Ahmed and Korgaonkar, 2015).

2.8. General Practitioners knowledge, attitudes and practices towards CAMH

Currently, General Practitioners and pediatricians working at primary health care level are managing different mental disorders. In fact mental health problems like Learning Disorders, Hyperkinetic Disorder (ADHD), Tourette's syndrome, Depression and associated suicide and Psychosis, are common at primary health care level and the GP is the first treating doctor (in countries where primary care is provided by a GP), whereas other disorders like Pervasive Development Disorders, Attachment

Disorders, Anxiety Disorders, Conduct Disorders, and Eating Disorders should be considered for treatment at higher levels complexities (WHO, 2003)

Practically, GPs base their treatment of mental disorders on pharmacotherapy, support therapy, and psycho-education. There have been difficulties associated with this model of healthcare practice. In Canada, it was found that GPs use clinical intuition with few clinical tools (Fleury *et al.*, 2012). A systematic review highlighted that confidence, time, knowledge, reimbursement and lack of providers and resources pose the biggest barriers for primary care practitioners in recognizing and diagnosing mental health problems in young people (Brien *et al.*, 2016). A study conducted in UK showed that detecting signs and symptoms of mental illness in young people is a challenge for GPs and this impacts on their referral which are sometimes rejected by child and adolescent mental health specialists (Hinrichs *et al.*, 2012). It is understandable that GPs hit many obstacles in their practice because of their limited knowledge or poor collaboration with psychiatrists. The use of standardized tools is not efficient and we can see that one mental disorder can be managed differently. The example is the management of depressive disorders which can be managed by GPs with medications, psychotherapy or both medication and psychotherapy regardless of severity of symptoms as it was evidenced in France (Verger, 2018).

A challenge in benzodiazepines use among General Practitioners was highlighted in a systematic review conducted in seven western countries. The study found that there is no a standardized approach rather each GP choose his or her individual approach depending on his/her empathy to his/her patients or the satisfaction of will of patients. GPs face the same challenges with withdrawal of benzodiazepines. This can be explained by the fact that GP are assuming specialists responsibilities (Sirdifield *et al.*, 2013) .

To mitigate a situation like this, a joint consultation with CAMHS has been proven to be effective for management of common mental disorders and for GPs learning. This kind of service also benefits patients (Seierstad *et al.*, 2017). This joint collaboration may extend to other paramedical professionals like pharmacists. In fact, we can note that, as far as management of anxiety disorder is considered, collaborative team-based models that include clinical pharmacists in primary care can assist in optimizing high-risk benzodiazepine use (Furbish, Kroehl and Loeb, 2017). An interventional study has proven the GPs readiness for behaviour change and adherence to guidelines. This change was found to be durable and it consists of coping with psychological treatments instead of using benzodiazepines as first line of treatment (Creupelandt *et al.*, 2017).

Still talking about the management of children's' mental health problems, there was a non-proven complaint by GPs that it might be time consuming. However these subjective or even objective increased workloads for the GPs who devote their time to assess the patients with mental disorders have not been proven by studies. Rather the perceptions of GPs in relation to their role towards mental disorders is linked to their involvement in the management of these patients and their overall workload may not be affected (Zantinge *et al.*, 2006). In fact, the development of assessment skills is developed through experience. A focus-group study conducted in Denmark among GPs has revealed that the exposure to learning experiences on assessment has developed their skills to observe children's behaviors or children-parents interactions in order to detect some mental disorders during the physical examination (Lykke, Christensen and Reventlow, 2013).

2.9. Pediatricians perceptions and Attitudes towards Child and Adolescent Mental Health

Some physical disorders are caused by an underlying mental disorder and pediatricians are sometimes not able to diagnose or to manage the mental health aspect of such a disorder, rather they focus on

physical aspect. We can cite as example the management of physical complication of anorexia nervosa regardless of underlying mental aspect of the problem (Emel A.*et al.*, 2018). This malpractice has been highlighted also in China where pediatricians fail to recognize the magnitude of pain induced by some medical procedures like lumbar puncture, bone marrow aspiration, catheterization which may worsen the mental condition by inducing anxiety disorder (Wang *et al.*, 2017).

An inadequate understanding of some mental disorders symptoms and management approach may hinder optimal decision making or may create a discrepancy in pediatricians and parents expectations. In Switzerland, one example of developed countries, pediatricians are aware of children's mental disorders and they are comfortable with diagnostic tools as well as some specialized interventions such as counseling and psychotherapy. However they are more comfortable with detecting the externalizing disorders like ADHD, while it is hard to detect anxiety and depressive symptoms (In-albon, Zumsteg and Schneider, 2010). A descriptive study conducted among pediatricians to assess their belief, perception and themes related to efficacy, tolerability and safety of antidepressants in youth with anxiety and depressive disorders found that, in general, pediatricians reported antidepressant to be effective and well tolerated. However, the likelihood of individual physicians initiating an antidepressant was significantly lower for anxiety disorders relative to depressive disorders with similar functional impairment (Jones *et al.*, 2016). Hence, understanding and addressing the attitudes and beliefs that underlie both mental health and pediatric healthcare providers' decisions to engage in inter-professional communication is essential to establishing an optimal collaboration between them (Reis *et al.*, 2017).

2.10. Nurses' knowledge, attitudes and practices in relation to CAMH

In some parts of the world, mental health nurses assume the responsibilities of assessment and treatment of mental problems among children in general and specialized hospitals. School nurses found in western countries (e.g.UK) have a key role in promoting emotional wellbeing among pupils (RCN, 2017). With the new trends of integration of mental health services in general hospitals, general nurses will participate in assessment and treatment of children and adolescent with mental health problems and this approach will increase CAMH services. The benefits of integrated care include access to care, closing the treatment gap for mental health disorders and cost effectiveness (IACAPAP, 2018). It is in these perspectives that in Liberia presently nurses, midwives and physicians are receiving a 6-month post basic training in CAMH which is ended with a certification for independent practice as CAMH clinician (IACAPAP 2018). In fact, despite many challenges, nurses can assume heavy responsibilities of management of mental cases and coordinating the referrals to specialists as it has been proven by rural generalist nurses in South-West Victoria who reported that they assume these tasks in spite of their limited knowledge and feeling unsupported (Beks, Healey and Schlicht, 2018).

Limited knowledge and stigmatizing attitudes toward CAMH also were reported among nurses in developing as well as developed countries: a survey conducted among doctors and nurses in Nigeria at Federal Neuropsychiatric Hospital, Enugu and at Enugu State University Teaching Hospital using the Community Attitude to Mental Illness questionnaire revealed that stigmatizing attitudes were significantly higher in doctors and nurses especially those who were working in non-psychiatric hospital and had lower years of working experience (Ubaka *et al.*, 2018). Low mental health literacy was also identified among school nurses in United Arab Emirates (Yateem *et al.*, 2018). Another study conducted in United Arab Emirates found that almost a half of doctors and nurses working with children in pediatric departments were not able to recognize symptoms of PTSD, depression with suicidal

ideation and they could not provide appropriate care for children with these mental disorders (Al-yateem *et al.*, 2017). A study conducted among oncology nurses to evaluate their strategies and barriers to identify psychological distress in their patients found that they were able to interpret some emotional, behavioral or verbal communication as indicators of distress. Nurses have reported some barriers hindering accurate identification of psychological distress such as lack of training, concealment of distress by patients, and issue of time. Some of emotional or behavioural manifestations identified by nurses are indicators of major depressive disorder (Granek *et al.*, 2019). However, oncology nurses are also stressed by their workload and patients' deaths or dying (Ko and Kiser-larson, 2016). A study conducted in Sydney among PHC health professionals (81.4% were nurses) found a limited knowledge of depression assessment and management among health professionals and they pointed out that they felt uncomfortable when working with depressed patients (Mulango *et al.*, 2018).

Knowledge and attitude are sometimes interrelated as it was demonstrated by a research conducted to evaluate factors affecting nurses' performance in family nursing care. In fact, attitude was the first factor before motivation and personality (Sovia, *et al.*, 2019). Even if so, mental health care providers' attitudes can be determined by other factors. A study conducted among mental health care providers to evaluate their attitudes towards adoption of evidence-based interventions highlighted that clinicians had less positive attitudes than non-clinicians and this was attributed to social and psychological factors in the working place as well as staff role (Rye M, *et al.*, 2019) whereas environmental factors, and patient-related factors were determinants of confidence in assessing mental health patients (Jelinek *et al.*, 2013).

2.11. Pediatric residents' knowledge and attitudes in relation to CAMH

All over the world pediatric residents are responsible for assessment and treatment of pediatric patients and it is part of their training. Unfortunately, it was proven that pediatric residents' training does not

consider CAMH as priority and they are not trained as those who are supposed to assume responsibilities such as counseling of patients and families (Mcmillan, Jr and Leslie, 2017). Ignorance of social aspects of diseases and making treatment errors consecutive to burn-out was reported among pediatric residents in New England (Baer, Feraco and Sagalowsky, 2017). Residents have also pointed out their insufficient knowledge of ADHD diagnosis and they have reported inadequate coping strategies such as ignoring mental health concerns. However, a study conducted in USA highlighted that 100% of pediatric residents perceived that screening for depression and suicidal ideation among adolescent is in the scope of their practice but the sample size was too small to conclude on that (Kershner, Hooper and Gold, 2009).

Word count: 4764

CHAPTER THREE

METHODOLOGY

3.1. Study area

The study was conducted in pediatric units at Kigali University Teaching Hospital (KUTH), Butare University Teaching Hospital (BUTH) and Rwanda Military Hospital (RMH). These hospitals are general hospitals offering tertiary healthcare services in Rwanda. One other hospital (King Faisal Hospital) was to be included in study but at the time of conducting this study administrative departments at KFH were being restructured and this delayed the authorization of data collection.

According to the Rwanda Ministry of Health (Ministry of Health, 2017), the hospitals ranked as tertiary level health facilities are the national referral hospitals and the University Teaching Hospitals (KUTH, BUTH, RMH, KFH and Ndera Neuropsychiatric Hospital) as well as the referral hospitals (Kibuye Referral Hospital, Ruhengeri Referral Hospital and Kibungo Referral Hospital). We excluded these last three hospitals because they have been recently ranked as tertiary health facilities but they are still offering secondary level health services. We also excluded Ndera Neuropsychiatric Hospital because it is a specialized hospital and does not have a pediatric unit.

Kigali University Teaching Hospital (KUTH) is situated in Rwandan capital, Kigali. The hospital is considered as the main referral hospital in Rwanda. The pediatric unit is the largest in the country. It is divided into different wards according to pediatric subunits: Emergency Room receives all pediatric emergencies except Accidents and Burns which are treated at hospital general emergency; Pediatric Neurosurgery ward for pre or post-operative hospitalization of neurosurgical cases, Chronic Diseases ward for pediatric chronic diseases except cardiovascular, hematological and cancer diseases which are

treated in their specific wards, Pediatric Intensive Care Unit (PICU), High Dependent Unit, Cardiology, Oncology, General Ward , Neonatology and Neonatal Intensive Care, Out-Patients unit, HIV unit for out-patients.

Butare University Teaching Hospital is situated in Butare city, 134 Km from Kigali. The unit of Pediatrics is subdivided into Out-patients unit, Emergency Room, Neonatology, Neonatal Intensive Care Unit, three wards for hospitalization. In the hospitalization wards there is no subdivision of wards according to subspecialties, but in one ward a specific place may be allocated to specific cases for the sake of patients' better management. The hospital Intensive Care Unit is one for pediatric and adult patients.

Rwanda Military Hospital is situated in Kigali Capital, 15 km from KUTH. It was built in 1968 at Kanombe in Kigali city as a Military Referral Hospital. In the beginning, it was providing health care services to the military and their immediate family before being opened to the general population. Today the hospital offers tertiary medical care. The pediatric unit is composed by Out-patients unit, Emergency Room, Neonatology, Neonatal Intensive Care Unit and two wards for hospitalization. The hospital Intensive Care Unit is one for pediatric and adult patients. The department of Pediatrics also runs other pediatric subspecialties: Pediatric Endocrinology, Medical Genetics and Pediatric Cardiology for out-patients.

KUTH, BUTH and RMH have a unit of Psychiatry for out-patients consultations with staff composed of psychiatrists, clinical psychologists, as well as mental health nurses. In all 4 hospitals, a psychologist and a social worker are attached to the pediatric unit and work in collaboration with the general staff. Clinical activities in each ward are run by one or two pediatricians who work with pediatric residents and nurses. Medical and nursing students work as clerks under supervision of regular clinical staff.

Pediatric residents make monthly rotations within or between hospitals in different wards. Some pediatricians are permanent hospital staffs while other work for HRH program, through which some faculty members from United States institutions are sent to Rwanda to mentor local health professionals and teach students in different disciplines.

Rwanda is situated in east Africa and is a crowded country with a population averaging 12 million on 26338km² of surface. It shares its northern border with Uganda, southern border with Burundi, western border with Democratic Republic of Congo and eastern border with Republic of Tanzania.

The population is predominantly young and there is no remarkable influence of religion or ethnicity on Rwandan culture because culture appears to be homogeneous across the whole country. Kinyarwanda is the common national and official language before English and French which are second official languages and languages of education.

As far as health professionals' training is concerned, most nurses working at tertiary level have three years of university education in nursing while a few have a bachelor's degree or other post-graduate training. On medical side, doctors are mostly residents whose responsibility for caring for patients is part of their training. The residency programme is done in four years that end with the qualification as a Pediatrician. Among pediatricians, a few of them have other sub-specializations like pediatric cardiology, neonatology, endocrinology or oncology.

3.2. Study design

This is a cross-sectional study assessing doctors' and nurses' knowledge and attitude in relation to Child and Adolescent Mental Health.



Figure 3: Map of Rwanda

3.3. Study population

Our study was conducted on medical doctors and general nurses working as clinicians in pediatric units at selected tertiary hospitals in Rwanda. The following table (Table 3.3a) illustrates the distribution of our population in the specific hospitals, while Table 3.3b illustrates the proportions of respondents in four tertiary hospitals.

	KUTH	BUTH	RMH	KFH	TOTAL
Nurses	68	42	61	20	192
Doctors	33	14	14	10	71
Total	101	56	75	31	264

Table 3.3a: Population distribution in four tertiary hospitals

		KUTH			BUTH			RMH			KFH		
		No	Resp.	%	No	Resp.	%	No	Resp.	%	No	Resp.	%
Nurses		68	55	80	42	39	86	61	57	93	20	0	0
Doctors	Pediatricians	13	6	46	6	5	83	6	5	83	4	0	0
	Residents	18	18	94	5	5	80	6	4	66	6	0	0
	GP	2	0	0	3	3	100	2	2	100	0	0	0
TOTAL		101	79	77	56	52	91	75	68	90	30	0	0

No: Number of staff; Resp.: number of respondents

Table 3.3b: Respondents' proportions in four tertiary hospitals

3.3.1. Inclusion criteria

Being a medical doctor (Pediatrician, Resident or General Practitioner) or General Nurse and presently involved in patients care in pediatric unit and providing written consent.

3.3.2. Exclusion criteria

Non regular doctors or nurses (like internees or visitors), nurses and doctors not involved in patient care.

3.4. Sample size estimation

The sample size was given by the formula: $Z^2 p (1-p)/d^2$ where:

Z^2 is the standard normal deviate which at 5% level of significance (i.e. $p = 0.05$) is 1.96.

$p=0.75$ (the expected proportion of respondents who will endorse the statement “children and adolescents with mental illness can be dangerous to the society” referring to a previous study that was carried out in Nigeria among health professionals at Jos University Teaching Hospital, Nigeria, (Tungchama, 2014)).

d = level of precision in the estimate which is typically taken as 5% (0.05).

The calculations give $N=1.96^2 \times 0.75(1-0.75)/0.05^2$

$N = 288$

Allowing for 10% non-response, $N = 288+28=316$

Given the total size of target population was 264 participants, we decided to include everyone in the target population.

3.5. Study procedures

3.5.1. Instruments

We used a questionnaire to collect socio-demographic characteristics and information on knowledge of and attitudes towards CAMH problems among doctors and nurses working with children in pediatric units. The questionnaire was compiled from following instruments:

1. *Socio-demographic questionnaire*

2. *General knowledge of CAMH*
3. *Knowledge of Child and Adolescent Mental Health in Pediatric Setting*
4. *Attribution Questionnaire*
5. *Stigmatizing attitude scale*

The questionnaire was subdivided into three sections:

Section 1: Socio-demographic information

A semi structured questionnaire developed by the researcher was used to collect information on age, gender, religion, nationality, qualification, place of work, experience (years) of working with children in referral or outside the referral hospital , history of training on CAMH or participation in CPD on CAMH.

Section 2: Knowledge of children and adolescents mental health

A structured questionnaire obtained information on doctors' and nurses' knowledge in relation to Child and Adolescent Mental Health. This questionnaire was subdivided into two parts:

A. CAMH general knowledge questionnaire

This part was composed of 16 items including eight items adapted from a 29-item questionnaire which was validated in Nigeria by Bella (Bella, 2011) to test CAMH knowledge among teachers. The researcher retained those items which test the general knowledge about mental health and modified the following items in order to make them more understandable: “Epilepsy can lead to a child developing a mental health problem” instead of “Epilepsy is a type of mental health problem”; “Mental health problems can be managed with talking to the counselor” instead of “ Mental health problems can be managed by simple measures like counseling”; Parental involvement may be necessary in the

management of mental health problems” instead of “Parental involvement is necessary in the management of mental health problems”. The other eight items were adapted from an adapted version of UK Pinfold questionnaire, which collects information about knowledge of mental illness, attitude towards, and desire for social distance from persons with mental illness, and had been adapted, translated and validated for use in Nigeria (Bella, *et al.*, 2014). The researcher made adaptation of some items like: “Mental health problems can be caused by exam stress” instead of “Mental health problems can be caused by stress”; “About one in four people will develop mental illness over the course of a lifetime” instead of “One in four people will develop mental illness over the course of a lifetime”. Two other items were developed by the researcher: “Mental illness can only be treated with medication”, and “Mental illness is best treated by traditional healers”.

This part collected information on general knowledge around three themes: *aetiology of a mental illness* (explored by items 11, 17, 18, 20, 21, 22), *treatment of a mental health problem* (explored by items 14, 15), *epidemiology of mental health problems in children and adolescents* (explored by items 10, 19), *recognition of children common mental disorders like ADHD and depression* (explored by items 12, 13), *recovery of a mental disorder* (explored by item 24). Knowledge was assessed on 3-Likert categorical responses as: *True, False, Don't know*. A score of 0 was given to each incorrect and ‘don’t know’ answer; while a score of 1 was given to each correct answer. The minimal score was 0; the maximal score was 16.

B. Knowledge of Child and Adolescent Mental Health in Pediatric Setting

This part is composed of twenty-one items developed by the researcher based on existing literature (mhGAP, 2016 ; IACAPAP Textbook, 2012; Melvin, 1996; Berry *et al.*, 2017; Bell *et al.*, 2016; Zebrack *et al.*, 2002; Siddiqui *et al.*, 2018; etc.) to assess the doctors’ and nurses’ knowledge in pediatric

unit. These items collected information around three themes: *recognition of mental disorders in pediatric patients* (explored by items 33, 38,40,41,43,45), *assessment of mental problems in pediatric patients* (explored by item 46), *interface of mental and physical disorders* (explored by items 27, 28,29,30,31,35,36,37,39,44), *treatment of children' and adolescents' mental disorders* (explored by items 26, 32, 34, 42).

On this part, knowledge was assessed on 3-Likert scales as *True, False, Don't know*. A score of 0 was given to each incorrect and 'don't know' answer, a score of 1 was given to each correct answer. The minimal score was 0, the maximal score was 21.

A copy of the questionnaire in the list of appendices shows how scores were assigned based on whether the response was true or false.

Section 3: Attitudes towards children and adolescent mental health problems

Doctor's and nurses' attitudes towards children with mental health problems were assessed with two questionnaires:

A. Attribution questionnaire

This is a measurement focusing on respondent's emotional reaction, behavioral reaction or responsibility towards a stigmatizing situation (Yang and Link, 2015). This questionnaire was composed of nine items which were adapted from the 9 item-Attribution Questionnaire developed by Patrick Corrigan (Corrigan, 2008). Questions are introduced by a scenario of a 15 years old adolescent with psychotic symptoms. The scenario was followed by questions to test respondents' attitudes towards the adolescent in the scenario on 9 stereotypes: *blame* (item 50), *anger* (item 53), *pity* (item 48), *help* (item 56), *dangerousness* (item 49), *fear* (item 51), *avoidance* (item 54), *segregation* (item 52), and *coercion* (item 55). The researcher adapted the response format to a 4-Likert scale (*not at all, somehow, much,*

very much) instead of 9 as in original questionnaire. The reason is that a very long scale may confuse the respondents. The researcher also reformulated the clinical case in order to make it more understandable. Answers were given a score from 1 to 4, with higher scores indicating more negative attitude (range 9-36).

B. Stigmatizing attitude scale questionnaire

This questionnaire is composed of 15 items which were used in a previous study conducted at Jos University Teaching Hospital, Nigeria to assess the stigmatizing attitudes among health professionals towards children and adolescents with mental health difficulties (Tungchama, 2014) and which were adapted from previous studies conducted in Nigeria to assess respondent's willingness to interact with a child with a mental illness in different scales of social relationship. On this questionnaire, answers were given as YES or NO. The score of 1 was given to all answers which showed respondent's negative attitude while the score of 0 was given to all answers which showed respondent's positive attitude in order to make score range from 0 to 15 (higher scores indicate more stigmatizing attitude).

A copy of the questionnaire in the list of appendices shows how scores were assigned based on whether the response provided information on respondent's negative or positive attitude.

3.5.2. Validation and translation of the instrument

The original copy of this questionnaire was composed in English which is the official language of education in Rwanda since 2009 and the language used in medical practice in referral hospitals. It was then translated into French, the second official language in Rwanda.

This questionnaire was checked for face validity by three supervisors of this research who are experts in Child and Adolescent Mental Health. They also contributed to the composition of some items and checked that the items are understandable and comprehensive.

3.5.3. Pretesting the questionnaire

The questionnaire was pretested to a group of doctors and nurses working in pediatric department at Muhima Hospital, a former branch of Kigali University Teaching Hospital. The objective of this pilot study was to clarify wording and understandability of items and to estimate the internal consistency. We included in the pilot study 12 nurses and 5 doctors. The questionnaire was distributed by the investigator himself and participants were instructed to answer to all questions and to indicate a question which seems to be semantically not understandable. None of the respondents reported any issue of language or misunderstanding of questions but almost all of them pointed out a misunderstanding of some items because of lack of knowledge of mental health field. This issue was addressed by adding 'DON'T KNOW' option among possible answers and it was scored as an incorrect answer. The answers were used to calculate Cronbach's-alpha coefficient which was 0.72 on general knowledge items, 0.80 on CAMH knowledge in pediatric setting, 0.91 on attribution questionnaire and 0.80 on stigmatizing attitude questionnaire. These results mean that the items have a high internal consistency.

3.5.4. Administration of the instrument

The administration of the questionnaire was done by the investigator and his assistants recruited from local staff and who had been trained by the researcher. Lists of eligible participants had been elaborated before the administration of the questionnaire. Except doctors or nurses who were on vacation or off service for different reasons, all selected participants were physically contacted by the investigator or his assistants. Before handing the consent form and the questionnaire, the investigator or his assistants

briefly introduced the aim of the study such that some health professionals could immediately decline to participate in the study if they wished to and without giving any reasons. The questionnaire was attached together with the consent form which was the front page. One airtime card equivalent to 1000 RWF (approximately \$1) was provided to participants at the same time of handing the consent form and the questionnaire.

3.6. Data collection

Data collection took place between 26th April 2019 and 10th May 2019. The questionnaire was self-completed. All of the participants completed the questionnaire while at their workplace. Occasionally the investigator checked with participants in order to see if they needed any clarification.

3.7. Data management and analysis

3.10.1. Data management

Hard copies of signed consent forms and completed questionnaires were stored at University of Ibadan according to university regulations. Data were also stored as soft copies on password protected hard disk and backed up on CD and internet at the Centre for Child and Adolescent Mental Health.

3.10.2. Data analysis

A. Analyses on knowledge of Child and Adolescent Mental Health

During analysis each correct answer was coded as 1 which is also a score corresponding to having correct knowledge and each incorrect and “don’t know” answers were coded as 0. Doctors’ and nurses’ knowledge of Child and adolescent Mental Health was measured with consideration of frequencies of answers to each single item on both knowledge measures and with summation of scores on both knowledge measures.

Knowledge of CAMH was also determined using groups of those items which explore knowledge around a common area such that:

1. *Knowledge of aetiology of a mental illness* was explored by items 11, 17, 18, 20, 21, 22;
2. *Knowledge of treatment of a mental health problem* was explored by items 14, 15, 26, 32, 34, 42;
3. *Knowledge of how common are mental health problems in children and adolescents* was explored by items 10, 19;
4. *Knowledge about recovery from a mental disorder* was explored by item 24;
5. *Knowledge of recognition of mental disorders in pediatric patients* was explored by items 12, 13, 33, 38, 40, 41, 43, 45;
6. *Knowledge of interface of mental and physical disorders* was explored by items 27, 28, 29, 30, 31, 35, 36, 37, 39, 44.

CAMH knowledge among nurses and doctors was also presented in three categories such that respondents with <50% of correct answers were considered as having poor knowledge, respondents with 50-79% of correct answers were considered as having intermediate knowledge, and then respondents with $\geq 80\%$ of correct answers were considered as having good knowledge of CAMH.

B. Analyses on attribution attitude

The attribution attitudes were measured and interpreted with consideration of modes of frequencies of answers to the 4-Likert scale questions (*totally disagree, disagree, agree, strongly agree, or definitely would help, probably would help, probably would not help, definitely would not help*) represented by numbers from 1 to 4 with 1 indicating the best attitude and 4 the worst attitude.

C. Analyses on stigmatizing attitudes

The responses were coded during analysis such that each stigma affirming response was given a score of “1” and a score of “0” was given for a response showing a positive attitude. Presence or absence of stigmatizing attitude was interpreted as frequencies of answers for every single item or by summation of scores for the whole scale such that higher scores indicate more negative attitudes.

D. Statistical analyses

Data were analyzed using STATA version 15. Continuous variables and categorical variables were presented with mean and standard deviation, while categorical variables were presented with numbers and percentages. Age and years of experience which are continuous variables were grouped in subgroups during some analyses and then analyzed as categorical variables. For tests of associations, chi-square tests were done to determine relationship between clinical occupation (nurse or doctor) and other socio-demographic categorical variables. Paired t-test and One-way analysis of variance (ANOVA) were used to determine association between socio-demographic variables and knowledge or attitude scales. Variables of significant association were entered into a multiple linear regression model to identify independent significant predictor variables of knowledge and attitudes scores.

Significance testing for all inferential tests was set at $p < 0.05$, two-tailed, and 95% confidence level.

3.11. Ethical consideration

A. Respect for participants

Written informed consent was obtained from individual participants. The questionnaire was anonymous. Participants were free to decline their participation at any time during the process of the research.

B. Beneficence to participants

There was no individual feed-back about participants scores immediately or after the survey but the findings will be used to prepare an extended training for our participants.

C. Non maleficence

This study did not pose any risk to the participants and did not involve invasive procedures.

D. Conflicts of interests

The study was done in the scope of partial fulfillment of requirements for the degree of Master of Science in Child and Adolescent Mental Health, University of Ibadan. There are no conflicts of interest.

E. Ethical and administrative approval

The ethical approval was obtained from Rwanda National Ethics Committee. The study was also reviewed and approved by research committees at Kigali University Teaching Hospital, Butare University Teaching Hospital and Rwanda Military Hospital.

Word count: 3334

CHAPTER FOUR

RESULTS

4.1 Socio-demographic characteristics of respondents

The socio-demographic characteristics of respondents are presented in Table 4.1

A total of 199 nurses and doctors (the response rate was 75.3%) completed the questionnaire; the majority of them were nurses (75.9%) while the proportion of doctors was 24.1% comprising 16 pediatricians, 27 pediatric residents and 5 General Practitioners. In total, respondents from KUTH, BUTH and RMH were respectively 41.2%, 25.1% and 33.7%. The mean age of respondents was 36.13 (SD= 6.29) years; the mean length of work experience was 3.57 (SD=0.82) years. As far as gender is considered, 135 (89.4%) nurses were females whereas 33 (70.2 %) doctors were male. Thus there was a statistically significant association between gender and profession ($p < 0.001$). Nationality was found to be significantly associated with profession because all nurses were from Rwanda while 8.5% of doctors had other nationalities. Christianity was the predominant religion for both nurses (94.7%) and doctors (89.6%). As far as working experience is concerned, 65 (43.3%) nurses and 26 (54.2%) doctors had less than 5 years of experience of working with children. Only 24 (16%) nurses and 13 (22.9%) doctors had participated in training on CAMH and similar proportions had participated in CPD session on CAMH (16% of nurses and 27.1% of doctors).

Table 4.1: Socio-demographic characteristics of respondents

Socio-demographic variable	Nurses		Doctors		Total		Chi square P-value
	No	%	No	%	No	%	
Age							
20 – 29 Years	19	13.0	4	8.3	23	11.9	0.371
30 – 39 Years	85	58.2	35	72.9	120	61.9	
40 – 49 Years	35	24.0	17	14.6	42	21.6	
50 – 59 Years	7	4.8	2	4.2	9	4.6	
Gender							
Male	16	10.6	33	70.2	49	24.7	< 0.001
Female	135	89.4	14	29.8	149	75.3	
Religion							
Christian	143	94.7	43	89.6	186	93.5	0.087
Muslim	4	2.6	2	4.2	6	3	
Other	3	2	0	0	3	1.5	
No Religion	1	0.7	3	6.3	4	2	
Nationality							
Rwandan	150	100	43	91.5	193	98	0.003
Other	0	0	4	8.5	4	2	
Place of work							
KUTH	55	36.4	27	56.3	82	41.2	0.007
BUTH	39	25.8	11	22.9	50	25.1	
RMH	57	37.8	10	20.9	67	33.7	
Profession							
General Practitioner	0	0	5	10.4	5	2.5	
Resident	0	0	27	56.3	27	13.6	
Pediatrician	0	0	16	33.3	16	8	
Nurse	151	100	0	0	151	75.9	
Years of experience							
Less than 5 years	65	43.3	26	54.2	91	46	0.106
5 to 10 years	53	35.3	18	37.5	71	35.9	
More than 10 years	32	21.3	4	8.3	36	18.2	
Formal training on CAMH							
No	126	84	37	77.1	163	82.3	0.283
Yes	24	16	11	22.9	35	17.7	
Participation in CPD session on CAMH							
No	126	84	35	72.9	161	81.3	0.093
Yes	24	16	13	27.1	37	18.7	

4.2. Frequencies of scores assigned to General Knowledge answers.

The General Knowledge of mental health scale measured knowledge of respondents on a scale ranging from 0 to 15 scores. The descriptive analyses found that the percentage of respondents who had the score corresponding to the mode was 27.64% with a score of 12 out of 16. The highest score was 15 and was obtained by 14 (7.04%) respondents. Only 8.5% of respondents had their scores below 10 which is the median score. The results are presented in Table 4.2.

4.3. Respondents' general knowledge of CAMH

The **correct answers** to General Knowledge of CAMH questions are highlighted in bold print in Table 4.3. The analysis found that 95 (62.9%) nurses and 27 (56.3%) doctors indicated that people with mental health problems are difficult to talk to. For the question about mental disorder recovery, 46 (30.5%) nurses and 9 (18.8%) doctors believed that people with mental disorders do not recover. This lack of information was higher on questions about how common are mental health problems in children and adolescents: We found that 87 (57.6%) nurses and 14 (29.2%) doctors thought that mental disorders are rare in children while 98 (64.9%) nurses and 36 (75%) doctors did not know that 1 in 4 people will develop a mental illness over the course of a lifetime. A surprising misinformation about causes of mental disorders was also found such that 59 (39.1%) nurses and 22 (45.8 %) doctors did not know that spiritual attack is not a cause of mental health problems.

Table 4.2: Frequencies of scores assigned to General Knowledge answers

Knowledge scores	Frequencies	Percentage	Cumulative Percentage
5	1	0.5	0.5
6	1	0.5	1
7	3	1.51	2.5
8	3	1.51	4.0
9	9	4.52	8.5
10	14	7.04	15.6
11	27	13.57	29.2
12	55	27.64	56.8
13	47	23.62	80.4
14	25	12.56	93.0
15	14	7.04	100.0

Table 4.3: Proportions of answers to General Knowledge of CAMH questions

General knowledge items	Nurse		Doctors		Total	
	No.	%	No.	%	No.	%
Mental health problems are rare in children						
<i>True/don't know</i>	87	57.6	14	29.2	101	50.8
False	64	42.4	34	70.8	98	49.2
Epilepsy can lead to a child developing a mental health problem						
<i>False/don't know</i>	14	9.3	3	6.3	17	8.5
True	137	90.7	45	93.8	182	91.5
Attention Deficit Hyperactivity Disorder is a type of behavioural mental health problem in children						
<i>False/don't know</i>	24	15.9	6	12.5	30	15.1
True	127	84.1	42	87.5	169	84.9
Depression is a type of emotional mental health problem						
<i>False/don't know</i>	14	9.3	5	10.4	19	9.5
True	137	90.7	43	89.6	180	90.5
Mental health problems can be managed by talking with a counselor						
<i>False/don't know</i>	20	13.2	4	8.3	24	12.1
True	131	86.8	44	91.7	175	87.9
Parental involvement may be necessary in the management of children with mental health problems						
<i>False/don't know</i>	10	6.6	0	0	10	5
True	141	93.4	48	100	189	95
People with mental health problems are difficult to talk to						
<i>True/don't know</i>	95	62.9	27	56.3	122	61.3
False	56	37.1	21	43.8	77	38.7
Mental health problems can be caused by exam stress						
<i>False/don't know</i>	56	37.1	14	29.2	70	35.2
True	95	62.9	34	70.8	129	64.8
Brain infection or head injury can cause a mental illness						
<i>False/don't know</i>	19	12.6	9	18.8	28	14.1
True	132	87.4	39	81.3	171	85.9
About one in four people will develop mental illness over the course of a lifetime						
<i>False/don't know</i>	98	64.9	36	75	134	67.3
True	53	35.1	12	25	65	32.7
Mental health problems are caused by spiritual attack						
<i>True/don't know</i>	59	39.1	22	45.8	81	40.7
False	92	60.9	26	54.2	118	59.3
Use of alcohol and other illicit drugs can cause a mental illness						
<i>False/don't know</i>	6	4	1	2.1	7	3.5
True	145	96	47	97.9	192	96.5
Parents with mental illness always transmit it to their children						
<i>True/don't know</i>	25	16.6	6	12.5	31	15.6
False	126	83.4	42	87.5	168	84.4
Mental illness can only be treated with medication						
<i>True/don't know</i>	33	21.9	3	6.3	36	18.1
False	118	78.1	45	93.8	163	81.9
Most people affected by mental illness do not recover						
<i>True/don't know</i>	46	30.5	9	18.8	55	27.6
False	105	69.5	39	81.3	144	72.4
Mental illness is best treated by traditional healers						
<i>True/don't know</i>	13	8.6	1	2.1	14	7
False	138	91.4	47	97.9	185	93

4.4. Frequencies of scores assigned to Knowledge of CAMH in Pediatric setting answers

The lowest score on the scale measuring knowledge of doctors and nurses in pediatric setting was 7 while the highest score was 21 which is the maximum score. The percentage of respondents which corresponds to the mode of scores was 16.2% with 18 out of 21 scores and only 33% of respondents had their scores below the median score. The results are presented in Table 4.4.

4.5. Respondents' knowledge of CAMH in pediatric setting

The **correct answers** have been highlighted in bold print in Table 4.5a and Table 4.5b

The descriptive analysis revealed that 101 (67.3%) nurses and 13 (27.1%) doctors did not agree that mental problems can be treated by pediatricians. A majority (90.4%) agreed that a chronic physical illness can increase the risk of developing a mental health problem, however when they were asked if children diagnosed with Insulin Dependent Diabetes are at increased risk of developing mental illness, 86(57.3%) nurses and 19 (39,6%) doctors did not know that this is correct. Another finding was that 66 (44.3%) nurses and 15 (31.3%) doctors were not aware that an asthmatic attack can be triggered by a psychological problem. Asked about use of anxiolytics, 48 (32.4%) nurses and 27 (56.3%) doctors were unaware that anxiolytics should not be considered as first line treatment of anxiety disorder. About a third of nurses (37.4 %) and 75% of doctors were also incorrect in thinking that education about any illness should focus on mother (caregiver) rather than on the child or adolescent. The awareness of mental health problems in younger children is also a challenge for nurses and doctors because 57 (38%) nurses and 16 (33.3%) doctors were not aware that mental disorders can be diagnosed before 4 years of age. It was reassuring to find that 131(87.3%) nurses and 42 (87.5%) doctors agreed that the management of child/adolescent mental health problem can affect the outcome of the child's physical health problem.

Table 4.4: Frequencies of scores assigned to Knowledge of CAMH in Pediatric setting answers

Scores	Frequencies	Percentage	Cumulative percentage
7	1	0.6	0.6
9	6	3.4	3.9
10	2	1.1	5.0
11	6	3.4	8.4
12	10	5.6	14.0
13	15	8.4	22.4
14	19	10.6	33.0
15	21	11.7	44.7
16	18	10.1	54.8
17	17	9.5	64.3
18	29	16.2	80.5
19	21	11.7	92.2
20	11	6.2	98.3
21	3	1.7	100.0

Table 4.5a: Proportions of answers to Knowledge of CAMH in Pediatric Setting questions

	Nurse		Doctors		Total	
	No.	%	No.	%	No.	%
Children with mental health problems can be treated by paediatricians						
<i>False/don't know</i>	101	67.3	13	27.1	114	57.6
True	49	32.7	35	72.9	84	42.4
Children with Insulin Dependent Diabetes are at increased risk of developing mental illness						
<i>False/don't know</i>	86	57.3	19	39.6	105	53
True	64	42.7	29	60.4	93	47
Mother's mental health status can affect physical health of her child						
<i>False/don't know</i>	39	26	1	2.1	40	20.2
True	111	74	47	97.9	158	79.8
The discharge plan for critical illnesses should include mental health follow up						
<i>False/don't know</i>	37	24.7	5	10.6	42	21.3
True	113	75.3	42	89.4	155	78.7
A chronic physical illness can increase the risk of developing a mental health problem						
<i>False/don't know</i>	19	12.8	0	0	19	9.6
True	130	87.2	48	100	178	90.4
The management of child/adolescent mental health problem can affect the outcome of his/ her physical health problem						
<i>False/don't know</i>	19	12.7	6	12.5	25	12.6
True	131	87.3	42	87.5	173	87.4
The management of some mental health problems can require working together with youth protection agencies, social welfare, etc.						
<i>False/don't know</i>	27	18	3	6.4	30	15.2
True	123	82	44	93.6	167	84.8
Some physical health conditions can resemble emotional disorders						
<i>False/don't know</i>	23	15.3	5	10.4	28	14.1
True	127	84.7	43	89.6	170	85.9
The education about any illness should focus on mother (caregiver) rather than on child or adolescent						
<i>True/don't know</i>	55	37.4	36	75	91	46.7
False	92	62.6	12	25	104	53.3
An asthmatic attack can be triggered by a psychological stress						
<i>False/don't know</i>	66	44.3	15	31.3	81	41.1
True	83	55.7	33	68.8	116	58.9
The process of medical investigation can induce anxiety symptoms						
<i>False/don't know</i>	30	20	5	10.4	35	17.7
True	120	80	43	89.6	163	82.3
The more serious the pediatric illness, the more likely it is that behavioural reactions will arise						
<i>False/don't know</i>	37	24.8	9	18.8	46	23.4
True	112	75.2	39	81.3	151	76.6

Table 4.5b: Proportions of answers to Knowledge of CAMH in Pediatric Setting questions

The knowledge of age-appropriate behaviour or emotion is necessary when assessing for mental health problem						
<i>False/don't know</i>	24	16	0	0	24	12.1
True	126	84	48	100	174	87.9
Psychological problems can arise at the time of diagnosis for a physical illness						
<i>False/don't know</i>	32	21.3	7	14.6	39	19.7
True	118	78.7	41	85.4	159	80.3
Mental disorders cannot be diagnosed before 4 years						
<i>True/don't know</i>	57	38	16	33.3	73	36.9
False	93	62	32	66.7	125	63.1
Emotional disorders can present differently at different age groups						
<i>False/don't know</i>	10	6.7	2	4.2	12	6.1
True	140	93.3	46	95.8	186	93.9
Anxiolytic medication should be considered as first line treatment of anxiety disorders						
<i>True/don't know</i>	48	32.4	27	56.3	75	38.3
False	100	67.6	21	43.8	121	61.7
Symptoms of depression can be confused with medical symptoms in a child who is physically unwell						
<i>False/don't know</i>	29	19.5	7	14.6	36	18.3
True	120	80.5	41	85.4	161	81.7
Failure to thrive can be associated with mental and behavioural disorders in children						
<i>False/don't know</i>	35	23.5	6	12.5	41	20.8
True	114	76.5	42	87.5	156	79.2
Recurrent headache, stomach-ache or vomiting can be a sign of emotional disorder						
<i>False/don't know</i>	27	17.9	2	4.2	29	14.6
True	124	82.1	46	95.8	170	85.4
The assessment of home environment is important if you suspect a mental problem						
<i>False/don't know</i>	16	10.7	0	0	16	8.1
True	134	89.3	48	100	182	91.9

4.6. Knowledge of Child and Adolescent Mental Health according to specific areas

The analysis done by considering separately the items relating to specific areas of knowledge highlighted that the lowest mean score was found on 2 questions about how common are mental

health problems in children and adolescents ($M=1.41$; $SD=0.59$). The mean score was higher for answers to questions relating to interface between mental and physical disorders ($M=7.61$; $SD=1.92$).

Findings are presented in Table 4.6.

4.7. Distribution of correct answers among respondents

Under this title, we present the results obtained by grouping the true answers into three groups for a better comparison of doctors and nurses in terms of their knowledge of CAMH.

We have found that the highest percentages for doctors and nurses were in the intermediate category. In this group, 47.8% of doctors and 42.1% of nurses responded correctly to 50-79% of questions. This concordance of percentages between doctors and nurses was not found in the first group (Poor knowledge) where we have 19.6% of doctors and 39.1% of nurse who responded correctly to < 50% of questions and the third category (Good knowledge) where we have 32.6% of doctors and 18.8% of nurses who responded correctly to $\geq 80\%$ of questions. The difference of proportions of doctors and nurses in terms of their scores' distribution is statistically significant for the scale measuring knowledge of CAMH in pediatric setting ($p=0.03$). Results are presented in Table 4.7 and Figure 4.7.

Table 4.6: Knowledge of Child and Adolescent Mental Health according to specific areas

Area	Mean	SD
Recognition of mental disorders	5.86	1.09
Causes of mental disorders	4.82	1.02
Treatment of mental disorders	5.72	1.34
How common are mental disorders	1.41	0.59
Interface between mental and physical disorders	7.61	1.92

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Table 4.7: Distribution of correct responses among respondents

Variable	Nurses		Doctors		Chi-square P-value
	No	%	No	%	
General knowledge					
Poor knowledge	5	3.3	0	0	0.278
Intermediate knowledge	43	28.5	10	20.8	
Good knowledge	103	68.2	38	79.2	
CAMH knowledge in pediatric setting					
Poor knowledge	3	2.3	0	0	0.03
Intermediate knowledge	73	54.9	14	30.4	
Good knowledge	57	42.9	32	69.6	
Knowledge combined					
Poor knowledge	52	39.1	9	19.6	0.57
Intermediate knowledge	56	42.1	22	47.8	
Good knowledge	25	18.8	15	32.6	

Figure 4.7: *Distribution of correct answers among respondents*



4.8. Attributions of child and adolescent mental health problems among respondents

For these questions, participants were given a scenario of an adolescent called Harry with psychotic symptoms who was brought by his mother to pediatric emergency. This was followed with questions to explore respondents' attitudes towards the adolescent on 9 attitudinal stereotypes: *pity, dangerousness, fear, blame, anger, avoidance, segregation, coercion* and *help* rated on a 4-Likert scale as *very much, much, somehow, not at all* or *definitely would help, probably would help, probably would not help* and *definitely would not help*. The following are proportions of respondents' answers on the 9 stereotypes:

Close to half of nurses (43%) and one quarter (27.1%) of doctors would very much feel pity for the adolescent and, as regards dangerousness, a staff of 49(32.7%) nurses and 6(13%) doctors would feel Harry is very much dangerous. A significant number of nurses (30.5%) and doctors (27.7%) would also much feel scared by Harry. However, what is reassuring is that 116(77.3%) nurses and 42(87.5%) doctors would not at all think that it was Harry's own fault that he is in the present condition, 108 (71.5%) nurses and 42 (87.5%) doctors would not at all feel angry at the adolescent and 110 (73.3%) nurses and 41(85.4%) doctors would not at all try to stay away from the adolescent. A significant number of clinicians would absolutely use coercion to treat the adolescent (48% of nurses and 33.3% of doctors). It was found also that 103(69.1%) nurses and 30(62.5%) doctors would definitely help the adolescent and 58(38.4%) nurses and 6(12.5%) doctors thought very much it would be best for the adolescent's community if he was put away in a psychiatric hospital.

These results are presented in Table 4.8a and Table 4.8b.

Table 4.8a: Proportions of answers to Attribution questions

	Nurse		Doctors		Total	
	No.	%	No.	%	No.	%
I would feel pity for Harry						
<i>Very much</i>	65	43.0	13	27.1	78	39.2
<i>Much</i>	34	22.5	18	37.5	52	26.1
<i>Somehow</i>	40	26.5	14	29.2	54	27.1
<i>Not at all</i>	12	7.9	3	6.3	15	7.5
How dangerous would you feel Harry is?						
<i>Not at all</i>	25	16.7	9	19.6	34	17.3
<i>Somehow</i>	35	23.3	18	39.1	53	27.0
<i>Much</i>	41	27.3	13	28.3	54	27.6
<i>Very much</i>	49	32.7	6	13	55	28.1
I would think that it was Harry's own fault that he is in the present condition						
<i>Not at all</i>	116	77.3	42	87.5	158	79.8
<i>Somehow</i>	18	12.0	5	10.4	23	11.6
<i>Much</i>	10	6.7	1	2.1	11	5.6
<i>Very much</i>	6	4.0	0	0	6	3.0
How scared of Harry would you feel						
<i>Not at all</i>	39	25.8	17	36.2	56	28.3
<i>Somehow</i>	40	26.5	14	29.8	54	27.3
<i>Much</i>	46	30.5	13	27.7	59	29.8
<i>Very much</i>	26	17.2	3	6.4	29	14.6
I think it would be best for Harry's community if he was put away in a psychiatric hospital						
<i>Not at all</i>	32	21.2	16	33.3	48	24.1
<i>Somehow</i>	32	21.2	16	33.3	48	24.1
<i>Much</i>	29	19.2	10	20.8	39	19.6
<i>Very much</i>	58	38.4	6	12.5	64	32.2
How angry would you feel at Harry						
<i>Not at all</i>	108	71.5	42	87.5	150	75.4
<i>Somehow</i>	24	15.9	4	8.3	28	14.1
<i>Much</i>	11	7.3	2	4.2	13	6.5
<i>Very much</i>	8	5.3	0	0	8	4.0
I would try to stay away from Harry						
<i>Not at all</i>	110	73.3	41	85.4	151	76.3
<i>Somehow</i>	22	14.7	6	12.5	28	14.1
<i>Much</i>	8	5.3	1	2.1	9	4.5
<i>Very much</i>	10	6.7	0	0	10	5.1

Table 4.8b: Proportions of answers to Attribution questions

How much do you agree that Harry should be forced into treatment with his doctor even if he does not want to?						
<i>Very much</i>	72	48.0	16	33.3	88	44.4
<i>Much</i>	33	22.0	19	39.6	52	26.3
<i>Somehow</i>	30	20.0	8	16.7	38	19.2
<i>Not at all</i>	15	10.0	5	10.4	20	10.1
How likely is it that you would help Harry						
<i>Definitely would help</i>	103	69.1	30	62.5	133	67.5
<i>Probably would help</i>	41	27.5	15	31.3	56	28.4
<i>Probably would not help</i>	4	2.7	3	6.3	7	3.6
<i>Definitely would not help</i>	1	0.7	0	0	1	0.5

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4.9. Frequencies of scores assigned to Attribution answers

The scores of respondents range from 8 to 25. The mode score was 15 and was obtained by 13.99% of respondents. The highest frequencies were below the median score indicating that the proportions of respondents who showed positive attitudes were higher than proportions of negative attitudes. Results are presented in Table 4.9

4.10. Frequencies of scores assigned to Stigmatizing Attitudes answers

For Stigmatizing Attitude scale questions, the range of scores was between 0 and 14. The mode of scores was 4 out of 15 and was obtained by 13.8% of respondents. Respondents who did not show any stigmatizing attitude were 6.3%. Results are presented in Table 4.10.

4.11. Stigmatizing attitudes of respondents towards children or adolescent with mental health problems

Frequencies of positive and negative attitude answers on the 15 items that compose the stigmatizing attitude scale are presented in Table 4.11a and Table 11.b. Answers of **positive attitude** are highlighted in bold print.

A majority of nurses (80.7%) nurses and doctors (95.8%) thought that children and adolescents with mental illness can be friendly. However, a large number (74.7% of nurses and 70.8% of doctors) thought that children and adolescents with mental illness can be dangerous to the society. A high social distance was also identified among 54(36%) nurses and 12 (25%) doctors who would be concerned about their children or relatives inviting a child or adolescent with mental illness to their birthday party as well as 58 (38.7%) nurses and 18(37.5%) doctors who would be concerned if they find their children or relative walking home from school together with a child or adolescent with mental illness. A negative attitude related to nurses' and doctors' occupation was found that 50 (33.1%) nurses and only 2 (4.2%) doctors

did not believe that all health care providers have a responsibility to identify and or treat children and adolescent with mental illness to their best ability. About a quarter of nurses (27.3%) and doctors (27.1%) would be worried about working on the ward that admits children and adolescents with mental illness.

4.12. Association between socio-demographic variables and General knowledge scores

Doctors had a higher score of general knowledge (M= 12.667; SD= 1.549) than nurses (M= 11.901; SD= 1.832). The difference on mean scores obtained by doctors and nurses was statistically significant ($t(197) = 6.77; p=0.0001$).

It was also found that the mean scores of respondents were different in three hospitals. Respondents from KUTH obtained a higher score (M=12.341; SD=1.484) than respondents from BUTH (M=11.440; SD=2.434) and RMH (M=12.254; SD= 1.491). This difference in mean scores was statistically significant ($F(196) = 4.47; p = 0.0126$).

4.13. Association between socio-demographic variables and Knowledge in Pediatrics setting

For this measure, doctors scored higher (M=17.761; SD= 2.089) than nurses (M=15.090; SD= 2.904). This difference of knowledge mean scores between doctors and nurses was statistically significant ($t(177) = 32.96; p<0.001$).

It was also found that respondents from KUTH scored higher (M= 16.743; SD= 2.804) than respondents from BUTH (M=15.128; SD= 3.040), and these later scored higher than respondents from RMH (M=15.069; SD= 2.765). This difference in mean score between the three hospitals included in the study was statistically significant as regard to knowledge of CAMH in pediatric setting ($F(176) = 7.23; p=0.001$).

Across occupations, there was also a difference in mean scores between male respondents who scored higher (M=17.130; SD=2.277) than female respondents (M=15.280; SD=2.872). This difference was statistically significant ($t(178) = 14.4$; $p = 0.0002$).

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Table 4.9: Frequencies of total scores assigned to Attribution answers

Attribution Score	Frequencies	Percentage	Cumulative Percentage
8	3	1.55	1.55
9	5	2.59	4.1
10	10	5.18	9.3
11	14	7.25	16.6
12	20	10.36	26.9
13	21	10.88	37.8
14	23	11.92	49.7
15	27	13.99	63.7
16	21	10.88	74.6
17	13	6.74	81.3
18	10	5.18	86.5
19	13	6.74	93.3
20	5	2.59	95.9
21	5	2.59	98.4
22	1	0.52	99.0
23	1	0.52	99.5
25	1	0.52	100.0

Table 4.10: Frequencies of scores assigned to Stigmatizing Attitudes answers

Score	Frequencies	Percentage	cumulative Percentage
0	12	6.3	6.3
1	36	19.1	25.4
2	28	14.8	40.2
3	12	6.4	46.6
4	26	13.8	60.3
5	21	11.1	71.4
6	7	3.7	75.1
7	15	7.9	83.1
8	11	5.8	88.9
9	7	3.7	92.6
10	8	4.2	96.8
11	2	1.1	97.9
12	3	1.6	99.5
14	1	0.5	100.0

Table 4.11a: Proportions of answers to stigmatizing attitude scale questions

	Nurse		Doctors		Total	
	No.	%	No.	%	No.	%
Do you think children and adolescents with mental illness can be friendly?						
<i>YES</i>	121	80.7	46	95.8	167	84.3
<i>NO</i>	29	19.3	2	4.2	31	15.7
Do you think children and adolescents with mental illness can be intelligent?						
<i>YES</i>	111	74.5	42	87.5	153	77.7
<i>NO</i>	38	25.5	6	12.5	44	22.3
Do you think children and adolescents with mental illness can be dangerous to the society?						
<i>NO</i>	38	25.3	14	29.2	52	26.3
<i>YES</i>	112	74.7	34	70.8	146	73.7
Do you think children and adolescents with mental illness can eventually get married?						
<i>YES</i>	118	78.1	45	93.8	163	81.9
<i>NO</i>	33	21.9	3	6.3	36	18.1
Do you think children and adolescents with mental illness should be allowed to play with other children?						
<i>YES</i>	127	85.2	45	93.8	172	87.3
<i>NO</i>	22	14.8	3	6.3	25	12.7
Do you believe all health care providers have a responsibility to identify and or treat children and adolescent with mental illness to their best ability						
<i>YES</i>	101	66.9	46	95.8	147	73.9
<i>NO</i>	50	33.1	2	4.2	52	26.1
I will feel ashamed if people knew a child in my family has mental illness						
<i>NO</i>	123	81.5	39	81.3	162	81.4
<i>YES</i>	28	18.5	9	18.8	37	18.6
I will be afraid to have a conversation with a child or adolescent with mental illness						
<i>NO</i>	106	70.7	42	87.5	148	74.7
<i>YES</i>	44	29.3	6	12.5	50	25.3
I will be worried about working on the ward that admits children and adolescents with mental illness						
<i>NO</i>	109	72.7	35	72.9	144	72.7
<i>YES</i>	41	27.3	13	27.1	54	27.3
I will not allow my child or relative to be friends with a child or adolescent with mental illness						
<i>NO</i>	119	78.8	40	85.1	159	80.3
<i>YES</i>	32	21.2	7	14.9	39	19.7
I would be worried about marrying a fellow worker/colleague who works with children or adolescents with mental illness						
<i>NO</i>	126	84	42	87.5	168	84.8
<i>YES</i>	24	16	6	12.5	30	15.2

Table 11.b: Proportions of answers to stigmatizing attitude scale questions

I would be concerned about my child or relative sitting in class next to a child or adolescent who has mental illness						
<i>NO</i>	91	61.1	35	72.9	126	64
<i>YES</i>	58	38.9	13	27.1	71	36
I would be concerned about my child or relative inviting a child or adolescent with mental illness to their birthday party						
<i>NO</i>	96	64	36	75	132	66.7
<i>YES</i>	54	36	12	25	66	33.3
I would be concerned about my child or relative doing homework together with a child or adolescent with mental illness						
<i>NO</i>	98	65.8	35	72.9	133	67.5
<i>YES</i>	51	34.2	13	27.1	64	32.5
I would be concerned if I find my child or relative walking home from school together with a child or adolescent with mental illness						
<i>NO</i>	92	61.3	30	62.5	122	61.6
<i>YES</i>	58	38.7	18	37.5	76	38.4

Table 4.12: Association between socio-demographic variables and General knowledge scores

Socio-demographic variable	Total	Mean	SD	t/F	DF	p-value
Gender	198	12.080	1.810	2.73	196	0.1001
Male	49	12.450	1.490			
Female	149	11.960	1.890			
Age	194	12.100	1.810	0.36*	190	0.7833
20-29 Years	23	11.870	1.910			
30-39 Years	120	12.150	1.810			
40-49 Years	42	12.190	1.760			
50-59 Years	9	11.670	2.000			
Religion	199	12.080	1.800	0.56*	195	0.6448
Christian	186	12.070	1.800			
Muslim	6	12.330	1.750			
Other	3	11.330	3.060			
No religion	4	13.000	1.410			
Profession	199	12.085	1.803	6.77	197	<0.0001
Doctor	48	12.667	1.589			
Nurse	151	11.901	1.832			
Location	199	12.085	1.803	4.47*	196	0.0126
KUTH	82	12.341	1.484			
BUTH	50	11.440	2.434			
RMH	67	12.254	1.491			
Experience	198	12.100	1.800	0.26*	195	0.7735
Below 4 years	62	12.030	1.600			
4 - 7 Years	84	12.200	1.880			
8+ years	52	12.000	1.920			
Participation in training	198	12.081	1.806	0.25	196	0.6197
Yes	35	11.943	2.182			
No	163	12.110	1.721			
Participation in CDP	198	12.076	1.802	0.01	196	0.904
Yes	37	12.108	2.052			
No	161	12.068	1.747			

*=ANOVA test was done DF=degree of freedom

Table 4.13: Association between socio-demographic variables and knowledge in pediatrics setting

Socio-demographic variable	Total	Mean	SD	t/F	DF	p-value
Gender	178	15.758	2.952	14.4	176	0.0002
Male	46	17.130	2.770			
Female	132	15.280	2.872			
Age	175	15.834	2.915	0.84*	171	0.472
20-29 Years	21	15.333	2.595			
30-39 Years	110	16.091	2.910			
40-49 Years	36	15.333	3.089			
50-59 Years	8	15.875	3.044			
Religion	179	15.777	2.954	1.32*	175	0.2702
Christian	166	15.777	2.907			
Muslim	6	15.333	3.327			
Other	3	13.667	5.033			
No religion	4	18.000	2.449			
Profession	179	15.777	2.954	32.96	177	<0.001
Doctor	46	17.761	2.089			
Nurse	133	15.090	2.904			
Location	179	15.777	2.954	7.23*	176	0.001
KUTH	74	16.743	2.804			
BUTH	47	15.128	3.040			
RMH	58	15.069	2.765			
Experience	178	15.803	2.940	1.72*	175	0.1821
Below 4 years	57	15.211	2.895			
4 - 7 Years	74	16.095	2.962			
8+ years	47	16.064	2.915			
Participation in training	178	15.775	2.962	0.87	176	0.3529
Yes	31	16.226	3.159			
No	147	15.680	2.921			
Participation in CDP	178	15.764	2.957	0.01	176	0.9076
Yes	33	15.818	3.097			
No	145	15.752	2.936			

*=ANOVA test was conducted DF=degree of freedom

4.14. Association between socio-demographic variables and knowledge scores on both knowledge measures

By combining both knowledge measurements and doing a bivariate analysis of association between socio-demographic variables and combined knowledge scores, we relatively found the same significant associations as we found on previous analyses. Thus, male respondents scored higher ($M=29.587$; $SD=3.745$) than female respondents ($M=27.265$; $SD=4.02$) and this difference of mean knowledge scores between male and female respondents was statistically significant ($t(176) = 11.55$; $p=0.0008$).

Doctors scored higher ($M=30.413$; $SD=3.152$) than nurses ($M=27.015$; $SD=4.047$); this difference of mean scores between doctors and nurses was also statistically significant ($t(177) = 26.77$; ($p<0.0001$).

Respondents from KUTH scored higher ($M=29.014$; $SD=3.613$) than respondents from RMH ($M=27.379$; $SD=3.607$), and these later scored higher than respondents from BUTH ($M=26.745$; $SD=4.976$). The bivariate analysis of association between socio-demographic characteristics and combined knowledge scores found that this difference in mean scores between respondents from the three hospitals was statistically significant ($F(176) = 5.29$; $p=0.0059$).

These results are presented in Table 4.14.

4.15. Correlation between knowledge scores and continuous variables

Table 4.15 shows that there is no significant relationship between knowledge scores and age or length of work experience.

Table 4.14: Association between socio-demographic variables and combined knowledge scores

Socio-demographic variable	Total	Mean	SD	t/F	DF	p-value
Gender	178	27.865	4.108	11.55	176	0.0008
Male	46	29.587	3.745			
Female	132	27.265	4.072			
Age	175	27.966	4.074	0.85*	171	0.4705
20-29 Years	21	27.048	3.324			
30-39 Years	110	28.327	4.098			
40-49 Years	36	27.556	4.332			
50-59 Years	8	27.250	4.432			
Religion	179	27.888	4.108	1.27*	175	0.2856
Christian	166	27.873	4.057			
Muslim	6	27.667	3.327			
Other	3	25.000	8.000			
No religion	4	31.000	3.651			
Profession	179	27.888	4.108	26.77	177	<0.0001
Doctors	46	30.413	3.152			
Nurse	133	27.015	4.047			
Location	179	27.888	4.108	5.29*	176	0.0059
KUTH	74	29.014	3.613			
BUTH	47	26.745	4.976			
RMH	58	27.379	3.607			
Experience	178	27.927	4.087	1.13*	175	0.3247
Below 4 years	57	27.281	3.797			
4 - 7 Years	74	28.351	4.267			
8+ years	47	28.043	4.123			
Participation in training	178	27.882	4.119	0.13	176	0.7144
Yes	31	28.129	4.808			
No	147	27.830	3.975			
Participation in CDP	178	27.865	4.108	0.01	176	0.9088
Yes	33	27.939	4.677			
No	145	27.848	3.985			

*=ANOVA was conducted DF= Degree of freedom

Table 4.15: Pearson’s correlation between combined knowledge score and age

Variables	Combined Knowledge scores	
	R	p-value
Age	-0.0118	0.8765
Length of work experience	0.0127	0.8662

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4.16. Correlation between attribution scores and continuous variables

Pearson's correlation coefficient was calculated to determine relationship between socio-demographic continuous variables and attribution scores. A negative significant relationship was found between years of work experience and attribution scores ($r=-0.1868$; $p=0.0095$). A negative significant relationship between knowledge scores and attribution score was also found ($r= -0.2372$; $p= 0.0016$).

The above findings suggest that the more experienced respondents were, the more positive their attitudes (because they had lesser scores), and the more knowledgeable they were, the more positive their attitudes.

4.17. Association between socio-demographic variables and scores on attribution questions

For this measure, nurses scores were higher ($M=15.088$; $SD=3.253$) than doctors ($M=13.089$; $SD= 2.410$). This means that more negative attitudes on this measurement was prevailing among nurses. This difference of mean scores between doctors and nurses was statistically significant ($t(191) = 14.54$; $p=0.002$).

Religion was also found to be significantly associated with attribution but this is difficult to interpret since the number of Christians is far greater than the number of other groups.

Table 4.16: Pearson’s correlation between attribution scores and continuous variables

Variables	Attribution scores	
	R	p-value
Age	-0.1413	0.053
Length of working experience	-0.1868	0.0095
Combined knowledge scores	-0.2372	0.0016

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Table 4.17: Association between socio-demographic variables and scores on attribution questions

Socio-demographic variable	Total	Mean	SD	t/F	DF	P-value
Gender	192	14.625	3.194	2.85	190	0.9029
Male	46	13.935	3.248			
Female	146	14.842	3.157			
Age	188	14.644	3.178	2.02*	184	0.1133
20-29 Years	22	15.909	3.294			
30-39 Years	117	14.615	3.112			
40-49 Years	41	14.366	3.137			
50-59 Years	8	13.000	3.464			
Religion	193	14.622	3.186	3.94*	189	0.0093
Christian	180	14.633	3.146			
Muslim	6	13.667	3.204			
Other	3	19.667	1.155			
No religion	4	11.750	1.708			
Profession	193	14.622	3.186	14.54	191	0.002
Doctor	45	13.089	2.410			
Nurse	148	15.088	3.253			
Location	193	14.622	3.186	0.04*	190	0.9571
KUTH	80	14.700	3.016			
BUTH	50	14.540	3.303			
RMH	63	14.587	3.349			
Experience	192	14.630	3.193	3*	189	0.0523
Below 4 years	62	15.290	3.096			
4 - 7 Years	80	14.625	3.091			
8+ years	50	13.820	3.342			
Training	192	14.651	3.169	0	190	0.9936
Yes	34	14.647	3.365			
No	158	14.652	3.136			
CDP	192	14.646	3.177	0	190	0.998
Yes	34	14.647	3.507			
No	158	14.646	3.114			

*=ANOVA test was done DF= degree of freedom

4.18. Relationships between stigmatizing attitude scores and age, length of work experience and knowledge scores

There was a linear negative relationship between knowledge and stigmatizing attitude ($r = -0.2458$ $p = 0.0013$).i.e., the higher scores on knowledge measurements questions, the lower scores on stigmatizing attitude scale questions, which means that you have lesser stigmatizing attitude.

4.19. Association between socio-demographic variables and scores on stigmatizing attitude scale

For the stigmatizing attitude scale, doctors had lower scores ($M = 3.060$; $SD = 2.460$) compared with nurses ($M = 4.528$ $SD = 3.230$). This means that doctors had more positive attitudes compared with nurses. This difference of mean scores was statistically significant ($t(187) = 7.99$; $p < 0.0001$).

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Table 4.18: Correlation between stigma attitude scores and continuous variables (Pearson’s coefficient test)

Variables	Stigmatizing attitude scores	
	R	p-value
Age	0.0086	0.9074
Length of work experience	-0.065	0.3753
Combined knowledge scores	-0.2458	0.0013

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Table 4.19. Association between socio-demographic variables and scores on Stigmatizing Attitude scale

Socio-demographic variable	Total	Mean	SD	t/F	DF	p-value
Gender	188	4.165	3.144	0.06	186	0.7999
Male	47	4.064	3.067			
Female	141	4.199	3.179			
Age	184	4.087	3.119	0*	180	0.9996
20-29 Years	22	4.045	3.539			
30-39 Years	113	4.106	3.040			
40-49 Years	40	4.050	3.202			
50-59 Years	9	4.111	3.219			
Religion	189	4.164	3.135	2.08*	185	0.1047
Christian	176	4.233	3.133			
Muslim	6	3.500	3.507			
Other	3	6.000	1.732			
No religion	4	0.750	0.957			
Profession	189	4.164	3.135	7.99	187	<0.0001
Doctor	47	3.060	2.560			
Nurse	142	4.528	3.230			
Location	189	4.164	3.135	0.3*	186	0.7407
KUTH	79	4.316	3.156			
BUTH	44	4.250	3.424			
RMH	66	3.924	2.937			
Experience	188	4.176	3.140	0.66*	185	0.5174
Below 4 years	58	4.293	3.095			
4 - 7 Years	80	4.363	3.032			
8+ years	50	3.740	3.373			
Participation in training	188	4.160	3.143	0.2	186	0.6556
Yes	34	3.941	3.375			
No	154	4.208	3.099			
Participation in CDP	188	4.181	3.135	0.84*	186	0.3612
Yes	36	4.611	3.580			
No	152	4.079	3.024			

*=ANOVA test was done DF= degree of freedom

4.20. Predictors of CAMH knowledge scores among respondents

A linear regression model of socio-demographic variables which were found to be significantly associated with knowledge (both measures combined) was done. Knowledge scores were regressed on gender, profession, place of work, stigmatizing attitude score and attribution scores.

Table 4.20 shows that the regression model as a whole explained 23.66% of the variance in combined knowledge scores and it is statistically significant ($F(9, 157) = 8.11; p < 0.0001$). The statistically significant and independent predictors of knowledge scores were working at CHUB (Beta = -2.298; $p = 0.002$), working at RMH (Beta = -1.348, $p = 0.054$), being a doctor (Beta = 2.364; $p = 0.010$) and having stigmatizing attitude (B = -0.214; $p = 0.037$).

On average, respondents from CHUK had significantly high knowledge as compared to patients from CHUB or RMH. The regression model showed that for respondents from BUTH, their knowledge was 2.298-score lower than respondents from KUTH; for respondents from RMH, their knowledge was 1.348-scores lower than respondents from KUTH. And we will say that a 1-unit increase in stigmatizing attitude score will decrease the knowledge score by 0.214. The regression model also showed that if you are a doctor, you are more likely to have 2.364-score higher than a nurse's score.

Table 4.20. Predictors of CAMH knowledge scores among respondents

Number of observations	164					
F(9, 157)	8.11					
Prob > F	<0.0001					
R-Square	0.2366					
Root MSE	3.7252					
Knowledge scores	Coef	std	T	P-value	(95% CI)	
Sex						
Male(Ref)						
Female	-0.531	0.856	-0.62	0.536	-1.221	1.160
Profession						
Nurse (Ref)						
Doctor	2.364	0.903	2.62	0.010	0.581	4.147
Location						
CHUK (ref)						
CHUB	-2.298	0.738	-3.11	0.002	-3.754	-0.841
RMH	-1.348	0.696	-1.94	0.054	-2.722	0.026
Attribution						
stigmatizing attitude	-0.186	0.101	-1.85	0.066	-0.385	0.012
_cons	32.237	1.796	17.95	0.000	28.688	35.784

4. 21: Predictors of scores on stigmatizing attitude scale

Stigmatizing scores were regressed on profession, attribution scores and knowledge scores. Table 4.18 shows that the regression model as a whole explained 13.7% ($R^2=0.1369$) of the variance in stigmatizing attitude scores and it is statistically significant ($F(9,154) = 5.04; p<0.0003$). Attribution scores is the only statistically significant and independent predictor of stigmatizing scores ($Beta= 0.250, p= 0.001$).

We will say that on average, a 1-unit increase in attribution attitude score increases the stigmatizing score by 0.245.

4.22: Predictors of attribution scores

Religion, profession, experience, stigmatizing scores and knowledge score were entered in a multiple linear regression to predict attribution scores.

We found that the whole model explained 23.5% of the variance attribution scores which was significant ($F(9, 156) = 5.04; p=0.0001$). Greater length of work experience, lower stigmatizing attitude scores, being a doctor were the independent predictors of lower attribution scores ($Beta= -0.141, p=0.003; Beta= 0.207, p=0.007$ and $Beta= -1.332, p= 0.018$ respectively). The religion was also an independent predictor of attribution scores but this analysis is difficult to interpret since the number of Christians was far greater than the number of respondents from other religions.

We will interpret this regression model by saying that on average, a 1-year increase of the experience decreases the attribution score by 0.14. Respondents with stigmatizing attitude were also likely to have an increased attribution scores and if you are a doctor, you are more likely to have 1.332-score lower than a nurse.

Table 4.21: Predictors of scores on stigmatizing attitude scale

Number of observations	165
F(9, 154)	5.04
Prob > F	<0.0003
R-Square	0.1369
Root MSE	2.8806

Stigmatizing attitude scores	Coef	Std	T	P-value	(95% CI)	
Profession						
Nurse (ref)						
Doctor	-0.459	0.562	-0.820	0.416	-1.568	0.651
Attribution	0.250	0.075	3.320	0.001	0.101	0.399
Knowledge	-0.109	0.059	-1.850	0.066	-0.226	0.007
_cons	3.695	2.118	1.750	0.083	-0.487	7.877

Table 4.22: Predictors of attribution attitude scores

Number of observations	164
F(9, 156)	5.04
Prob > F	<0.0001
R-Square	0.235
Root MSE	2.8036

Attribution scores	Coef	Std	T	P-value	(95% CI)	
Religion						
Christian(ref)						
Muslim	-0.376	1.172	-0.32	0.749	-2.692	1.939
Other	4.482	1.648	2.72	0.007	1.226	7.740
No religion	-1.085	1.459	-0.74	0.458	-3.969	1.798
Profession						
Nurses (ref)						
Doctor	-1.332	0.555	-2.400	0.018	-2.429	-0.236
Experience (Years)	-0.141	0.047	-2.990	0.003	-0.234	-0.048
Stig	0.207	0.076	2.720	0.007	0.056	0.357
Knowledge	-0.085	0.058	-1.460	0.146	-0.201	0.030
_cons	17.204	1.714	10.040	0.000	13.818	20.590

Word count: 2841

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 DISCUSSION

This study was a survey conducted among doctors and nurses working as clinicians in pediatric units at tertiary health facilities in Rwanda to assess their knowledge of Child and Adolescent Mental Health and their attitudes towards children with mental health problems. The survey used a questionnaire that contained items adapted from existing mental health literacy instruments and some other questions composed by the researcher based on existing literature. We will discuss important findings in relation to the research question.

5.1.1 Socio-demographic characteristics and their associations with knowledge and attitude in relation to CAMH

A. Age and working experience versus CAMH literacy and stigma

The majority of respondents were aged between 25 and 45 years and there was no association between respondents' age and knowledge or attitude. This is different from what was found at Jos University Teaching Hospital, Nigeria, where respondents within the age group 30-39 years had statistically significantly high scores on social distance scale and were more likely to show stigma, and health professionals aged between 50-59 more likely had higher knowledge scores than other age groups (Tungchama, 2014). The current study also found that the length of working experience is a predictor of attribution attitude in that the more experienced workers showed more positive attitudes. This finding could be explained by the fact that a lengthy experience in the health profession helps the clinicians to become more familiar with and more accepting of situations and conditions that less experienced

clinicians may find stigmatizing. This finding could serve as a basis for intervention in this field by targeting anti-stigma intervention towards the less experienced workers. Our study did not show a relationship between length of work experience and knowledge scores, contrary to what had been demonstrated by a study conducted among nurses in Sierra Leone where they found that the lesser the years of work as nurse, the more the knowledge nurses displayed (Kamara, 2014).

B. Gender and profession versus CAMH literacy and stigma

In this study, the majority of respondents were nurses and female. This is because some years ago nursing schools were more open to girls than boys and this explains the fact that the number of female nurses is still higher than the number of males. The situation is similar in many countries across the world. In terms of gender, males scored significantly higher on knowledge scale than females ($p=0.0008$). However, gender was not a predictor of knowledge scores in the regression model suggesting that other factors associated with gender (rather than gender itself) may be more important in terms of knowledge. Males and females did not differ significantly on stigmatizing attitudes and the results are consistent with the findings from a study conducted among healthcare providers in Liberia (Quiah, 2014) but differ from a study at Jos University Teaching hospital, Nigeria, which found that males had higher stigma scores than females (Tungchama, 2014). The non-agreement of the results is not surprising since the attitude can be determined by other factors which may vary between different countries.

This study also found that doctors' scores on knowledge scales were higher than nurses' score and that being a doctor is an independent predictor of having high knowledge scores as well as positive attribution attitude. This finding was not surprising because generally doctors undergo more extensive training programmes before qualification than nurses and they tend to have more opportunities for

continuous professional development at their work place than nurses. The categorization of doctors as GP, resident or pediatrician may be partly reflective of their experience of working with children (e.g. pediatricians) as much as it also reflects a longer time spent in formal education compared with nurses. Thus the finding that doctors showed less negative attitudes than nurses may relate to differences in education which would be consistent with the study by Tunchama (2014) at Jos University Teaching Hospital which found that levels of education was a predictor of stigmatizing attitudes towards children and adolescents with mental illness. On the contrary, another study conducted in Turkey found higher levels of negative attitude among health workers with higher education than those with less education (Aydin et al., 2003). These differences may be related to different study populations and area.

As far as attitude is concerned, the analysis found that doctors had less stigmatizing attitudes towards children with mental health problems than nurses but profession was not an independent predictor factor of stigmatizing attitude but was a predictor of attribution attitude. However, the regression model found that attribution scores was the unique independent predictor of stigmatizing attitudes scores. A study conducted in Liberia did not find a statistically significant difference in stigmatizing attitude scores between doctors and non- doctors (Quiah, 2014). However this can not to be generalized to all kinds of attitudes because a study conducted in Sweden to assess clinicians' attitudes toward standardized assessment and diagnosis within child and adolescent psychiatry found that clinicians had positive attitudes and being a psychiatrist was the only predictor of positive attitude (Danielson *et al.*, 2019).

C. Working place and CAMH literacy and stigma

The three hospitals included in this study are similar in terms of package of activities they offer, but they have differences like internal policies, geographic location, or other factors that could influence doctors' and nurses' knowledge. For example Kigali University Teaching Hospital and Butare

University Teaching hospital offer the same packages of clinical activities. However KUTH is bigger in term of beds, number of healthcare providers and is situated in Kigali city which also offers other opportunities for learning and being in contact with clinicians visiting from other parts of the world. These differences may be a reason why hospital location predicted CAMH knowledge. With respect to the workplace, it should also be noted that the question which sought to specify the working ward was not considered in the analysis because we found that respondents tended to choose different wards as they rotated continuously in them. However, there is evidence that the working area can influence knowledge or attitude as was demonstrated by a study that was conducted among nurses working in an oncology unit. This study found that nurses were able to interpret some emotional, behavioral or verbal communication as indicators of distress among oncologic patients (Granek et al, 2019). Another study found that working at pediatric emergency can be more likely associated with recognition of acute problems like PTSD than working at an OPD (Jo-Ann G., John S. and Karen-Leigh E., 2018).

D. Participation in training or CPD versus CAMH literacy and stigma

The rate of participation in CPD or training about Child and Adolescent Mental Health reported in the current study is low, and there was no association between participation in training or CPD and knowledge or attitude in relation to CAMH. A significant association between participation in training in CAMH and higher knowledge was highlighted at Jos University Teaching Hospital, Nigeria (Tungchama, 2014). That study also found that participation in training was significantly associated with lower scores on social distance scale (i.e. they had more positive attitudes than those who were not trained). This is not consistent with results from a study conducted in Switzerland comparing psychiatrists, other professionals working with people with mental illness and the general public. This study found that training and higher level of knowledge did not translate into lesser social distance towards people with mental illness (Nordt et al, 2006). However, training was positively correlated with

knowledge in another study conducted among Cambodian health professionals (Alfredsson and Sebastian, 2017). In UK, it was found that senior doctors had less negative attitudes than medical students in their early years of training (Mukherjee et al. 2002). A study conducted among pediatric residents suggested that their lack of knowledge of mental health was due to less emphasis on mental health training (Green C. *et al*, 2017). The association between training and knowledge or attitude could also depend on the content of the training.

5.1.2 Discussion of important themes arising from the results

A. How mental health is conceptualized in Rwandan community

Looking at the answers given to different questions, we see that there is a way in which mental illness is understood by the Rwandan community and this conceptualization may affect knowledge or attitude in relation to child and adolescent mental health. In fact, mental illness, mental disorder or mental health problems is translated by one construct of ‘indwara zo mu mutwe’ (illnesses that affect the brain) in Kinyarwanda, the national language. This construct does not suggest that minor depression can be a mental disorder and may have misled some respondents who have only the extreme form of a mental disorder (e.g. schizophrenia) in their mindset. That might have been the reason why more than a half of nurses thought that mental health problems are rare in children and 64.9 % of nurses and 75% of doctors did not recognize that at least 1 in 4 people will develop a mental illness over the course of their lifetime. Previous studies conducted among health professionals at tertiary health facilities in Nigeria and Sierra Leone found also that above 50% of them thought that child and adolescent mental health problems are rare (Victoria, 2014; Kamara, 2014). Iranian investigators noted this limitation of using the broad concept of “mental health” but justified that they used it in order to compare their results with results

from previous studies and also because their study population could not have knowledge about specific mental disorders (Ghanean, Nojomi and Jacobsson, 2015).

This conception of mental illness can also be demonstrated by the number of respondents who believed that children with mental illness can be dangerous to the society (73.7%) and that they are difficult to talk to (61.3%). Previous studies conducted in Africa highlighted similar proportions of health professionals who endorsed these statements (Onileimo, 2014; Tungchama, 2014). This dangerousness attributed to children with mental disorders, specifically with psychotic symptoms, was also highlighted through the answers to the attribution questions: we found that a large proportion of respondents would feel scared by the patient with psychotic symptoms. Having fear of people with schizophrenia was reported by a large proportion of staff (42%) in another systematic study conducted to assess the attitudes and perceived dangerousness towards patients with comorbid physical and mental health conditions among general hospitals' health professionals (Ghanean, Nojomi and Jacobsson, 2015).

However, we have assessed issues specific to certain mental disorders and have found that at least 84.9% of respondents knew that ADHD is a type of behavioural disorder and 90.5% of respondents knew that depression is a type of emotional disorder. Lower proportions of Sierra Leonean nurses agreed that depression is a mental disorder found in children and adolescents (54.8%) and that ADHD is a behavioural disorder found in children and adolescents (63.7%) (Kamara, 2014). However, our study did not look into the details of these mental disorders. A study conducted among oncology nurses found that they were able to recognize emotional symptoms as signs of psychological stress although they did not know that those signs are suggestive for a depressive disorder (Granek *et al.*, 2019). A study conducted in Turkey at university and state hospitals, asked pediatric residents to choose among different behavioural characteristics of ADHD and found that 81.4% pediatric residents' knowledge of ADHD was deficient (Hirfanoglu *et al.*, 2008).

B. Information about causes and treatment of mental disorders

Through the answers given to the questions related to the causes and treatment of mental illnesses, it can be seen that doctors and nurses were aware of the bio-psycho-social approach to the causality of mental problems. The majority of respondent were able to point out possible causes as alcohol and other illicit drugs (96.5%), epilepsy (91.5%), brain lesion (85.9%), exam stress (64.8%), and awareness that mental disorders are not always inherited (84.4%). However a large number (40.7%) of respondents also thought that spiritual attack can cause a child to develop a mental disorder. Similar proportions of those who think that a mental illness can be caused by spiritual attack were found at University College Hospital, Nigeria (Onileimo, 2014) while at Jos University Teaching Hospital, Nigeria, more than 25% of health professionals believed that mental health is a result of evil spell cast on the child or the adolescent (Tungchama, P. 2014). With a proliferation of professed Christian "healers", the belief that people can be possessed by demons also has taken on a new dimension such that people of religious or charismatic-type faith intervene as healers in case of abnormal behavioural manifestations. However, in Uganda which provides an example of where traditional healers treat children with illnesses attributed to evil spirits, a study found that the healers do not receive patients referred by doctors or nurses (Akol *et al.*, 2018).

Nurses as well as doctors knew mental illness can also be treated by talking to a counselor (87.9%) and not only by medications (81.9%). However the proportion of those who know the approach to treat an anxiety disorder which is common in pediatric setting decreases: at least 38.3% of respondents thought that anxiolytic medications can be considered as the first line treatment for anxiety disorder. A systematic review found that GPs don't have a standardized approach with regard to use of benzodiazepines (Creupelandt *et al.*, 2017). When our participants were completing the questionnaire, some nurses commented that issues related to treatment are not part of their responsibilities. Another

important point to note is that the position of clinicians about psychoeducation for any pediatric illness demonstrates that the mental aspect of illnesses is not emphasized or recognized because 37.4% of nurses and 75% of doctors thought that the education should concentrate on mother rather than the child. Nevertheless, most of the time the education is done by pediatric residents or pediatricians. A study conducted in England found that pediatric residents could not recognize mental problems because of burn-out (Baer, Feraco and Sagalowsky, 2017) but there is no study done in Rwanda to compare with this .

C. Knowledge of interface between physical and mental health

There is nowhere in human body where mind and body are closer like in children (Melvin, 1996). Awareness of this relationship will help the early identification of mental disorders associated with physical disorders. Health professionals are supposed to understand what impact a physical disorder, the hospital environment or care giver mental health can have on children and adolescents who are under their care. We found that 87.4% of respondents agreed that the management of mental disorders can affect the outcome of physical disorders and a large proportion (90.4%) of respondents agreed that a chronic physical illness can increase the risk of developing a mental health problem. However only 47% knew that Children with Insulin Dependent Diabetes are at increased risk of developing mental illness. This discrepancy in answers would suggest that doctors and nurses may have a mind-set that a chronic illness is supposed to be severe enough in order to cause a mental illness. However research showed that even chronic otitis media can cause developmental delay (Bell *et al.*, 2016). The proportion of those who did not know that failure to thrive can be associated with mental health problem is also a concern. With the high prevalence of stunting in Rwanda, clinicians should be aware of the impact of malnutrition on child mental health. A good finding was that 97.9% of doctors and 74% of nurses agreed that maternal mental health can affect physical health of the child. In a study conducted with 23

primary physicians in US, most pediatricians also agreed that it is appropriate to ask mothers about their own health during a well-child visit (Henegan, Morton and Deleone, 2006).

D. Social distance

This study found that 38.4% of respondents would be concerned if they find their children or relative walking home from school together with a child or adolescent with mental illness, similar proportions would be concerned about their children sitting in class next to child or adolescent who has mental illness. Despite, issues of standardization of stigma measures for different categories of study populations (Loch et al, 2012; Henderson et al., 2014), these findings are in line with the finding of previous studies conducted in Nigeria using the same instrument (Tungchama, 2014). Another study found that 63% of nurses and 43% of psychiatrists thought that people diagnosed with schizophrenia should not get married (Magliano *et al.*, 2014). Even if the stigmatizing attitudes highlighted under this point are not linked with their profession, it is obvious that there is a relationship between attitude of a health professional in community and attitude at working place. Health professionals' attitudes could reflect attitudes among the rest of the community, could also reflect the institutional attitude because many of them are leaders at different levels. Aydin et al. (2013) explained that in this way the stigmatizing attitudes among health professionals can promote stronger public stigma through social modeling.

E. Attitude of doctors and nurses with regard to treatment of children' and adolescents' mental disorders in general hospitals

The stigmatization of mental illness hinders the integration of treatment disorders in general health facilities. Asked about treatment of children with mental disorders in pediatric setting, 33.1% of nurses did not accept that all healthcare providers have responsibility to identify and treat children with mental

illness in their best abilities. Also, almost a quarter of nurses and doctors would be worried if they worked in a ward which admits children with mental health problems and for a case of an adolescent with psychotic symptoms, 51% (nurses and doctors combined) opted for hospitalization in psychiatric hospital. It is not clear whether this option was linked to dangerousness attributed to children with mental disorders in general or psychotic disorder in particular. This position of doctors and nurses could be linked to another statement endorsed by 67.3 % of nurses and 27.1% of doctors that children with mental health problems cannot be treated by pediatricians. The above statements suggest the respondents' assumption that a neuropsychiatric hospital is the only institution specialized for management of mental disorders. These findings are quite similar to what was found among Primary Care pediatricians who felt responsible for recognizing but not for treating child and adolescent depression (Olson *et al.*, 2001). There are however other studies who found that healthcare providers have favorable attitudes towards treatment of mental disorders in pediatric unit: in US, 100% of pediatric residents stated that identifying depression and suicidal ideation are in the scope of their practice (Kershner, Hooper and Gold, 2009) while in Cambodia, 81.35% of health workers were interested in personally delivering mental health care in their units (Alfredsson and Sebastian, 2017); in Liberia 79.7% believe all healthcare providers have a responsibility to identify and to treat mental disorders to their best abilities (Quiah, 2014).

However, despite the reticence to be involved in treatment of metal disorder, 95.9% of our respondents felt they had an ethical responsibility of helping. In Nigeria, 86.6% of health professionals at Jos University Teaching Hospital agreed that they have ethical responsibilities to treat children with mental illness (Tungchama, 2014). This help was not specified but it could be in form of assessment, diagnosis, treatment, calling a psychiatrist, referral, etc.

F. Relationship between stigma and attribution attitude

The answers to attribution attitudes questions showed respondents' emotional reactions towards a potentially stigmatizing situation: in this study, it was a patient brought to emergency with psychotic symptoms whereas the stigmatizing attitude questionnaire showed the degree of willingness to participate in social relationship with people with mental illness. Our study has found that attribution attitude and stigmatizing attitude among doctors and nurses were interrelated and stigmatizing attitude was the independent predictor of attribution attitude and vice versa. Some researchers into stigma have raised important issues of stigma measures which should be addressed in future. One of those issues is to distinguish stigma of the label from stigma of mental illness symptoms and experience. 'Labeling-related' stigma and 'symptom-related' stigma manifests specifically due to the odd symptoms or behaviors associated with a specific psychiatric syndrome. The author stated that these 2 forms of stigma are modestly associated with one another (Yang and Link, 2015). They suggested also that intervention should be different depending on what kind of stigma you want to address. Another issue which was raised is the assessment of culture-specific aspects of stigma. To this I would also add the personality-specific aspect of stigma because there is a close relationship between emotion and personality and this can also have impact on stigmatizing attitude. Personality and motivation were mentioned as factors affecting nurses' performance in family nursing care (Sovia, *et al.*, 2019). This may explain the relationship between the two forms of attitude as demonstrated by our analyses.

G. Knowledge of CAMH versus attitude to mental health problems

A linear relationship between knowledge scores and stigmatizing attitude as well as attribution scores was found by this study. The higher the knowledge scores the lower the attitude scores on both attitude scales. Stigmatizing attitude scores was also found to be one of the independent predictors of knowledge

while knowledge scores was an independent predictor of attribution scores. Given the positive relationship between stigmatizing and attribution scores, our findings are similar to previous findings at Jos University Teaching Hospital where knowledge scores was one of independent predictors of stigmatizing attitude scores (Tungchama, 2014).

5.1.3 Limitations

The study as such was carried out with care to arrive at reliable results but there are some limitations to be noted:

First, as noted by other researchers in mental health literacy, it was not possible to find a comprehensive measure that can assess all the components of Child and Adolescent Mental health awareness at the same time (Wei et al., 2016). Second, the use of instruments validated in other countries may not allow for measurement of culture- specific aspects of stigma. Also, some stigma measures cannot exclude social desirability bias or self-report bias. Third, it should also be noted that intentions as contained in the attitude statements are not absolutely equivalent to actions as it was mentioned by proponents of the social definition of attitude (Chaiklin, 2011). Fourth, we can point out that assessing knowledge with a structured instrument can itself provide information to respondents such that the answers provided may not reflect knowledge prior to assessment. Fifth, the study has not used literally the same instruments as those used in previous studies and this may influence comparison of the results with those of previous studies.

5.1.4. Weaknesses

The participation rate was not satisfactory for a study conducted on total population and, even with a total sampling approach, the total study sample was less than the calculated sample size. Another weakness is that we have no data from King Faisal hospital, which was intended to be included in the study, but had to be excluded for logistical reasons.

5.1.5. Strengths

We have extended knowledge and attitude measures in order to include items specific to the study population. This has provided original information about health professionals' knowledge and attitudes in relation to CAMH specific to a pediatric setting.

No sampling errors were committed as the study was carried out on total population.

5.2. CONCLUSION

The study has highlighted that doctors and nurses working in pediatric units at tertiary hospitals in Rwanda had insufficient knowledge of Child and Adolescent Mental Health and negative attitudes towards children and adolescent with mental health problems. This lack of knowledge and negative attitudes prevailed more among nurses than doctors. Among other attitudes, we can note the negative attitudes towards the management of mental illnesses in pediatric units. Working at Butare University Teaching Hospital or Rwanda Military Hospital, being a nurse and having stigmatizing attitude are the independent predictors of insufficient knowledge of child and adolescent mental health while a shorter length of work experience and being a nurse were the independent predictors of showing negative attitudes in relation to child and adolescent mental health.

5.3. RECOMMENDATIONS

Training of doctors and nurses about Child and adolescent mental health is a necessity but it may be more cost-effective to target awareness programmes on nurses, especially nurses with shorter length of work experience. It could also be more cost-effective to target awareness programmes on health professionals from Butare University Teaching Hospital and Rwanda Military hospital. This training should prioritize the recognition of mental health problems especially those common mental health problems in pediatric setting, management of common pediatric mental disorders, and awareness of children and adolescents mental health problems treatment gap.

Stigmatizing attitudes among health professional should be tackled by changing knowledge of health professionals but also combining with other methods in other to address other determinants of negative attitudes.

Child and adolescent mental health should be included in nursing and medical curricula.

Word count= 4128

REFERENCES

- Akol, A. *et al.* (2018) “‘ We are like co-wives ’”: Traditional healers ’ views on collaborating with the formal Child and Adolescent Mental Health System in Uganda’. *BMC Health Services Research*, pp. 1–9.
- Al-yateem, N. *et al.* (2017) ‘Mental health literacy among pediatric hospital staff in the United Arab Emirates’. *BMC Psychiatry*, pp. 1–12. doi: 10.1186/s12888-017-1556-z.
- Alfredsson, M. and Sebastian, M. S. (2017) ‘Attitudes towards mental health and the integration of mental health services into primary health care : a cross-sectional survey among health-care workers in Lvea Em District, Cambodia’, *Global Health Action*. Taylor & Francis, 00(00). doi: 10.1080/16549716.2017.1331579.
- Guanavel and Hussein (2018) ‘World Journal of Psychiatry’, 8(1), pp. 27–32. doi: 10.5498/wjp.v8.i1.27.
- World Health Organization (2013) ‘Comprehensive mental health action plan 2013 – 2020’, (May), pp. 1–27.
- Baer, T. E., Feraco, A. M. and Sagalowsky, T. (2017) ‘Pediatric Resident Burnout and Attitudes Toward Patients’, 139(3).
- Bell, M. F. *et al.* (2016) ‘Chronic Illness and Developmental Vulnerability at School Entry’, 137(5). doi: 10.1542/peds.2015-2475.
- Bella, T. (2011) ‘Towards School Mental Health in Nigeria: Baseline Knowledge and Attitudes of Elementary School Teachers’, 4(3), pp. 55–62.
- Berry, J. G. *et al.* (2017) ‘Contributions of Children With Multiple Chronic Conditions to Pediatric Hospitalizations in the United States : A Retrospective Cohort Analysis’, 7(7).
- Betancourt, T. *et al.* (2016) ‘Ethics in community-based research with vulnerable children: Perspectives from Rwanda’, *PLoS ONE*, 11(6), pp. 1–10. doi: 10.1371/journal.pone.0157042.
- Brien, D. O. *et al.* (2016) ‘Barriers to managing child and adolescent mental health problems : a systematic review of primary care practitioners ’ perceptions’, (October). doi: 10.3399/bjgp16X687061.
- Butler, A. *et al.* (2018) ‘Mental disorder in children with physical conditions : a pilot study’, pp. 9–11. doi: 10.1136/bmjopen-2017-019011.
- Chaiklin, H. (2011) ‘Attitudes , Behavior , and Social Practice’. *The Journal of Sociology & Social Welfare*: Vol. 38 (1).
- Atas, E. *et al.* (2018) ‘Can pediatricians recognize eating disorders? A case study of early-onset anorexia nervosa in a male child’, pp. 0–3.
- Comer, M. *et al.* (2014) Use of the Pediatric Symptom Checklist to Screen for Psychosocial Problems in Pediatric Primary Care, 153(3), pp. 254–260.

- Corrigan, P. (2008) 'A Toolkit for Evaluating Programs Meant to Erase the Stigma of Mental Illness', pp. 1–38.
- Creupelandt, H. *et al.* (2017) 'Teaching young GPs to cope with psychosocial consultations without prescribing : a durable impact of an e-module on determinants of benzodiazepines prescribing'. *BMC Medical Education*, pp. 1–9. doi: 10.1186/s12909-017-1100-3.
- Danielson, M. *et al.* (2019) 'Clinicians ' attitudes toward standardized assessment and diagnosis within child and adolescent psychiatry', *Child and Adolescent Psychiatry and Mental Health*. BioMed Central, pp. 1–13. doi: 10.1186/s13034-019-0269-0.
- Evans-lacko, S. *et al.* (2010) 'Mental Health Knowledge Schedule', 55(7).
- Fleury, M. *et al.* (2012) 'General practitioners ' management of mental disorders : A rewarding practice with considerable obstacles', *BMC Family Practice*. BioMed Central Ltd, 13(1), p. 19. doi: 10.1186/1471-2296-13-19.
- Furbish, S. M. L., Kroehl, M. E. and Loeb, D. F. (2017) 'A Pharmacist- Physician Collaboration to optimize Benzodiazepine Use for Anxiety and Sleep Symptom Control in Primary Care', 30(4), pp. 425–433. doi: 10.1177/0897190016660435.
- Gadomski, A. M. *et al.* (2015) 'Encouraging and Sustaining Integration of Child Mental Health into Primary Care: Interviews with Primary Care Providers Participating in Project TEACH (CAPES and CAP PC) in NY', 36(6), pp. 555–562. doi: 10.1016/j.genhosppsy.2014.05.013.
- Ghanean, H., Nojomi, M. and Jacobsson, L. (2015) 'A Community Study on Attitudes to and Knowledge of Mental Illness in Tehran', (January), pp. 26–30.
- Golding, N. *et al.* (2017) 'Mapping under-5 and neonatal mortality in Africa, 2000–15: a baseline analysis for the Sustainable Development Goals', *The Lancet*. The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY 4.0 license, 390(10108), pp. 2171–2182. doi: 10.1016/S0140-6736(17)31758-0.
- Hinrichs, S. *et al.* (2012) 'General practitioner experience and perception of Child and Adolescent Mental Health Services (CAMHS) care pathways: A multimethod research study', *BMJ Open*, 2(6). doi: 10.1136/bmjopen-2012-001573.
- In-albon, T., Zumsteg, U. and Schneider, S. (2010) 'Mental disorders in the paediatric setting – results of a Swiss survey', (August), pp. 1–5. doi: 10.4414/smw.2010.13092.
- Jelinek, G. A. *et al.* (2013) 'Knowledge and confidence of Australian emergency department clinicians in managing patients with mental health-related presentations : findings from a national qualitative study', *International Journal of Emergency Medicine*. International Journal of Emergency Medicine, 6(1), p. 1. doi: 10.1186/1865-1380-6-2.
- Jones, M. K. *et al.* (2016) 'Antidepressant Prescribing by Pediatricians: A Mixed- Methods Analysis', 10(12), pp. 1939–1947. doi: 10.1038/nprot.2015.121.
- Kershner, R., Hooper, C. and Gold, M. (2009) 'Adolescent Medicine : Attitudes , Training , and Experience Of Pediatric , Family Medicine , and Obstetric-Gynecology Residents', 82, pp. 129–141.

- Ko, W. and Kiser-larson, N. (2016) 'Stress Levels of Nurses in Oncology Outpatient Units', 20(2).
- Lu, C., Li, Z. and Patel, V. (2018) 'Global child and adolescent mental health : The orphan of development assistance for health', pp. 1–12.
- Lund, C. *et al.* (2018) 'Review Social determinants of mental disorders and the Sustainable Development Goals : a systematic review of reviews'. Elsevier Ltd, pp. 357–369. doi: 10.1016/S2215-0366(18)30060-9.
- Lykke, K., Christensen, P. and Reventlow, S. (2013) 'GPs ' strategies in exploring the preschool child's wellbeing in the paediatric consultation'.
- Mansouri, N. *et al.* (no date) 'The change in attitude and knowledge of health care personnel and general population following trainings provided during integration of mental health in Primary Health Care in Iran : a systematic review', 7, pp. 1–7. doi: 10.1186/1752-4458-3-15.
- Mayne, S. L. *et al.* (2016) 'Variations in Mental Health Diagnosis and Prescribing Across Pediatric Primary Care Practices', 137(5).
- Mcmillan, J. A., Jr, L. and Leslie, L. K. (2017) 'Pediatric Residency Education and the Behavioral and Mental Health Crisis : A Call to Action', 139(1). doi: 10.1542/peds.2016-2141.
- Michie, S., Stralen, M. M. Van and West, R. (2011) 'The behaviour change wheel : A new method for characterising and designing behaviour change interventions', *Implementation Science*. BioMed Central Ltd, 6(1), p. 42. doi: 10.1186/1748-5908-6-42.
- Mulango, I. D. *et al.* (2018) 'Knowledge , attitudes and practices regarding depression among primary health care providers in Fako division , Cameroon'. BMC Psychiatry, pp. 1–9.
- Newton, A. S. *et al.* (2009) 'A 4-year review of pediatric mental health emergencies in Alberta', *Canadian Journal of Emergency Medicine*, 11(5), pp. 447–454. doi: 10.1017/S1481803500011647.
- Nyblade, L. *et al.* (2019) 'Stigma in health facilities : why it matters and how we can change it'. BMC Medicine, pp. 1–15.
- Nyirandagijimana, B. *et al.* (2017) 'Closing the gap: decentralizing mental health care to primary care centres in one rural district of Rwanda', 1(3), pp. 231–236.
- Pasha, N., Saeed, S. and Drewek, K. (2015) 'Monitoring of physical health parameters for inpatients on a child and adolescent mental health unit receiving regular antipsychotic therapy', pp. 1–3. doi: 10.1136/bmjquality.u202645.w3700.
- World Health Organization (2005) 'Child And Adolescent Mental Health Policies'.
- Pradesh, M., Colony, D. and Pradesh, M. (2017) 'Neurodevelopmental Status of Children aged 6-30 months with Severe Acute Malnutrition'.
- Prince, M. *et al.* (2007) 'No health without mental health', *Lancet*, 370(9590), pp. 859–877. doi: 10.1016/S0140-6736(07)61238-0.
- Psychiatric, P. I. *et al.* (2017) 'Clinical Management of Pediatric Acute-Onset Neuropsychiatric

- Syndrome', 27(7), pp. 566–573. doi: 10.1089/cap.2016.0145.
- Rao, D. *et al.* (2019) 'A systematic review of multi-level stigma interventions : state of the science and future directions'. *BMC Medicine*, pp. 1–11.
- Rathod, S. *et al.* (2017) 'Mental Health Service Provision in Low- and Middle-Income Countries', *Health Services Insights*, 10(0). doi: 10.1177/1178632917694350.
- Rey, J. M. *et al.* (2015) 'IACAPAP Textbook of Child and Adolescent Mental Health', doi: 10.13140/2.1.1578.4967, pp. 1–72.
- Sayinzoga, F. and Bijlmakers, L. (2016) 'Drivers of improved health sector performance in Rwanda : a qualitative view from within', *BMC Health Services Research*. *BMC Health Services Research*, pp. 1–10. doi: 10.1186/s12913-016-1351-4.
- Seierstad, T. G. *et al.* (2017) 'GPs' and child and adolescent psychiatry specialists' experiences of joint consultations in the GP's office : a qualitative study', *BMC Research Notes*. *BioMed Central*, pp. 1–8. doi: 10.1186/s13104-017-2766-7.
- Siddiqui, N. *et al.* (2018) 'Hospital length of stay variation and comorbidity of mental illness : a retrospective study of five common chronic medical conditions'. *BMC Health Services Research*, pp. 1–10.
- Sirdifield, C. *et al.* (2013) 'General practitioners' experiences and perceptions of benzodiazepine prescribing : systematic review and meta-synthesis'.
- Soleimani, A., Rosychuk, R. J. and Newton, A. S. (2016) 'Predicting time to emergency department re-visits and inpatient hospitalization among adolescents who visited an emergency department for psychotic symptoms : a retrospective cohort study', *BMC Psychiatry*. *BMC Psychiatry*, pp. 1–7. doi: 10.1186/s12888-016-1106-0.
- Ubaka, C. M. *et al.* (2018) 'Health Professionals' Stigma towards the Psychiatric Ill in Nigeria'.
- World Health Organization (2016) 'mhGAP Intervention Guide', doi: 10.1109/TMI.2013.2269195.
- Verger, P. (2018) 'Opinions of general practitioners about psychotherapy and their relationships with mental health professionals in the management of major depression : A qualitative survey', pp. 1–14.
- Verhaak, P. F. M. *et al.* (2015) 'A new approach to child mental healthcare within general practice', *BMC Family Practice*. *BMC Family Practice*, pp. 1–10. doi: 10.1186/s12875-015-0354-2.
- Vicentic, S. *et al.* (2016) 'Burnout of Formal Caregivers of Children with Cerebral Palsy', 53(2).
- Walker, S. P. *et al.* (2011) 'Inequality in early childhood : risk and protective factors for early child development', 378, pp. 1325–1338. doi: 10.1016/S0140-6736(11)60555-2.
- Wang, Y. *et al.* (2017) 'Perceptions of parents and paediatricians on pain induced by bone marrow aspiration and lumbar puncture among children with acute leukaemia : a qualitative study in China', pp. 1–9. doi: 10.1136/bmjopen-2016-015727.
- Wei, Y. *et al.* (2015) 'Mental health literacy measures evaluating knowledge , attitudes and help-

- seeking : a scoping review’, *BMC Psychiatry*. BMC Psychiatry. doi: 10.1186/s12888-015-0681-9.
- Wei, Y. *et al.* (2016) ‘Measurement properties of tools measuring mental health knowledge : a systematic review’, *BMC Psychiatry*. BMC Psychiatry. doi: 10.1186/s12888-016-1012-5.
- World Health Organization. (2006) ‘The constitution of the World Health Organization ’, (july 1994), pp. 1–18.
- World Health Organization. (2003) ‘Caring for children and adolescents with mental disorders’.
- Wu, Q. *et al.* (2017) ‘Mental health literacy survey of non-mental health professionals in six general hospitals in Hunan Province of China’, pp. 1–13.
- Yang, L. H. and Link, B. G. (2015) ‘Measurement of Attitudes, Beliefs and Behaviors of Mental Health and Mental Illness Lawrence, (October), pp. 1–71.
- Yateem, N. Al *et al.* (2018) ‘Mental health literacy of school nurses in the United Arab Emirates’, *International Journal of Mental Health Systems*. BioMed Central, pp. 1–13. doi: 10.1186/s13033-018-0184-4.
- Yoder, H. N. C. *et al.* (2016) ‘Child mental health in Sierra Leone : a survey and exploratory qualitative study’, *International Journal of Mental Health Systems*. BioMed Central, pp. 1–13. doi: 10.1186/s13033-016-0080-8.
- Zantinge, E. M. *et al.* (2006) ‘Does the attention General Practitioners pay to their patients ’ mental health problems add to their workload? A cross sectional national survey’, 8, pp. 1–8. doi: 10.1186/1471-2296-7-71.
- Zeltzer, L. K. *et al.* (2009) ‘Psychological Status in Childhood Cancer Survivors : A Report From the Childhood Cancer Survivor Study’, 27(14). doi: 10.1200/JCO.2008.21.1433.
- Raman, N., Janse van Rensburg, AB. (2013) ‘Clinical and psycho-social profile of child and adolescent mental health care users and services at an urban child mental health clinic in South Africa’ *Afr J Psychiatry (Johannesbg)* ;16(5):356-63.
- Lund, C. *et al.* (2009) ‘scaling up child and adolescent mental health services in South Africa: human resource requirements and costs’. *J Child Psychol Psychiatry*; 50(9):1121-30.
- International Association for Child and Adolescent Psychiatry and Allied Professions Textbook of Child Psychiatry (2012).
- Omighodun, O. (2012) ‘Unifying Psyche and Soma for Child healthcare in Africa’, 35th Annual General and Scientific Meeting, Lagos, Nigeria.
- International Classification of Diseases, Version 11 (ICD-11)
- Tolulope, B., Patricia I., and Olayinka, O. (2012) Emergency in Psychiatry in Low- and Middle-income Countries. Edited by R.Thara and Lakshmi Vijayakumar (pp 108-122)

Richard H.Granzer, David J.Sconfeld et al., (1996) in 'Child and Adolescent Psychiatry: A Comprehensive Textbook'. Edited by Melvin Lewis, Second Edition (pp 935-965)

BMJ Group and Pharmaceutical Press (2010) 'British National Formulary for Children (BNFC)', *RCPCH Publications Ltd* (pp221, 235)

Nurcombe, B., Myron L.B. (2007) 'The Mental Health of Children and Adolescent, an Area of Global Neglect', *John Wiley & Sons Ltd* (pp27-28)

Montserrat, P., Rebeca, G., Joan-Carles, O. *et al.*, (2016) Mental Health Emergencies in Pediatric Services: Characteristics, Diagnostic Stability and Gender differences.

Bella-Awusah, T., Adedokun, B., Omogbodun, O., (2014) 'The impact of a mental health teaching program on rural and urban secondary school students' perceptions of mental illness in southwest Nigeria, *Journal of Child and Adolescent Mental Health*. 2014; 26(3):207-15.

Adewuya, A.O., Makanjuola, R.O., (2008) 'Social Distance towards People with Mental Illness in Southwestern Nigeria', *Australian and New Zealand Journal of Psychiatry*. 2008 May; 42(5):389-95

Tungchama,P. (2014) 'Knowledge, Attitudes and Practices of Health Professionals towards Children and Adolescents with Mental Health Difficulties in Jos University Teaching Hospital, Jos-Plateau'

Mohand and Kayiteshonga (2015) 'The set-up of a National Mental Health Programme in Rwanda', 9th European Congress on Tropical Medicine and International Health, Basel, Switzerland.

Rye, M. (2019) 'Attitudes of Mental Health Providers towards Adoption of Evidence-based Interventions: Relationship to Workplace, Staff Roles and Social and Psychological Factors at Work' *BMC Health Services Research*. 2019 Feb8; 19(1):110.

Sovia *et al.*, 2019 'Factors Affecting the Performance of Public Health Nurses' *Enferm Clin*.2019 doi 10.1016/j.enfcli.2018.11.024

Beks, Healey and Schlicht (2018) 'When You' re It': A Qualitative Study Exploring the Rural Nurse Experience of Managing Acute Mental Health Presentation'.

Varnell, Haas, Duke, and Hudson, (2008) 'Effect of an Educational Intervention on Attitudes towards and Implementation of Evidence- Based Practice', *World views of Evidence-Based Nursing* 5(4): 172-81

KAMARA, B. (2014) 'The effectiveness of a training programme for nurses on Child and Adolescent Mental Health (CAMH) care in Freetown, Sierra Leone'.

Garlet, Q.A. (2014) 'Healthcare providers' knowledge, attitude and practices in relation to Child and Adolescent Mental Health in government hospitals, Monrovia, Liberia'.

Montserrat, P. et al. (2016) 'Mental Health Emergencies in Paediatric Services: Characteristics, Diagnostic Stability and Gender differences'.

Hirfanoglu, T. et al. (2008) "A study of perceptions, attitudes, and level of knowledge among pediatricians towards attention-deficit/hyperactivity disorder" *The Turkish journal of pediatrics* 50(2):160-6

Olson AL. et al. (2001) 'Primary care pediatricians' roles and perceived responsibilities in the identification and management of depression in children and adolescents' *Ambul Pediatr.* 2001 Mar-Apr; 1(2):91-8.

Knaak, S., et al. (2017) 'Understanding Stigma: A Pooled Analysis of a National Program Aimed at Health Care Providers to Reduce Stigma towards Patients with a Mental Illness'. *Journal of Mental Health and Addiction Nursing*, 1(1):e19-e29 doi: 10.22374/jmhan.v1i1.19

Clarke, D. E., Dusome, D., & Hughes, L. (2007). 'Emergency department from the mental health client's perspective'. *International Journal of Mental Health Nursing*, 16, 126–31.

Henderson, C., et al. (2014). Mental health-related stigma in health care and mental health-care settings. *Lancet Psychiatry*, 1, 467–82

Loch, A.A. et al. (2013). 'The more information, the more negative stigma towards schizophrenia: Brazilian general population and psychiatrists compared'. *Psychiatry Research*, 205, 185–91

Aydin, N., Yigit, A., Inandi, T., & Kirpinar, I. (2003). Attitudes of Hospital Staff Towards Mentally Ill Patients in a Teaching Hospital, Turkey. *International Journal of Social Psychiatry*, 49 (1), 17 – 26.

Henegan, Morton and Deleone (2007) 'Pediatricians' attitudes about discussing maternal depression during a pediatric primary care visit' *Child Care Health Dev.* 2007 33(3).

ANNEX 1: CONSENT FOR PARTICIPATION IN STUDY

You are invited to participate in the research entitled

KNOWLEDGE AND ATTITUDES IN RELATION TO CHILD AND ADOLESCENT MENTAL HEALTH AMONG DOCTORS AND NURSES WORKING IN PEDIATRIC UNITS AT TERTIARY HEALTH FACILITIES IN RWANDA

This research is done by Dr Athanase HATEGEKIMANA as partial fulfillment of requirements for a degree of Masters of Science in Child and Adolescent Mental Health at University of Ibadan, Nigeria. The study has been approved by the Centre for Child and Adolescent Mental Health, University of Ibadan and by Rwanda National Ethics Committee.

The findings will be used for evidence-based intervention in the scope of promotion of mental health among pediatric patients.

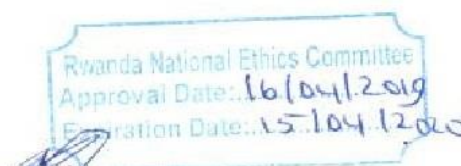
This is a cross-sectional comparative study which will use a self-completed questionnaire to collect information related to your knowledge of Child and Adolescent Mental Health and your attitude towards children with mental health problems. The questionnaire that you will complete will be anonymized so that your responses will not be tracked in anyway after the study.

The participation in this research is voluntary and there is no foreseeable risk or inconvenience associated with participating in the research. Your participation will cover a period of 5 days from the day you sign this consent form and you are free to decline your participation at any time during the process of the research.

The individual feed-back will not be provided but you will have access to the findings from the study at the time of dissemination of results and eventually you will be trained on the subject if the findings will highlight a knowledge gap in relation to Child and Adolescent Mental Health.

We provide for you a telephone airtime equivalent to 1000 RWF. No other form of compensation will be provided.

Thank you for considering taking part in the study. Please let me know if you need more information related to this research by contacting me at 0788834225 or by contacting Rwanda National Ethic Committee at 0788309807 (the President) or 0788749398 (the Secretary). If you are happy to take part, I would be grateful if you would sign this consent for participation by appending your signature here _____ Date.../.../2019



ANNEX 2: CONSENTEMENT POUR PARTICIPER DANS UNE RECHERCHE

Vous êtes invités à participer dans la recherche intitulée

CONNAISSANCES ET ATTITUDES RELATIVES A LA SANTE MENTALE DES ENFANTS ET DES ADOLESCENTS CHEZ LES MEDECINS ET LES INFIRMIERS(ERES) QUI SOIGNENT LES ENFANTS DANS LES HOPITAUX DU NIVEAU TERTIAIRE AU RWANDA

Cette recherche est effectuée par Dr Athanase HATEGEKIMANA en vue de l'obtention d'un diplôme de maîtrise en sciences de la santé mentale des enfants et des adolescents à l'Université d'Ibadan, au Nigeria. L'étude a été approuvée par le Centre de Santé Mentale des Enfants et des Adolescents de l'Université d'Ibadan et par le Comité National d'Ethique du Rwanda.

Les résultats serviront à une intervention fondée sur des données dans le domaine de la promotion de la santé mentale chez les patients pédiatriques.

Il s'agit d'une étude transversale comparative qui utilisera un questionnaire auto-rempli pour recueillir les informations liées à vos connaissances sur la santé mentale des enfants et des adolescents et à votre attitude à l'égard des enfants ayant des problèmes de santé mentale. Le questionnaire que vous remplirez ne portera pas votre nom, ainsi vos réponses ne seront pas identifiées de toute façon après l'étude.

La participation à cette recherche est volontaire et il n'y a aucun risque ou inconvénient prévisibles associés à la participation à la recherche. Votre participation couvrira une période de 5 jours à partir du jour où vous signez ce formulaire de consentement et vous êtes libre de refuser votre participation à tout moment au cours du processus de la recherche.

Le feed-back individuel ne sera pas fourni, mais vous aurez accès aux résultats de l'étude au moment de la diffusion des résultats et éventuellement vous serez formé sur le sujet si les résultats mettent en évidence une lacune dans la connaissances relative à la santé mentale des enfants et des adolescents.

Nous vous donnons une carte de rechargement des unités de téléphone équivalent à 1000 FRW. Pas d' autre forme de compensation prévue.

Merci de votre accord de participer à l'étude. Veuillez nous laisser savoir si vous avez besoin de plus d'informations en nous contactant au 0788834225. Si vous avez besoins des informations relation avec vos droits comme participant, veuillez contacter l'autorité du Comite National D' Ethique au 0788309807 (Président) ou 0788749398 (Secrétaire). Si vous êtes heureux de prendre part, je vous serais reconnaissant si vous pouviez signer le présent consentement pour la participation en apposant votre signature ici
Date.../.../ 2019



ANNEX 3: QUESTIONNAIRE

Questionnaire No.....

SECTION 1. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

1. Age (years):

2. Gender: 1. Male 2. Female

3. Religion: 1. Christian 2. Muslim 3. other 4. no religion

4. Nationality: 1. Rwandan 2. Other

5. Qualification: 1. General Practitioner 2. Resident 3. Pediatrician

4. Nurse A₂ 5. Nurse A₁ Nurse A₀

6. Place of work: 1. CHUK 2. CHUB 3. KFH 4. RMH

7. Ward: 1. OPD 2. Emergency room 3. Hospitalisation

4. Neonates 5. Pediatric intensive care

8. How many years have you worked with children in Pediatrics department?

Please state number of Years.....

9. Have you ever received any formal training on Child and Adolescent Mental Health?

1. YES 2. NO

10. Have you ever participated in a CPD session on Child and Adolescent Mental Health?

1. YES 2. NO

SECTION 2: KNOWLEDGE OF CHILD AND ADOLESCENT MENTAL HEALTH

Part 1: General Knowledge

	Please, respond by TRUE or FALSE to each of the following statements. Please feel free to express your views	True	False	Don't know
11	Mental health problems are rare in children	0	1	0
12	Epilepsy can lead to a child developing a mental health problem	1	0	0
13	Attention Deficit Hyperactivity Disorder is a type of behavioural mental health problem in children	1	0	0
14	Depression is a type of emotional mental health problem	1	0	0
15	Mental health problems can be managed by talking with a counselor	1	0	0
16	Parental involvement may be necessary in the management of children with mental health problems	1	0	0
17	People with mental health problems are difficult to talk to	0	1	0
18	Mental health problems can be caused by exam stress	1	0	0
19	Brain infection or head injury can cause a mental illness	1	0	0
20	About one in four people will develop mental illness over the course of a lifetime	1	0	0
21	Mental health problems are caused by spiritual attack	0	1	0
22	Use of alcohol and other illicit drugs can cause a mental illness	1	0	0
23	Parents with mental illness always transmit it to their children.	0	1	0
24	Mental illness can only be treated with medication	0	1	0
25	Most people affected by mental illness do not recover	0	1	0
26	Mental illness is best treated by traditional healers	0	1	0

Part 2: Knowledge of children and adolescents mental problems in Pediatrics unit

	Please indicate your view about mental health problems in Pediatrics unit by marking X in relevant box	TRUE	FALSE	Don't know
27	Children with mental health problems can be treated by paediatricians	1	0	0
28	Children with Insulin Dependent Diabetes are at increased risk of developing mental illness	1	0	0
29	Mother's mental health status can affect physical health of her child	1	0	0

30	The discharge plan for critical illnesses should include mental health follow up	1	0	0
31	A chronic physical illness can increase the risk of developing a mental health problem	1	0	0
32	The management of child/adolescent mental health problem can affect the outcome of his/ her physical health problem	1	0	0
33	The management of some mental health problems can require working together with youth protection agencies, social welfare, etc...	1	0	0
34	Some physical health conditions can resemble emotional disorders	1	0	0
35	The education about any illness should focus on mother (caregiver) rather than on child or adolescent	0	1	0
36	An asthmatic attack can be triggered by a psychological stress	1	0	0
37	The process of medical investigation can induce anxiety symptoms	1	0	0
38	The more serious the pediatric illness, the more likely it is that behavioural reactions will arise	1	0	0
39	The knowledge of age-appropriate behaviour or emotion is necessary when assessing for mental health problem	1	0	0
40	Psychological problems can arise at the time of diagnosis for a physical illness	1	0	0
41	Mental disorders cannot be diagnosed before 4 years	0	1	0
42	Emotional disorders can present differently at different age groups	1	0	0
43	Anxiolytic medication should be considered as first line treatment of anxiety disorders	0	1	0
44	Symptoms of depression can be confused with medical symptoms in a child who is physically unwell	1	0	0
45	Failure to thrive can be associated with mental and behavioural disorders in children	1	0	0
46	Recurrent headache, stomach-ache or vomiting can be a sign of emotional disorder	1	0	0
47	The assessment of home environment is important if you suspect a mental problem	1	0	0

SECTION3: ATTITUDE TOWARDS CHILDREN/ADOLESCENTS WITH MENTAL HEALTH PROBLEMS

A. Attribution questionnaire

Read the following clinical case and then respond to following question:

Harry, a 15 year-old, male, is brought to Pediatric emergency by his mother who reports that during the last 4 weeks, Harry has been hearing voices when no one is talking, saying unusual things to himself, behaving bizarrely and out of character. It appears that Harry is suffering from a psychotic illness.

		Not at all	Somehow	Much	Very much
48	I would feel pity for Harry	4	3	2	1
49	How dangerous would you feel Harry is?	1	2	3	4
50	I would think that it was Harry's own fault that he is in the present condition	1	2	3	4
51	How scared of Harry would you feel	1	2	3	4
52	I think it would be best for Harry's community if he was put away in a psychiatric hospital	1	2	3	4
53	How angry would you feel at Harry	1	2	3	4
54	I would try to stay away from Harry				
55	How much do you agree that Harry should be forced into treatment with his doctor even if he does not want to?	4	3	2	1
56	How likely is it that you would help Harry	Definitely would help:	Probably would help:	Probably would not help:	Definitely would not help:
		1	2	3	4

B. Stigmatizing Attitude Scale Questions

	Item	YES	NO
57	Do you think children and adolescents with mental illness can be friendly?	0	1
58	Do you think children and adolescents with mental illness can be intelligent?	0	1
59	Do you think children and adolescents with mental illness can be dangerous to the society?	1	0
60	Do you think children and adolescents with mental illness can eventually get married?	0	1
61	Do you think children and adolescents with mental illness should be allowed to play with other children?	0	1
62	Do you believe all health care providers have a responsibility to identify and or treat children and adolescent with mental illness to their best ability	0	1
63	I will feel ashamed if people knew a child in my family has mental illness	1	0
64	I will be afraid to have a conversation with a child or adolescent with mental illness	1	0
65	I will be worried about working on the ward that admits children and adolescents with mental illness	1	0
66	I will not allow my child or relative to be friends with a child or adolescent with mental illness	1	0
67	I would be worried about marrying a fellow worker/colleague who works with children or adolescents with mental illness	1	0
68	I would be concerned about my child or relative sitting in class next to a child or adolescent who has mental illness	1	0
69	I would be concerned about my child or relative inviting a child or adolescent with mental illness to their birthday party	1	0
70	I would be concerned about my child or relative doing homework together with a child or adolescent with mental illness	1	0
71	I would be concerned if I find my child or relative walking home from school together with a child or adolescent with mental illness	1	0

ANNEX 4: QUESTIONNAIRE (Version française)

Questionnaire No.....

SECTION 1. CARACTERISTIQUES SOCIO-DEMOGRAPHIQUES

1. Age: ans

2. Sex: 1. Masculin

2. Feminin

3. Religion: 1. Chrétien (ne)

2. Musulman (ne)

3. Autre

4. Sans religion

4. Nationalité: 1. Rwandaise

2. Autre

5. Qualification (Cocher la vraie réponse):

1. Généraliste

2. Résident

3. Pédiatre

4. Infirmier(ère)

6. Lieu de travail: 1. CHUK

2. CHUB

3. KFH

4. RMH

7. Salle: 1. Consultation externe

2. Urgences pédiatriques

3. Hospitalisation

4. Nouveaux-nés

5. Soins intensifs

8. Combien d'années avez-vous travaillé dans un service qui s'occupe des enfants?

Indiquez le nombre d'années.....

9. Avez-vous reçu une formation portant sur la santé mentale des enfants et des adolescents?

1. OUI

2. NON

10. Avez-vous participé dans une session de développement professionnel continu (CPD) sur la santé mentale des enfants et des adolescents? 1. OUI

2. NON

SECTION 2: CONNAISSANCE SUR LA SANTE MENTALE DES ENFANTS ET DES ADOLESCENTS

1ère partie: Connaissance générale

	Veillez répondre par VRAI ou FAUX aux arguments suivant selon votre opinion.	VRAI	FAUX	Je ne sais pas
11	Les problèmes de santé mentale sont rares chez les enfants	0	1	0
12	L'épilepsie peut causer une maladie mentale	1	0	0
13	Le trouble d'Hyperactivité avec Déficit de l' Attention est un trouble du comportement chez l'enfant.	1	0	0
14	La dépression est un problème de l'émotion	1	0	0
15	Les problèmes mentaux peuvent être traités au moyen d'un counseling	1	0	0
16	La participation des parents peut être nécessaire dans la prise en charge des enfants ayant des problèmes de santé mentale	1	0	0
17	Il est difficile de s'entretenir avec une personne qui présente des problèmes de santé mentale	0	1	0
18	Les problèmes de santé mentale peuvent être causés par le stress au cours de l'examen	1	0	0
19	Une infection cérébrale ou un traumatisme crânien peut causer une maladie mentale	1	0	0
20	Environ une personne sur quatre développera une maladie mentale au cours de sa vie	1	0	0
21	Les problèmes de santé mentale sont causés par les esprits mauvais	0	1	0
22	La consommation d'alcool et d'autres drogues illicites peut causer une maladie mentale	1	0	0
23	Les parents atteints de maladie mentale la transmettent toujours à leurs enfants	0	1	0
24	La maladie mentale ne peut être traitée qu'avec des médicaments.	0	1	0
25	La plupart des personnes atteintes de maladie mentale ne guérissent pas	0	1	0
26	La maladie mentale est mieux traitée par les guérisseurs traditionnels	0	1	0

2ème partie: *Connaissance sur les problèmes de la santé mentale des enfants et des adolescents en Pédiatrie*

	Veillez indiquer votre point de vue sur les problèmes de santé mentale en pédiatrie en cochant X dans la case appropriée	VRAI	FAUX	Je ne sais pas
27	Les enfants souffrant de problèmes de santé mentale peuvent être traités par un pédiatre	1	0	0
28	Les enfants atteints de diabète insulino-dépendant sont plus à risque de développer une maladie mentale	1	0	0
29	L'état mental de la mère peut affecter la santé physique de son enfant	1	0	0
30	Le plan de sortie pour les maladies graves devrait comprendre un suivi du côté de la santé mentale	1	0	0
31	Une maladie physique chronique peut augmenter le risque de développer un problème de santé mentale	1	0	0
32	La prise en charge des problèmes de santé mentale de l'enfant/adolescent peut avoir une influence sur ses problèmes de santé physique	1	0	0
33	La prise en charge des problèmes de santé mentale peut nécessiter une collaboration avec les organismes de protection des jeunes, les services sociaux, etc.	1	0	0
34	Certains problèmes de santé physique peuvent ressembler à des troubles de l'émotion	1	0	0
35	Pour toute maladie, l'éducation devrait se concentrer sur la mère (ou le garde-malade) plutôt que sur son enfant	0	1	0
36	Une crise d'asthme peut être déclenchée par un stress psychologique	1	0	0
37	Le processus d'investigation médicale peut induire des symptômes d'anxiété	1	0	0
38	Plus une maladie pédiatrique est grave, plus il est probable que l'enfant va développer des réactions comportementales.	1	0	0
39	La connaissance du comportement et des émotions normaux en fonction de l'âge est nécessaire pour suspecter un problème de santé mentale	1	0	0
40	Les problèmes psychologiques peuvent survenir au moment du diagnostic pour une maladie physique quelconque	1	0	0
41	Les troubles mentaux ne peuvent pas être diagnostiqués avant l'âge de 4 ans	0	1	0

42	Les troubles de l'émotion peuvent se manifester différemment selon les groupes d'âge	1	0	0
43	Les médicaments anxiolytiques doivent être considérés comme un traitement de première ligne des troubles anxieux	0	1	0
44	Les symptômes de la dépression peuvent être confondus avec des symptômes d'une maladie physique chez un enfant malade	1	0	0
45	Le retard de croissance peut être associé à des troubles mentaux et comportementaux chez les enfants.	1	0	0
46	Les céphalées récurrentes, les douleurs abdominaux ou les vomissements peuvent être un signe de trouble de l'émotion	1	0	0
47	L'évaluation de l'environnement familial est importante si vous soupçonnez un problème mental.	1	0	0

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SECTION 3: ATTITUDE À L'EGARD DES ENFANTS / ADOLESCENTS AYANT DES PROBLEMES DE SANTE MENTALE

A. Questionnaire d'attribution

Lisez le cas clinique suivant et répondez aux questions suivantes.

Harry, un garçon de 15 ans, est amené aux urgences pédiatriques par sa mère qui rapporte qu'au cours des 4 dernières semaines, Harry a entendu des voix quand personne ne parle, se disant des choses inhabituelles, se comportant bizarrement et hors de caractère. Il semble que Harry souffre d'une maladie psychotique.

		Pas du tout	Plus ou moins	Beaucoup	Très beaucoup
48	J'aurais pitié pour Harry	4	3	2	1
49	Pensez-vous que Harry serait dangereux?	1	2	3	4
50	Je pense que c'est de sa faute qu'il est dans l'état actuel	1	2	3	4
51	Sentiriez-vous de la peur de Harry?	1	2	3	4
52	Je pense que ce serait mieux pour la communauté de Harry si il était placé dans un hôpital psychiatrique	1	2	3	4
53	Auras-tu de la colère envers Harry?	1	2	3	4
54	Je ferais tout pour rester loin de Harry	1	2	3	4
55	Combien êtes-vous d'accord que Harry devrait être forcé à être traité par le médecin, même si il ne veut pas?	4	3	2	1
56	Etes-vous à mesure d'aider Harry ?	Certainement je l'aiderais	Probablement je l'aiderais	Probablement je ne l'aiderais pas	Certainement Je ne l'aiderais pas
		1	2	3	4

B. Questions sur l'échelle des attitudes stigmatisantes

	Repondez par OUI ou NON aux arguments suivants selon votre point de vue	OUI	NON
57	Pensez-vous que les enfants et les adolescents atteints de maladie mentale peuvent être sympathiques?	0	1
58	Pensez-vous que les enfants et les adolescents atteints de maladie mentale peuvent être intelligents?	0	1
59	Pensez vous que les enfants et les adolescents souffrant de maladie mentale peuvent être dangereux pour la société?	1	0
60	Pensez vous que les enfants et les adolescents souffrant de maladie mentale pourront se marier?	0	1
61	Pensez-vous que les enfants et les adolescents atteints de maladie mentale peuvent être autorisés à jouer avec d'autres enfants?	0	1
62	Croyez-vous que tous les dispensateurs de soins de santé ont la responsabilité d'identifier et de traiter au mieux les enfants et les adolescents atteints de maladie mentale?	0	1
63	J'aurais honte si les gens savaient que dans ma famille il y' a un enfant qui souffre d'une maladie mentale	1	0
64	J'aurai peur d'avoir une conversation avec un enfant ou un adolescent souffrant d'une maladie mentale	1	0
65	Je vais m'inquiéter de travailler dans la salle qui accueille les enfants et les adolescents atteints de maladie mentale	1	0
66	Je ne permettrai pas une personne de ma famille d'être avec un enfant ou un adolescent atteint de maladie mentale	1	0
67	Je m'inquiéterais d'épouser un collègue qui travaille avec des enfants ou des adolescents atteints de maladie mentale	1	0
68	Je serais inquiet pour mon enfant ou une personne de ma famille s'il s' assyait en classe à côté d'un enfant ou d'un adolescent qui a une maladie mentale	1	0
69	Je serais inquiet pour mon enfant ou une persone de ma famille s' il invitait à sa fête d' anniversaire un enfant ou un adolescent atteint de maladie mentale	1	0
70	Je m'inquiéterais du fait que mon enfant ou une personne de ma famille fait ses devoirs avec un enfant ou un adolescent souffrant de maladie mentale	1	0
71	Je serais inquiet pour mon enfant ou une personne de ma faille si il rentrait de l'école en compagnie d' un enfant/adolescent souffrant de maladie mentale	1	0

ANNEX 5: ETHICAL APPROVAL AND ADMINISTRATIVE AUTHORISATION

REPUBLIC OF RWANDA/REPUBLIQUE DU RWANDA



NATIONAL ETHICS COMMITTEE / COMITE NATIONAL D'ETHIQUE

Telephone: (250) 2 55 10 78 84

E-mail: info@rncrwanda.org

Web site: www.rncrwanda.org

Ministry of Health

P.O. Box. 84

Kigali, Rwanda.

FWA Assurance No. 00001973

IRB 00001497 of IORG0001100

April 16, 2019

No.200/RNEC/2019

Principal Investigator: **HATEGEKIMANA Athanase**

Masters Student

Your research project: "knowledge and attitudes in relation to child and adolescent mental health among doctors and nurses working in pediatric units at tertiary health facilities in Rwanda" has been evaluated by the Rwanda National Ethics committee.

Name	Institute	Involved in the decision		
		Yes	No (Reason)	
			Absent	Withdrawn from the proceeding
Dr.Jean-Baptiste MAZARATI	Biomedical Services (BIOS)	X		
Prof. Jean Paul RWABIHAMA	Kigali Teaching Hospital	X		
Prof.Laetitia NYIRAZINYOYE	University of Rwanda	X		
Dr. Egide KAYITARE	University of Rwanda	X		
Mr. Spencer BUGINGO	Lawyer	X		
Dr. David K. TUMUSIIME	University of Rwanda	X		
Dr. Lisine TUYISENGE	Kigali Teaching Hospital	X		
Dr. Darius GISHOMA	University of Rwanda	X		
Sr Epiphanie MUKABARANGA	Rwamagana Nursing and Midwife school		X	

Dr. Vedaste NDAHINDWA	University of Rwanda	X		
Prof. Claude MUVUNYI	Biomedical Services (BIOS)		X	

After reviewing your protocol during the RNEC meeting of April 06,2019 where quorum was met, and revisions made on the advice of the RNEC submitted on 16 April 2019, **we hereby provide approval for the above-mentioned protocol.**

Please note that approval of the protocol and consent form both English and Kinyarwanda version is valid for **12 months.**

You are responsible for fulfilling the following requirements:

1. Changes, amendments, and addenda to the protocol or consent form must be submitted to the committee for review and approval, prior to activation of the changes.
2. Only approved consent forms are to be used in the enrollment of participants
3. All consent forms signed by subjects should be retained on file. The RNEC may conduct audits of all study records, and consent documentation may be part of such audits.
4. A continuing review application must be submitted to the RNEC in a timely fashion and before expiry of this approval.
5. Failure to submit a continuing review application will result in termination of the study.
6. Notify the Rwanda National Ethics committee once the study is finished.

Sincerely,



Date of Approval: April 16, 2019

Expiration date: April 15,2020

Dr. Jean- Baptiste MAZARATI
Chairperson, Rwanda National Ethics Committee

C.C.

- Hon. Minister of Health.
- The Permanent Secretary, Ministry of Health.



**CENTRE HOSPITALIER UNIVERSITAIRE
UNIVERSITY TEACHING HOSPITAL**

**CENTRE HOSPITALIER UNIVERSITAIRE
DE BUTARE (CHUB)
OFFICE OF DIRECTOR GENERAL**

Huye, ...08/05/2019

N° Ref: CHUB/DG/SA/05/0770/2019

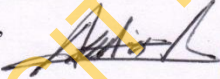
**Athanase Hategekimana
Phone: +250788834225
Email: hategekathanas@yahoo.fr**

Dear Hategekimana

Re: Your request for data collection

Reference made to your letter requesting for permission to collect the data within University Teaching Hospital of Butare for your research proposal entitled "*Knowledge and attitudes in relation to child and adolescent mental health among Doctors and Nurses working in Pediatric units at tertiary health facilities in Rwanda*", based to the approvals No: 200/RNC/2019 from National Ethics Committee and No: RC/UTHB/032/2019 from our Research-Ethics committee, we are pleased to inform you that you are accepted to collect data within University Teaching Hospital of Butare. Please note that your final document will be submitted in our Research Office.

Sincerely,


**Dr. Augustin SENDEGEYA
Director General of CHUB**



Cc:

- Head of Clinical Education and Research Division
- Director of Research
- Chairperson of Research-Ethics Committee
- Research officer

CHUB

E-mail : info@chub.rw
Website: www.chub.rw

B.P : 254 BUTARE
Hotline: 2030



**REPUBLIC OF RWANDA
RWANDA MILITARY HOSPITAL**

Website: www.rwandamilitaryhospital.rw
P.O. Box: 3377 Kigali, Tel: (+250)252586420, Hotline: 4060
E-mail: info@rwandamilitaryhospital.rw



April 26, 2019

Ref.: RMH IRB/023/2019

REVIEW APPROVAL NOTICE

Dear Dr HATEGEKIMANA Athanase
Centre for Child and Adolescent Mental Health
University of Ibadan, Nigeria

Your Research Project: **“Knowledge and Attitudes in Relation to Child and Adolescent Mental Health among Doctors and Nurses Working in Pediatric Units at Tertiary Health Facilities in Rwanda”**.

With respect to your application for ethical approval to conduct the above stated study at Rwanda Military Hospital, We are pleased to confirm that the RMH/Institutional Review Board (IRB) has approved your study. This approval lasts for a period of **12 months** from the date of this notice, and after which, you will be required to seek another approval if the study is not yet completed.

You are welcome to seek other support or report any other study related matter to the Research office at Rwanda Military Hospital during the period of approval.

You will be required to **submit the progress report** and any major changes made in the proposal during the implementation stage. In addition, you are required to **present the results** of your study to the RMH/IRB before publication.

Sincerely,


Prof. Alex M. Buteera
Colonel
Chairperson Institutional Review Board, RMH

Email: Info@rwandamilitaryhospital.rw
Tel: 0252586420
P.o Box: 3377RWANDA MILITARY HOSPITAL



**CENTRE HOSPITALIER UNIVERSITAIRE
UNIVERSITY TEACHING HOSPITAL**

Ethics Committee / Comité d'éthique

April 23th, 2019

Ref.: EC/CHUK/063/2019

Review Approval Notice

Dear Hategekimana Athanase

Your research project: "Knowledge and attitudes in relation to child and adolescent mental health among Doctors and Nurses working in pediatric units at CHUK"

During the meeting of the Ethics Committee of University Teaching Hospital of Kigali (CHUK) that was held on 5th April, 2019 to evaluate your request for ethical approval of the above mentioned research project, we are pleased to inform you that the Ethics Committee/CHUK has approved your research project.

You are required to present the results of your study to CHUK Ethics Committee before publication.

PS: Please note that the present approval is valid for 12 months.

Yours sincerely,

Dr. RUSINGIZA KAMANZI Emmanuel
The chairperson, Ethics Committee,
University Teaching Hospital of Kigali



<<University teaching hospital of Kigali Ethics committee operates according to standard operating procedures (Sops) which are updated on an annual basis and in compliance with GCP and Ethics guidelines and regulations>>

B.P. :655 Kigali- RWANDA www.chk.rw Tél. Fax : 00 (250) 576638 E-mail :chuk.hospital@chukigali.rw