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Crime, recidivism and mental disorders among prisoners in Mbarara municipality, southwestern Uganda

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ABSTRACT

Introduction: Mental disorders among prisoners have been linked to the type of crime and recidivism. Identification of the mental disorders associated with the different types of crimes and recidivism is essential in the planning and eventual service provision to the prisoners. This study aimed to determine the association between mental disorders, type of crime and recidivism among prisoners in Mbarara municipality in Uganda.
Methods: This was a prison facility based cross-sectional study among 414 male and female inmates in Mbarara municipality conducted from June to July 2017. Participants were enrolled from 3 prison facilities through simple random sampling. Sociodemographic-clinical factor questionnaires, and the M.I.N.I. Version 6.0 were completed by each participant. Bivariate and multivariate logistic regression analyses were conducted to determine the associations between the various mental disorders, type of crime and recidivism using the individual adjusted odds ratios at 95% CI. Data were analyzed using STATA 12.0.
Results: Of all the 414 participants in this study; 94% were male, 60% were aged 22–35 years, 89% were first-time offenders, and 64% had allegedly committed or been convicted of violent crimes. Social anxiety disorder was significantly associated with non-violent crimes. Major depression was more likely to occur in recidivists whereas panic disorders were more frequent among first-time offenders regardless of their gender.
Conclusions: An association was established between the category of crime, recidivism, and type of mental disorder among prisoners participating in the study in Mbarara municipality, southwestern Uganda. Additional findings were that a majority of the prisoners with mental disorders seek health care services from the prison health facility and of these inmates, few are accessing psychiatric treatment.

1. Introduction

Uganda, a low income country, has a higher number of prisoners compared to most high income countries with the southwestern region having one of the highest incarceration rates in the country (UBS, 2015; Walmsley, 2013). The criminological characteristics exhibited by prisoners with mental disorders[1] are similar to those of non-mentally ill prisoners. Previous studies considering psychiatric clinical presentations showed no difference observed during the comparison of prisoners with mental disorders and psychiatric patients in the general population (Morgan, Fisher, Duan, Mandracchia, & Murray, 2010). However in the USA, prisoners diagnosed with bipolar affective disorder were more likely to have committed crimes[2] due to symptoms of the mental disorder, followed by psychotic disorders and then major depression (Peterson, Skeem, Kennealy, Bray, & Zvonkovic, 2014). There is a significant association and increase in recidivism[3] among prisoners with mental disorders (El-Gilany, Khater, Gomaa, Hussein, & Hamdy, 2016; López, Saavedra, López, & Laviana, 2016; Sepehrmanesh, Ahmadvand, Akasheh, & Saei, 2014). Prisoners accused of committing violent crimes are more likely to have at least one mental disorder such as major depression while most of the crimes committed by prisoners diagnosed with any mental disorder were non-violent (Baillargeon, Binswanger, Penn, Williams, & Murray, 2009). Those inmates diagnosed with a psychotic disorder are more likely to have committed a violent crime while those diagnosed with bipolar and major depression tend to be linked to non-violent crimes (Peterson et al., 2014). The percentage of violent crimes

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[1] Mental disorders are the presence of clinically significant psychological distress resulting in abnormal thoughts, speech, emotions and behavior.
[2] Crimes are any human act that are contrary to the laws governing a sovereign nation and are subdivided into violent and non-violent crimes.
[3] Recidivism is the state of being imprisoned more than once.

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allegedly committed by inmates with substance use disorder is higher compared to those committed by prisoners with psychotic disorders (Stuart & Arboleda-Flórez, 2001). Certain crimes like arson have been documented to have a strong link with mental disorders compared to other crimes like assault and homicides (Vinkers, Beurs, Barendregt, Rinne, & Hoek, 2011). On the other hand, sexual and property crimes have the weakest relationship with diminished or total lack of responsibility (Vinkers et al., 2011). In 56% of those screened for a mental disorder, property offences dominate among the male prisoners with a previously diagnosed mental disorder compared to those without a history of a mental disorder (Forsythe & Gaffney, 2012). Meanwhile drug related offences predominate in female inmates and those who reported a previous diagnosis of a mental disorder (Forsythe & Gaffney, 2012). The risk of recidivism increases exponentially in prisoners with mental disorders who have a comorbidity of substance use and there has been a documented association between alcohol and other substance use with multiple imprisonments (Baillargeon et al., 2010; dos Santos et al., 2014). Inmates having an increased rate of incarceration show a greater propensity of being diagnosed with a major psychiatric disorder specifically bipolar affective disorder (Baillargeon et al., 2009). The risk of having one or more previous incarcerations is highest among those with psychotic disorders and least among those with major depression (Baillargeon et al., 2009). In Uganda, inmates diagnosed with psychosis and depression are likely to be charged with violent offences (Adaku, 2005). Therefore this study aimed to determine the association between the category of crime, recidivism and the type of mental disorder among prisoners in Mbarara municipality, southwestern Uganda.

2. Materials and methods

2.1. Study setting

The study was conducted in Mbarara municipality in southwestern Uganda, 266 km from Kampala. Mbarara district is among the largest districts in southwestern Uganda and the most densely populated with 230,078 males and 242,547 females (UBOS, 2014). The main-municipality is the third order administrative division and a lower local government of the district in which it is located. Mbarara municipality is the most densely populated constituency in Mbarara district with a population of 195,318 with 95,675 males and 99,643 females (UBOS, 2017). The main source of income in Mbarara district is subsistence farming (UBOS, 2017). Mbarara municipality has three government owned prison facilities; Mbarara main prison which has a population of 1637 followed by Kakiika prison with 742 occupants and then Mbarara women's prison with 165 occupants according to our pre-study prison population review conducted in May of 2017 and Uganda Prisons Services (SSP, 2002).

2.2. Study participants

The study was conducted among adult prisoners 18 years and above, with no hearing or speech impediments who were present on the study site at the time of consent and subsequent assessments. The sample size was determined using the Kish Leslie formula (Kish, 1965) using prevalence of mental disorders as the outcome of interest with a z score of 1.96 and standard error of 0.05. Four hundred and fourteen study participants were selected by simple random sampling based on prison population proportions at ratios of 10:4:1 for Mbarara Main, Kakiika and Mbarara Women Prisons respectively. Every fifth inmate was chosen until the required number was attained. Individual prison registries were used to select participants present at the time of data collection and informed consent was obtained from each participant.

2.3. Study instruments

The study participants were assured of confidentiality of their participation and interviewed in a private setting whilst adhering to the standard safety precautions, prison rules, regulations and code of conduct ("Prison Act," 2006). The category of crime and recidivism of the study participants were obtained by a specially designed interviewer administered questionnaire. This standardized pre-tested, structured, comprehensive and easy to administer questionnaire was designed by the principal investigator and translated into the local dialect (Runyankore) as required in order to enable efficient and reliable data collection. Prison-inmates were interviewed using either English or the translated version of the Mini International Neuropsychiatric Interview version 6 (MINI Version 6.0). The MINI Version 6 is a structured diagnostic tool based on DSM-IV-TR[4] and ICD-10[5] diagnostic criteria and has been validated for use in sub-Saharan populations and settings including prison populations. Additionally it has also been used to diagnose mental disorders among prisoners in the largest prison in Uganda, although this work is yet to be published (Adaku, 2005; Black, Arndt, Hale, & Rogerson, 2004). The measure assesses the presence of DSM-IV-TR and ICD-10 criteria-based Axis I[6] diagnoses as well as the Axis II[7] diagnosis of antisocial personality disorder which is of immense interest to the prison institution and the correctional population. The measure also employs different time frames for various disorders namely current, past, or lifetime. In addition to this, the lengthy average time it took to consent the participant, administer the study participant questionnaire and the MINI was between one hour and forty five minutes, and two hours with the study participant being consented for upto one hour, responding to the study participant questionnaire for thirty to forty five minutes and answering the questions in the MINI within fifteen minutes and this would lead to interviewer and interviewee related fatigue that would affect the quality of questions and responses provided. We mitigated the effect of this by having all the research assistants undergo training and limiting the number of study participants interviewed by a research assistant in a day to a maximum of five. Data collection commenced on the 5th of June 2017 and was concluded by the 7th of July 2017.

2.4. Ethical considerations

Approval was provided by the Mbarara University of Science and Technology Research Ethics Committee (Approval Number 09/01-17) and Uganda National Council of Science and Technology (Approval Number HS68ES); and permission was granted by Uganda Prisons Service. The participants provided informed consent under the auspices of privacy and confidentiality while reserving the right to opt out of the study at any point of the data collection without any adverse repercussions. Informed consent was obtained by initially explaining to the group and then to the individual eligible participants the objectives, purpose, risks and benefits of participating in this study. Each participant was taken to a private area where further clarification was offered and questions answered to their satisfaction. Data was then collected without recording any personal information by entering the participants' responses into a softcopy of a specially designed data collection sheet bearing the participant's unique identification number using computer tablets.

[4] DSM-IV-TR is the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revised, a diagnostic manual for mental disorders by the American Psychiatric Association.

[5] ICD-10 is the International Statistical Classification of Diseases and Related Health Problems Tenth Revision, diagnostic manual for all known ailments/diseases by the World Health Organization.

[6] Axis I is a first tier diagnostic schedule meant for primary/functional mental disorders such as major depression and schizophrenia.

[7] Axis II is a second tier diagnostic schedule meant for personality disorders in adults such as antisocial personality disorder.

2.5. Data analysis

The dependent variables that were considered for analysis included the sociodemographic factors such as gender, age, formal education level and prior socioeconomic status,[8] clinical factors such as current psychiatric treatment and available follow-up health services[9] and forensic factors such as category of crime, recidivism, access to legal representation prison status[10] and current living situation during incarceration, while the independent variable was presence of mental disorder(s) with the reference category in the diagnosis being those participants not diagnosed with mental disorder(s). The analysis was conducted in a stepwise manner using forward logistic regression. Univariate analysis was done for the sociodemographic characteristics, type of mental disorder, category of crime and recidivism whereas bivariate logistic regression analyses were conducted to determine associations between the category of crime and recidivism, and the type of mental disorder using the individual odds ratios with their 95% confidence intervals and corresponding p-values. The results were considered statistically significant if the p-value was ≤ 0.05. Data were analyzed using Stata version 12 and the significance test used was the Chi-squared test.

3. Results

3.1. Description of participants

The majority of the participants in this study were male (94%), aged 22–35 years (60%), first-time offenders (89%) with 64% alleged to have committed violent crimes as shown in Table 1 in the Appendix A section.

3.2. Association between the category of crime and mental disorder

The type of mental disorder that had a statistically significant association with violent and non-violent crimes was social anxiety disorder. Participants dignosed with this disorder were more likely to have been incarcerated for non-violent crimes and least likely to have been imprisoned for violent crimes (Table 2).

3.3. Association between recidivism and the category of mental disorder

Table 3 demonstrates that major depression and panic disorders had a statistically significant association with first-time offending as well as multiple offending as follows; major depression was more likely to be diagnosed in multiple-time offenders than first-time offenders and the reverse was true for panic disorders.

4. Discussion

This study assessed the association between category of crime, recidivism and the type of mental disorder. We found a significant association between the types of mental disorder diagnosed and the category of crime for which they were in prison. Of the 19 mental disorders examined in this study, social anxiety disorder was less likely to be associated with violent crime and more likely to be linked to non-violent crimes. This finding differs from other studies (Adaku, 2005; Forsythe & Gaffney, 2012; Peterson et al., 2014; Stuart & Arboleda-Flórez, 2001; Vinkers et al., 2011). However the finding is similar to the conclusions of others (Baillargeon et al., 2010). In previous studies of violent crimes, there was a greater association with major depression, substance use disorders and psychosis (Adaku, 2005; Peterson et al., 2014; Stuart & Arboleda-Flórez, 2001). In addition to the above mentioned studies, other studies found associations between mental disorders and arson, sexual and property crimes as well as drug related crimes (Forsythe & Gaffney, 2012; Vinkers et al., 2011). The possible rationale for this observed trend is that the symptoms of anxiety disorders result in the avoidance of potential triggers. For example, the intense experience of an anxiety disorder may protect a person from committing violent crimes, while social withdrawal coupled with the avoidance-related symptoms of anxiety disorders reduce the risk of an individual committing crimes within a public space with the exception of non-violent crimes (Bartholomew, Morgan, Mitchell, & Van Horn, 2017; Peterson et al., 2014). Also most of the studies reviewed used a differing classification system for crimes.

The number of incarcerations of a prison-inmate was associated with having one or more diagnoses of mental disorder. This is similar to what has been reported in previous studies (Baillargeon et al., 2009;El-Gilany et al., 2016; López et al., 2016; Sepehrmanesh et al., 2014; Zabala-Baños et al., 2016). Recidivism was significantly associated with major depressive disorder and had a negative association with panic disorder. The reverse was true for first-time offenders and similar to the findings of previous studies (El-Gilany et al., 2016; López et al., 2016; Sepehrmanesh et al., 2014; Zabala-Baños et al., 2016). Major depression as noted in other studies was found to be positively associated with recidivism with the exception of one (Baillargeon et al., 2009). The possible explanation for this could be that the symptomatology of major depression, including intense feelings of guilt, hopelessness and worthlessness, might easily occur in an individual who deliberately committed a crime now having to “pay his debt to society” (Bartholomew et al., 2017). Additionally, the studies reviewed revealed that psychotic disorders, substance use disorders and psychiatric comorbidities with substance use disorders were significantly associated with recidivism (Baillargeon et al., 2009; Baillargeon et al., 2010; dos Santos et al., 2014). The other possible clarification for this observed difference is the most common component of a panic disorder, a delirious state of mind, which involves having illusions and being globally disoriented, with an inability to differentiate between what is real and what is illusionary. In this case, confusion may increase the chances of committing a crime for the first time but decreases the possibility of an afflicted individual breaking the law without intending to do so more than once as a result of the avoidance-related features of this disorder (Bartholomew et al., 2017; Miller & Fantz, 2003).

5. Study limitations

Our findings should be interpreted bearing in mind the following limitations; all participants were incarcerated in facilities in Mbarara municipality and so the findings may not be generalized to other prisons in Uganda. However the fact that the populations are similar, these findings would provide an insight into the nature and extent of the burden of mental disorder in Ugandan prisons in spite of cultural differences across different ethnicities.

Some participants may have deliberately declined to disclose and/or falsified responses to some inquiries that they considered to be private, intimate, confidential and/or sensitive due to fear of reprisals and consequences by the prison authorities, anticipated exploitation of the sick role and the societal status and the ascribed privileges that accompanied it.

Another issue that was worth noting with regards to the use of the MINI and the high prevalence rates of mental disorders diagnosed among the prisoners was that the majority of the research assistants recruited were non-clinical and as such lacked the acumen and

[8] Prior socioeconomic status refers to the average monthly income that a study participant would earn in the last one year before their current incarceration.

[9] Available follow-up health services are general medical and psychiatric healthcare services that are readily accessible to the study participant during their time of incarceration.

[10] Prison status is the capacity in which a prisoner is incarcerated either on remand or as a convict with or without sentencing having been accomplished.

experience to diagnose mental disorders appropriately however it should be noted that the research assistants underwent a week-long training on the use, application and administering of the MINI. In addition clarification of unclear questions was consistently encouraged ensuring that each dimension of the question was taken into account and/or considered by the participant such as the time frame, frequency and severity. The lack of resources to confirm diagnoses of general medical conditions and ruling out psychiatric disorders due to a general medical condition[11] was another concern during the administering of the MINI Version 6.0.

Difficulties in obtaining accurate retrospective information about details in the past and long-term symptoms given the fact that > 50% of the participants had been incarcerated for between one and ten years could have contributed recall bias. Moreover some inmates could have been malingering in order to assume the coveted sick role and all its perceived benefits. Absence of some prisoners due to prison scheduling e.g. community service, prison duties, court schedule and pending release from prison that affected our sampling procedure may have also impacted our results by affecting our sampling schedule and subsequently sampling technique.

6. Conclusions

There was a well-established association between the category of crime, recidivism, and type of mental disorder among prisoners in Mbarara municipality. Social anxiety disorder was associated with the category of crime committed while major depression and panic disorders were linked to recidivism among prisoners in southwestern Uganda. A clear understanding of these established relationships can go a long way in assisting pertinent stakeholders focus available resources on areas that can directly reduce these disturbingly worrying trends and develop preventive strategies to combat recidivism and crime.

7. Recommendations

We recommend that there should be capacity building for health workers and other staff in prisons in regard to screening, assessing and treatment of inmates with mental disorders as well as a clear referral process for individuals found to have mental disorders. Furthermore, improving the conditions and standards of living for those incarcerated individuals would help in preventing mental disorders and their comorbidities. Lastly, the field of forensic psychiatry in Uganda would significantly benefit from more comprehensive, longitudinal and nationwide studies to attain a clear picture of the actual magnitude of the burden of mental disorders in Ugandan prisons.

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Competing interests

The authors did not during the conducting of this study and currently have no competing interests to declare henceforth.

Appendix A. Tables of results

Table 1
Description of study participants stratified according to sex.

Variable	Female participants N = 25	Male participants N = 389	Odds Ratio (95% CI)[a]	P-Value
Age (years), n (%)				0.180
18–21	3 (7)	39		
22–35	11 (4)	238		
36–60	9 (8)	103		
Above 60	2 (18)	9		
Category of alleged/confirmed crime, n (%)				0.805
Violent	16 (6)	249		
Non-violent	9 (6)	140		
Level of formal education, n (%)				0.001*
Never attended	14 (17)	33	–	–
Primary	1 (5)	263	0.069 (0.016–0.291)	0.000*
Secondary	3 (1)	70	0.021 (0.002–0.247)	0.002*
Tertiary	7 (12)	23		0.059
Prison status, n (%)				0.014*
On remand	10 (3)	282	0.163 (0.031–0.847)	0.031*
Convicted not sentenced	9 (10)	85		0.468
Sentenced	6 (21)	22	–	–
Recidivism (Number of incarcerations), n (%)				0.255
First-time offenders	24 (7)	345		
Multiple-time offenders	1 (2)	44		

(*continued on next page*)

[11] Psychiatric disorders due to a general medical condition are mental disorders with an identifiable physical cause such as infections, medication or metabolic derangements.

Table 1 (*continued*)

Variable	Female participants N = 25	Male participants N = 389	Odds Ratio (95% CI)[a]	P-Value
Prior socioeconomic status, n (%)				0.633
Low-income (< 1 million UgShs)	20 (7)	278		
Middle-income (1–5 million UgShs)	5 (4)	109		
Upper-income (> 5 million UgShs)	0 (0)	2		
Current living situation in Prison, n (%)				0.003*
Regular incarceration	24 (11)	204	21.665 (1.837–255.476)	0.015*
Solitary confinement	0 (0)	70	–	–
Incarceration with Hard Labor	1 (1)	115	–	–
Available follow-up services (General and Psychiatric), n (%)				0.940
Outreaches	1 (5)	21		
MRRH	2 (7)	27		
Prison health facility	22 (6)	341		
Current psychiatric treatment, n (%)				
Yes	6 (46)	7	144.635 (9.965–2099.194)	0.000*
Legal representation, n (%)				
Yes	14 (19)	59	7.389 (2.373–23.003)	0.001*
Single diagnosis of mental disorder	2 (4)	50		0.560
Major depresssion	14 (8)	169		0.568
Post-traumatic stress disorder	11 (9)	117		0.147
Social anxiety disorder	3 (4)	77		0.339
Psychiatric disorder due to a general medical condition	0 (0)	5		0.822
Comorbidities	17 (6)	284	0.264 (0.074–0.949)	0.041*

* Statistically significant at P-value < 0.05.

[a] The adjusted odds ratios and 95% Confidence intervals shown in this table are for the female participants with the male participants being considered the reference point.

Table 2
Relationship between the category of crime and the type of mental disorder.

Crime	Violent N = 265	Odds ratio (95% CI)	Non-violent N = 149	Odds ratio (95% CI)	P-value
Diagnosis	(%)		(%)		
Major depression	48	1.002 (0.803–1.250)	38	0.998 (0.800–1.245)	0.986
Bipolar affective disorder type I	11	0.763 (0.414–1.406)	7	1.310 (0.711–2.414)	0.386
Panic disorder	26	1.008 (0.733–1.386)	22	0.992 (0.721–1.363)	0.959
Social anxiety disorder	77	0.521 (0.288–0.944)	13	1.917 (1.059–3.472)	0.032*
Obsessive compulsive disorder	86	0.974 (0.503–1.884)	11	1.027 (0.531–1.987)	0.937
Post-traumatic stress disorder	65	0.758 (0.462–1.242)	25	1.319 (0.805–2.163)	0.272
Alcohol use disorder	11	0.926 (0.506–1.695)	10	1.079 (0.590–1.975)	0.804
Psychotic disorder	19	1.213 (0.922–1.596)	27	0.824 (0.627–1.085)	0.168
Suicidality	24	1.055 (0.849–1.310)	25	0.948 (0.763–1.178)	0.629
Generalized anxiety disorder	34	0.744 (0.460–1.201)	25	1.344 (0.832–2.171)	0.226
Psychiatric disorder due to general medical condition	0.4	1.058 (0.641–1.747)	1	0.945 (0.572–1.560)	0.825
Anti-social personality disorder	21	1.021 (0.604–1.726)	20	0.979 (0.579–1.655)	0.938

* Statistically significant at P-value < 0.05.

Table 3
Relationship between recidivism and the type of mental disorder.

Recidivism	First-time offenders N = 369	Odds ratio (95% CI)	Multiple-time offenders N = 45	Odds ratio (95% CI)	P-value
Diagnosis	(%)		(%)		
Major depression	46	0.648 (0.422–0.994)	27	1.544 (1.006–2.370)	0.047*
Bipolar affective disorder type I	10	0.742 (0.294–1.872)	9	1.347 (0.534–3.397)	0.528
Panic disorder	24	1.549 (1.001–2.395)	36	0.646 (0.417–0.998)	0.049*
Social anxiety disorder	19	1.244 (0.530–2.923)	20	0.803 (0.342–1.887)	0.615
Obsessive compulsive disorder	13	1.340 (0.502–3.577)	13	0.746 (0.279–1.991)	0.559
Post-traumatic stress disorder	32	0.579 (0.252–1.333)	20	1.726 (0.750–3.973)	0.199
Alcohol use disorder	11	1.253 (0.525–2.993)	11	0.798 (0.334–1.906)	0.612
Psychotic disorder	21	1.107 (0.733–1.672)	29	0.903 (0.598–1.364)	0.628
Suicidality	24	1.102 (0.784–1.547)	33	0.907 (0.646–1.275)	0.576
Generalized anxiety disorder	32	0.794 (0.369–1.704)	24	1.260 (0.587–2.706)	0.553
Psychiatric disorder due to general medical condition	0.5	1.015 (0.893–1.154)	7	0.985 (0.866–1.120)	0.816
Anti-social personality disorder	21	0.950 (0.412–2.0.190)	18	1.053 (0.456–2.429)	0.904

* Statistically significant at P-value < 0.05.

References

Adaku, A. (2005). *The prevalence, pattern and associated factors of psychiatric disorders among prisoners on remand in Luzira prison complex, Uganda.* Kampala: Psychiatry. Makerere University (Dissertation for the degree of Master of Medicine).

Baillargeon, J., Binswanger, I. A., Penn, J. V., Williams, B. A., & Murray, O. J. (2009). Psychiatric disorders and repeat incarcerations: The revolving prison door. *American Journal of Psychiatry, 166*(1), 103–109.

Baillargeon, J., Penn, J. V., Knight, K., Harzke, A. J., Baillargeon, G., & Becker, E. A. (2010). Risk of reincarceration among prisoners with co-occurring severe mental illness and substance use disorders. *Administration and Policy in Mental Health and Mental Health Services Research, 37*(4), 367–374.

Bartholomew, N. R., Morgan, R. D., Mitchell, S. M., & Van Horn, S. A. (2017). Criminal thinking, psychiatric symptoms, and recovery attitudes among community mental health patients: An examination of program placement. *Criminal Justice and Behavior, 45*(2), 195–213 0093854817734007.

Black, D. W., Arndt, S., Hale, N., & Rogerson, R. (2004). Use of the Mini International Neuropsychiatric Interview (MINI) as a screening tool in prisons: Results of a preliminary study. *Journal of the American Academy of Psychiatry and the Law Online, 32*(2), 158–162.

dos Santos, M. M., Quintana, M. I., Moreira, F. G., Taborda, J. G. V., de Jesus Mari, J., & Andreoli, S. B. (2014). Drug-related disorders and the criminal and clinical background of the prison population of São Paulo State, Brazil. *PLoS One, 9*(11), e113066.

El-Gilany, A.-H., Khater, M., Gomaa, Z., Hussein, E., & Hamdy, I. (2016). Psychiatric disorders among prisoners: A national study in Egypt. *East Asian Archives of Psychiatry, 26*(1), 30.

Forsythe, L., & Gaffney, A. (2012). Mental disorder prevalence at the gateway to the criminal justice system. *Trends and Issues in Crime and Criminal Justice, 438*, 1.

Kish, L. (1965). *Survey sampling*.

López, M., Saavedra, J., López, A., & Laviana, M. (2016). *Prevalence of mental health problems in sentenced men in prisons from Andalucía (Spain). Rev. esp. sanid. penit.* 76–84.

Miller, C., & Fantz, A. (2003). Special “psych” jails planned, Miami Herald, November 15, 2007; E. Bender, Community treatment more humane, reduces criminal-justice costs. *Psychiatric News, 38*, 28.

Morgan, R. D., Fisher, W. H., Duan, N., Mandracchia, J. T., & Murray, D. (2010). Prevalence of criminal thinking among state prison inmates with serious mental illness. *Law and Human Behavior, 34*(4), 324–336.

Peterson, J. K., Skeem, J., Kennealy, P., Bray, B., & Zvonkovic, A. (2014). How often and how consistently do symptoms directly precede criminal behavior among offenders with mental illness? *Law and Human Behavior, 38*(5), 439.

Sepehrmanesh, Z., Ahmadvand, A., Akasheh, G., & Saei, R. (2014). Prevalence of psychiatric disorders and related factors in male prisoners. *Iranian Red Crescent Medical Journal, 16*(1).

SSP, M. K. (2002). *History of the Uganda prisons service-since 1886 to date.* Kampala: Uganda Prisons Service.

Stuart, H. L., & Arboleda-Flórez, J. E. (2001). A public health perspective on violent offenses among persons with mental illness. *Psychiatric Services, 52*(5), 654–659.

The Prisons Act (2006). *Act 17, XCVIX, UPPC, Entebbe, Pub. L. No. The Uganda Gazette No. 42, 6 Stat. (Government of Uganda 2006 14th July, 2006)*.

UBOS (2014). *The population of the regions of the Republic of Uganda and all cities and towns of more than 15,000 inhabitants [Internet] [cited 25th Febuary 2015]*.

UBOS (2017). The National Population and Housing Census 2014. In U. B.o. Statistics (Ed.). *Area Specific Profile Series*. Kampala, Uganda: Uganda Bureau of Statistics.

UBS (2015). 2015 statistical abstract. In U. B.o. Statistics (Ed.). *Kampala: Uganda Bureau of Statistics*.

Vinkers, D. J., Beurs, E., Barendregt, M., Rinne, T., & Hoek, H. W. (2011). The relationship between mental disorders and different types of crime. *Criminal Behaviour and Mental Health, 21*(5), 307–320.

Walmsley, R. (2013). *World prison population list 2013.* International Centre for Prison Studies/University of Essex, recuperado el5.

Zabala-Baños, M., Segura, A., Maestre-Miquel, C., Martínez-Lorca, M., Rodríguez-Martín, B., Romero, D., & Rodríguez, M. (2016). Mental disorder prevalence and associated risk factors in three prisons of Spain. *Revista espanola de sanidad penitenciaria, 18*(1), 13–23.