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Gender comparison in murder accused referred for mental observation to Sterkfontein Psychiatric Hospital

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Gender comparison in murder accused referred for mental observation to Sterkfontein Psychiatric Hospital

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A research report submitted in a submissible format
to the Faculty of Health Sciences, University of the Witwatersrand,
Johannesburg, in partial fulfilment of the requirements for the degree of
Master of Medicine in the branch of Psychiatry

Johannesburg, 2022

DECLARATION

I, Jan Wium Erasmus, hereby declare that this research is of my own, unaided work. I am submitting this research report for the degree Master of Medicine in Psychiatry (in submissible format with my protocol) in the branch of Psychiatry at the University of the Witwatersrand, Johannesburg. This research report has not been submitted before for any degree or examination at this or any other university.



……

Signature of candidate

06/07/22

……

Date

CONTRIBUTION OF THE CANDIDATE TO THE PAPER

Declaration: Student's contribution to article(s) and agreement of co-authors

I, Jan Wium Erasmus, student number 1291204, declare that this Research Report is my own work and that I have contributed significantly towards the research finding presented in the paper intended for publication below.

Signature of Student:..... Date:2022/07/05

Name of Supervisor 1: Dr Samantha Naidoo

Signature of Supervisor 1:..... Date:2022/07/05

Name of Supervisor 2: Dr Danie Hoffman

Signature of Supervisor 2:..... Date:2022/07/05

Agreement by co-authors: By signing this declaration, the co-authors listed below agree to the use of the article(s) by the student as part of his Research Report. In cases where the student is not the 1st author of a published article, both supervisors must explain (under comments) why the student is entitled to use the paper for his/her degree purposes.

Article Title: Gender comparison in murder accused referred for mental observation to Sterkfontein Psychiatric Hospital

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Comments by Supervisor 1:

.....

Comments by Supervisor 2:

.....

This research report is dedicated to Dr Ralf Brummerhoff and the late Professor Bernard Janse van Rensburg for their inspiration and example to pursue the field of psychiatry.

PRESENTATIONS AND PUBLICATIONS

This research report was presented at the Wits University department of Psychiatry 33rd annual research day on 22 June 2022.

PRIZES AND AWARDS

This study was awarded the SASOP (South African Society of Psychiatrists) Southern Gauteng subgroup, Bernard Janse van Rensburg research award on 22 June 2022.

AUTHOR GUIDELINES FOR THE SOUTH AFRICAN JOURNAL OF PSYCHIATRY

Original research article

Word limit	3000-4000 words (excluding the abstract, tables, figures, graphs, and references)
Abstract	maximum: 250 words requires structural headings: Background, Aim, Setting, Methods, Results, Conclusion and Contribution
Main text	requires structural headings, refer to the full structure 'Ethical considerations' is a sub-section in the manuscript and must include: • Name of the ethical review committee • Study approval number • Manner of consent (written, oral) for human participants • Description of measures taken to maintain the confidentiality of data • If the study was not human or animal research or the study was determined to be non-human subjects research or exempt, the authors must provide a statement with those details in this section.
References	60 or less, adhere to the Vancouver referencing style
Tables, figures, and graphs	7 or less, adhere to the Illustrations requirements found in the AOSIS House style guide

Title: The article's full title should contain a maximum of 95 characters (including spaces).

Abstract: The abstract, written in English, should be no longer than 250 words and must be written in the past tense. The abstract should give a succinct account of the objectives, methods, results, and significance of the matter. The structured abstract for an Original Research article should consist of six paragraphs labelled Background, Aim, Setting, Methods, Results and Conclusion.

- Background: Summarise the social value (importance, relevance) and scientific value (knowledge gap) that your study addresses.
- Aim: State the overall aim of the study.
- Setting: State the setting for the study.
- Methods: Clearly express the basic design of the study, and name or briefly describe the methods used without going into excessive detail.
- Results: State the main findings.
- Conclusion: State your conclusion and any key implications or recommendations.

Do not cite references and do not use abbreviations excessively in the abstract.

Introduction: The introduction must contain your argument for the social and scientific value of the study, as well as the aim and objectives:

- Social value: The first part of the introduction should make a clear and logical argument for the importance or relevance of the study. Your argument should be supported by use of evidence from the literature.
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Research methods and design: This must address the following:

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- Study population and sampling strategy: Describe the study population and any inclusion or exclusion criteria. Describe the intended sample size and your sample size calculation or justification. Describe the sampling strategy used. Describe in practical terms how this was implemented.
- Intervention (if appropriate): If there were intervention and comparison groups, describe the intervention in detail and what happened to the comparison groups.
- Data collection: Define the data collection tools that were used and their validity. Describe in practical terms how data were collected, and any key issues involved, e.g. language barriers.
- Data analysis: Describe how data were captured, checked, and cleaned. Describe the analysis process, for example, the statistical tests used, or steps followed in qualitative data analysis.
- Ethical considerations: Approval must have been obtained for all studies from the author's institution or other relevant ethics committee and the institution's name and permit numbers should be stated here.

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- Key findings: Summarise the key findings without reiterating details of the results.
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- Strengths and limitations: Describe the strengths and limitations of your methods and what the reader should take into account when interpreting your results.
- Implications or recommendations: State the implications of your study or recommendations for future research (questions that remain unanswered), policy or practice. Make sure that the recommendations flow directly from your findings.

Conclusion: Provide a brief conclusion that summarises the results and their meaning or significance in relation to each objective of the study.

Acknowledgements: Those who contributed to the work but do not meet our authorship criteria should be listed in the Acknowledgments with a description of the contribution. Authors are responsible for ensuring that anyone named in the Acknowledgments agrees to be named. Refer to the acknowledgement structure guide on our Formatting Requirements page.

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- Author contributions: All authors must meet the criteria for authorship as outlined in the **authorship** policy and **author contribution** statement policies.
- Funding: Provide information on funding if relevant
- Data availability: All research articles are encouraged to have a data availability statement.

- Disclaimer: A statement that the views expressed in the submitted article are his or her own and not an official position of the institution or funder.

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ABSTRACT

Background

Extant literature has identified significant gender differences in murder accused in both general and forensic populations. There is a paucity of such studies, specifically comparing male and female murder accused in the forensic setting, in South Africa.

Aim

The aim of this study was to compare several accused characteristics, offence characteristics and evaluation outcomes in male and female murder accused referred for mental observation to the Sterkfontein forensic psychiatric unit.

Method

A retrospective record review was conducted on a sample of 62 male and 61 female murder accused referred for observation to Sterkfontein Hospital, Gauteng, South Africa from 1 January 2009 to 31 December 2019.

Results

Males were 5.7 times more likely than females to have a history of a prior arrest ($p<0.001$), and a greater proportion of females had a history of previous contact with mental health care services ($p=0.042$). The victim for females was mostly their offspring, with victims of males being predominantly strangers and other relatives ($p<0.001$). Most of the murders by women occurred in the home environment, using methods of poisoning, burning and suffocation, while most men murdered in public spaces or the home of the victim ($p<0.001$), by stabbing ($p<0.001$). The majority of both men (75.8%) and women (75.4%) accused had a psychiatric diagnosis made during evaluation. Seventy-seven-point four percent of males and 68.8% of females were found fit to stand trial. Men were 2.8 times more likely than females to be found criminally responsible.

Conclusion

This study identified significant gender differences in murder accused referred for mental evaluation, consistent with international findings. These differences are a valuable guide to

clinicians in the identification and subsequent intervention of gender-specific violence risk factors in both general and forensic psychiatric populations.

Keywords

Gender differences/comparison, Murder accused, forensic/mental observation, South Africa

ACKNOWLEDGMENTS

I extend my gratitude to the staff of the forensic and clinical records departments at Sterkfontein Psychiatric Hospital for their assistance.

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To my wife, children, and family, thank you for your enduring support and patience.

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LIST OF ABBREVIATIONS

CPA: Criminal Procedure Act

SA: South Africa

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The authors declare that there is no conflict of interest

Abstract

Background

Extant literature has identified significant gender differences in murder accused in general and forensic populations. There is a paucity of studies comparing male and female murder accused in the forensic setting, in South Africa.

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Conclusion

This study identified significant gender differences in murder accused referred for mental evaluation. These differences may guide clinicians in the identification and intervention of gender-specific violence risk factors in psychiatric populations.

Keywords

Gender differences/comparison, Murder accused, forensic/mental observation, South Africa

Introduction

Specific severe mental illnesses carry an increased risk of violence (including murder) when compared to the general population.(1) The combination of mental illness, personality disorder and substance use carries the greatest risk.(2) Despite this, mental illness related violence (including murder) constitutes a small percentage of the overall violence within total populations.(3) Gender specific differences have consistently been identified in murder accused in both forensic and general populations.(4-7) These differences are divided broadly into offender/accused characteristics, and offence characteristics. Most violent acts, including murders, are committed by males.(5-9) Despite the lower overall prevalence in females, murder still however comprises a large part of their violent crimes.(10, 11) In early comparison studies of the 1950's and 1960's, Wolfgang et al.(12) and Ward et al.(13) proposed a theory for gender differences in murder offenders. They asserted that gender differences within murder offenders were a reflection of the traditional gender roles in society. Women were thought to murder based on the need for protection or self-defence, whereas men murdered due to an underlying propensity for aggression, violence, and rage. Later work in the 1970's by Adler(14) and Simon(15) suggested that patterns of violence by women would start to resemble that of men, due to anticipated changes in societal gender roles. This was referred to as the 'liberation hypothesis'. A few studies have validated this theory, however, overall it has received little support. The earlier school of thought on the classical societal gender role differences remains the dominant accepted theory.(4-6, 16)

It is assumed then that if a woman is not driven to commit murder out of self-defence or protection that she must have an underlying mental impairment. In 1997, Wilczynski(17) described it as culturally unacceptable to consider women as violent killers in the absence of a psychiatric disorder. Women convicted of murder have repeatedly been shown to have higher rates of psychiatric disorders than their male counterparts, with mental illness contributing directly to the offence itself.(4, 6, 8, 10, 18) Bourget et al.(18) found that offending women often suffer from depression and/or psychosis.

Current international literature reports the following gender-specific differences in murder accused. Relative to men, women are more likely to have a pre-existing diagnosis of a mental disorder or previous contact with mental health services.(6, 7) Women also tend to take longer to complete a primary education.(7) They are married and employed at the time of the offence compared to men.(6, 7) Both men and women experience childhood trauma, but women tend to have witnessed violence during their childhood.(6, 7) Women are more likely to have experienced domestic violence or abuse preceding the offence.(4, 10) Compared to women, men are more likely to have a history of previous convictions, arrests, and violent behaviour.(4-7) Women are more likely to murder current or previous intimate partners/spouses, offspring, and other relatives whereas men are more likely to murder acquaintances or strangers.(4-6) Women tend to commit murder in their own home or the home of the victim, whereas men are more likely to commit murder in public spaces.(4) Women are more likely to use a weapon during the murder(4), and if a weapon is used, it tends to be a sharp instrument.(6) For both men and women, the victim gender was predominately male.(4, 19)

South Africa (SA) is noted to have a high base rate of violent crimes, including murder.(20) In the year 2019/2020, a total of 21 325 murders were reported, of which 4 555 occurred in Gauteng province.(21) Current research on murder accused in the forensic setting in South Africa has been in the context of female filicide. In 2019, Nagdee et al.(11) conducted a national study in SA on all female accused referred for mental observation, which highlighted a similar profile as that described internationally. However, no comparison was made to their male counterparts. Their study found that female accused had a significant history of childhood trauma, mental illness and were known to their victims. They reported that more than half of the female accused were found fit to stand trial and criminally responsible in terms of Section 77 and 78 of the Criminal Procedure Act (CPA) 51 of 1977 respectively.(22) Although this study found murder to be the most common charge among female accused, the sample included women referred for numerous other offences.

Objectives

The aim of this study was to compare three categories of characteristics in both male and female murder accused referred for forensic observation to Sterkfontein Hospital, from 1 January 2009 to 31 December 2019.

1. *Accused Characteristics:* gender, age at time of offence, population group, marital status, highest level of education, employment status at time of offence, previous forensic history (any previous history of arrests and/or convictions and if so for violent and/or non-violent offences), history of childhood trauma (sexual, physical, emotional childhood abuse and/or neglect) and any previous psychiatric diagnoses and/or treatment received.
2. *Offence Characteristics:* Victim-accused relationship, gender of victim, location of murder and method used.
3. *Outcome of evaluation:* Psychiatric diagnoses and findings in terms of fitness to stand trial and criminal responsibility, according to sections 77 and 78 of the CPA 51 of 1977 respectively.

Method

Study design and setting

A retrospective clinical record review was conducted to document the identified data variables. The study was conducted at the forensic department of Sterkfontein Hospital located in Krugersdorp, Gauteng, South Africa. This facility is designated to conduct court ordered thirty-day inpatient forensic observations in terms of Sections 77, 78 and 79 of the CPA 51 of 1977. It receives all court referrals from Southern Gauteng and approximately half of all the referrals from the neighbouring North-West province.

Sample size

The study population included all adult male and female murder accused referred to Sterkfontein Hospital for mental observation from 1 January 2009 to 31 December 2019. Sample size was calculated from an assessment of Z scores of expected frequencies.

Statistical significance was expected with a minimum sample of 120 (60 males and 60 females). This was the lowest number recommended for representation in the data analyses.

Ethics

This study was approved by the University of the Witwatersrand Human Research Ethics Committee (Approval number: M200666). Permission was also granted by the Sterkfontein Research Committee to access the forensic clinical records.

Data collection

Forensic department records identified 61 females and 291 males as the study population over the eleven-year period. All females were included in the sample. A comparative group of 62 males was then randomly sampled from the male study population. This was performed with a random number table using Microsoft Excel programming. The mental observation clinical records for the male and female selected sample participants were accessed, and the relevant data variables were recorded manually on the data sheet, and then captured electronically using Microsoft excel programming.

Data analysis

All statistical analyses were conducted using R software.(23) All tests were two-tailed probability values, and statistical significance was accepted when $\alpha \leq 0.05$. The data set was generated from assessments of categorical scores. Categorical data are usually non-normal, so appropriate non-parametric analyses were used. Descriptive statistics are presented as counts and percentages of the different variables and their parts. Data is presented in tables, graphs or in text. Comparisons of the socio-demographic and comorbid psychiatric disorder variables between the genders were analysed using Pearson's chi-squared goodness of fit tests and Fisher's exact tests. Similarly, the offence characteristics were compared between the genders using Pearson's chi-squared goodness of fit tests. Comparisons of fitness to stand trial and criminal responsibility between or within the

genders were analysed using Fisher's exact tests. Throughout, odd ratios are provided for significant Fisher's exact tests. A p-value ≤ 0.05 is considered statistically significant.

Results

Accused Characteristics

Included in Table 1 are the findings of all accused characteristics measured. As indicated males were 5.7 times more likely (CI 2.34-15.00) than females to have a previous arrest, however, there was no significant difference in the proportion of convictions between females and males. The nature of previous offences did not vary significantly between the genders. There were no significant differences in the report of childhood trauma between males and females. Significantly, more females than males had received a prior psychiatric diagnosis and treatment.

Table 1. Socio-demographic, forensic and clinical profile of male and female accused referred for mental observation.

Variables	*Components*	*Female (n=61)*	*Male (n=62)*	*Statistical relationships*
Age at time of offence	18-30 years	35 (57.4%)	33 (53.2%)	χ^2=0.52, df=2, p=0.772
	31-50 years	18 (29.5%	22 (35.5%)	
	51-70 years	8 (13.1%)	7 (11.3%)	
Population group	Black	52 (85.2%)	49 (79.0%)	χ^2=0.63, df=2, p=0.097
	White	8 (14.8%)	7 (11.3%)	
	Coloured	0 (0%)	2 (3.2%)	

	Indian	0 (0%)	4 (6.5%)	
Marital status	Married/Partner	34 (55.7%)	27 (43.5%)	Fisher's exact test
	Single/Widower/Divorced	27 (44.3%)	35 (56.5%)	p = 0.209
Educational level	No formal schooling or remedial/special needs schooling	5 (8.2%)	8 (12.9%)	χ^2=6.76, df=3,
	Did not complete mainstream schooling	28 (45.9%)	39 (62.9%)	p=0.080
	Completed mainstream high school	20 (32.8%)	12 (19.4%)	
	Tertiary education	8 (13.1%)	3 (4.8%)	
Employment at time of offence	Employed	16 (26.2%)	19 (30.6%)	Fisher's exact test
	Unemployed	45 (73.8%)	43 (69.4%).	p = 0.690
Previous arrests	Yes	10 (16.4%)	33 (53.2%)	**Fisher's exact test**
	No	51 (83.6%)	29 (46.8%)	**p < 0.001**
Previous convictions	Yes	5 (8.2%)	18 (21.0%)	Fisher's exact test
	No	56 (91.8%)	44 (79.0%)	p = 0.278

Types/categories of previous offences	Violent crimes	6 (60.0%)	10 (30.3%)	χ^2=3.00, df=2, p=0.223
	Non-violent crimes	3 (30.0%)	15 (45.5%)	
	Both	1 (10.0%)	8 (24.2%)	
Childhood trauma	Sexual/Physical/Emotional abuse and/or Neglect	15 (65.2%)	8 (34.8%)	χ^2=2.05, df=1, p=0.153
	None reported/Undocumented	54 (54.0%)	46 (46.0%)	
Lifetime history of mental illness	Diagnosis made and treatment received	23 (37.7%)	11 (17.7%)	**χ^2=8.22, df=3, p=0.042**
	History of psychiatric symptoms with no intervention	14 (23.0%)	12 (19.4%)	
	None reported	24	39 (62.9%)	

Offence characteristics

With reference to Table 2, females and males differed significantly in the victim-accused relationship. For females, the victim was offspring in 59% of cases and for males the victims were mostly other relatives (siblings, cousins, aunts/uncles, or parents), strangers and others (colleagues, acquaintances). The location of the offence differed significantly between the genders. The majority of females, 65.6%, committed the offence in the home of both offender and victim (they were co-habiting) whereas males committed the offence equally in the home of the victim or a public space, 32.3%. Finally, the genders differed significantly in the method used to commit the offence. Forty-eight-point-four percent of

males stabbed their victims while 49.3% of females used other methods including suffocation, burning, and poisoning.

Table 2. Comparison of offence characteristics between female and male accused referred for mental observation.

Variables	*Components*	*Female (n=61)*	*Male (n=62)*	*Statistical relationships*
Victim-accused relationship	Current/previous intimate partner/spouse	7 (11.4%)	10 (16.1%)	**χ^2=57.93, df=4, p<0.001**
	Offspring	36 (59.0%)	0 (0%)	
	Other Relative	8 (13.1%)	14 (22.6%)	
	Stranger	1 (1.6%)	19 (30.7%)	
	Other	9 (14.8%)	19 (30.7%)	
Gender of victim	Female	21 (34.4%)	24 (38.7%)	**χ^2=6.41, df=2, p=0.041**
	Male	34 (55.7%)	38 (61.3%)	
	Undocumented	6 (9.8%)	0 (0%)	
Location	Home of offender	6 (9.8%)	5 (8.1%)	**χ^2=32.20, df=8, p<0.001**
	Home of offender and victim (Co-habiting)	40 (65.6%)	17 (27.4%)	
	Home of victim	5 (8.2%)	20 (32.3%)	
	Public space	10 (16.4%)	20 (32.3%)	
Method used	Stabbing	16 (21.3%)	30 (48.4%)	**χ^2=24.66, df=3, p<0.001**
	Gun shot	2 (3.3%)	8 (12.9%)	
	Blunt force	13 (26.2%)	18 (29.0%)	
	Other	30 (49.3%)	6 (9.7%)	

Outcome of evaluation

A psychiatric diagnosis was made in 75.4% of female and 75.8% of male accused. Table 3 shows the psychiatric disorders of accused included in this study. The most common disorder among females was psychotic disorders (37.7%) while the most prevalent disorder among males was substance use disorder (41.9%).

Table 3. Comparison of psychiatric diagnoses between female and male accused referred for mental observation

Psychiatric diagnosis	*Female*	*Male*	Statistics
Psychotic disorders	23 (37.7%)	14 (22.5%)	χ^2=2.18, df=1, p=0.138
Affective disorders	11 (18%)	0 (0%)	**χ^2=11.00, df=1, p<0.001**
Substance use disorders	13 (21.3%)	26 (41.9%)	**χ^2=4.33, df=1, p=0.037**
Personality disorders	10 (16.3%)	10 (16.1%)	χ^2=0, df=1, p-0.100
Intellectual Disability	7 (11.4%)	6 (9.6%)	χ^2=0.07, df=1, p-0.781
Other	9 (14.7%)	8 (12.9%)	χ^2=0.05, df=1, p-0.808

The category of 'Other' diagnoses included neurocognitive disorders, delirium, and malingering.

A greater proportion of both males (77.4%) and females (68.8%) were fit to stand trial with no statistically significant gender difference present (Fisher's exact test p = 0.314) (Figure 1). In contrast, males were 2.8 times more likely than females to be criminally responsible (Fisher's exact test p = 0.009)(Figure 1).

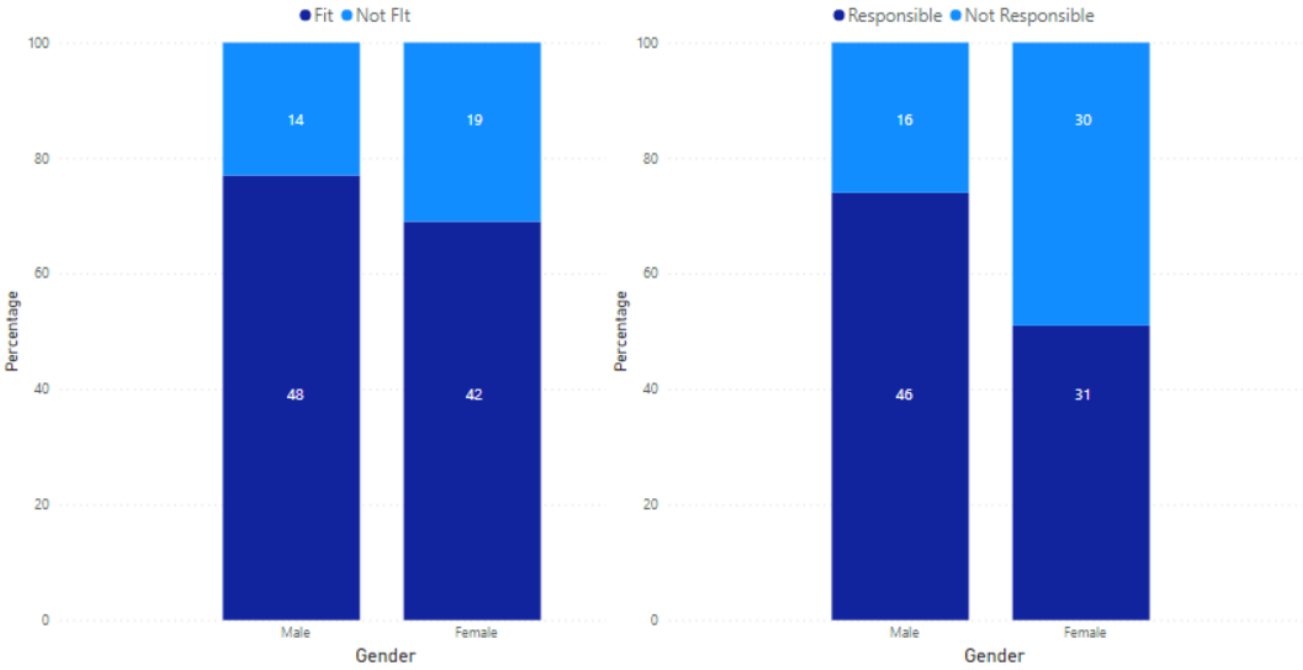


Figure 1. Comparison of fitness and responsibility between male and female accused referred for mental observation.

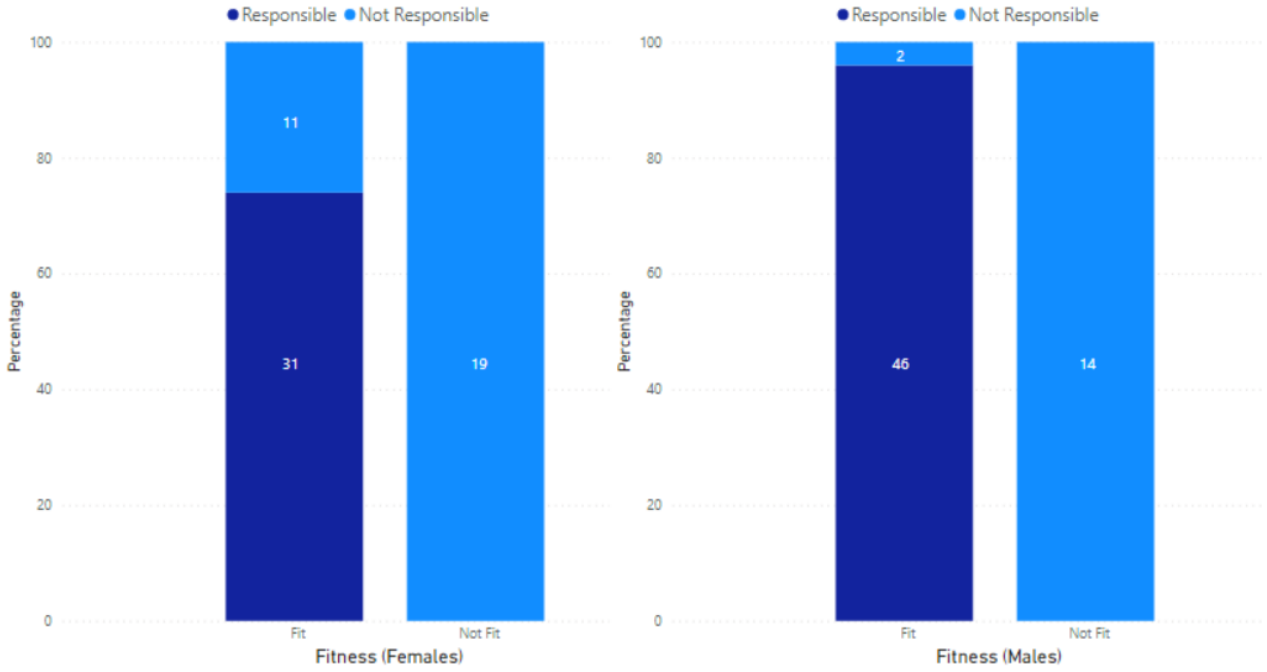


Figure 2. Comparison of fitness and responsibility between male and female accused within each gender.

Discussion

Our study aimed to examine gender differences in murder accused referred for mental observation. The following statistically significant gender differences were found. Males were more likely to have a history of a previous arrest, whereas females were more likely to have a history of being diagnosed and treated for a mental illness prior to the current offence. In males, the offence occurred mostly in a public space or home of the victim, stabbing was the most common method used and the victim was most frequently a relative, other than their offspring, or a stranger. In comparison, women mostly committed the offence in the home occupied by both themselves and the victim; they most commonly used methods of either suffocation, burning or poisoning; and in most cases the victim was their offspring. The majority of both genders were found fit to stand trial, but males were more likely to be found criminally responsible.

Accused Characteristics

Socio-demographic data did not differ significantly between the genders. Most existing research indicates that in both general and forensic populations female offenders are more likely to be married or in a relationship at the time of the offence, compared to males.(5, 6, 24, 25) Literature is however inconsistent in gender comparisons of employment, education, and age for murder offenders. This could be an indication of socio-cultural differences amongst different regional populations.

Males were significantly more likely than females to have a history of arrests which is consistent with the literature.(5, 6, 11, 25) However, there was no difference with regard to previous convictions, which may be accounted for as a shortcoming of the South African legal system. Arrests are made but with limited convictions.(26) Due to a multitude of reasons, very few criminal cases, including violent crimes, are successfully prosecuted in South Africa.(26)

Female offenders often have a history of childhood trauma and previous exposure to mental health services compared to men.(7, 10, 11, 27-29) This study reported a significant higher prevalence of lifetime history of mental illness in females than males, however, no

statistically significant difference between the genders was noted in their histories of childhood trauma. This finding could be explained by the admitting clinicians not eliciting this information during evaluation. Studies have noted that female murder accused are more likely to disclose a history of childhood adversity than their male counterparts,(30) and are also more likely to seek help when experiencing mental health difficulties.(31)

Offence Characteristics

Significant gender differences were identified in offence characteristics. Women mostly committed filicide whereas men killed other relatives, strangers or others known to them, which is consistent with international literature. Women murder offenders have higher rates of filicide but are also known to have high murder rates of spouses and other relatives, whereas men are more likely to kill strangers or acquaintances.(4-6, 8, 24, 25, 27, 28, 32-35) The findings of this study are not in keeping with the high rates of spousal or other relative murders among females. The former finding may be accounted for by the fact that many South African women are unmarried. Statistics South Africa reported in two separate surveys during 2018 that just less than half of all South African females aged 18 to 34 are single, and that 68.3% of black children do not live with their biological fathers.(36, 37) Furthermore it has been noted that mothers who commit filicide are often socially isolated, full time caregivers who have the primary responsibility for their children, thus placing their children at greater risk of maternal violence.(38) Males however showed higher rates of murdering other relatives compared to the literature. This could be reflective of the higher rates of overcrowded living conditions in South Africa(39) leading to violent inter-family conflict.(40)

In addition, in line with previous work(4, 25, 27, 32) this study reported that murders mostly occurred in their home for females, compared to public spaces for men. Sea et al.(5) reported that male offenders committed murder in a place known to the victim, as was found in our study where most murders by men occurred either in a public space or the home of the victim. The location of murders correlates with the victim-accused relationship noted above. Men had a high rate of being accused of murder of other relatives and strangers, while females were mostly accused of murdering their children.

Significant gender differences were noted in the methods used. Most men stabbed their victims whereas women used other methods that included poisoning, suffocation, and burning. This is in keeping with findings from Sea et al.(5) who noted that male murder offenders were more likely to use a weapon than females. The other methods used by females are likely accounted for by the fact that the majority of their victims were children. Pecino-Latorre et al.(33) described that if suffocation was the method of murder, the perpetrator was more likely to be female and the victim a minor. The majority of research however indicates that the most common method of murder for men is the use of a firearm or blunt force, and that women mostly use a knife or another sharp object.(4, 25, 28, 32) In our study, stabbing accounted for 21.3% of methods used in females (second most common method) and blunt force trauma was used by 29% of males. The lack of use of firearms in our study may be an indication of stricter legislation when compared to that of many high-income countries, thus, decreasing their availability and restricting their use. South Africa has seen a consistent increase in overall murders, but a decrease in murders due to the use of firearms since 2001, after the implementation of the Firearm Control Act of 2000.(41) Knives are noted to be used in the majority of murders in South Africa.(21)

Outcome of evaluation

A psychiatric diagnosis was equally made in approximately 75% of both genders. Similarly, the majority of both groups were found fit to stand trial. A South African study noted that there is a long delay during the time of the commission of an offence and referral for mental observation.(42) Symptoms of mental illness may thus resolve or be treated during this period. Thus, the majority of accused are found fit to stand trial at the time of evaluation. Men were however 2.8 times more likely to be found criminally responsible than females. This can partly be explained by the diagnoses received. The most common diagnosis in females was that of psychotic disorders, and compared to men, they also had more affective disorders. Both of these diagnostic groups may impact on criminal responsibility. Substance use disorders accounted for most of the diagnoses made in men (49.1%) and does not usually impact on criminal responsibility in the South African forensic setting.(43) In this study, 18% of females had an affective disorder but none were reported in men. Ferranti et al.(28) indicated that women murder accused were far more likely to have an affective or

mood component to their illness compared to men. Fox et al.(10) also found a higher percentage of female murder offenders to have a history of mood disorders. Frierson et al.(44) noted that if an offender has a mood disorder it is 2.7 times more likely that they are related to the victim. Research further indicates that female murder accused have a greater likelihood than men to have an underlying mental illness, especially when accused of filicide.(4, 7, 11, 32, 45) This results in women murder accused being found to have diminished responsibility more frequently than men.(6) In our study, we noted that even though females are more likely to be found not responsible compared to males, approximately half (52.2%) were still found to be responsible for their crimes. This is in line with Putkonen et al.(7) who found that over half (51.6%) of female murder offenders were criminally responsible. Similarly in South Africa, Nagdee et al.(11) found that approximately 50% of females who committed violent offences against children, including murder, were assessed to be criminally responsible. Hence our findings and those of Nagdee et al.(11) challenge the age-old belief that women who murder do so either in self-defence or due to severe mental illness.

We noted that 16% of both males and females had a diagnosis of a personality disorder. In addition, a substance use disorder diagnosis was made in 41.9% of males and 21.3% of females. Although these disorders do not often impact on criminal responsibility in the South African context, it has been documented that they greatly increase the risk of violent behaviour, especially if co-occurring with other mental illnesses.(46, 47) These findings highlight the need for adequate and effective treatment of these disorders in mitigating violence risk and preventing fatal outcomes.(2, 48)

Study Limitations

Due to the retrospective nature of this study, accuracy of the recorded information was dependant on the quality of the clinical records. Even though a standard clerking format is used in the assessment of all accused admitted to this facility, the thoroughness of information obtained may have differed between clinicians, especially with regard to previous arrests/convictions and childhood trauma. In addition, the sample included

accused admitted from parts of two provinces in South Africa and may thus not be generalizable to the entire South African population.

Conclusion

This study reports significant gender differences among murder accused referred for mental observation to Sterkfontein Psychiatric Hospital in Gauteng province, South Africa. Awareness of these differences can enable the clinician to focus on and explore targeted information. Among both general and forensic psychiatric populations, it can guide the identification of gender-specific risk factors for violence, including murder. The subsequent early intervention and modification of these risk factors may in turn prevent index or repeated violent acts. Most of the study's findings are consistent with extant literature. The importance of conducting risk assessments in violent female patients with severe mental illnesses, particularly those suffering from psychotic and mood disorders, has been highlighted. Specific enquiry about filicidal thoughts should always be ascertained when assessing women with these disorders. Vulnerable females include single women who are burdened with childcare responsibilities. Further study is recommended into women who are charged with murder of their children and are found criminally responsible. In males, interpersonal family conflicts should be explored as high rates of murder of other relatives were reported in this group compared to international research. Substance use and personality disorders remain of great concern as they are known to significantly increase violence risk. Detection and effective management of these conditions may reduce risk in both men and women, especially if comorbid with severe mental illness. Similar studies should be conducted in other provinces in SA and other low- and middle-income countries so that findings may be compared.

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Competing Interests

The authors declare that there are no competing interests.

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APPENDIX A

I. Approved research protocol

II. Datasheet



Gender comparison in murder accused referred for mental observation to Sterkfontein Psychiatric Hospital

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Introduction

Review of literature

Research has consistently identified gender specific differences in murder offenders. These differences are identified and described broadly in a number of both offender and offence characteristics(1, 2).

It is widely accepted that most murders are committed by males and that females only constitute a small percentage of these offenders. This is true for both general and forensic populations(2-5).

Historically gender differences in murder offenders were described in classical comparison studies by Wolfgang, 1958 and Ward et al, 1969. They believed that these gender differences are a reflection of the accepted gender roles in society(1). It postulates that women murder based on the need for protection or in self-defence. They are forced to the point of having no other options than to commit murder. Men in contrast act out of an underlying propensity for aggression, violence and rage. In the 1970's work by Freda Adler and Rita James Simon suggested that due to the changing landscape and liberation of gender roles in society the pattern of violence by women should start to resemble that of men. This 'liberation hypothesis' has however received little support in research with the classical historical gender role differences still being favoured(1-3, 6).

It stems then from this societal gender role hypothesis that women who end up not committing murder out of self-defence, protection or reactively in response to violence must have an underlying impairment, thus driving them to commit that which is thought to be so unnatural to women. It has been consistently shown that women who have been

convicted of murder have higher rates of psychiatric disorders than their male counterparts and that mental illness is an important feature of the offence itself(1, 3, 4, 7, 8). More specifically Bourget et al, 2007 found that offending women often have depression and/or psychosis(8).

Identifiable differences can be categorized simplistically into two broad groups i.e offender and offence characteristics.

Offender characteristics

The following gender differences in offender characteristics are described within the general population. Relative to men, women are more likely to have a pre-existing diagnosis of a mental disorder or have a history of previous contact with mental health services as noted. Women also tend to have an incomplete primary education(5). They tend to be slightly older, are married at time of the offence and are employed compared to men. Both men and women experience troubled or traumatic childhoods, but women tend to have witnessed violence during the childhood period(3, 5). Women are more likely to have had experienced domestic violence or abuse preceding the offence(1, 7). Relative to women, men however are more likely to have a history of previous convictions, arrests and violent behaviour(1-3, 5).

Offence characteristics

The following gender differences in offence characteristics are described within the general population. Women are more likely to murder current or previous intimate partners/spouses, offspring and relatives whereas men are more likely to murder acquaintances and strangers(1-3). Women tend to commit murder in the home of either

the offender or the victim whereas men are more likely to commit murder in public spaces(1). Women are more likely to use a weapon during the murder(1) and if a weapon is used it tends to be a sharp instrument(3). For both men and women, the victim gender was predominately male(1, 9).

South African studies.

South Africa has a particularly high base rate of violent crimes, including murder. The South African Police Service crime statistics for 2018/2019 indicate 21022 reported national murders of which 4495 occurred in Gauteng province(10). Most of the research focusing specifically on murder charges in the forensic setting in South Africa have been conducted in female filicide cases. Gender profiles have been described in other studies, but these focus on a broad range of charges and are thus not comparative. Nagdee et al, 2019 who conducted a national study of females referred by courts for mental observations on any charge, highlighted similar defining characteristics in women as described internationally. There was however no comparison made to their male counterparts. Nagdee et al found that female offenders had a significant history of childhood trauma, mental illnesses and were known to their victims. The study found that 61.4% of the offenders were fit to stand trial and 52.2% were criminally responsible in terms of Section 77 and 78 of the Criminal Procedure Act 51 of 1977 respectively(11). Although the study found murder to be the most common reason for referral from court, the referrals were not only for a charge of murder and included a number of other offences.

An extensive search for literature related to any gender comparison in murder accused or other charges, and outcomes of forensic evaluations for murders in South Africa did not

yield any results on the databases of PubMed, Wiley, ProQuest, Science Direct and Medscape.

Motivation for the study

There is a paucity of research in South Africa regarding possible gender differences of murder accused referred for forensic evaluation under Sections 77, 78 and 79 of the Criminal Procedure Act 51 of 1977, both in terms of offender and offence characteristics as well as outcome of observation. Although profiles are described, they are not compared.

In contrast an extensive body of literature is available internationally, describing gender differences among murder accused in both the general and forensic populations. Most of the work emanates from first world countries such as Europe, the United States and some Asian countries and focus mostly on the characteristics of the murder itself and not on the outcome. Studies that do describe the outcome of murder accused are not comparable to South African context as legislation differs between countries and even within certain districts of countries, such as the states of the USA.

This would be the first study to compare possible gender differences in murder accused within South African context.

Aim

To compare male and female murder accused, referred for mental observation under Sections 77, 78 and 79 of the Criminal Procedure Act(CPA) 51 of 1977, to Sterkfontein

Hospital Forensic Neuropsychiatric unit with specific reference to offender and offence characteristics as well as outcome of observation.

Study objectives

1. To compare the following variables in both male and female murder accused referred for forensic observation from 1 January 2009 to 31 December 2019.
    a. *Accused Characteristics:* Gender, age at time of offence, ethnicity, marital/relationship status, highest level of education, employment status at time of offence, previous forensic history (any previous history of arrests and/or convictions), experienced childhood trauma (sexual, physical, emotional childhood abuse and/or neglect) and any previous psychiatric diagnoses and/or treatment received.
    b. *Murder Characteristics:* Victim-accused relationship, gender of victim, location of murder and weapon/method of murder.
    c. *Outcome of evaluation:* Psychiatric diagnoses made and findings in terms of Section 77 and Section 78 of the CPA 51 of 1977, described as fitness to stand trial and criminal responsibility, respectively.

Methods

Study design and data collection

This will be a retrospective clinical record review that will identify relevant described data by using clinical case files, police reports and official court documents. A data sheet (Appendix A) will be used to capture the relevant data as described in the study objectives. All data will be captured by the researcher.

Study setting and population

The study will be conducted at the forensic department of Sterkfontein Psychiatric Hospital located in Krugersdorp, Gauteng, South Africa. This hospital is designated by the state to conduct court ordered thirty-day inpatient mental observations in terms of Sections 77, 78 and 79 of the CPA 51 of 1977. It receives all referrals from court in Southern Gauteng and approximately half of all the referrals from North West province.

Sample

The study sample will include all male and female murder accused referred to Sterkfontein Psychiatric Hospital for mental observation from 1 January 2009 to 31 December 2019. If more accused were referred in one gender group compared to the other, over the allocated time period, then a random sample will be taken of the larger gender group to equate it to the smaller group. A random number table will be used to conduct the random sampling. This will be done using Microsoft Excel programming. This is to ensure that the two gender groups are compared with equal numbers.

Inclusion criteria

- All adult male and female accused that are referred by the court to Sterkfontein Psychiatric Hospital for mental observation on a charge of murder.

Exclusion Criteria

- Accused that are younger than eighteen years at the time of the offence.

Data analysis

All statistical analyses will be conducted using R software (R version 3.4.3; https://www.r-project.org). All tests will be two-tailed probability values, and statistical significance accepted when $\alpha \leq 0.05$. The data set for this study will be generated mainly from assessments of categorical scores. Categorical data are usually non-normal, so appropriate non-parametric analyses will be used. For continuous data, parametric tests will be used. Descriptive statistics will be reported, including counts and percentages of the different variables and their components.

Statistical analyses used in each of the three objectives are outlined below.

Objective 1. The following socio-demographical and co-morbid psychiatric disorder variables of offenders will be collected: gender, age at time of offence, ethnicity, marital status, highest level of education, employment status at time of offence, previous forensic history, experienced childhood trauma and any previous psychiatric diagnoses and/or treatment received. These variables will be plotted in graphs or presented in text for

females and males separately. Pearson's chi-squared good of fitness tests will be used to analyse these categorical variables between females and males. Welch's t-tests will be used to compare continuous data by gender.

Objective 2. The following offence characteristic variables will be collected: victim-offender relationship, gender of victim, location of murder and weapon/method of murder. Pearson's chi-squared test for independence will be used to analyse these categorical variable differences between females and males, with Yates correction.

Objective 3. Comparisons will be made between females and males in terms of Fitness to Stand Trial (fit vs not fit) and Criminal Responsibility (responsible vs not responsible). These variables will be plotted in stacked bars for each gender separately. Differences between the genders will be analysed using Fisher's exact tests for Fitness to Stand Trial and Criminal Responsibility separately.

From an assessment of Z scores of expected frequencies, a sample size of 150 patients (75 per gender) will detect statistical significance between the genders at the 5% level. Realistically, statistical significance can be expected with a minimum sample of 120 (60 per gender (the lowest number recommended) if both genders are similarly represented in the data analyses.

Ethics

Approval for the study will be sought from the Postgraduate and Human Research Ethics Committees of the University of the Witwatersrand. Permission will also be sought from Sterkfontein Psychiatric Hospital Research committee for the use of accused records from the forensic department. As this is a retrospective clinical record review with no direct participant interaction, no informed consent will be required. All information collected from the clinical records will be kept confidential and anonymous and will only be available to the researcher. Each clinical record will be assigned a unique participation identification number to assure anonymity. All information will be gathered electronically, it will be password protected and only accessible to the researcher. Any hard copies of information will be kept in a locked cabinet in the office of the researcher. Findings will only be made available to academic peer-reviewed journals and at conferences. The study will be logged on to the National Health Research Database.

Timing

Year	Months 01-03	Months 04-06	Months 07-09	Months 10-12
2019	Supervisor and topic selection	Protocol development	Protocol development	Draft protocol submission
2020	Submit to Postgraduate Assessor group, Ethics committee and Hospital Research Committee	Approval by Postgraduate, Ethics and Hospital research committees	Data collection	Data collection

2021	Data analysis	Write-up	Write-up	Submission

Funding

Funding is currently being sourced but if unavailable the researcher will fund all the costs.

Projected budget:

- Travel: Ten trips to Sterkfontein Hospital for Data collection at R200 per trip. R2000
- Stationary & Printing: Estimated printing of 300 pages at 60c per page. R180
- Statistician: Calculation of sample size and projected data analysis: R650. Data analysis: R2800.

Estimated total: R5630

Limitations

Being a retrospective record review of male and female murder accused the sample size required for significant gender comparison may not be present in the clinical records within the allocated time period. The quality of the data collected from the clinical records are dependent on the quality with which this information was recorded in the accused files and court documents. A systematic recording procedure of accused information is however followed by clinicians at Sterkfontein Hospital to ensure comprehensiveness of information obtained. The study population only reflects a small geographical area and may not be

generalizable to South Africa as a whole. Gauteng is however the most densely populated province with high crime rates and many referrals for mental observation.

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11. Nagdee M, Artz L, Corral-Bulnes C, Heath A, Subramaney U, de Clercq HG, et al. The psycho-social and clinical profile of women referred for psycho-legal evaluation to forensic mental health units in South Africa. S Afr J Psychiatr. 2019;25:1230. DOI: 10.4102/sajpsychiatry.v25i0.1230.

DATASHEET

Participant Study Identification number:……

Accused Characteristics

1. Gender	Male	
	Female	
2. Age at time of offence	18-30y.o	
	31-50yo	
	51-70yo	
	>70yo	
3. Ethnicity	African	
	White	
	Coloured	
	Indian	
	Other	
4. Marital status	Married/Partner	
	Single/Widow-er/Divorced	
	Other	
5. Educational level	No formal schooling	
	Remedial/Special Needs schooling	
	Into mainstream Primary school	
	Into mainstream High School	
	Completed mainstream High school	
	Tertiary Education	

6. Employment at time of offence	Employed	
	Unemployed	
	Other	
7. Previous arrests	Yes	
	No	
	Unknown	
8. Previous convictions	Yes	
	No	
	Unknown	
• If Yes to 7 and/or 8, specify	Violent crimes	
	Non-violent crimes	
	Both	
	Unknown	
9. Childhood trauma	Sexual/Physical/Emotional abuse	
	Neglect	
	None reported	
	Unknown	

10. Lifetime history of mental illness	Diagnosis made	
	Treatment received	
	History of Psychiatric symptoms with no intervention	
	None reported	

Offence/Murder characteristics

1. Victim-accused relationship	Current/previous intimate partner/spouse	
	Offspring	
	Other Relative	
	Stranger	
	Other	
2. Gender of victim	Male	
	Female	
	Unknown	
3. Location	Home of offender	
	Home of victim	
	Public space	
	Other	
4. Method used	Stabbing	
	Gun shot	
	Blunt force	
	Other	

Outcome of evaluation

1. Psychiatric diagnosis made	Yes	
	No	
• If yes, specify	Psychotic disorder	
	Affective Disorder	
	Substance use Disorder	
	Personality Disorder	
	Intellectual disability	
	Other	
2. Fitness	Fit	
	Not fit	
	No comment	
3. Criminal responsibility	Responsible	
	Not responsible	
	No comment	



Gender comparison in murder accused referred for mental observation to Sterkfontein Psychiatric Hospital

Dr Jan Wium Erasmus MBChB (UFS)

Psychiatry MMed Protocol

Supervisors:

Dr Samantha Naidoo MBChB (Natal), DMH (SA), FC Psych (SA), MMed Psych (UKZN), Cert. in Forensic Psychiatry (SA)

Specialist Forensic Psychiatrist- Sterkfontein Psychiatric Hospital

Lecturer- Department of Psychiatry: University of the Witwatersrand

Dr Danie Hoffman H.O.D (Education), B.A (Sport Science), B.A. Hon (Psychology), MSc (Clinical Psychology), PhD (Psychology)

Head of Department of Psychology- Sterkfontein Psychiatric Hospital

Introduction

Review of literature

Research has consistently identified gender specific differences in murder offenders. These differences are identified and described broadly in a number of both offender and offence characteristics(1, 2).

It is widely accepted that most murders are committed by males and that females only constitute a small percentage of these offenders. This is true for both general and forensic populations(2-5).

Historically gender differences in murder offenders were described in classical comparison studies by Wolfgang, 1958 and Ward et al, 1969. They believed that these gender differences are a reflection of the accepted gender roles in society(1). It postulates that women murder based on the need for protection or in self-defence. They are forced to the point of having no other options than to commit murder. Men in contrast act out of an underlying propensity for aggression, violence and rage. In the 1970's work by Freda Adler and Rita James Simon suggested that due to the changing landscape and liberation of gender roles in society the pattern of violence by women should start to resemble that of men. This 'liberation hypothesis' has however received little support in research with the classical historical gender role differences still being favoured(1-3, 6).

It stems then from this societal gender role hypothesis that women who end up not committing murder out of self-defence, protection or reactively in response to violence must have an underlying impairment, thus driving them to commit that which is thought to be so unnatural to women. It has been consistently shown that women who have been

convicted of murder have higher rates of psychiatric disorders than their male counterparts and that mental illness is an important feature of the offence itself(1, 3, 4, 7, 8). More specifically Bourget et al, 2007 found that offending women often have depression and/or psychosis(8).

Identifiable differences can be categorized simplistically into two broad groups i.e offender and offence characteristics.

Offender characteristics

The following gender differences in offender characteristics are described within the general population. Relative to men, women are more likely to have a pre-existing diagnosis of a mental disorder or have a history of previous contact with mental health services as noted. Women also tend to have an incomplete primary education(5). They tend to be slightly older, are married at time of the offence and are employed compared to men. Both men and women experience troubled or traumatic childhoods, but women tend to have witnessed violence during the childhood period(3, 5). Women are more likely to have had experienced domestic violence or abuse preceding the offence(1, 7). Relative to women, men however are more likely to have a history of previous convictions, arrests and violent behaviour(1-3, 5).

Offence characteristics

The following gender differences in offence characteristics are described within the general population. Women are more likely to murder current or previous intimate partners/spouses, offspring and relatives whereas men are more likely to murder acquaintances and strangers(1-3). Women tend to commit murder in the home of either

the offender or the victim whereas men are more likely to commit murder in public spaces(1). Women are more likely to use a weapon during the murder(1) and if a weapon is used it tends to be a sharp instrument(3). For both men and women, the victim gender was predominately male(1, 9).

South African studies.

South Africa has a particularly high base rate of violent crimes, including murder. The South African Police Service crime statistics for 2018/2019 indicate 21022 reported national murders of which 4495 occurred in Gauteng province(10). Most of the research focusing specifically on murder charges in the forensic setting in South Africa have been conducted in female filicide cases. Gender profiles have been described in other studies, but these focus on a broad range of charges and are thus not comparative. Nagdee et al, 2019 who conducted a national study of females referred by courts for mental observations on any charge, highlighted similar defining characteristics in women as described internationally. There was however no comparison made to their male counterparts. Nagdee et al found that female offenders had a significant history of childhood trauma, mental illnesses and were known to their victims. The study found that 61.4% of the offenders were fit to stand trial and 52.2% were criminally responsible in terms of Section 77 and 78 of the Criminal Procedure Act 51 of 1977 respectively(11). Although the study found murder to be the most common reason for referral from court, the referrals were not only for a charge of murder and included a number of other offences.

An extensive search for literature related to any gender comparison in murder accused or other charges, and outcomes of forensic evaluations for murders in South Africa did not

yield any results on the databases of PubMed, Wiley, ProQuest, Science Direct and Medscape.

Motivation for the study

There is a paucity of research in South Africa regarding possible gender differences of murder accused referred for forensic evaluation under Sections 77, 78 and 79 of the Criminal Procedure Act 51 of 1977, both in terms of offender and offence characteristics as well as outcome of observation. Although profiles are described, they are not compared.

In contrast an extensive body of literature is available internationally, describing gender differences among murder accused in both the general and forensic populations. Most of the work emanates from first world countries such as Europe, the United States and some Asian countries and focus mostly on the characteristics of the murder itself and not on the outcome. Studies that do describe the outcome of murder accused are not comparable to South African context as legislation differs between countries and even within certain districts of countries, such as the states of the USA.

This would be the first study to compare possible gender differences in murder accused within South African context.

Aim

To compare male and female murder accused, referred for mental observation under Sections 77, 78 and 79 of the Criminal Procedure Act(CPA) 51 of 1977, to Sterkfontein

Hospital Forensic Neuropsychiatric unit with specific reference to offender and offence characteristics as well as outcome of observation.

Study objectives

1. To compare the following variables in both male and female murder accused referred for forensic observation from 1 January 2009 to 31 December 2019.
    a. *Accused Characteristics:* Gender, age at time of offence, ethnicity, marital/relationship status, highest level of education, employment status at time of offence, previous forensic history (any previous history of arrests and/or convictions), experienced childhood trauma (sexual, physical, emotional childhood abuse and/or neglect) and any previous psychiatric diagnoses and/or treatment received.
    b. *Murder Characteristics:* Victim-accused relationship, gender of victim, location of murder and weapon/method of murder.
    c. Outcome of evaluation: Psychiatric diagnoses made and findings in terms of Section 77 and Section 78 of the CPA 51 of 1977, described as fitness to stand trial and criminal responsibility, respectively.

Methods

Study design and data collection

This will be a retrospective clinical record review that will identify relevant described data by using clinical case files, police reports and official court documents. A data sheet (Appendix A) will be used to capture the relevant data as described in the study objectives. All data will be captured by the researcher.

Study setting and population

The study will be conducted at the forensic department of Sterkfontein Psychiatric Hospital located in Krugersdorp, Gauteng, South Africa. This hospital is designated by the state to conduct court ordered thirty-day inpatient mental observations in terms of Sections 77, 78 and 79 of the CPA 51 of 1977. It receives all referrals from court in Southern Gauteng and approximately half of all the referrals from North West province.

Sample

The study sample will include all male and female murder accused referred to Sterkfontein Psychiatric Hospital for mental observation from 1 January 2009 to 31 December 2019. If more accused were referred in one gender group compared to the other, over the allocated time period, then a random sample will be taken of the larger gender group to equate it to the smaller group. A random number table will be used to conduct the random sampling. This will be done using Microsoft Excel programming. This is to ensure that the two gender groups are compared with equal numbers.

Inclusion criteria

- All adult male and female accused that are referred by the court to Sterkfontein Psychiatric Hospital for mental observation on a charge of murder.

Exclusion Criteria

- Accused that are younger than eighteen years at the time of the offence.

Data analysis

All statistical analyses will be conducted using R software (R version 3.4.3; https://www.r-project.org). All tests will be two-tailed probability values, and statistical significance accepted when $\alpha \leq 0.05$. The data set for this study will be generated mainly from assessments of categorical scores. Categorical data are usually non-normal, so appropriate non-parametric analyses will be used. For continuous data, parametric tests will be used. Descriptive statistics will be reported, including counts and percentages of the different variables and their components.

Statistical analyses used in each of the three objectives are outlined below.

Objective 1. The following socio-demographical and co-morbid psychiatric disorder variables of offenders will be collected: gender, age at time of offence, ethnicity, marital status, highest level of education, employment status at time of offence, previous forensic history, experienced childhood trauma and any previous psychiatric diagnoses and/or treatment received. These variables will be plotted in graphs or presented in text for

females and males separately. Pearson's chi-squared good of fitness tests will be used to analyse these categorical variables between females and males. Welch's t-tests will be used to compare continuous data by gender.

Objective 2. The following offence characteristic variables will be collected: victim-offender relationship, gender of victim, location of murder and weapon/method of murder. Pearson's chi-squared test for independence will be used to analyse these categorical variable differences between females and males, with Yates correction.

Objective 3. Comparisons will be made between females and males in terms of Fitness to Stand Trial (fit vs not fit) and Criminal Responsibility (responsible vs not responsible). These variables will be plotted in stacked bars for each gender separately. Differences between the genders will be analysed using Fisher's exact tests for Fitness to Stand Trial and Criminal Responsibility separately.

From an assessment of Z scores of expected frequencies, a sample size of 150 patients (75 per gender) will detect statistical significance between the genders at the 5% level. Realistically, statistical significance can be expected with a minimum sample of 120 (60 per gender (the lowest number recommended) if both genders are similarly represented in the data analyses.

Ethics

Approval for the study will be sought from the Postgraduate and Human Research Ethics Committees of the University of the Witwatersrand. Permission will also be sought from Sterkfontein Psychiatric Hospital Research committee for the use of accused records from the forensic department. As this is a retrospective clinical record review with no direct participant interaction, no informed consent will be required. All information collected from the clinical records will be kept confidential and anonymous and will only be available to the researcher. Each clinical record will be assigned a unique participation identification number to assure anonymity. All information will be gathered electronically, it will be password protected and only accessible to the researcher. Any hard copies of information will be kept in a locked cabinet in the office of the researcher. Findings will only be made available to academic peer-reviewed journals and at conferences. The study will be logged on to the National Health Research Database.

Timing

Year	Months 01-03	Months 04-06	Months 07-09	Months 10-12
2019	Supervisor and topic selection	Protocol development	Protocol development	Draft protocol submission
2020	Submit to Postgraduate Assessor group, Ethics committee and Hospital Research Committee	Approval by Postgraduate, Ethics and Hospital research committees	Data collection	Data collection

2021	Data analysis	Write-up	Write-up	Submission

Funding

Funding is currently being sourced but if unavailable the researcher will fund all the costs.

Projected budget:

- Travel: Ten trips to Sterkfontein Hospital for Data collection at R200 per trip. R2000
- Stationary & Printing: Estimated printing of 300 pages at 60c per page. R180
- Statistician: Calculation of sample size and projected data analysis: R650. Data analysis: R2800.

Estimated total: R5630

Limitations

Being a retrospective record review of male and female murder accused the sample size required for significant gender comparison may not be present in the clinical records within the allocated time period. The quality of the data collected from the clinical records are dependent on the quality with which this information was recorded in the accused files and court documents. A systematic recording procedure of accused information is however followed by clinicians at Sterkfontein Hospital to ensure comprehensiveness of information obtained. The study population only reflects a small geographical area and may not be

generalizable to South Africa as a whole. Gauteng is however the most densely populated province with high crime rates and many referrals for mental observation.

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1. Jurik NC, Winn R. Gender and homicide: a comparison of men and women who kill. Violence Vict. 1990;5(4):227-42.

2. Sea J, Youngs D, Tkazky S. Sex Difference in Homicide: Comparing Male and Female Violent Crimes in Korea. Int J Offender Ther Comp Criminol. 2018;62(11):3408-35. DOI: 10.1177/0306624x17740555.

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4. Hachtel H, Nixon M, Bennett D, Mullen P, Ogloff J. Motives, Offending Behavior, and Gender Differences in Murder Perpetrators With or Without Psychosis. J Interpers Violence. 2018:886260518774304. DOI: 10.1177/0886260518774304.

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10. SAPS. SAPS Crimestats [cited 2019 10 November]. Available from: https://www.saps.gov.za/services/crimestats.php.

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Datasheet

Participant Study Identification number:……

Accused Characteristics

1. Gender	Male	
	Female	
2. Age at time of offence	18-30y.o	
	31-50yo	
	51-70yo	
	>70yo	
3. Ethnicity	African	
	White	
	Coloured	
	Indian	
	Other	
4. Marital status	Married/Partner	
	Single/Widow-er/Divorced	
	Other	
5. Educational level	No formal schooling	
	Remedial/Special Needs schooling	
	Into mainstream Primary school	
	Into mainstream High School	
	Completed mainstream High school	
	Tertiary Education	

6. Employment at time of offence	Employed	
	Unemployed	
	Other	
7. Previous arrests	Yes	
	No	
	Unknown	
8. Previous convictions	Yes	
	No	
	Unknown	
• If Yes to 7 and/or 8, specify	Violent crimes	
	Non-violent crimes	
	Both	
	Unknown	
9. Childhood trauma	Sexual/Physical/Emotional abuse	
	Neglect	
	None reported	
	Unknown	

10. Lifetime history of mental illness	Diagnosis made	
	Treatment received	
	History of Psychiatric symptoms with no intervention	
	None reported	

Offence/Murder characteristics

1. Victim-accused relationship	Current/previous intimate partner/spouse	
	Offspring	
	Other Relative	
	Stranger	
	Other	
2. Gender of victim	Male	
	Female	
	Unknown	
3. Location	Home of offender	
	Home of victim	
	Public space	
	Other	
4. Method used	Stabbing	
	Gun shot	
	Blunt force	
	Other	

Outcome of evaluation

1. Psychiatric diagnosis made	Yes	
	No	
• If yes, specify	Psychotic disorder	
	Affective Disorder	
	Substance use Disorder	
	Personality Disorder	
	Intellectual disability	
	Other	
2. Fitness	Fit	
	Not fit	
	No comment	
3. Criminal responsibility	Responsible	
	Not responsible	
	No comment	

APPENDIX B

Ethics clearance certificates

I. University of the Witwatersrand Human Research Ethics Committee approval certificate.
II. Sterkfontein Psychiatric Hospital Research Committee permission to access forensic clinical records.

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG	HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

Office of the Deputy Vice-Chancellor (Research & Post Graduate Affairs)

TO: Dr JW Erasmus
School of Clinical Medicine
Department of Psychiatry
Medical School
University

E-mail: wium@tiscali.co.za

CC: Supervisor: Drs S Naidoo and D Hoffman <drsnaidoo@hotmail.com>
and <HREC-Medical.ResearchOffice@wits.ac.za>

FROM: Iain Burns
Human Research Ethics Committee (Medical)
Tel: 011 717 1252

E-mail: Iain.Burns@wits.ac.za

DATE: 2020/07/17

REF: *R14/49*

PROTOCOL NO: **M200666** *(This is your ethics application study reference number. Please quote this reference number in all correspondence relating to this study)*

PROJECT TITLE: *Gender comparison in murder accused referred for mental observation to Sterkfontein Psychiatric Hospital*

Please find attached the Clearance Certificate for the above project. I hope it goes well and that an article in a recognized publication comes out of it. This will reflect well on your professional standing and contribute to the Government funding of the University.



MSWorks2000/Iain0007/Clearscan.wps

UNIVERSITY OF THE WITWATERSRAND JOHANNESBURG

R14/49 Dr JW Erasmus

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M200666

NAME: (Principal Investigator)	Dr JW Erasmus
DEPARTMENT:	School of Clinical Medicine Department of Psychiatry Medical School University
PROJECT TITLE:	Gender comparison in murder accused referred for mental observation to Sterkfontein Psychiatric Hospital
DATE CONSIDERED:	2020/06/26
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Drs S Naidoo and D Hoffman
APPROVED BY:	Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	2020/07/17

This clearance certificate is valid for 5 years from the date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the 3rd Floor, Phillip Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.
I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to submit details to the Committee. **I agree to submit a yearly progress report**. When a funder requires annual re-certification, the application date will be one year after the date when the study was initially reviewed. In this case, the study was initially reviewed in **June** and will therefore reports and re-certification will be due early in the month of **June** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature _____ Date _____

GAUTENG PROVINCE

HEALTH
REPUBLIC OF SOUTH AFRICA

STERKFONTEIN HOSPITAL
CLINICAL DEPARTMENT
Enquiries: ***Dr. N. Govender***
Telephone: *(011) 951-8277*
e-Mail: Paballo.Pule@gauteng.gov.za

Mr. M. J. Mapunya
Chief Executive Officer
Sterkfontein Hospital
Krugersdorp

STUDY: GENDER COMPARISON IN MURDER ACCUSED REFERRED FOR MENTAL OBSERVATION TO STERKFONTEIN FORENSIC NEUROPSYCHIATRIC UNIT
RESEARCHER: DR. JAN WIUM ERASMUS

The above study was discussed at the Sterkfontein Hospital Research Committee meeting. We recommend that, pending ethics clearance, permission be granted for Sterkfontein Hospital to be used as the site for the above research.

It is also recommended that the title be amended to "GENDER COMPARISON IN MURDER ACCUSED REFERRED FOR MENTAL OBSERVATION TO STERKFONTEIN *HOSPITAL* FORENSIC NEURO*SCIENCE* UNIT", as this is the correct name of the hospital's Forensic Unit.

Upon completion of the study, a copy thereof should be submitted to Sterkfontein Hospital.

Thank you.

DR. N. GOVENDER
ACTING CHAIRPERSON: RESEARCH COMMITTEE
01/06/2020

Approved.

M.J. Mapunya Bcur Edu & Admin (U
UBA LUTON UNIVERSITY
CHIEF EXECUTIVE OFFICER

MR. M. J. MAPUNYA
CHIEF EXECUTIVE OFFICER

2020/06/01

APPENDIX C

Turn-it-in (plagiarism software) report of originality for research report in the format of a "submissible" article

JW Erasmus MMed Final report.docx

ORIGINALITY REPORT

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SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

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ORIGINALITY REPORT

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