UNIVERSITY OF RWANDA

REPUBLIC OF RWANDA

COLLEGE OF MEDECINE AND HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

A Master's Thesis

ADHERENCE AND TREATMENT OUTCOMES AMONG GENOCIDE SURVIVORS WITH COMORBIDITY OF PTSD AND OTHER MENTAL DISORDERS ATTENDING CHUK, RWANDA

By **UWERA KABANDA FRANÇOISE**

A dissertation submitted in partial fulfillment of the requirements for the degree of Master in Public Health

In the **College of Medicine and Health Sciences**

Supervisor: Dr NYIRAZINYOYE Laetitia

Kigali June 2016

DECLARATION

We do hereby declare that this dissertation submitted for Partial Fulfillment of the Requirements for the Master in Public Health, in the Department of Public Health, School of Public Health, College of Medicine and Health Sciences at University of Rwanda is our original work and has not previously been submitted elsewhere. Also, we do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

Students Name: **UWERA KABANDA FRANÇOISE**

Sign…………………………………. Date………………………………………

Declaration by the Supervisor

This dissertation has been submitted with our approval as the University of Rwanda Supervisor.

Name: Dr NYIRAZINYOYE Laetitia

Sign………………………………………Date……………………………………

DEDICATION

This dissertation is dedicated to my Husband and Children. In all humility this dedication is my humble recognition for your importance to me and my destiny.

God's Blessings to you

ACKNOWLEDGEMENTS

I wish to give glory and praise to the Almighty God who gave me good health, strength, courage and commitment to complete this dissertation.

I am also glad and grateful to Dr NYIRAZINYOYE Laetitia my supervisor for his devotion, courage, constructive criticisms and everyday willingness to assist me.

Also, I am grateful to Dr Darius Gishoma and the lectures of department of Public Health for their unwavering support, encouragement and preparedness to guide and share their knowledge and expertise with me.

In this regards, I recognize all individuals and others who contributed to the intellectual openness during my studies.

ABSTRACT

Introduction: The PTSD became prevalent as a challenging public health problem in post-genocide period in Rwanda. The genocide survivors are especially the vulnerable group. Different recent studies still pointed out its prevalence.

Methodology: This cross section study aimed to investigate the Adherence and Treatment Outcomes of genocide survivors with Comorbidity of PTSD and Other Mental Disorders attending CHUK/former SCPS. A sample of 102 patients was selected using systematic random sampling.

Results: This study revealed point prevalence of comorbidity of PTSD and other mental disorders of 79.4%. Mean perceived social support from relatives was 14.3%. The proportion of patients who had absent or minimal impairment in functioning was 14.7%.
The mean optimal adherence score was found to be 32.5%. Factors influencing adherence to treatment are related to Comorbidity of PTSD and mental disorders, economic barriers to access to health care services, Satisfaction with attitudes of service providers, social support and social stress (p<0.05). The statistically significant relationship between adherence to treatment and treatment outcomes was found (p<0.05).

Conclusion: Most patients who adhered to their treatment had their symptoms reduced and had a better global functioning. The study recommended designing and implementing relevant interventions that can increase the number of patients who adhere optimally to treatment in order to have better treatment outcomes.

Key terms: treatment adherence, treatment outcomes, Comorbidity, PTSD, Mental disorder.

RESUME

Introduction: L'ESPT est devenu répandu en tant que problème de santé publique difficile dans la période post-génocide au Rwanda. Les survivants du génocide sont en particulier les groupes vulnérables. Des études récentes Différentes encore souligné sa prévalence.

Méthodologie: Cette étude de type transversale visant à étudier l`adhérence et les résultats de traitement chez survivants du génocide avec comorbidité du ESPT et d'autres troubles mentaux au CHUK / ex-SCPS. Un échantillon de 102 patients a été sélectionné par échantillonnage aléatoire systématique.

Résultats: Cette étude a révélé la prévalence élevée de la comorbidité du SSPT et d'autres troubles mentaux à 79,4%. Le soutien social perçu était de 14,3%. La proportion de patients qui ont des symptômes bénins persistants ou une légère déficience persistante dans le fonctionnement était de 14.7%. Le score moyen d'adhérence optimale a été 32,5%. Facteurs influençant l'observance du traitement sont liés à la comorbidité de l'ESPT et les troubles mentaux, les obstacles économiques, satisfaction à l'égard des attitudes des prestataires de services, le soutien social, stress social, la stigmatisation et l'interférence du médicament avec les modes de vie du patient (p < 0,05). La relation statistiquement significative entre l`adhérence et les résultats du traitement a été trouvé (p <0,05).

Conclusion: La plupart des patients qui ont adhéré à leur traitement avaient leurs symptômes réduits et avaient un meilleur fonctionnement global. L'étude a recommandé la conception et la mise en œuvre des interventions pertinentes qui peuvent augmenter le nombre de patients qui adhèrent de façon optimale au traitement afin d'obtenir de meilleurs résultats de traitement.

Termes clés: l'observance du traitement, les résultats du traitement, comorbidité, ESPT, troubles mentaux.

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LIST OF ABREVIATIONS AND ACRONYMS

AVEGA: Association des Veuves rescape du Genocide

CHUK: Kigali University Teaching Hospital

DSM: Diagnostic and Statistical Manual of Mental Disorders

GAF: Global Assessment of Functioning

HIV: Human Immunodeficiency Virus

ICD: International Classification of Diseases

KHI: Kigali Health Institute

PTSD: Post Traumatic Stress Disorder

SCPS: Service de Consultation Psycho-Sociale

WHO: World Health Organization

YLD: Years Lived with Disability

OPERATIONAL DEFINITION OF KEY TERMS

Adherence to treatment: the extent to which a patient follows the instructions that they are given for prescribed treatment. The adherence to treatment comprises a number of forms namely attending prescribed appointments, undergoing prescribed psychotherapy and other non-pharmacological treatments, taking correctly the prescribed medication, psychotropic drugs, while adhering to behavioral recommendations. In this study, a patient with an overall adherence score of greater than or equal to 80% was considered adherent optimally, between 50% inclusive and 80% exclusive was considered partial adherent and less than 50% was non-adherent (Haynes et al. 2002, Levensky and O'Donohue, 2006). In this study, the proportion of patients who dropped out of or completed planned non pharmacological treatments was determined from medical records.

Treatment outcomes: were defined as patient's symptoms remission and improvement in global functioning in this study. The changes and progress made by the patient towards symptoms remission and improved global functioning were tracked using the Global Assessment of functioning Scale. Level of functioning considers psychological, social, and occupational functioning on a hypothetical continuum of mental health illness. It does not include impairment in functioning due to physical or environmental limitations. A patient is assigned a score between 0 (inadequate information) and 100 (superior functioning) by a clinician/physician indicating the symptom severity or level of functioning (Eisen, 2009). In this study, after considering the psychological, social and occupational functioning of the patients, the interviewer gave a score to each of the study participants a score corresponds to a given intensity of symptoms.

Mental disorder: Any of various conditions characterized by impairment of an individual's normal cognitive, emotional, or behavioral functioning, and caused by social, psychological, biochemical, genetic, or other factors, such as infection or head trauma. Also called emotional illness, mental disease, also called mental disorder (ICD-10). In this study, other mental disorders suffered by studied participant apart from PTSD, were extracted from his or her medical records

Comorbidity: the coexistence of two or more mental disorders in a patient (Maree and Heather, 2003). In this study, the comorbidity of PTSD and other mental disorders was extracted from his or her medical records. The point prevalence of comorbidity of PTSD and other mental disorders were there after determined.

PTSD: Post-traumatic stress disorder, often abbreviated as PTSD, is a complex disorder in which the affected person's memory, emotional responses, intellectual processes, and nervous system have all been disrupted by one or more traumatic experiences. It is sometimes summarized as "a normal reaction to abnormal events." the professional's diagnostic manual classifies PSTD as an anxiety disorder. According to us, PTSD is a state happened to the individual who has been exposed or experienced a traumatic event, then the person in this state he/she re-experiences that even after a period (DSM-IV-TR, 2000). In this study, the primary diagnosis (PTSD) of the study participant was extracted from his or her medical records.

CHAPTER ONE: INTRODUCTION

1.1. BACKGROUND

Early studies on prevalence of post-traumatic stress disorder (PTSD) demonstrated high prevalence in high-income countries, sociodemographic correlates such as female sex, and the associated significant subsequent comorbidity and morbidity (Lukoye et al. 2015). However, recent studies from around the world have included low and middle-income countries (Karam et al., 2014; Ferry et al., 2014 ; Atwoli et al.2013), providing novel evidence on the distribution of trauma and PTSD cross-nationally.

According to World Health Report (2000), Post-traumatic stress disorder (PTSD) was estimated to account for 0.4% of total Years Lived with Disability (YLD), around the same percentage as schizophrenia. In 2001, the Global Burden of Disease published in the World Health Report (2001) demonstrated that the estimated burden of PTSD has increased to 0.6% of total global YLDs. However, on the other hand, in a study conducted in four different regions with conflicts, the prevalence of PTSD was reported between 17.8- 37.4% (Lukoye et al. 2015)

Vast differences of PTSD rates were found in the studies conducted in Western countries, due to varying hardships, duration of traumatic exposure. All research results confirmed however those refugees in Western countries are at high risk for PTSD. Ai and collaborators studied refugees from the Bosnian war who had resettled in the United States via social service agencies. 61% showed a significant PTSD symptomatology (Ai, 2002). Momartin and colleagues interviewed Bosnian refugees, who had settled in Australia. They found 63% with PTSD, with dysthymia or depression (Momartin, 2004). Marshall studied mental health in Cambodians, and also reported high rates of trauma exposure in Cambodia 62% of respondents met the DSM-IV diagnostic criteria for PTSD. Co-morbidity was high: 71% of people with PTSD also met Mild Depression criteria (Marshall, 2005). Comorbidity might in itself lead to more severe overall symptoms or, alternatively, the particular constellation of identified trauma exposure (traumatic loss and life threat) might have generated both co-morbidity as well as increased intensity of symptoms (Momartin, 2004).

In low- and middle income countries, Studies on Mental health in victims of organized violence were done. Over a period of three years, Kamau and colleagues assessed the general mental health status in a psychiatric service center in a refugee camp in Kenya. They interviewed survivors of organized violence and civil war, who had fled from Sudan, Somalia, and Ethiopia. 39% of the patients received an initial PTSD diagnosis, 22.7% suffered from anxiety disorders, 12.3% had a psychosis, and 10.6% were identified with depression (Kamau, 2004). Polak interviewed abducted girls in Northern Uganda about their war and trauma experiences. The mean number of reported traumatic event types was 23.5, the maximum 38. The authors found that all girls suffered from PTSD (Impact of Event Scale) symptoms on a clinically significant level (Amone-P'olak, 2005). In a cross-sectional study in a primary healthcare center, Al-Jawadi and Abdul-Rhaman found a point prevalence of mental disorder of 37.4% according to the DSM. The most prevalent disorders were PTSD (10.5%), enuresis (6%), and anxiety disorder (4.3%) (Al-Jawadi, 2007).

Associated factors in the described studies, PTSD and other mental health problems were elevated for participants who had experienced torture, reported a psychiatric history, suffered from current illness or chronic health conditions, experienced daily hassles, had domestic stress, were less educated, had lost a family member, had abused alcohol, were unemployed or had a low economic status and gender differences were significant for general psychological distress, anxiety, depression, PTSD, and psychosocial functioning, whereby women were in a worse situation on all measures (Jong, 2001 ; Mollica, 2002 ; Karunakara, 2004 ; Miller, 2008).

Studies on genocide survivors in Rwanda assessed immediate consequences on mental health. A comparable PTSD prevalence rate of 30% was found by Gishoma in children living in child headed households (Gishoma, 2005). Schaal and Elbert, Ten years after the genocide, interviewed Rwandan orphans about their trauma experiences and symptoms. 77% of the orphans had witnessed someone being killed and 41% had witnessed the murder of a parent. They all reported traumatic stress symptoms and 44% of the sample met DSM-IV criteria for PTSD, 35.5% for Mild Depression, and 37.3% expressed suicidal thoughts

(Schaal, 2006). Mukamana (2013) stated that a study conducted early in 1999 by AVEGA (cited in (Zelaya and Fellow, 2009) established that among its members, 80% of the women surveyed were suffering from PTSD. Fourteen years after the genocide Munyandamutsa et al (2012) estimated the prevalence of PTSD to 26%, still being a significant public health problem in Rwanda. Several risk factors stood out, some of them being female gender, low education, high age and loss of both parents. The patients showing signs of PTSD turned out to have a higher prevalence of somatic symptoms as well as other mental disorders. Participants who fulfilled diagnostic criteria for PTSD were significantly more often affected with major depression (68.4 vs. 6.6%) and substance dependence (7.6 vs. 3.5%) than respondents without PTSD. Several risk factors stood out, some of them being female gender, low education, high age and loss of both parents. Rieder et al (2013) showed similar figures and are especially pointing out physical illness as an important factor maintaining PTSD and vice versa. When comparing survivors and perpetrators Schaal et al (2012) found significantly higher prevalence of PTSD among the survivors.

1.2. PROBLEM STATEMENT

The PTSD became prevalent as a challenging public health problem in post-genocide period in Rwanda.The genocide survivors are especially the vulnerable group. Different recent studies still pointed out its prevalence (Neugebauer et al. 2009; Munyandamutsa et al. 2012; Rieder et al. 2013).Unfortunately, after genocide, the country was not yet prepared to handle the issues in connection to PTSD, due to lack of adequate infrastructures, equipment and qualified staff. Progressively, people have been trained in different institutions (e.g.: former NUR in clinical psychology department, KHI in mental health department) to take care of sufferers, and some institutions like Psycho-Social Center (former SCPS) were created and mental health units were integrated within district hospitals. Despite the efforts implemented by the Ministry of Health (MoH), the problem of PTSD stills worrisome. To date, there is a discrepancy between the number of specialized professionals and institutions within the whole country to deal with the cases of PTSD, as the disorder may evolve in other mental disorders like depression, drug abuse, somatization (WHO, 2011) when not well managed. Some studies indicate that the chronicity of PTSD and comorbidities may result in the erosion of social support, one of the most consistent factors to cope with stress. The

perceived support networks may play a crucial role in determining the degree to which individuals are willing to seek out and utilize available treatment (Clapp & Beck, 2009).

The impact of PTSD remains with devastating consequences among genocide survivors who still dealing with perverse consequences, and constantly negotiating between the desire to live on and destruction feelings. Most of them struggle with consequences in bio-psycho-socio-professional area impacted by such phenomenon (Boris, 2008). On the one hand, these patients who continually seek for help spend their financial means; constitute a burden for their family members and/or supporting institutions. Or contrary they become non adherent to available treatments while studies have well documented an association between non-adherence and poor treatment outcomes (Angeli, 2009). On the other hand, clinicians/therapists are sometimes tired when patients delay to improve. Patients and clinicians are both challenged by this situation. What was a worry for researchers 14 years port- genocide, are still 22 years post genocide. Evidence suggested that ssymptoms endured over the 14 post-conflict years, as chronicity of untreated mental health problems remain stable (Boris, 2008). Moreover, clinical suffering causes interference with the daily life and health status of the survivors (Catani, 2008). The co-morbidity of symptoms is associated with greater symptom severity (Murorunkwere, 2007). Therefore, without effective management of this disorder where comorbid conditions are identified and treated and where adherence to treatment and social support to patients are given special attention; there will be little improvements among patients (Murorunkwere, 2007). In fact, the cycle of treatment, discharge, relapse and treatment again, will never end for some genocide survivors suffering from PTSD and people will often wonder whether the treatments administered produce any good outcomes. There is therefore need to examine some clinical aspects like comorbidity, adherence and treatment outcomes which until now have not yet been scientifically studied among genocide survivors suffering from PTSD. This study aimed to fill some of these gaps in knowledge by investigating the Adherence and Treatment Outcomes of genocide survivors with Comorbidity of PTSD and Other Mental Disorders attending CHUK/former SCPS.

1.3 RESEARCH OBJECTIVES

1.3.1 General objective

The main objective of this study was to investigate the Adherence and Treatment Outcomes of genocide survivors with Comorbidity of PTSD and Other Mental Disorders attending CHUK/former SCPS

1.3.2 Specific objectives

1. To determine the point prevalence of comorbidity of PTSD and other mental disorders among genocide survivors attending CHUK/former SCPS.

2. To determine the factors that associated with adherence to treatment among genocide survivors attending CHUK/former SCPS.

3. To establish the relationships between the adherence to treatment and treatment outcomes among genocide survivors attending CHUK/former SCPS.

1.4 RESEARCH QUESTIONS

1. What is the point prevalence of comorbidity of PTSD and other mental disorders among genocide survivors attending CHUK/former SCPS?

2. What are the factors that influence adherence to treatment among genocide survivors attending CHUK/former SCPS?

3. What is the relationship between the adherence to treatment and treatment outcomes among genocide survivors attending CHUK/former SCPS?

1.5 SIGNIFICANCE OF THE STUDY

This study is important because it will bring insight into Adherence and Treatment Outcomes of genocide survivors with Comorbidity of PTSD and Other Mental Disorders in the current context. These findings will provide a foundation for designing effective interventions to address the challenge of frequent non adherence and poor treatment Outcomes of genocide survivors with Comorbidity of PTSD and Other Mental Disorders. Knowledge of these

issues will help mental health service providers in Rwanda to improve the standards of mental health care and interventions that are currently applied in caring for patients with Comorbidity of PTSD and Other Mental Disorders.This study will set a foundation for future research on Comorbidity of PTSD and Other Mental Disorders among genocide survivors in Rwanda. This study will help influence health policy makers in improving mental health and reducing the burden of non adherence and poor treatment Outcomes of genocide survivors with Comorbidity of PTSD and Other Mental Disorders, their families and community as a whole.

1.6 SUBDIVISION OF THE STUDY

This study will be composed by five chapters: the first chapter deals with introduction of the study, the second chapter deals with literature review, the third chapter deals with research methodology, the fourth chapter deals with presentation and interpretation of results and the chapter five deals with discussion of findings, conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

Studies on the epidemiology of posttraumatic stress disorder (PTSD) demonstrated high disorder prevalence not only in high-income countries but also in low and middle-income countries, sociodemographic correlates (e.g., female sex), and the associated significant subsequent comorbidity and morbidity (Atwoli et al., 2015). The same author noted that PTSD is associated with serious consequences that may lead to poor quality of life and increased use of health and other social services. Duration of PTSD symptoms may, therefore, serve as an indicator of the impact of the condition on an individual's life (Atwoli et al., 2015).

2.1. CROSS-NATIONAL DIFFERENCES IN THE PREVALENCE OF POST

TRAUMATIC STRESS DISORDER

Lifetime prevalence of PTSD also varies across the nations. Lifetime prevalence is similar in South Africa (2.3%), Spain (2.2%), and Italy (2.4%), where as the prevalence was lower in Japan (1.3%). Northern Ireland, in contrast, reported the highest lifetime PTSD prevalence of 8.8% (Atwoli et al., 2013). Conditional risk of PTSD refers to the prevalence of PTSD among those exposed to traumatic events, as opposed to the overall prevalence of PTSD regardless of traumatic event exposure. Apart from Northern Ireland where the conditional prevalence was 17.6%, the World Mental Health survey found relatively low-conditional prevalence rates of PTSD in all countries that measured it [8]. In the South African survey, the PTSD conditional prevalence was 3.5%, quite similar to the 3.3% prevalence in Spain, and slightly higher than the 2.5% rate in Italy (Atwoli et al., 2013).

Concerning sociodemographic correlates of PTSD, the South African survey once again differs significantly from the Japanese and European surveys. Female sex was associated with elevated PTSD risk in all the countries surveyed except South Africa where sociodemographic factors showed very little association with PTSD risk (Kawakami, 2014). Additionally, low education in Italy, and age under 65 years, being married, being retired, and having 'other' employment status (which included unemployment) in Northern Ireland were associated with increased PTSD risk (Atwoli et al., 2015). As discussed earlier, the lack

of association between sociodemographic factors and PTSD risk has been attributed to the unique history of trauma exposure in South Africa, where institutionalized violence and traumatization were common features during the apartheid regime, with almost the entire population being exposed at some point (Atwoli et al., 2013).

Some studies have been done on mental or neurological disorders in Rwanda where PTSD and other trauma related studies have received much attention in recent years. In a study on somatic panicattack equivalents in a community sample of Rwandan widows who survived the 1994 genocide, Hagengimana et al. (2003) found that the rate of panic disorder was 35%. In their research on trauma and PTSD symptoms in Rwanda, Pham et al. (2004) found that among the 2091 participants who survived the 1994 genocide, 24.8% met the symptom criteria for PTSD. In a study to determine the prevalence of PTSD disorder and depression in HIV infected and at- risk Rwandan women, Cohen et al. (2009) found that PTSD was prevalent in HIV-positive (58%) and HIV-negative women (66%). They further reported that women with HIV had a higher prevalence of depressive symptoms than HIV-negative women (81% vs. 65%, p <0.0001). Sebera and Nyiramazaire (2006) found that the prevalence of epilepsy, which is a neurological disorder, was 4.9% in Rwanda.

2.2. COMORBIDITY OF PTSD AND OTHER MENTAL DISORDERS

A patient may be diagnosed with one, two or more disorders. In this study, comorbidity will refer to the co-occurrence of two or more disorders in a patient (Maree and Heather, 2003). Thus, the comorbidity of PTSD and other mental disorders can be defined as the cooccurrence of PTSD and one or more other mental disorders. Ndetei (2010) noted that people who have psychiatric condition, are likely to drift to cannabis use and that those who use the drug on a long-term basis are at double risk of developing a mental disorder especially if they are genetically predisposed or have a family history of drug use. In the study on comorbidity of major depression and anxiety disorders: recognition and management in primary care in USA, Robert and Hirschfeld (2001) found that between 10% and 20% of adults in any given 12-month period will visit their primary care physician during an anxiety or depressive disorder episode, and more that 50% of these patients suffered from a co-morbid second depressive or anxiety disorder (Robert and Hirschfeld,

2001). Lowe et al. (2008) reported that more than 50% of the clinical population diagnosed with anxiety disorder was simultaneously diagnosed with depression where panic disorder, generalized anxiety disorder, PTSD, obsessive compulsive disorders and some phobias were the most co-morbid anxiety disorders with depression (DSM-IV). In the study done in Korea on the comorbidity of PTSD and depression, Ikin et al. (2010) found that 75% of veterans met the criteria for comorbid PTSD and depression, 15% has PTSD without depression and a further 6% had depression without PTSD.

2.3. COMORBIDITY AND ADHERENCE TO TREATMENT

Adherence can be defined as the extent to which patients follow instructions they are given for prescribed treatments (Haynes et al., 2002). Adherence has replaced the term compliance which has been judged to suggest passivity and obedience on the part of patients. The term adherence implies patient-provider collaboration and an active role of patients in their treatment (Levensky and O'Donohue, 2006), non-adherence to treatments can take a number of forms namely not attending or coming late to appointments, not initiating a recommended treatment, not completing behavioral recommendations or homework such as increases in physical activities, changes in diet, self-monitoring, in vivo exposure and relaxation exercises, not taking medication as prescribed which include taking too many or too few pills, taking medication at incorrect times, not following dietary restrictions, and terminating the treatment prematurely. Levensky and O'Donohue (2006) recommended that when studying regimen adherence, it is important to assess the patterns of adherence which are never initiating the regimen, discontinuing the regimen, regimen holidays, adherence tracking with symptoms experience and non-adherence with no apparent pattern. When a patient never initiates the regimen, it means that he/she does not take a single dose of the regimen. Some other patients will start the regimen, follow it for a while but stop it later and never resume it. The other situation of regimen holiday is that in which a patient stops the regimen for some period of time and then resumes. A patient may also adhere differently based on whether he or she feels better or worse. The case of no apparent pattern is that pattern of doses taken is erratic and unpredictable (Levensky and O'Donohue, 2006). The terminating the treatment prematurely, Levensky and O'Donohue (2006) recommended that when studying regimen adherence, it is important to assess the patterns of adherence which

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The comorbidity of some disorders has been associated with premature discontinuation of treatment, earlier relapse, poorer treatment response, and worse long-term outcome. The consequence of non-adherence to medical and behavioral health treatments is often that the beneficial impact of potentially effective treatments is reduced, and substantial and unnecessary health, social and financial costs are incurred (Zikos et al., 2010).

2.4. FACTORS ASSOCIATED WITH ADHERENCE TO TREATMENT

Levensky and O'Donohue (2006) noted that the factors related to non-adherence to treatment include those related to the patient, those related the treatment regimen itself, those related to features of the disease or target problem such as comorbidity, those related to the patient-provider relationship and those related to the clinical setting. Among the factors related to the patient, lack of knowledge of treatment requirements, cognitive, lack of self-management and coping skills, lack of tangible resources including financial, housing and transportation, stressful life events, inadequate social support, side effects to the patient, fear of stigma for health problem among others can be cited When there is a poor fitting between treatment requirements and patient's lifestyle and daily activities such as eating and sleeping patterns, work schedule, social life and other daily activities, then non-adherence to treatment may follow (Levensky and O'Donohue, 2006).

Among the factors related to the disease itself, Levensky and O'Donohue (2006) reported the level of seriousness of the health problem, long-term duration of the health problem, lack of symptoms, or symptoms interfering with adherence such as problems with memory, mobility or vision can be given as examples. Poor communication between patient and provider, lack

of trust and/or comfort with provider are few of non-adherence factors related to the patient-provider relationship. The factors related to the clinical setting include poor accessibility of services, availability of appointment staff, hours of operation, wait time for services, unfriendly or unhelpful staff among others (Levensky and O'Donohue, 2006).

In a study to elucidate predictors of non-adherence among psychiatric patients presenting at a tertiary care hospital of Pakistan, Fawad et al. (2008) found that out of 128 patients, those with medical comorbidity represented 32.8% and were less adherent than those without comorbidity (p=0.002). They also found that the reasons for non-adherence included sedation (30%), medication cost (22%), forgot to take medication (36%) and inability of the physicians to explain the timing and dose (92%) or benefit of medication (76%).

2.5. FAMILY AND SOCIAL SUPPORT AMONG PSYCHIATRIC PATIENTS

The outcome of a mental disorder is partly associated with the type of support a patient receives from the family. If the family members are understanding and do not pass negative remarks to the patient then the patient is likely to be in the community for a longer time and relapse can be prevented. In a case control study involving seriously mentally ill persons in Mississippi (Mathers C D, Theo Vos E, Stevenson CE, Begg SJ, 2001), it was found out that relapse was associated with high levels of rejection of the subjects by the family members. Lack of support by family members was associated with relapse. Their findings showed that 21% of the cases had supportive family while 61.7% of the controls had supportive family.

With regard to social inclusion, social quality and mental illness, Huxley and Thornicroft (2003) found that people's level of income enabled them to participate in community leisure (recreational) activities. The same authors pointed out that the nature of mental illness, health problems and discrimination against them could cause interpersonal relationships to deteriorate, leading to reduced social contacts.

Discrimination against the mentally ill makes it difficult for a psychiatric patient to be productive in a work situation. Unemployment can be a source of stress and can make a mental disorder to worsen. It has been observed that, employment improves socioeconomic status, provides social interaction, and helps provide meaning or purpose to an individual and can be viewed as therapeutic. Unfortunately, research shows that people with mental illnesses

are unemployed at a disproportionate rate compared to the general population despite that people diagnosed with a mental illness have a strong desire to work (Mental Illness Fellowship of Australia, 2008). With regard to this issue, Stromwall (2002) states that mental health consumers face numerous hindrances at work; for example, harassment from coworkers and stigmatising attitudes.

The social support and social tress are factors that affect positively or negatively both the physical and mental health of people. In a study done in Poland to assess the social support of mentally ill persons, Bronowski and Zaluska (2005) found that the patients' social networks were small with 9 persons on average but had a broad scope of functions. These authors further noted that the therapists from community rehabilitation services constituted the biggest group of persons included in the individual network of social support of mentally ill persons and lack of emotional support was observed by these researchers (Bronowski and Zaluska, 2005). The social support was provided in terms of giving advice, providing emergency help, providing consolation, sharing personal problems, providing unconditional support, helping out, backing up and nursing (Bronowski and Zaluska, 2005).

Krull (2012) noted that social support is critical for recovery. The researcher emphasized that social support helps to overcome damaging isolation and it can keep the patient connected with life. In addition to this, the social support enables the patient to find new solutions to challenges of life (Krull, 2012). In their study to examine the relationship between objective and subjective social support and recovery in people with serious mental illnesses, Corrigan and Phelan (2004) found that people with larger overall network size and more network satisfaction were likely to report higher scores on the Recovery Assessment Scale. Sharir et al. (2007) studied social support and quality of life among psychiatric patients in residential homes and reported that that social support from friends has a strong positive impact upon quality of life in residential home clients with severe mental illness who reduced the connection to family members and had an inability to sustain a relationship with a significant other person.

Some people with mental illness report that the stigma is at times worse than the illness itself. People may be less willing to offer support and empathy if someone is suffering from a

mental illness rather than a physical health problem. Those with a history of mental illness may find that others become uncomfortable or distrustful around them and that they lose contact with the family and friends. People who are known to have had mental illness may find it more difficult to find employment or get a promotion, even if they are well at that time (Psychol JC, Thompson RM, Miklowitz DA, 2003). All these factors that come along with stigma can be stressful and can lead to relapse of a psychiatric patient. Stigma is associated with lack of understanding of the illness and the experiences of an individual suffering from a mental disorder. The problem of stigma can be dealt with by public education and also ensuring that journalists have up to date information so that reports will not foster negative stereotypes (Watson, Corrigan, 2001).

2.6. COMORBIDITY AND TREATMENT OUTCOMES

According to Evans and Willey (2000), patients with comorbidity have a poor prognosis and poor treatment outcome. The most consistent predictor of poor outcome for clients in treatment for substance misuse is the presence of psychopathology. Similarly, substance misuse is a predictor of poor treatment for mentally ill patients. The same authors stated that cases of self-detructive and antisocial behaviors may develop in extreme situations, leading to homelessness, disengagement from family and community, and the presentation of high risk behaviours such as offending, suicide attempts, and unsafe sex. All these factors contribute to increased risk of early mortality (Evans and Willey, 2000). In a study to determine the influence of psychiatric comorbidity on recovery and recurrence in generalized anxiety disorder, socialphobia and panic disorder, Bruce et al. (2008) reported that the overall clinical course was worsened by several co-morbid psychiatric conditions, including major depression and alcohol and other substance use disorders, and by comorbidity of generalized anxiety and panic disorder with agoraphobia. It was also found that the presence of particular co-morbid psychiatric disorders significantly lowered the likelihood of recovery from anxiety disorders and increased the likelihood of their recurrence. Drake et al. (2000) have revealed that integrated treatment that is provided in a mental health or a substance misuse service or in a special comorbidity program or service yielded better outcomes than sequential or parallel treatment.

2.7. FACTORS PREDISPOSING RWANDANS TO COMORBIDITY OF PTSD AND OTHER DISORDERS

The DSM-IV multi-axial classification in its Axis IV shows that the psychosocial and environmental problems may predispose individuals to mental disorders, may trigger the start of mental illness or worsen the patient's health condition. These factors may also affect the diagnosis, treatment and prognosis of mental disorders (Ndetei et al., 2006). The same author noted that the problems with the primary support group due to death of a family member, health problems in the family, disruption of family by separation or divorce, remarriage of parent, sexual or physical abuse, child neglect, and discord with siblings are among those psychosocial and environmental problems that should merit the attention of health workers. In addition to this, the authors mentioned problem related to social environment, educational problems, occupational problems, housing and economic problems, problems with access to health care services and those related to interaction with legal system, exposure to disaster, war and other hostilities as key factors that may affect the mental health of people (Ndetei et al., 2006).

According to studies done In the Rwandan (Gishoma, 2005; Mukamana, 2013; Mukamana, D. & Piddington, S., 2012; Munyandamutsa & Mahoro, 2009; Munyandamutsa, Mahoro & Gex-Fabry, 2012; Murorunkwere, 2007; Neugebauer et al., 2009; Pham, Weinstein & Longman, 2004; Rieder & Elbert, 2013; Schaal et al., 2010; Schaal, Weierstall, Duzingizemungu & Elbert, 2012) all these serious psychosocial and environmental problems are prevalent. According to the same authors, in 1994, the people were slaughtered in an unforgettable horrible genocide against the Tutsi. The children who experienced genocide in Rwanda are currently young adults. It is not surprising if some of them are mentally disturbed today given the magnitude of such atrocities that affected them in one way or another at a tender age. The genocide against the Tutsi was followed by a massive exodus of internally displaced persons in Rwanda. The thousands if not millions of Rwandans fled the country to take refuge in the Democratic Republic of Congo, and other neighboring countries like Tanzania and Burundi where they lived in refugee camps. They later experienced the wars in the Democratic Republic of Congo that followed this period. A massive return of

refugees to Rwanda took place in those years. The Rwandans of all age groups lived in inhuman conditions during those years. There were considerable number of cases of rape, sexual and physical abuse, the violations of human rights and international humanitarian laws. Rwanda had a big number of orphans, widowers, widows, prisoners, homeless, separated families among other situations that none would wish any other country to experience. There was much suffering and pain among Rwandans. Many people lost their dear relatives. The houses were burnt, property was destroyed and people lost their jobs and other opportunities they had before. The health workers were killed and many health facilities demolished. The neighbors became enemies to some extent since it was too much to bear for many Rwandans. There was need for some to reconsider remarrying or to remain in an imposed single marital status by the events they had no control over. A number of Rwandans remarried and in some cases remarriage brought about other challenges of conflicts in the households, conflicts between step parents and children among others. There were minors who headed households after their parents and their other relatives were killed. There was need of resurrection after civil war and 1994 genocide against the Tutsi which left many traumatized and mentally disturbed. It is well known that the poverty remains a significant factor that influences not only the physical health of people worldwide but also their mental health. For example, in a study done in Rwanda, Munyandamutsa et al. (2012) reported that living in extreme poverty, having endured the murder of a close relative in 1994, being widowed or remarried, having lost both parents, were among the factors found to be related to PTSD in Rwanda. It is worth noting that the prevalence of some major physical diseases like HIV/AIDS and other chronic diseases contributes also to the comorbidity of some mental disorders like depression (WHO, 2010).

CHAPTER THREE: METHODOLOGY

In this chapter, the research methodology was presented. The issues related to the research design, location of the study, target population, sample size determination, research instruments, validity and reliability, data collection techniques and data analysis, among other methodological aspects such as the ethical considerations were presented.

3.1. STUDY SETTING

The study was conducted at mental health department of CHUK, former SPSC, which is a general public referral hospital located in Nyarugenge District, Nyarugenge sector.

3.2. RESEARCH DESIGN

This was a cross section study, in which measurements on adherence to treatment; treatment outcomes and level of functioning variables were carried out on each patient who participated in the study. The researcher did not carry out any intervention on any patient. The participants were under their usual treatments prescribed and administered by the clinicians at the said health facility.

3.3. SAMPLE POPULATION

The study population comprised of all genocide survivors suffering was diagnosed as PTSD, were attending the mental health department/former SPSC at CHUK, during the study period.

3.4. INCLUSION AND EXCLUSION CRITERIA

3.4.1. Inclusion criteria
To be in a state of mind that allows him or her to be engaged in a meaningful interview
To freely give informed consent by signing the consent form

3.4.2. Exclusion criteria

The patients who were in a state of mind that cannot allow him or her to give informed consent
The patients who did not consent to participate in the study

3.5. STUDY SAMPLE

The sample size was determined using the following Fisher's formula (Fisher et al., 1998; Mugenda, 2003):

$$n = \frac{Z2\,pq}{e2} = \frac{1.96x1.96x0.5x0.5}{0.05x0.05} = 384$$

Where

n is the estimated sample size, p is the assumed probability that is the prevalence of some possible comorbidity of PTSD and other mental disorders, = 1- p which is the assumed proportion of patients without the comorbidity of depression and other mental disorders, is the error and is the standard normal deviate at 95% confidence interval.

The number of patients who strictly fulfilled all the criteria to participate in the study was estimated to be 335 which were less than 10,000 patients using annual reports of activities of the hospitals in 2014. Therefore, the following formula was used to find the desired adjusted sample size (Fisher et al., 1998; Mugenda, 2003):

$$n = \frac{n}{1 + (n\,/\,N)} = \frac{384}{1 + (384/335)} = 178.9 \approx 179$$

3.6. SAMPLING STRATEGY

In this study, a systematic random sampling method was used. Here, there is interval between each selected element. To do so, these stapes were followed:

Firstly the interval of sampling was determined by dividing the number of elements includes in study population by the size of sample that we want to obtain. The annual reports of activities allowed the researcher to estimate the proportions of patients who could fulfill the set criteria. Since there were about 335 patients who attend the hospitals, and a sample of 179 patients was needed then a sampling interval of 2 in this systematic random sampling was used. Secondly the random wanted that researcher start with the first visit for beginning of data collection. And that, the second element was the fourth visit, the third element was seventh visit; the fourth element was the tenth visit and so on until 179 patients.

3.7. DATA COLLECTION METHODS AND PROCEDURES

3.7.1. Research instruments

In this study, the researcher used questionnaire and designed appropriate forms to collect the data from medical records/files and from interviews with the respondents. In the questionnaire the first section comprised socio-economic and demographic characteristics of the patient, second section comprised perceived family and social support, third section comprised treatment adherence and the fourth section comprised treatment outcomes.
Form to collect data from medical record comprised two sections: firstly, PTSD comorbidities and Psychosocial and environmental problems of patients and secondly adherence to psychotherapy sessions and other non-pharmacological treatment

These structured instruments were adopted from previously validated research and were adapted to the context of Rwanda. These tools are free online and the authors of these tools have been recognized and cited in this study.

3.7.2. Data Collection Procedures

The patients were interviewed and assessed in the department of mental health at CHUK as they are given regular appointments to come back to hospitals to monitor progress, to collect medication or to attend to non-pharmacological treatment sessions such as psychotherapy or other treatment. With assistance of some staff members who are qualified and experienced in mental health care provision and clinical psychology data were collected. During data collection process, a selected patient was approached to get the informed consent after ascertaining that he is in a good state of mind to participate in the study. Once a patient gives informed consent to participate in the study, he/she was accompanied to a private quite room in which interviews and assessments was carried out after the patients had received their health services for which they had come to the hospitals. This process took approximately about thirty minutes. Then after, data from his/her medical records/file were also collected and filled on data extraction form. Furthermore, the patients were also allowed to ask personal questions and to request advice on some personal problems from the interviewers who were mental health professionals. The process of data collection was done in good

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collaboration of the health workers at the facilities to avoid disrupting the normal working hours and operations. The highly professional and deontological standards were observed during the whole process of data collection.

3.8. VARIABLES

3.8.1. Independent variables

In this study, the independent variables included the socio-economic and demographic characteristics of the patients such as age, gender, level of formal education, marital status, income, number of dependants, family characteristics, place of residence and employment status, perceived social support and stress among other various variables that may associated with adherence to treatment.

3.8.2. Intermediate variables

In this study, it was taken as intermediate variable the comorbidity of PTSD and other mental disorders.

3.8.3. Dependent variables

In this study, the dependent variables are the level of adherence to treatment and treatment outcomes.

3.8.4. The measurements of variables

3.8.4.1. Measuring the extent of comorbidity of PTSD and other mental disorders

The primary diagnosis of the study participant (PTSD) was extracted from his or her medical records. The point prevalence of comorbidity of PTSD and other mental disorders were there after determined. In this study the point prevalence was calculated using the following formula:

$$\text{Point prevalence} = \frac{\text{Number of patients with comorbidity of PTSD and other disorders}}{\text{Total number of patients who participated in the study}} \times 100$$

3.8.4.2 Measuring adherence to treatment

The proportion of patients who dropped out of or completed planned non pharmacological treatments was determined from medical records. The percentage score on adherence to appointments, psychotherapy sessions and/or other non-pharmacological therapies were computed. The number of times a patient failed to attend scheduled appointments, psychotherapy or other non-pharmacological therapy sessions were recorded. The scores were determined using the following formulae:

$$\text{Score percent} = \frac{(\text{N of clinical appointments - N of failed clinical appointments})}{\text{N of clinical appointments}} \times 100$$

3.8.4.3. Measuring treatment outcomes

Treatment outcomes were measured using the Modified Global Assessment of Functioning (GAF). This scale is based on a continuum of mental health and mental illness. It is a 100-point scale where a score of 100 represents the highest level of functioning in all areas. After considering the psychological, social and occupational functioning of the patients, the interviewer gave a score to each of the study participants a score corresponds to a given intensity of symptoms.

3.9. DATA ANALYSIS

Data was entered and analyzed using statistical software EPI INFO version 3.5.3. Then after, the results were exported in excel matrix for presentation in tables and graphics. Univariate analysis was done to determine the Socio-economic and demographic characteristics of the patient and to determine the point prevalence of comorbidity of PTSD and other mental disorders, perceived family and social support, treatment adherence level and level of functioning. Bivariate analysis were performed to determine the association of independent variables to adherence (outcome variable) and association of between treatment adherence (independent variable) and treatment outcome (dependent variable) and p-value <0.05 was considered as significant.

3.10. ETHICAL CONSIDERATIONS

Prior to data collection, ethical and scientific approval was obtained from the Institutional Review Board (IRB) of the College of Medicine and Health Sciences at University of Rwanda. Permission to collect data was obtained from the authorities at CHUK. Strict ethical standards and procedures were adhered to. The anonymity of the participants was ensured by not having any identification on the data collection tool so that information could not be traced back to individuals. Confidentiality was guaranteed by storing data in a safe and locked place, and only the researcher and research supervisor had access to the raw data. Participation in this study was voluntary and details about the aim and objectives of the study were explained to the participants. Written informed consent was obtained. The participants were free to withdraw from the research at any stage without incurring any consequences whatsoever.

CHAPTER FOUR: STUDY RESULTS

This study sought to achieve three specific objectives. Therefore, this chapter has two main concerns namely the presentation and interpretation of results. First, presentation of the socio-economic and demographic characteristics of study participants is given. Then, the presentation and interpretation of results were done by each specific objective.

4.1. SOCIO-ECONOMIC AND DEMOGRAPHIC CHARACTERISTICS OF

   PARTICIPANTS

A total of 102 patients participated in this study. Among them, 30.8% respondents were male and 69.2% were female. The age group between 20-29 years was more represented (56.6%) compared with other age groups. 63.1% of respondents were single (never married). 25.4% of respondents lived with a spouse. Among them 18.6% were legally married and were illegally cohabiting 6.8%. The (88.7%) of respondents were Christians. Of these, the majority (49.5%) were from various protestant denominations while Catholics represented 39.3%. The 47.6% of respondents did not study beyond primary level of education. The 74.1% of respondents had part- time/temporary employment. It was found that 62% are in Ubudehe category 3. Remaining ones are in category 2 or category 1 representing 38%. However, 99% had health insurances. The majority (88.7%) had the community-based health insurance that is compulsory for all people in Rwanda (Mutuelle de Sante) to access health services and 10.3% had RSSB Insurance Scheme.

The proportion of respondents who lived in urban areas was 54.2%. All provinces were represented with Kigali having majority of respondents (48.2%), followed by Southern Province having 24.1%. Only 3.4% lived completely alone while others lived in households with other people or children. 63.9% of respondents did not have any dependant less than 18 years of age.

Table 1 below summarizes the results of socio-economic and demographic characteristics of the study participants.

Table 1: Socio-economic and demographic characteristics of study participants

Variables	Frequency	Percentage
Gender		
Male	30	30.8%
Female	72	69.2 %
Age		
22 - 29	59	57.6%
30-39	20	21.5%
40 - 49	12	11.5%
50 and more	11	9.4%
Marital status		
Single (Never married)	64	63.1%
Cohabitating/Illegal marriage	7	6.8%
Married legally	19	18.6%
Divorced	1	0.8%
Separated	6	6%
Widowed	5	4.7%
Religion		
Catholics	40	39.3%
Protestants	50	49.5%
Muslims	5	4.5%
Others	7	6.8%
Education level		
Illiterate	7	6.8%
Primary	42	40.8%
Secondary	38	37.2%
Tertiary	15	15.2%
Occupation		
Full time employment	10	9.2%
Part- time/Temporary employment	75	74.1%
student	8	8.1%
Unemployed	9	8.6%
Residence		
Rural	48	45.8%
Urban	54	54.2%
Province		
Kigali	49	48.2%
Southern Province	24	24.1%
Eastern Province	19	18.3%
Northern Province	7	6.8%
Western Province	3	2.6%
Household		
Lives alone	4	3.4%
Lives with other people	98	96.6%
Having any dependant under 18 years of age		
Yes	37	36.1%
No	65	63.9%
Ubudehe category		
first category	12	12%
second category	27	26%
third category	63	62%
Health insurance		
Has health insurance	101	99%
- Mutuelle de Sante	90	88.7%
- RSSB	11	10.3%
Does not have	1	1%

4.2. PREVALENCE OF COMORBIDITY OF PTSD AND OTHER MENTAL DISORDERS

This study found that all patients did not have PTSD only and had PTSD and other disorders, be they mental or neurological disorders. The results specifically revealed that the point prevalence of comorbidity of PTSD and other mental disorders was 79.1% and the most comorbid mental disorder was depression and somatoform disorders, followed by psychotic disorders. Table 2 bellow illustrates the findings.

Table 2: Comorbidity of depression and other mental disorders (N=102)

Types of comorbidity	Frequency	Percentage
PTSD and Depression	66	65%
PTSD and headache disorders	59	58%
PTSD and anxiety disorders	35	34%
PTSD and somatoform disorders	24	24%
PTSD and psychotic disorders	16	16%
PTSD and substance Abuse related disorders	8	8%
Overall comorbidity of PTSD and other disorders	**81**	**79.4%**
Overall No comorbidity of PTSD and other disorders	**21**	**20.6%**
TOTAL	**102**	**100%**

The reading from table 2 shows that results can be deduced that respondents out of 102 study participants (79.4%) had comorbid mental or neurological disorders with PTSD. The most prevalent types of comorbidity were depression (65%), headache disorders (58%), anxiety disorders (34%), somatoform disorders (24%), psychotic disorders (16%) and substance related disorders (8%).

4.3. EXTENT OF PERCEIVED SOCIAL SUPPORT AND SOCIAL STRESS AMONG PATIENTS

4.3.1. Social support

In this section, extent of perceived social support and social stress among participants were presented in table 3 bellow.

Table 3: Extent of perceived social support among patients (N=102)

Perceived social stress	Agree	Disagree
Social support stemming from relatives of the patients	**15 (14.6%)**	87 (85.4%)
Social support stemming from other people in the community	**6 (6.3%)**	96 (93.7%)
Overall Perceived Social support from both relatives and other people in the community	**21 (20.9%)**	
Overall No Perceived Social support from both relatives and other people in the community	**81 (79.1%)**	

The results presented in table 3 show that the mean perceived social support score from relatives was 14.6%, while the mean perceived social support score from other people outside the families was 6.3%. Overall 20.9% of respondents perceived social support.

4.3.2 Social stress

In this study, patients perceived more social stress stemming from the relationships with other people outside their respective families than from their family members. Table 4 bellow illustrates the findings.

Table 4: Frequency distribution of perceived social stress (N=102)

Perceived social stress	Agree	Disagree
Social stress stemming from relatives of the patients	18 (17.6%)	84 (82.4%)
Social stress stemming from other people in the community	37 (36.4%)	65 (63.6%)
Overall Perceived Social stress from both relatives and other people in the community	**31 (30.8%)**	
Overall No Perceived Social stress from both relatives and other people in the community	**71 (69.2%)**	

The majority 84(82.4%) disagreed social stress stemming from their respective families members. The mean score percent of perceived Social stress from both relatives and other people in the community was 30.8% (table 4).

4.4.1. Level of adherence to treatment

In this study, the number of scheduled clinical appointments and failed clinical appointments were recorded for each respondent. The percentage score on adherence to appointments, psychotherapy sessions and/or other non-pharmacological therapies like physiotherapy was computed. The proportion of patients who are non-adherent was found to be 24.6% (less than 50%). The proportion of patients with partial adherence to medication was 42.9% (from 50% to less than 80%). The mean optimal adherence score was found to be 32.5%. It means that 67.5% of all respondents do not achieve optimal adherence. Alternatively, it can be reported that 75.4% of all respondents achieve at least partial adherence. Figure 1 illustrates the adherence to treatment among patients.

Figure 1 Figure 1: Level of adherence to treatment
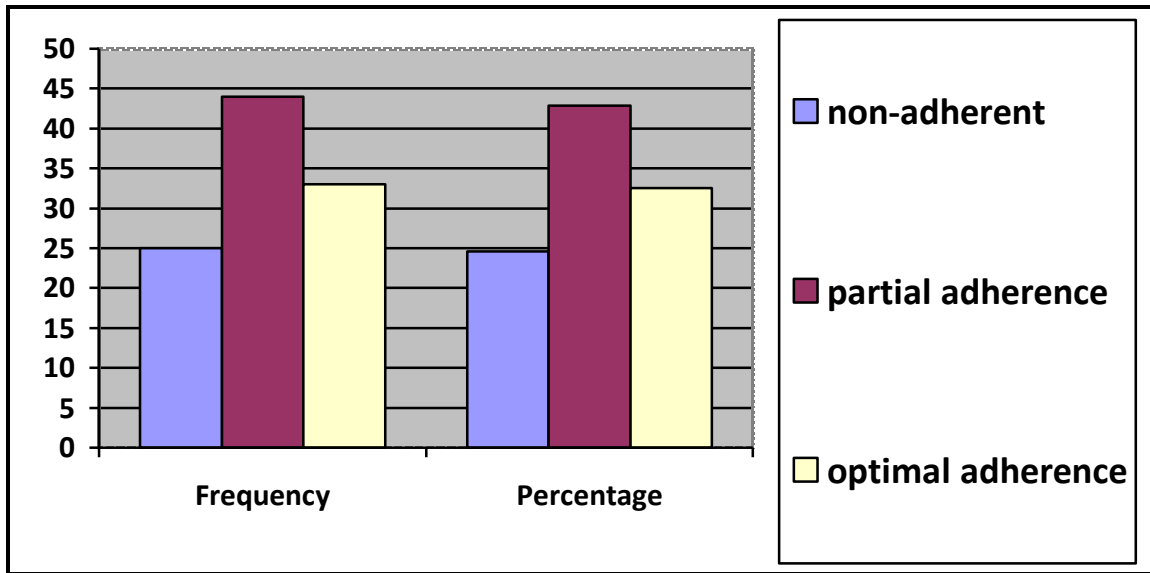
4.4.2. Significant factors influencing adherence to treatment

The results presented in this section shows the factors that were found in this study to statistically significantly influence the adherence to treatment (p<0.05) and the strength of the relationship (n=102) in this study.

Table 5: Significant factors associated with adherence to treatment

Variables	No adherence or Partial Adherence	Optimal Adherence	TOTAL	P=value
Overall Perceived Social support from both relatives and other people in the community				
Yes	2(9.5%)	19 (90.5%)	21(100%)	P=0.018
No	67(82.7%)	14 (17.3%)	81 (100%)	
Comorbidity of PTSD and mental disorders				
Yes	65 (80.2%)	16 (19.8%)	81(100%)	P=0.011
No	4 (19%)	17 (81%)	21 (100%)	
Satisfaction with attitudes of service providers				
Yes	63 (66.3%)	32 (33.7%)	95 (100%)	P=0.048
No	6 (85.7%)	1 (14.3%)	7 (100%)	
Economic barriers to access to health care services				
Yes	14 (82.4%)	3 (17.6%)	17 (100%)	P=0.040
No	55 (64.7%)	30 (35.3%)	85 (100%)	
Overall Perceived Social stress from both relatives and other people in the community				
Yes	24 (77.4%)	7 (22.6%)	31(100%)	P=0.048
No	45 (63.3%)	26 (36.7%)	71 (100%)	

In table 5 above, it was found that p<0.05, hence significant association. It was found that the strength of the relationship between each significant factor and adherence to treatment was from small to medium. Given the above findings, it shows that Comorbidity of PTSD and mental disorders, Economic barriers to access to health care services, Satisfaction with attitudes of service providers, social support and social stress are associated with adherence to treatment among patients attending the service of mental health at CHUK in Rwanda.

4.5 LEVEL OF FUNCTIONING AMONG PATIENTS

The Modified Global Assessment of Functioning is one of the standalone tools that was used to measure treatment outcomes during data collection. When applying GAF, the interviewer (usually a mental health professional) judges the symptoms and functioning of the patients

and gives a score between 0 and 100. The results obtained using this instrument is presented in table 6 below.

Figure 2: Classification of respondents according to GAF
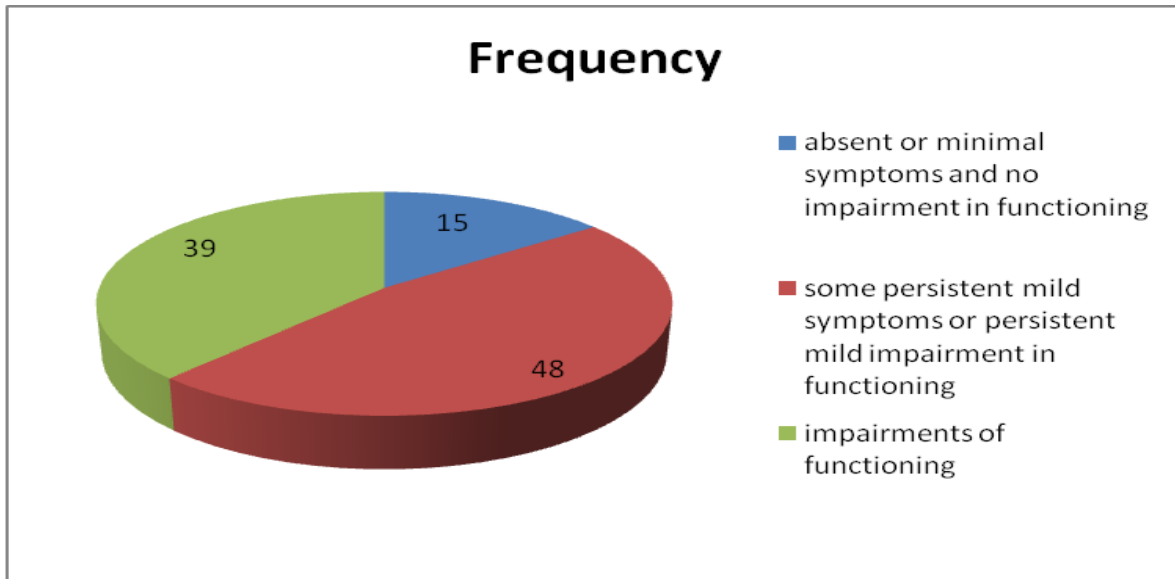
The reading of results presented in table 6 above shows that 39 (38.2%) patients have impairments of functioning. These are closely followed by 48 (47.1%) patients who have some persistent mild symptoms or persistent mild impairment in functioning and 15 (14.7%) patients who have absent or minimal symptoms and no impairment in functioning.

4.6. RELATIONSHIP BETWEEN ADHERENCE AND TREATMENT OUTCOMES USING GAF

The fifth objective of this study was to establish the relationships between adherence to treatment and treatment outcomes among patients attending the service of mental health at CHUK in Rwanda. The results on adherence to treatment and treatment outcomes using GAF were explored in previous sections of this chapter. In this section, the results on the relationship between adherence to treatment and treatment outcomes were established.

Table 7: Relationship between treatment adherence and treatment outcomes using GAF

Variables	Impairments of functioning	Some persistent mild symptoms or persistent mild impairment in functioning	Absent or minimal symptoms and no impairment in functioning	TOTAL	P=value
No adherence	16	8	1	25	P=0.037
Partial Adherence	21	19	4	44	
Optimal Adherence	2	21	10	33	
TOTAL	39	48	15	102	

The P-value gives the strength of the relationship between adherence to treatment and treatment outcomes among patients attending the service of mental health at CHUK in Rwanda. P-value reported in table 7 above, it was found that p<0.05, hence significant association. Given the above findings, the question what is the relationship between the adherence to treatment and treatment outcomes among genocide survivors attending the service of mental health at CHUK in Rwanda was answered.

CHAPTER FIVE: DISCUSSION

In this study, 79.4% of patients were found to have some type of comorbidity of PTSD with other mental or neurological disorders. This point prevalence is higher than the prevalence of 22.7% found in community samples in Rwanda and 20% found a study done in Uganda (Munyandamutsa et al., 2012; Bolton et al., 2002). Nevertheless, this was expected since in clinical samples the prevalence of comorbidity may be higher than in the community or general population samples. In addition, the occurrence of PTSD among the genocide survivors diagnosed with other mental or neurological disorders can be explained by different reasons. Some of these reasons include a feeling of humiliation in some patients, a feeling that the patient is no longer in control of his or her destiny and the loss of some opportunities that the patient had before getting ill (Iqbal, 2004). Furthermore, it was not possible to find enough literature in previous study carried out in Rwanda or elsewhere that explored the comorbidity of PTSD and other disorders in a comprehensive manner like it was done in this study. However, in some studies investigation of comorbidity of PTSD and one or two other disorders was done. Thus, the comparisons of prevalence of comorbidity was done for PTSD and one other disorder rather than with overall prevalence of comorbidity found in this study.

Out of 59 (58%) patients with headache disorders (migraine, tension-type headaches, etc...) it was found that patients had met the diagnostic criteria for PTSD. This rate of comorbidity of PTSD and headache disorder is less than the findings of Munyandamutsa et al. (2012). As for headache disorders, the cited study found that out of all patients with PTSD as primary assigned diagnosis, there were 72.5 % of patients who also had comorbid headache disorders. As for depression, this study found that out of all patients with PTSD as primary assigned diagnosis, there were 66 patients who also had comorbid depression leading to a rate of 65% which is slightly less than the prevalence (75%) of comorbidity of depression and PTSD reported in the study done in Korea by Ikin et al.(2010)and 68.4% of comorbidity of depression and PTSD reported in the study done in Rwanda by Munyandamutsa et al.(2012). In summary, the main prevalence rates of comorbidity of PTSD and other disorders found in this study are slightly different from the rates found in other studies.

In this study, the results revealed that the mean perceived social support score from relatives (14.6%) was greater than the mean perceived social support score from other people outside the families of the patients (6.3%). Thus, since 14.6% is greater than 6.3% then it implies that the relations with relatives were more supportive than relations outside the families of the patients. In general, this is quite normal that relatives are perceived to be more supportive to the patients given the bonds and trust that naturally exist between members of the same family who in most cases are caretakers of ill relatives. These findings are in consistence with literature stated that the family has a function that cannot be replaced by any other institution and recalled the importance of families in supporting the rehabilitation and reintegration of patients (Njenga et al., 2005). The mean social support family and non-family score were very low. This could be understood by the fact that in genocide perpetrated against Tutsi and other atrocities that took place in Rwanda, a number of relatives and friends for some patients were killed. These events together with their consequences destroyed families and social networks of people in general (Murorunkwere, 2009). Unfortunately, it was also found that the relations of the patients with relatives were also stressful (17.6%) even if it was less than were relations of the patients with other people outside their respective families (36.4%). This may have significant effect on the health of particular patients who experience it. To this regard, Njenga et al. (2005) recommended that people should reduce stress on ill family members to facilitate recovery, rehabilitation and reintegration.

In this study, the results revealed that 39 (38.2%) patients have impairments of functioning. These are closely followed by 48 (47.1%) patients who have some persistent mild symptoms or persistent mild impairment in functioning and 15 (14.7%) patients who have absent or minimal symptoms and no impairment in functioning. This result was possibly obtained due to the fact that the patients who were not in a state of mind that cannot allow him or her to give informed consent (in crisis or had some mental deficits) excluded in this study. In addition to this, a significant number of respondents sought treatment for neurological disorders like headache disorders (58%) which may not interfere much with global functioning as some major psychiatric disorders do. However, these findings on level of functioning revealed that some patients suffer terribly in their daily life. To this regard,

Ndetei (2006) stated that the patients may have impairments in psychological, social or occupational functioning. Besides, the symptoms may not be reduced or fully controlled with treatments and total recovery is not possible in many instances.

In this study, the mean optimal adherence score was found to be 32.5%. It means that 67.5% of all respondents do not achieve optimal adherence. According to WHO (2003) only 50% of patients with chronic illnesses adhere to long-time therapy in developed countries and Leo et al. (2005) noted that the adherence rates averaged around 50%. Thus, mean optimal adherence score (32.5%) found in this study was lower than that in developed countries (50%). However, often, the patients alone are unfairly blamed for not adhering to treatment (WHO, 2003). At bivariate level, this study, like many previous others (Fawad et al., 2008; Levensky and O'Donohue, 2006; Leo et al., 2005, WHO, 2003), found that the factors influencing adherence to treatment are not only related to the patient but some of them are related to Comorbidity of PTSD and mental disorders, economic barriers to access to health care services, Satisfaction with attitudes of service providers, social support and social stress (p<0.05) (table 5).

The statistically significant relationship between adherence to treatment and treatment outcomes was found using the chosen instrument namely the Modified Global Assessment of Functioning. Most patients who adhered to their treatment had their symptoms reduced and had a better global functioning (table 7) which were indicative of improvements. These findings are in consistent with many other previous studies (Zikos et al., 2010; WHO, 2010; Bruce et al., 2008; Goldon, 2008; Maree and Heather, 2003).

In this study, the following limitations were encountered: Smaller sample size and data collection without first doing baseline survey. These are technical aspects that were not expected, or were not considered to be the best under normal conditions with this type of study. However, with regard to validity and reliability, the main instruments chosen for data collection in this study were standard and tested for validity and reliability in previous studies elsewhere. Their validity and reliability had been well established and documented in literature. The systematic random sampling technique was applied to choose a representative

sample during data collection. To ensure the quality of data, the instruments were pretested on 10 patients fulfilling the criteria. The suggestions from the pilot study were analyzed and incorporated where necessary. Besides, the cross-checking of data from patients and their respective medical records (files) were done during data collection.

All the necessary forms for data collection were prepared and placed in envelops to maintain confidentiality. The translation in Kinyarwanda of the research instruments was done by different relevant experts in language and mental health care. The data cleaning was done before starting the analysis. During data analysis, the possible relationships between independent and dependent variables were tested and the results of analysis were compared to those of other studies in literature.

CHAPTER SIX: CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

The point prevalence of comorbidity of PTSD and other mental disorders was high where the most prevalent types of comorbidity were depression, headache disorders, anxiety disorders, somatoform disorders, psychotic disorders and substance related disorders. The mean perceived social support was low implying that some patients lacked the social support they needed. The inadequate social support raises concern on how the community members facilitate the adherence to treatment, recovery, reintegration and rehabilitation of patients in the community. The mean perceived social stress was low but could have some effects on specific patients who experienced social stress. The overall level of functioning among study participants revealed that on average the patients had moderate symptoms or moderate impairments in functioning. The majority of patients had moderate or mild impairments in psychological, social or occupational functioning. The overall level of adherence to treatment revealed that the patients did not adhere optimally to treatment. The vast majority of patients missed scheduled clinical appointments and other nonpharmacological treatments and post-treatment follow-ups. This study revealed that the main significant factors associated to adherence to treatment were Comorbidity of PTSD and mental disorders, economic barriers to access to health care services, Satisfaction with attitudes of service providers, social support, social stress, stigma and interference of medication with lifestyles of the patient. There was a significant relationship between adherence to treatment and treatment outcomes among genocide survivors attending the service of mental health at CHUK, Rwanda

6.2. RECOMMENDATIONS

1. Since the prevalence of comorbidity of PTSD and other mental disorders was not negligible among genocide survivors attending the service of mental health at CHUK, the Ministry of Health, should organize ongoing trainings for mental health services providers on

the diagnosis and management of different types of of comorbidity of PTSD and other mental disorders among patient who suffer this condition.

2. The community and families of the patients should be sensitized for more social support to the patients with PTSD.

3. As well as there was relationship between treatment adherence and treatment outcomes, the health workers and other stakeholders in mental healthcare in Rwanda should design and implement interventions that can increase the number of patients who adhere optimally to treatment in order to have better treatment outcomes. Such interventions could include teaching patients how to use reminders to take medication and attend clinical appointments, how to strengthen the patient-provider relationship, interventions targeting patients who may be busy, may travel or may have economic barriers preventing the access to health services.

4. For further research, to carry out a long-term longitudinal study on adherence to treatment and treatment outcomes among genocide survivors with comorbidity of PTSD attending mental health services in Rwanda could lead to service improvement and better clinical outcome of these patients.

REFERENCES

American Psychiatric Association (2000). Diagnostic and Statistical Manual of Mental
          disorders (DSM-IV-TR), Fourth Edition, Text Revised. Washington DC

Ai, A. L., Peterson, C., Ubelhor, D. (2002). War-related trauma and symptoms of
          Posttraumatic Stress Disorder among adult Kosovar refugees. Journal of
          Traumatic Stress, 15(2), 157-160.

Al-Jawadi, A. A., Abdul-Rhman, S. (2007). Prevalence of childhood and early adolescence
          mental disorders among children attending primary health care centres in
          Mosul, Iraq: a cross-sectional study. BMC Public Health, 7(274).

Amone-P'olak, K. (2005). Psychosocial impact of war and sexual abuse on adolescent girls in
          Northern Uganda. Intervention, 3(1), 33-45.

Atwoli L, Stein DJ, Williams DR, et al. Trauma and posttraumatic stress disorder in South
          Africa: analysis from the South African Stress and Health Study. BMC
          Psychiatry. 2013; 13:182.

Boris, N. W., Brown, L.A., Thurman, T.R., Rice, J.C., Snider, L.M., Ntaganira, J.,
          Nyirazinyoye, L.N. (2008). Depressive symptoms in youth heads of
           household in Rwanda. Archives of Pediatrics & Adolescent Medicine, 162(9),
          836-843.

Bolton P, Neugebauer R, Ndogoni L: Prevalence of depression in rural Rwanda based on
          symptom and functional criteria. Journal of Nervous and Mental Disease
          2002, 190(9):631–637.

Caldecott-Hazard, S. and Hall, R. C. W. (1995). Modified Global Assessment of
          Functioning, Revised. Adapted in 2004 by the Florida DCF Functional
          Assessment Workgroup from the original M-GAF.

Catani C, Jacob N, Schauer E, Kohila M, Neuner F: Family violence, war, and natural
           disasters: a study of the effect of extreme stress on childrens's mental health
          in Sri Lanka. BMC Psychiatry 2008, 8:33.

Duke University (1986-2005). Duke Social Support and Stress Scale. Department of
          Community and Family Medicine, Duke University Medical Center, Durban,
          NC,USA.

Eisen, S. V. (rev. 2009). Behaviour and Symptom Identification Scale (BASIS-32). McLean
          Hospital, Belmont, MA.

Ferry F, Bunting B, Murphy S, et al. Traumatic events and their relative PTSD burden in Northern Ireland: a consideration of the impact of the 'Troubles'. Soc Psychiatry Psychiatr Epidemiol. 2014; 49:435–446. [PubMed: 23959590]

Fisher, A., Laing, J. Stoeckel, I. And Townsend, J. (1998). Handbook of Family Planning Operations Research Design. Second Edition. Population Council, Nairobi, pp 40-45.

Foster, A., Sheehan, L. And Johns, L. (2011). Promoting treatment adherence in patientsnwith bipolar disorder. Current Psychiatry. Vol.10, No.7.

Gishoma, D. (2005). L'analyse de la situation du traumatisme psychique dans les ménages dirigés par les enfants au Rwanda. Université Nationale du Rwanda, Butare.

De Jong JP et al (2000) The prevalence of mental health problems in Rwandan and Burundese refugee camps. Acta Psychiatr Scand 102(3):171–177

Kamau, M., Silove, D., Steel, Z., Catanzaro, R., Bateman, C., Ekblad, S. (2004). Psychiatric disorders in an African refugee camp. Intervention, 2(2), 84-89.

Karam EG, Friedman MJ, Hill ED, et al. Cumulative traumas and risk thresh olds: 12-month PTSD in the world mental health (WMH) surveys. Depress Anxiety. 2014; 31:130–142.

Karunakara, U., Neuner, F., Schauer, M., Singh, K., Hill, K., Elbert, T., Burnham, G. (2004).Traumatic events and symptoms of post-traumatic stress disorder amongst Sudanese nationals, refugees and Ugandans in the West Nile. African Health Sciences, 4(2), 83-93.

Lukoye Atwolia,b, Dan J. Steinb, Karestan C. Koenenc, and Katie A. McLaughlind (2015) Epidemiology of posttraumatic stress disorder: prevalence, correlates and consequences, Published in final edited form as: Curr Opin Psychiatry. 2015 July ; 28(4): 307–311. doi:10.1097/YCO.0000000000000167.

Lopez, A. D., Mathers, C.D., Ezzati, M., Jamison, D.T., Murray, C.J.L. (2006). The global burden of disease and risk factors. New York: Oxford University Press & The World Bank.

Marshall GN, Schell TL, Elliott MN, Berthold SM, Chun CA: Mental health of Cambodian refugees two decades after resettlement in the United States. JAMA 2005, 294(5):571–579.

Miller, K. E., Omidian, P., Rasmussen, A., Yaqubi, A., Daudzai, H. (2008). Daily stressors, war experiences, and mental health in Afghanistan. Transcultural Psychiatry, 45, 611-639.

Mollica, R. F., McInnes, K., Sarajlic, N., Lavelle, J., Sarajlic, I. and Massagli, M.P.(2002). Disability associated with psychiatric comorbidity and health status in Bosnian Refugees living in Croatia. Journal of the American Medical Association, 282(5):433-439.

Momartin, S., Silove, D., Manicavasagar, V., Steel, Z. (2004a). Comorbidity of PTSD and depression: associations with trauma exposure, symptom severity and functional impairment in Bosnian refugees resettled in Australia. Journal of Affective Disorders, 80, 231-238.

Momartin, S., Silove, D., Manicavasagar, V., Steel, Z. (2004b). Complicated grief in Bosnian refugees: associations with Posttraumatic Stress Disorder and depression. Comprehensive Psychiatry, 45(6), 475-482.

Morin Hervé (2003), théorie de l'échantillonnage, les presses de l'Université Laval, 178p.

Mugenda, M. O. and Mugenda, G. A. (2003). Research Methods. Nairobi

MUKAMANA, D. (2013) management of the long term psychological effects of rape among women survivors of the 1994 genocide in rwanda: a grounded theory approach, UNIVERSITY OF KWAZULU-NATAL

Munyandamutsa N, Mahoro Nkubamugisha P (2009) Pre´valence de l'e´tat de stress post-traumatique dans la population rwandaise. Ministe`re de la Sante

Munyandamutsa N, Mahoro Nkubamugisha P, Gex-Fabry M, Eytan A (2012): Mental and physical health in Rwanda 14 after the genocide. Social Psychiatry and Psychiatric Epidemiology 2012. doi:10.1007/s00127-012-0494-9.

Murorunkwere, J. (2007). Symptomatologie du PTSD et les stratégies de coping: Effets et types ; Cas des adolescents survivants du génocide au Rwanda. Université Nationale du Rwanda, Butare.

Neugebauer R et al (2009) Post-traumatic stress reactions among Rwandan children and adolescents in the early aftermath of genocide. Int J Epidem 38(4):1033–1045

Parkerson, G.R. Jr., Michener, J.L., Wu, L.R., et. al. (1991). Validation of the Duke Social Support and Stress Scale. Family Medicine, 27, 680-693.

Pham PN, Weinstein HM, Longman T (2004) Trauma and PTSD symptoms in Rwanda: implications for attitudes toward justice and reconciliation. JAM 292(5):602–612

Rieder H, Elbert T: Rwanda - lasting imprints of a genocide: trauma, mental health and psychosocial conditions in survivors, former prisoners and their children Confl and. Health 2013, 7(1):6.

Schaal S et al (2010) Rates and risks for prolonged grief disorder in a sample of orphaned and widowed genocide survivors. BMC Psychiatry 10:55

Schaal S et al (2011) Rates of trauma spectrum disorders and risks of posttraumatic stress disorder in a sample of orphaned and widowed genocide survivors. Eur J Psychotraumatol 2:6343

Schaal S, Elbert T (2006): Ten years after the genocide: trauma confrontation and posttraumatic stress in Rwandan adolescents. Journal of Traumatic Stress, 19(1):95–105.

Schaal S, Weierstall R, Duzingizemungu JP, Elbert T (2012): Mental health 15 years after the killings: imprisoned perpetrators of the Rwandan genocide versus a community sample of survivors. Journal of Traumatic Stress 2012, 25:1–8.

WHO (2011). Mental Health Atlas [Online]. Department of Mental Health and Substance Abuse Available: www.who.int/mental_health/evidence/atlas/.../rwa_mh_profile.pdf

WHO (2001). The world health report 2001: Mental health – new understanding, new hope. Retrieved 10.03.2016, http://www.who.int/whr/2001/en/.

Appendix I: questionnaire to be adressed to participants

Umugereka wa 1: ibibazo bigenewe abitabiriye ubushakashatsi

Section 1: Socio-economic and demographic characteristics of the patient

Igika cya mbere: imyirondoro nimibereho rusange

1. Patient number [   ] Date ………/………/………

1. Nimero y'ubazwa [   ] itariki ………./……../………

2. The sex : Male [   ] Female [   ]

2. Igitsina : gabo [   ] ore [   ]

3. Age : ……………years

3. Imyaka : ………………

4. level of formal education?

4. Amashuri wize

O Illiterate [   ]

O Ntabwo yize [   ]

O Primary [   ]

O Amashuri abanza [   ]

O Secondary [   ]

O Ayisumbuye [   ]

O University [   ]

O Aya Kaminuza [   ]

O Other, Specify………………………………………………………..

O ibindi/sobanura : …………………………………………………..

5. marital status :

5. irangamimerere

O Single [   ]

O ingaragu [   ]

O married [   ]

O Arubatse [   ]

O Separated ☐

O ntabwo abana nuwo bashakanye ☐

O Divorced ☐

O yatandukanye nuwo bashakanye ☐

O Widowed ☐

O umupfakazi ☐

O Other, Specify ……………………………………………………..

OIbindi/sobanura : ………………………………………………………

6. occupation :

6. akazi

O Paid employment ☐

O Afite akazi bamuhemba ☐

O Self-employment ☐

O Arikorera ☐

O Student ☐

O umunyeshuri ☐

O Unemployed ☐

O Ntakazi ☐

O Other, Specify…………………………………………………………

O Ibindi/sobanura : ……………………………………………………..

7. Religion:

7. Idini :

O Catholic ☐

O gatorika ☐

O Protestant ☐

O umuporoso ☐

O Muslim ☐

O umuyisiramu ☐

O Other, Specify…………………………………………………………..

O ibindi/sobanura : …………………………………………………………..

8. Have health insurance:

8. afite ubwishingizi mu kwivuza

O Yes

O Yego

O No

O Oya

9. Residence:

9. aho atuye

O Rural

O mu cyaro

O Urban

O mu mugi

10. Ubudehe category :

10. icyiciro cy`ubudehe

O first category

O icya mbere

O second category

O icya kabiri

O third category

O icya gatatu

O fourth category

O icya kane

11. With whom do you live?

11. abo abana nabo

O Alone

O wenyine

O Spouse

O uwobashakanye

O Alone with child (ren)

O abana [　]

O Spouse and child (ren) [　]

O uwobashakanye n`abana [　]

O Parents [　]

O ababyeyi [　]

O parents and relatives [　]

O ababyeyi n`abavandimwe be [　]

O relatives [　]

O abavandimwe be [　]

O Friends [　]

O inshuti [　]

O Other, Specify ……………………………………………………………………………

O abandi/sobanura : ……………………………………………………………………………

12. How many persons under the age of 18 who depend on you? [　]

12. abantu bari munsi y'imyaka 18 areberera : [　]

13. How many persons live in your household? [　]

13. umubare w'abantu abana nabo munzu : [　]

Section 2: perceived Family and Social support

Igika cya 2: uko umuryango n`abaturanyi bamwitayeho

14. Is there one particular person who is causing you the most personal stress now?

14. haba hari umuntu ukubuza amahoro ?

Yes [　]   No [　]

Yego [　]   Oya [　]

15. If yes, which types of person is he or she?

15. Niba ari yego, yaba ari uwuhe muri aba bakurikira ?

O Your wife, husband [　]

O Uwo mwashakanye ☐

O Your children ☐

O Abana bawe ☐

O Your parents ☐

O Ababyeyi bawe ☐

O Your brothers or sisters ☐

O Abavandimwe bawe ☐

O Your neighbours ☐

O Abaturanyi bawe ☐

O Your co-workers ☐

O Abo mukorana ☐

O Others, specify: ……………………………………………………………………..

O Abandi/sobanura : ……………………………………………………………………

16. Do you get sufficient social or family support? Yes ☐ ☐

16. Umuryango wawe ndetse n`abaturanyi ubona bagufasho uko bishoboka ? Yego ☐ Oya ☐

17. Do you suffer stigmatization from other people or groups of people? Yes ☐ ☐

17. Haba hari abantu baguha akato?   Yego ☐ Oya ☐

18. If yes, which types of person is he or she?

18. Niba ari yego, nibande ?

O Your wife, husband ☐

O Uwo mwashakanye ☐

O Your children ☐

O Abana bawe ☐

O Your parents ☐

O Ababyeyi bawe ☐

O Your brothers or sisters ☐

O Abavandimwe bawe ☐

O Your neighbours ☐

O Abaturanyi bawe ☐

O Your co-workers ☐

O Abo mukorana [   ]

O Others, specify: ………………………………………………………………………..

O Abandi/sobanura: …………………………………………………………………

19. If yes, how exactly are you stigmatized?

19. Niba ari yego, nigute baguha akato?

O Rejection [   ]

O Guhezwa [   ]

O Lack of understanding [   ]

O Kudategwa amatwi [   ]

O Denied basic needs [   ]

O Kudahabwa ibyibanze umuntu akenera [   ]

O Expelled from his/her job [   ]

O Kwirukanwa mukazi [   ]

O Others/specify: ………………………………………………………………..

O Ibindi/sobanura: ………………………………………………………………..

Section 3: Treatment adherence

Igika cya 3: gukurikirana gahunda za muganga

20. How long have you been receiving care for your health condition?

20. hashize igihe kingana iki wivuza ubu burwayi ?

[   ]Years [   ]months

[   ] Imyaka [   ]amazi

21. Do you ever forget to take your medicine? YES [   ]NO [   ]

21. Harubwo ujya wibagirwa gufata imiti uko byagenwe na muganga ? Yego [   ] Oya [   ]

22a. Are you careless at times about taking your medicine? YES [   ]NO [   ]

22a. Harubwo ujya utubahiriza amasaha yogufata imiti ? Yego ☐ Oya ☐

22b. if yes, now many times did you miss medication in two last weeks? 3 times ☐

   2 times ☐   once ☐ none   ☐

22b. Niba ari yego, waba waribagiwe kurya imiti inshuro zingahe ubyumweru bibiri bishize ?

   Inshuru 3 ☐ nshuro 2 ☐ shuro 1 ☐ arimwe ☐

23. When you feel better do you sometimes stop taking your medicine? YES ☐   NO ☐

23. Harubwo ujya uhagarika imiti iyo wumva umeze neza? Yego ☐ Oya ☐

24. Sometimes if you feel worse when you take your medicine, do you stop taking it?

YES ☐   NO ☐

24. Harubwo ujya ureka gufata imiti iyo wumvise utamerewe neza? Yego ☐ ☐

25. Do you know long-term benefit of taking your medicine as told to you by your doctor or

pharmacist? YES ☐   NO ☐

25. Waba uzi ingaruka nziza zo gukurikiza gahunda wahawe na muganga ? Yego ☐ Yego ☐

26. If it happens that you do not respect your appointment with your doctor, what could be
the reasons?

26. Niba bikubaho ko utubahiriza gahunda uba wahawe na muganga, byaba biterwa niki ?

O Side effects ☐

O Ingaruka mbi kumiti ☐

O Did not want to go for Follow up ☐

O Numva ntabushake bwo gusubirayo ☐

O Did not think he/she needed drugs ☐

O Numva ntagikeneye gukomeza gufata imiti ☐

O Did not know that he/she had to continue with drugs ☐

O Ntabwo narinziko ngikeneye gukomeza gufata imiti ☐

Other/specify: ………………………………………………………………………………

OIbindi/sobanura :

………………………………………………………………………………

27. Do you manage your own medication? Yes ☐ No ☐

27. Ni wowe ubwawe wimenyera imiti imuhira ? Yego ☐ Oya ☐

28. If not, who manages them for you? ………………………………

28. Niba ari oya, ninde uyikumenyera ? ………………………………..

29. What are your medication dosages? ……………………………………………………..

29. Imiti yawe uyinywa ute ? ………………………………………………………………….

30. How do you remember to take your medication? …………………………………………

30. Ninde ukwibutsa gufata imiti ? ………………………………………………………….

31. How many dosages of your medication have you missed during the last two weeks?

…………………………………………………………………………………………………

31. Ni kangahe waba waribagiwe gufata imiti mubyumweru bibiri bishize ?.............................

32. Do you have any serious adverse effects from your medications? Yes ☐ No ☐

32. Haringaruka mbi ziterwa nimiti ujya ugira ? Yego ☐ Oya ☐

33. If yes, what are these adverse effects? …………………………………………………

33. Niba ari yego, izo ngaruka ni izihe ?...

34. As far as you are concerned, is your treatment regimen affordable?   Yes   No

34. Ese ubona ibikorwa byubuvuzi bikoroheye? Yes ☐ No ☐   ☐   ☐

35a. Do you experience any symptoms of health problem that interfere with your treatment adherence? Yes ☐ No ☐

35a. hari ibibazo by'ubuzima uhura nabyo bikabangamira gahunda zawe zo kwivuza? Yego ☐

Oya ☐

35b. If Yes, which ones? …………………………………………………………………

35b. Niba bihari ni ibihe ? …………………………………………………………………

37. Were you given some behavioral recommendations? Yes ☐ o ☐

37. Haba hari inama mu myitwarire waba warahawe na muganga ? Yego ☐ ya ☐

38. If yes, which behavioral recommendations were you given?

38. Niba ari yego, n'izihe nama wagiriwe na muganga ?

O Physical activities ☐

O Imyitozo ngorora mubiri ☐

O Dietary recommendations ☐

O Imirire myiza ☐

O Relaxation exercises ☐

O Imyitozo yo kuruhura mu mutwe ☐

O Stress management ☐

O Kurwanya umunabi ☐

O Rehabilitation program ☐

O Gusubira mu buzima busanzwe ☐

O Socialization ☐

O Kubana n'abandi ☐

O No Alcohool ☐

O Kwirinda inzoga ☐

O No smoking ☐

O Kwirinda itabi ☐

O Other, Specify ………………………………………………………………………

O Ibindi/sobanura : …………………………………………………………………….

39. Do you adhere to all your behavioral recommendations? Yes ☐ No ☐

39. waba wubahiriza inama wahawe namuganga ? Yego ☐ ya ☐

40. Do you believe that your medication is effective? Yes ☐ No ☐

40. Utekereza ko ubufasha uhabwa bukugirira akamaro?   Yego ☐ a ☐

41. Are you too busy with other things (childcare, food, work, away from home) to miss your treatment? Yes ☐ No ☐

41. Harubwo ujya wumva uhuze (wita kubana, ushakisha ibyokurya, akazi, waragiye kure y`imuhira) bigatuma udakuriza gahunda zamuganga? Yego ☐ ya ☐

42. Do you understand the importance of adherence? Yes ☐ ☐

42. waba wumva neza ibyiza byo gukurikirana gahunda za muganga uko bikwiye ? Yego ☐
    Oya ☐

43. Do you stop your medications so as to drink alcohol or take another substance? Yes ☐
No ☐

43. Harubwo ujya uhagarika imiti bitewe nokunywa inzoga ?   Yego ☐ Oya ☐

44. If yes, how often?

44. Niba ari yego, biba kangahe ?

O Occasionally ☐

O gake ☐

O More often ☐

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O Kenshi ☐

O Others/specify : ………………………………………………………………………………

45. Did you stop your medication in order to go to see traditional healers?   Yes ☐   No ☐

45. Waba warahagaritse imiti kubera kujya mubavuzi bagakondo ? Yego ☐ Oya ☐

46. Did you stop your medication because of a stressful life event? Yes ☐ ☐

46. waba warigeze guhagarika imiti kubera ibizazane/ibyago ?   Yego ☐ ya ☐

47. Of yes what Stressful life events experienced?

47. Niba ari yego, nibihe ibizazane/ibyago ?

O Bereavement ☐

O Gupfusha ☐

O Physical illness ☐

O Uburwayi ☐

O Loss of a job ☐

O Kubura akazi ☐

O Divorce ☐

O Gutandukana nuwo mwashakanye ☐

O Other/specify: …………………………………………………………………………

O Ibindi/sobanura : …………………………………………………………………………

48. Are the hours of hospital operation convenient for you?   Yes ☐ ☐

48. Amasaha babakiriraho kwamuganga wumva akunogeye ? Yego ☐ ya ☐

49. Do you wait for long for the services at the hospital? Yes ☐ o ☐

49. Harubwo mujya mutegereza umwanya munini kugirango mubashe kubona ubufasha ?

Yego ☐   Oya ☐

50. How many hours does it take you to reach the hospital/facility by bus? ☐

50. Bigutwara amasaha angahe kugirango ugere kwa muganga uri muri bisi ? ☐

51. How much money do you pay for transport to reach the facility? ☐

51. Bigutwara amafaranga angahe ya bisi kugirango ubashe kugera kwamuganga ? ☐

52. Is the appointment staff available? Yes ☐ o ☐

52. buri gihe muganga waguhaye gahunda urahamusanga ?   Yego ☐ ☐

53. How satisfied are you with your service providers at the hospital?

53. Nigute wumva ibikorwa byubuvuzi muhabwa bikunyuze ?

O Very satisfied ☐

O Numva binyuze cyane ☐

O Satisfied ☐

O Numva binyuze ☐

O Unsatisfied ☐

O Numva bitanyuze ☐

O Very unsatisfied ☐

O Numva bitanyuze nagato ☐

54. Are you satisfied with the quality of communication between your service providers and you? Yes ☐ No ☐

54. Wumva unyuzwe n'ibiganiro ugirana n'abaguha ubufasha mu buvuzi ? Yego ☐ Oya ☐

55. Are you satisfied with the attitudes of your services providers? Yes ☐ No ☐

55. Wumva unyuzwe na Serivisi uhabwa ? Yego ☐ Oya ☐

Section 4: Treatment outcomes

Igika cya 4: Korokerwa k'uburwayi cyangwa gukira k'uburwayi

Instruction to Interviewer: Below is a list of problems and areas of life functioning in which some people experience difficulties. Using the scale below, fill in the box with the answer that best describes how much difficulty you has been having in each area during the past week.

Ibigenderwaho mukubaza : munsi hari urutonde rw'ibibazo mu buzima umuntu ashobora kugenda ahura nabyo. Mu magambo akurikira toranyamo iryo wumva rihuye n'urugero rw'uko ibintu byakugoraga.

0= No Difficulty

0= Ntabwo byangoye

1=A Little difficulty

1= Byarangoye gake cyane

2=Moderate Difficulty

2= Byarangoye gake

3=Quite a Bit of Difficulty

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3= Byarangoye

4=Extreme Difficulty

4= Byarangoye cyane

56. In the past two weeks, what difficulty have you been having in the area of:

56. Mu byumweru bibiri bishize, byaba byarakugoye kuzuza inshingano zikurikira ?

Items Inshingano	No Difficulty Ntabwo byangoye	A Little difficulty Byarangoye gake cyane	Moderate Difficulty Byarangoye gake	Quite a Bit of Difficulty Byarangoye	Extreme Difficulty Byarangoye cyane
1. Managing day-to-day life (for example, getting places on time, handling money, making everyday decisions) 1. Kubasha guhangana n'ubuzima bwa buri munsi(urugero : kubahiriza igihe, gushakisha amafaranga, gufata imyanzuro)					
2. Work (for example, completing tasks, performance level, finding/keeping a job) 2. Mu kazi (urugero : kurangiriza kugihe, gukora neza, gushakisha akazi)					
3. School (for example academic performance, completing assignments, attendance) 3. Ku ishuri (urugero : gutsinda, kurangiza imikoro, kuba ku ishuri)					
4. Leisure time or recreational activities 4. Imyidagaduro					
5. Being able to fell close to others 5. kubana n'abandi					
6. Adjusting to major life stresses 6. Kubasha guhangana n'ingorane mubuzima					
7. Relationships with family members					

7. kubana neza nabo mu muryango					
8. Getting along with people outside of the family 8. kubana neza n'inshuti					
9. Isolation or feeling of loneliness 9. kumva utari wenyine					
10. Being realistic about yourself or others 10. gushyira mu gaciro					
11. Developing independence, autonomy 11. kumva ubasha kwikemurira ibibazo no kwifatira umwanzuro udategereje abandi gusa					
12. Goals or direction in life 12. Kumva ufite intego					
13. Lack of self-confidence, feeling bad about yourself 13. kumva wifitiye icyizere ntiwumve wiyanze					
14. Apathy, lack of interest in things 14. kumva ibintu bikunejeje					
15. Depression, hopelessness 15. kumva udafite ishavu, nibyiringiro					
16. Suicidal feelings or behavior 16. Kumva wakwigirira nabi					
17. Physical symptoms (for example, headaches, aches and pains, sleep disturbance, stomach aches, dizziness) 17. kumva ufite ibimenyetso byuburwayi (urugero : kubabara umutwe, kugira uburyaryate, kubura ibitotsi, kuribwa mugifu, ikizungerere)					
18. Fear, anxiety, or panic 18. kumva ufite ubwoba ntampamvu					
19. Confusion, concentration, memory 19. Kumva utazi aho uri					
20. Disturbing or unreal thoughts or beliefs 20. kugira ibitekerezo cyangwa ibyiyumviro bibi					
21. Hearing voices, seeing					

things 21. kumva amajwi cyangwa kubona ibintu abandi batabona					
22. Manic, bizarre behavior 22. kugira imyitwarire idasanzwe					
23. Mood swings, unstable moods 23. kumva udatuje muri wowe					
24. Uncontrollable, compulsive behavior 24. kumva utabasha kwigenzura, guhubuka					
25. Sexual activity or preoccupation 25. imibonano mbuzabitsina no Kwiyitaho					
26. Drinking alcoholic beverages 26. kumywa inzoga					
27. Taking illegal drugs, misusing drugs 27. kunywa ibiyobyabwenge					
28. Controlling temper, outbursts of anger and violence 28. Gucubya uburakari					
29. Impulsive, illegal, or reckless behavior 29. kugira ibikorwa by'urugomo					
30. Feeling satisfaction with your life 30. kumva unyuzwe n'ubuzima bwawe					

57. How do you rate the extent of your perceived recovery?

57. Nigute wumva unyuzwe n'ukuntu uburwayi bwawe bugenda bukira ?

O Very satisfied ☐

O Numva binyuze cyane ☐

O Satisfied ☐

O Numva binyuze ☐

O Unsatisfied ☐

O Numva bitanyuze ☐

O Very unsatisfied ☐

O Numva bitanyuze nagato ☐

58. Have you ever experienced relapse? Yes ☐ No ☐

58. Harubwo uburwayi bwawe bwaba bwariyeze gusubira inyuma/ gusubirwa ? Yego ☐
Oya ☐

59. If Yes, how many relapses did you experience since you first got sick/ill? ………………

59. Niba ari yego, byaba byarabaye inshuro zingahe kuva aho urwariye ? ………………….

60. When was your most recent relapse? ……………………………………………………

60. Igihe biheruka cya hafi ni ryari ? …………………………………………………….

61. Have you ever been re-hospitalized because of the same illness? Yes ☐ ☐

61. Byaba byaratumye uba mu bitaro ? Yego ☐ Oya ☐

THANK YOU!

Murakoze

Appendix II: Form to collect data from medical record.

Section 1: PTSD comorbidities and Psychosocial and environmental problems

1. Patient number: ☐☐☐☐ ate ………/………/………

2. The sex: Male ☐ Female ☐

3. Age: ……………years

2. Diagnosis

a. PTSD: ☐

b. Comorbidity with Other mental disorder(s) : Yes ☐ No ☐

c. If Yes, Specify: …………………………………………………………………….

5. Other general medical conditions/physical diseases : Yes ☐ No ☐

If Yes, Specify: ……………………………………………………………………….

6. Psychosocial and environmental problems:

a. Problems with primary support: Yes ☐ No ☐

If Yes, Specify …………………………………………………………………….…..

b. Problems related to social environment: Yes ☐ No ☐

If Yes, Specify …………………………………………………………………….…..

c. Educational Problems: Yes ☐ No ☐

If Yes, Specify …………………………………………………………………….…..

d. Occupational problems: Yes ☐ No ☐

If Yes, Specify …………………………………………………………………….…..

e. Housing problems: Yes ☐ No ☐

If Yes, Specify …………………………………………………………………….….

f. Economic problems: Yes ☐ No ☐

If Yes, Specify …………………………………………………………………….……

h. Other psychosocial and environmental problems : Yes ☐ No ☐

If Yes, Specify …………………………………………………………………….……

7. Any disability: Yes ☐ No ☐

If Yes, Specify …………………………………………………………………….……

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Section 2: Adherance to Psychotherapy sessions and other non-pharmacological treatment

S/N	Date of appointment	Type of treatments	Attendance on time	Final remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
Number of sessions scheduled				
Number of sessions completed				
Overall percentage score				

Appendix III: Consent Form (Individual)

Number of the participants:

………………………………………………………………………..

Interviewer:

…………………………………………..………………………………………..

As part of an assessment conducted by Francoise Uwera Kabanda, a student in school of public health, college of medicine and health sciences at University of Rwanda, on prospective of genocide survivors suffering from PTSD: adherence and treatment outcomes among genocide survivors with comorbidity of PTSD and other mental disorders attending CHUK/former SCPS, Rwanda, we are asking you to participate, to tell us about their experience with the diseases and treatment issues and social support as a genocide survivor. This discussion will help to identify solutions to address challenges of adherence and treatment outcomes among genocide survivors with comorbidity of PTSD and other mental disorders attending. We will be asking you to answer some questions about how you feel, diseases, treatment, recovery, and about your relationships with other people around you. This information will be shared privately with the health care team at chuk/ccps so that we can ask for additional health help for you if you need it. You should not have any negative effects from being a part of this study. You may find it a positive experience because you may understand more about how you are feeling and factors can influence your recovery. We expect the Interview to take about 30 minutes. However, you are free to leave the discussion at any time. You can be assured that you will not face any consequence if you do not want to participate. Your answers to these questions will be entered into a computer that is protected by a password. Your privacy will be protected as much as is legally possible. Please to confirm your permission to participate in the discussion, you will sign.

Signature: ………………………………………….

Please sign below to confirm your permission for filling the questionnaire.

Signature: ……………….. Name: ……………………………………Date: ………………
If you have any further questions about this assessment, please contact Francoise Uwera at 0788627276 or Dr Laetitia Nyirazinyoye at 0738683209

Appendix IV : Icyemezo cy`uwemeye kugira uruhare mubushakashatsi

Nimero y`ubazwa: …………………………………………………………………………..

Umushakashatsi ubaza: ………………………………………………..…………………

Murwego rw'ubushakashatsi buri gukorwa ku bijyanye n`ihungabana rikomatanyije nubundi burwayi bwo mu mutwe, imivurire n'Imikirire yabwo mu barokotse genoside yakorewe abatutsi bivuriza ku Bitaro bya kaminuza bya Kigali, bukaba bukorwa na Françoise Uwera Kabanda, umunyeshuri muri kaminiza yu Rwanda, koleji y`ubuzima n`ubuvuzi, ishami ry`ubuzima rusange, turagusaba kutubwira kubibazo byubuzima, uburwayi, uko mukurikirana imiti nuko mugenda mworoherwa ndetse n'ubufasha muhabwa n'umuryango n`abaturanyi nk'uwarokotse jenoside yakorewe abatutsi ufite ikibazo cy`ihungabana. Ibitekerezo muza gutanga bizadufasha kubona umuti w' ibibazo hagamijwe guteza imbere ubuzima bwiza bwo mu mutwe ku warokotse genoside yakorewe abatusti ufite ikibazo cy`ihungabana. Ayo makuru tuzayageza muburyo bwanditse mwibanga kandi bwihariye kubita ku bibazo byo mu mutwe basanzwe babakurikirana kugirango babashe kuguha ubufasha bwinyongera igihe bizaba bikenewe. Kuba umwe muri ubu bushakashatsi nta ngaruka mbi bizakugiraho. Ukwiye kubikuramo ibyiza kuberako uzarushaho kumenya uko wiyumva n'imiterere y'uburwayi bwawe. Ariko rero, ushobora guhagarika ikiganiro igihe cyose usanze ari ngombwa. Ikindi tukwizeza ni uko ntangaruka ishobora kukugeraho bitewe n'uko wisubiyeho. Ibisubizo uzatanga bizandikwa muri mudasobwa ifungurwa numubare w'ibanga. Ibanga ryawe rizabikwa nkuko biteganwa n'amategeko. Niba ubitwemereye, shyira umukono kuri iyi nyandiko wemeza ko wiyemereye kugira uruhare muri ubu bushakashatsi.

UMUKONO: …………………………………………………

Niba wemeye gusubiza ibibazo. UMUKONO: ……………… AMAZINA YAWE: …………………………………………… ITARIKI: ……………………… Niba hari ikibazo ufite kuri ubu bushakashatsi, ushobora guhamagara abakuriye ubu bushakashatsio kuri telefoni igendanwa ya Francise Uwera ifite numero 0788627276 cyangwa ugahamagara Dr. Dr Laetitia Nyirazinyoye kuri 0738683209.