Substance abuse and mental disorder in Rwanda
- A description of risk- and protective factors for substance abuse among persons with chronic substance abuse and mental disorders, at the Huye Isange Rehabilitation Center.

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Introduction
I want to go to Rwanda to study risk factors for falling into substance abuse. Apart from looking at general risk factors, I would like to investigate the association between substance abuse and mental disorders.

I find Rwanda to be an interesting country because of how it has, in it’s very recent history, gone through one of humankind’s bloodiest genocides and how the nation since has dealt with rebuilding the country; the reconciliation process, the rapid development in the economic- and health sectors, as well as it’s progressive legislation on gender equality.

Examples of the progress the country has made can be seen in: the increase in average life expectancy at birth, which, according to the World Bank, has more than doubled since the early 1990’s, under 30 years then, 64 years in 2014 (1); that the Rwandan constitution requires that at least 30 per cent of government leader positions are held by women, as of 2014, 38 per cent of Rwanda’s Senators, 64 per cent of the members of Parliament’s lower chamber, 40 per cent of Ministers, and 41 per cent of Supreme Court Justices are held by women (2); the poverty, defined as consumption under RwF 64,000 (US$100), in January 2001 prices, per adult equivalent, per year, went from 59 to 45 per cent, between 2001 and 2011(3).

However, Rwanda is, as I will try to show in the following, facing major challenges, in dealing with drug abuse and mental health issues. With this project I hope to contribute, in however small a way, towards building a knowledge base that can be used to address these issues.

Background
It is estimated that between 800,000 and one million lives were lost during the 1994 genocide in Rwanda, killed by the government army and militia groups. Neighbour killed neighbour, spurred on by government controlled radio stations (4). Apart from being a humanitarian catastrophe, the genocide had devastating effects on Rwanda’s health system and economy as a whole. More than 10% of the population were killed and millions more were displaced from their homes. An estimated 250,000 women had been raped in a systematic manner, militiamen carrying the HIV-virus used it as a “weapon” (5). This became a big problem since there was, at the time, a high prevalence of HIV, in parts of the country (5); the HIV prevalence among pregnant women in Kigali ranged from 21% to 33%, between 1988 and 1996 (6). On top of this there were cholera epidemics, poor vaccination of measles and polio, and the tuberculosis prevention programs were in disarray; Rwanda had the highest under-5 mortality rate in the world in 1994 (4).

In the aftermath of the genocide, perpetrators fled the country, into neighbouring Zaire (now the Democratic Republic of Congo, DRC), regrouped and started attacks into Rwanda. These attacks were part of what eventually led to the 1996 war, and subsequent conflict, between Rwanda and DRC (7). Some of these rebel groups are still active in the eastern part of DRC (7, 8). Following the reconciliation Gacaca courts, starting in 2003, perpetrators were starting to be
reintegrated into their communities and now, again, live side by side with the victims of the genocide (4, 7).

In recent years, remarkable improvements have been made in many areas of the health sector(4). However, mental disorders and substance abuse remain serious contributors to Rwanda's burden of disease (4, 9), the magnitude of both problems has been linked to the genocide (10, 11).

In a sample of 917 Rwandan young adults, aged between 20 and 35, a study, published in 2015, found that 20% (12% of men, 27% of women) suffered from depression, 16% (10% of men, 22% of women) from suicidality, 14% (7% of men, 20% of women) from post-traumatic stress disorder (PTSD) and 37% (33.3 of men, 39% of women) from generalised anxiety disorder (GAD) (12).

The prevalence of substance abuse in Rwanda has been less studied, however a study by Kanyoni et al., published in 2015, found that, among Rwandans aged 14-35 years, dependence on alcohol was 7.5% and on cannabis 2.5%, based on the Alcohol Use Disorders Identification Test (AUDIT) and the Cannabis Abuse Screening Test (CAST) respectively (13).

The prevalence of substance abuse is alarming since drug abuse has been associated with intimate partner violence, HIV-spread, homicide victimisation and, importantly, mental disorder (14-17).

That substance abuse and mental disorders are pressing issues in Rwanda today is also reflected in policy documents, and initiatives carried out by different Rwandan government ministries.

In Rwanda’s national youth policy, published in 2015 by , drug abuse is identified as one of the main health problems of Rwandan Youth (6).

The Rwandan Ministry of Health has developed a research agenda, to provide a guide to priority health research areas, in Rwanda. The purpose of this is to provide policymakers and health care implementers with evidence, which can be used in the work towards achieving the country’s long term development goals, specified in the strategy entitled “Vision 2020”. The priority areas of mental health research include: “the study of comorbidity of drug related disorders and other mental disorders”, as well as “the evaluation of the effects of alcohol and drug abuse on mental health” (18).

A number of outreach programs have been carried out by Rwandan Government Ministries, aiming at drug abuse prevention, eg. in 2013 and 2014, the Ministry of Health launched anti drug abuse campaigns and in 2015, the Rwandan National Police took part in the international day against drug abuse and trafficking, arranging drug abuse awareness events across the country (19-21).

As can be seen in the World drug report, published by the World Health organisation, the prevalence of substance use varies across the world, between regions and between drugs (22).

There is little reliable information on the extent of the problem, in Rwanda, little reliable data on the types of drugs being used, the characteristics of drug users, including medical and psychiatric comorbidities (22-24).

**Theoretical framework**

The theory is that, for any event, there are factors that increase the likelihood of developing substance abuse (risk factors) and other factors that decrease the risk (protective factors). A model like this was suggested by Hawkins, Catalano and Miller, in the early 1990’s and has since influenced a substantial part of research and intervention developments, in the substance abuse field (25-27).

Examples of risk and protective factors that have been identified are: neighbourhood disorganisation, early exposure to substances, substance abuse among peers, living in non-nuclear family, family substance history, parental marital status, parent education, parent psychopathology,
lack of parental supervision, income, socioeconomic status, marital status, anticipated future social position (25-29).

As seen in Table 1, these risk factors can be grouped into different categories, or domains (17). This way of categorising factors influencing health into different levels was suggested by Dahlgren and Whitehead in 1991 (30) and has been widely used since.

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Domains</th>
<th>Protective factors</th>
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<tbody>
<tr>
<td>Early Aggressive Behavior</td>
<td>Individual</td>
<td>Individual Impulse Control</td>
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<tr>
<td>Lack of Parental Supervision</td>
<td>Family</td>
<td>Family Parental Monitoring</td>
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<td>Substance Abuse Peer</td>
<td>Peer</td>
<td>Academic Competence</td>
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<td>Drug Availability School</td>
<td>School</td>
<td>Anti-drug Use Policies</td>
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<tr>
<td>Poverty Community Strong</td>
<td>Community</td>
<td>Neighborhood Attachment</td>
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</tbody>
</table>

Strong associations have been identified between substance abuse and mental disorders (31, 32). Attention deficit hyperactivity disorder (ADHD), conduct disorder and mood disorders may be the disorders most commonly associated with substance abuse, though mental illness, irrespective of type, has been identified as a risk factor for substance abuse (33). Since, see above, many people in Rwanda suffer from the disorder, it is worth to note the reported association between substance abuse and PTSD (34).

Several hypotheses have been suggested to explain the associations: genetic factors, that persons with mental disorder are genetically vulnerable to substance abuse, or vice versa; the “self-medication” hypothesis, that persons with mental disorder use substances to alleviate symptoms; drug abuse can lead to mental disorder, eg. alcohol abuse is a risk factor for anxiety disorder (32).

It has been shown that 89%, of persons who suffer from co-occurring substance use and mental disorder, have an earlier age of onset for mental disorder than substance abuse (34).

Purpose and research aims
The purpose of the study will be to formulate a research hypothesis, for the further in-depth study of risk factors for drug abuse among Rwandan youth, in order to find ways of preventing drug and alcohol abuse.

I aim to pursue this overall purpose through describing socio-demographic and psychosocial factors, mental disorders and type of drug abuse among a group of patients with chronic substance abuse, admitted at the Huye Isange Rehabilitation Center.

Further, I want to investigate if there is a temporal relationship between the onset of mental disorder and that of substance abuse.

Method
I want to carry out a cross-sectional, facility based study with a small sample size for preliminary risk factor analyses. The study will be conducted at the Huye rehabilitation center, in the Huye
district, in Rwanda’s southern province. The clinic provides rehabilitation services to patients with drug and alcohol dependence and to patients mental disorder, under criminal investigation. The data collection will take place from the end of February until the beginning of May, 2017.

Participants will be recruited among the patients at the center, the facility has 80 beds, and approximately 50 outpatients. The aim is to interview 20-30 inpatients and 15-20 outpatients.

Other than being a patient, participants must be Rwandan, or a permanent Rwandan resident, aged between 14 and 35 years, and admitted to the center for drug and or alcohol abuse. The age bracket was set to harmonise with another study that investigated substance use among youth in Rwanda, and it was, until 2015, the definition of “youth” set by the Rwandan Ministry of health. The patient must be mentally stable enough to participate in the study.

Data will be collected through structured interviewing, following a predesigned questionnaire. The questionnaire will be designed in English and translated into Kinyarwanda, the local language. An interpreter will be assisting during the interviews.

Questions regarding socio-demographic background will focus on both risk and protective factors:

- pertaining to risk: neighbourhood disorganisation, early exposure to substances, substance abuse among peers, social supports lacking, living in non-nuclear family, parent psychopathology, family substance history, early violent behaviour, conduct disorder, mental disorder.
- addressing protective factors: Impulse control, parental supervision, academic competence, strong neighbourhood attachment.
- addressing factors that can be associated with either protection or risk, depending on the answer: parental marital status, parent education, income, socioeconomic status, marital status, anticipated future social position when growing up (career ambitions after finishing school).

Questions regarding substance use disorder and mental disorder will address: diagnosis, age of mental disorder onset, age of substance abuse onset, periods without symptoms or substance abuse, if the patient sees a connection between substance abuse and mental disorder.

These factors were selected because they (i) have been shown to predict adult substance dependence, (ii) represent all of the above specified domains, see table 1, (iii) may help establish if there is an order of onset and an association in time between substance abuse and mental disorder.

The results will be compared with existing literature on substance abuse, mental disorders and comorbidity between the two.

The data will then be analysed using SPSS. Descriptive statistics will be performed using Chi-square test to determine possible association between variables of interest and drug and alcohol abuse.

Dissemination strategy

When the project is finalised, it will be presented at a seminar, at the University of Gothenburg. It will also be made available, through personal communications, to the staff at the rehab centre and to researchers in the field, for further studies. It will also be made available for free download, through a database, hosted by the University of Gothenburg.

Ethical considerations

The study protocol will be submitted for review and approval by the College of Medicine and Health Sciences Ethical Committee. Further, a written authorisation by the administration of the center will be requested and, before the recruitment of study participants, an informed written consent will be sought and obtained.

Encryption procedure: Participants will be assigned a number. The number will be marked.
on their interview answer sheet. The sheet with information on what number corresponds to which participant will be kept separate from interview answer sheets.

The participants will be informed, before agreeing to participate in the study, that their participation is completely voluntary, that they can skip any questions they do not wish to answer and that they can stop the interview at any time.

Risk of harm to subjects: since questions will explore potentially traumatic parts of the participants' life, subjects may experience distress and have painful memories brought to mind. The patient will be offered counselling if needed.

Risk of harm to researchers: When asking subjects about sensitive issues, there is always a risk of upsetting them and that they will resort to violent behaviour. This may be especially true when interviewing subjects with mental illness. To minimise chances of this happening, all clinic staff will be informed about the content of the questionnaire, so that they are aware of the risk of violent behaviour and are prepared to tackle this.

Suggested time frame

<table>
<thead>
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<th>Week</th>
<th>Start</th>
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<td>21</td>
<td>79</td>
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</tbody>
</table>

References

1. The World Bank, World Development Indicators. Life expectancy at birth, total (years) - Data [Internet]. The World Bank. [cited 2016 Sep 22]. Available from: http://data.worldbank.org/indicator/SP.DYN.LE00.IN


23. Acuda W, Othieno CJ, Obondo A, Crome IB. The Epidemiology of Addiction in Sub-


Risk analysis

There are many ways in which things could go wrong, which would make the study hard to carry out, e.g. the clinic may be closed down, there may be delays, or management may change. I may fall ill, patients may not want to participate. Many things are out of my control. However, I will try to finish interviews as soon as possible, to avoid time shortage. I will take vaccines and use malaria prophylaxis. If there is a change in management, I will attempt to get renewed permission to carry out the study. If there are not enough willing participants that fit my criteria, I will try and interview other patients. If no data can be obtained, I will conduct a literature review, studying similar projects in countries in the region and other parts of the world.

Preliminary budget
Project plan for Minor field studies scholarship application.
By: Per Guterstam Christofferson, 9th semester, medical student at the University of Gothenburg.
Personnummer: 19830113-6233

<table>
<thead>
<tr>
<th>Table 2. Preliminary budget. All amounts are rough estimates, in SEK, based on personal communication.</th>
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<tbody>
<tr>
<td>Travel expenses to and from Rwanda</td>
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<tr>
<td>Cost of living (including food and accommodation)</td>
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<td>Travel between Kigali and Huye district</td>
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<td>Vaccinations and prophylaxis (Hepatitis B and Malaria)</td>
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<td>Cost of translator</td>
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<td>Print</td>
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<td>Total</td>
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Accommodation
I plan to rent a room, in a hostel or private house, either through the personal contacts of my supervisors, or through an online marketplace, such as Airbnb.