CONDUCT DISORDER: A RETROSPECTIVE RECORD REVIEW OF PATIENTS DIAGNOSED WITH CONDUCT DISORDER AT TARA PSYCHIATRIC HOSPITAL CHILDREN'S CLINIC

A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in part fulfilment of the requirements for the degree of Master of Medicine in Psychiatry

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Signed on 12 October 2021.

Candidate's Declaration

I, Claire Nicolette Lownie declare that this research report is my own unaided work. It is being submitted for the Degree of Master of Medicine in Psychiatry at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University.

3rd day of October 2021 in Sandton

Dedication

To all the children diagnosed with Conduct Disorder and need our assistance and to my parents who set the most impeccable example for me to follow and enabled me to achieve my goals.

To my family and my partner who have put up with a lot of absenteeism whilst I have been completing this project.

Abstract

Conduct Disorder (CD) is a common childhood mental disorder which has the potential for significant adverse individual and societal consequences. There is currently a lack of information on CD in specialised settings in South Africa. CD is a serious psychiatric disorder with onset in childhood and adolescence associated with antisocial behaviour which may continue into adulthood. The aims of this study were to determine the prevalence, demographic profiles, referral sources and clinical characteristics of children with CD presenting to Tara Hospital Child and Adolescent Psychiatric Clinic between January 2013 and January 2017 as well as to compare children with mild and severe CD in order to identify any potentially significant features in these severity categories.

Methods: A descriptive analytic retrospective record review was undertaken. A total of 953 clinical files at the Tara Hospital Child and Adolescent Psychiatric Clinic were reviewed and those with CD were identified. Variables in the dataset included gender, referral source, age at symptom onset, age when diagnosis was made, schooling, co-morbid diagnoses, pregnancy and birth history, perinatal complications, attachment, primary caregiver, milestones, discipline style, exposure to violence, abuse or neglect, social circumstances, other conditions that may be a focus of clinical attention (V or Z codes), family psychiatric history and interventions. Descriptive and comparative statistical analyses of the data were performed.

Results: From the total number of files reviewed, 107 paediatric mental health care users were diagnosed with having CD. The male to female ratio of the sample was 2:1. The average age of onset of behavioural problems was 7.3 years (SD 3.86), and average age at diagnosis was 11.6 years. The most common single referral source was schools (44.9%) with the majority of the sample (54.2%) attending mainstream education. The majority of patients were recorded as having an insecure attachment with 53.3% having a parent as a primary caregiver. Of the sample, 75.5% experienced punitive discipline, and 66.4% were exposed to violence, abuse or neglect. In 57% of cases a parent had a documented psychiatric diagnosis, with ASPD documented in 40.2% of these cases. Severe CD was diagnosed in 69.2%, and these were more likely to have been exposed to violence, abuse or neglect, have had a parent with ASPD, or have two or more V codes. Children with mild CD were more likely to have had parents as primary caregivers.

Conclusions: Consideration of factors associated with an increased risk for severe conduct disorder, may help to develop strategies for prevention-based strategies, earlier detection and intervention in children and adolescents at risk.

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Contents

Nomenclature; List of Abbreviations and Symbols

ADHD: Attention Deficit Hyperactivity disorder

ASPD: Antisocial Personality disorder

CD: Conduct disorder

CS: Caesarean section

DSM: Diagnostic and statistical manual

F: Female

GP: General practitioner

HREC: Human Research Ethics Committee

ID: Intellectual disability

IQR: Interquartile range

M: Male

MDT: Multi-disciplinary team (including psychiatry, psychology, occupational therapy, social work, nursing etc)

ND: Not documented

NR: Not recorded

NVD: Normal vaginal delivery

ODD: Oppositional Defiant disorder

SD: Standard deviation

List of Tables

Chapter 1: Introduction

1.1 Introduction and Literature Review

Definitions and Core Concepts

Conduct Disorder (CD) is a psychiatric disorder characterised by a repetitive and persistent pattern of behaviour that violates the rights of others or age-appropriate societal norms. Children diagnosed with CD may have difficulty in following rules and behaving in a manner which is acceptable. They may also physically, sexually, verbally, or emotionally infringe on those around them, resulting in these children coming into conflict with the law and thus delaying access to mental health services. This often results in delayed diagnosis and poor management of the child who should be viewed and treated as mentally ill rather than as delinquent.[1]

According to the Diagnostic and Statistical Manual 5th edition (DSM-5)[1]: "Conduct Disorder is classified under disruptive, impulse control and conduct disorders". Appendix A contains the full DSM-5[1] criteria.

The behaviours encompassed by the term CD are classified into four main groups. These include aggression to people and animals; destruction of property; deceitfulness or theft; and serious rule violation. Features of CD may be apparent as early as preschool. Significant behavioural difficulties usually emerge from middle childhood to middle adolescence. A common precursor to the childhood-onset type is Oppositional Defiant Disorder. The onset of CD is rare after the age of 16 years but may be diagnosed in adults.[1]

The course of CD is variable, often remitting by adulthood. Mostly there is a progression from milder behavioural difficulties to more severe ones. The prognosis is worse for individuals presenting at the outset with serious antisocial behaviour such as rape. Milder cases with adolescent-onset type and fewer, less severe, behavioural difficulties often achieve adequate social and occupational adjustments as adults. The childhood-onset type predicts a poorer prognosis, an increased risk for criminal behaviour, and a variety of psychiatric disorders in adulthood (mood disorders, anxiety disorders, impulse-control disorders, psychotic disorders, substance use disorders, Posttraumatic Stress Disorder, Somatic Symptom Disorder and Antisocial Personality Disorder).[1]

Nock *et al.*[2] described CD in a retrospective sample as a prevalent disorder in which more severe subtypes with active symptomatology will have a higher risk of comorbid disorders.

Clinical Significance

The consequences of CD behaviours include school expulsion, conflict with the law, sexually transmitted diseases, sexual promiscuity and unplanned pregnancies, physical injuries from accidents or altercations, and substance abuse.[1] Of importance are the negative social outcomes associated with CD. Antisocial behaviour and high levels of aggression early in childhood are amongst the best predictors of later violent and criminal behaviour.[3] The schooling environment often reflects trends which will later manifest in society.

Externalising behaviours in children are considered to be problem behaviours which are directed towards the external environment. Externalising behaviours include, but are not limited to aggression, destruction of property, and theft. Childhood externalising behaviour is problematic, not only in its direct consequences but also in that these behaviours are a risk factor for later criminal behaviours and violence.[4] Understanding the risk factors and developing a strong knowledge base will ultimately help to identify and reduce externalising behaviours which could lead to legal, psychiatric, and social problems later in life.

Adverse outcomes associated with childhood and adolescent CD are significant.[5] School failure, criminal behaviour, unemployment, and substance use are some of the most notable outcomes. Woolfenden *et al.* report that in adulthood, the costs (whether financial, emotional, and medical) for individuals with a history of CD in childhood are 10 times higher than adults without these problems.[5] In another study, Foster *et al.* found that the public costs per individual diagnosed with CD were in excess of $70 000 over a seven-year period.[6] There are also many psychiatric comorbidities including, but not limited to, ADHD, anxiety disorders, mood disorders and substance use disorders, which may occur in children and adolescents with CD, and which may persist into adulthood.[7] In addition to the psychiatric comorbidities mentioned above, CD is also shown to be associated with high-risk activities such as dangerous driving, risky sexual behaviour, violent suicidal behaviour, extreme sports and risky games.[8]

Interventions for parents and families (during childhood), such as multisystem therapy, have shown a reduction in the amount of time spent in institutions or in prison (as adults).[8]

Early detection and implementation of management strategies may reduce the development of adult psychopathology.[9] This in turn could improve quality of life by decreasing the multiple social and health implications for patients, their families and society as they progress into adulthood.[10]

Prevalence of Conduct Disorder

The worldwide prevalence of CD among children and adolescents aged 6–18 years in the general population is estimated at 3.2% with little variation across countries or continents.[11] Males are more likely to develop CD than females, although the gap between genders narrows with increasing age. In adolescents the ratio of males to females is approximately 2:1.[2]

Most prevalence studies have been conducted in the general population and non-specialist settings of North America and Europe. There are significant methodological problems with many of these studies as they are predominantly cross-sectional (rather than longitudinal cohort) studies, and many make use of self-report questionnaires and screening tools, while few studies have been conducted using a standardised diagnostic tool. Longitudinal cohort studies are more valuable than cross-sectional studies in differentiating between associations, causal or risk factors, and outcomes of a condition.

A prospective cohort study from Finland, using the Medical Birth Register and the Finnish Hospital Discharge Register found that the cumulative incidence of CD (in the general population) up to the age of 14 years was 1.7%; one in eight children sought psychiatric care for the management of some kind of neurodevelopmental disorder including CD by the age of 14 years.[12] A French collective expert report[8] divided CD into aggressive and non-aggressive subtypes and further broke down these subtypes by gender and age ranges. Conduct Disorder in girls aged between five and twelve years ranged between 0–3% and boys 1–2%. In the adolescent age ranges between thirteen and eighteen years no girls were found to have CD. Boys in this age range however were recorded as 4% in the aggressive sub-type only. The same report makes the comment that studies in populations of delinquents (the definition of delinquent was not given in this report) show a prevalence of 30–60% for CD.[8]

Studies conducted in tertiary level specialised child and adolescent mental health services are limited. However one review of youths from five different sectors of care[13] (namely alcohol and drug services, child welfare, juvenile justice, mental health and public school services for

youths with serious emotional disturbances in San Diego) found that CD and Attention Deficit Hyperactivity Disorder (ADHD) were the most prevalent disorders in children who were sampled in this study. In this review, prevalence of any psychiatric disorder in the mental health sector was found to be 60.8%, and that of CD was estimated at 28.1%; much higher in the mental health and juvenile justice categories than in the other sectors.[13]

A review of psychiatric illnesses in children in the Middle East, reported prevalence of CD ranging from 2.4% in Iran to 32.9% in Iraq.[14] These figures were obtained in a systematic review of 24 articles of prevalence studies of psychiatric disorders in children under the age of 18 years in the Middle East. The authors noted the methodological heterogeneity between the different studies reviewed and concluded that the higher prevalence rates were those obtained using the Strengths and Difficulties Questionnaire (SDQ), a general screening tool for child mental health difficulties. Prevalence figures from studies using a diagnostic tool were much lower, which highlights the difficulties in conducting epidemiological research in psychiatry. The diagnostic criteria used were DSM-IV-TR diagnostic criteria as the studies were all conducted prior to 2014.

Research on CD in low- and middle-income countries is limited, both in the general community as well as in tertiary psychiatric settings.

The prevalence of psychiatric disorders in a two-phase cross-sectional study on a large school-based sample in China showed that 10% of children had a psychiatric disorder causing enough distress or social impairment to warrant early intervention; in this study 0.62% of the children had a diagnosis of CD.[15]

Another cross-sectional study undertaken in adolescents in two secondary schools in Kenya found an overall prevalence of CD of 31.4%.[16] However, this study used a self-report questionnaire and not a validated diagnostic tool.

In a retrospective study conducted by Olashore *et al.*[17] in a national psychiatric hospital in Botswana, Disruptive Behaviour Disorder (of which CD would form part), was the second most common overall diagnosis (18.5%) after ADHD which was diagnosed in 25.2% of cases.

There are no published prevalence studies of CD in South African children and adolescents. The only information available is from a South African consensus study (by a panel of experts) on the prevalence of child, adolescent and adult mental in the Western Cape

population,[18] in which the prevalence of CD in the general population was estimated to be 4%. Raman *et al.*[19] recorded 54 out of 303 (17.8%) patients that were diagnosed with a disruptive behaviour disorder in their clinical audit at the Rahima Moosa Child and Adolescent Mental Health Clinic in Gauteng. This however may include children with a variety of disruptive behaviours, not only those with a diagnosis of CD.[19]

Little data could be found regarding the prevalence of mild, moderate and severe forms of CD worldwide. In the INSERM publication[20] a prevalence of 2.8% of severe CD was reported. However, this was referenced as a single study and only included six- to eleven-year-olds.

Sarkhel *et al*.[21] measured the prevalence and severity of CD in school children in Kanke (India) and found a prevalence of CD of 4.58% in the study sample. Those classified as mild CD comprised 36.36% of the sample, 63.63% as moderate, and none were classified as severe.

No other comparative data on mild, moderate, and severe forms of CD could be found.

Important Factors in the Development of Conduct Disorder

There is a paucity of literature specific to factors contributing to the development of CD in South Africa. A review of international literature has identified several factors associated with the development of CD and the severity of symptoms.

Mohan *et al*.[22] describe the aetiology of CD in terms of:

- Biological factors
- Parental and family factors
- Neurological factors
- School related factors
- Protective factors
- Comorbid conditions

Biological factors:

Frick *et al.*[23] conducted a review of the literature and found that the clinical presentation of CD was significantly associated with genetic factors. This is likely due to the fact that personality is not only formed by past experiences during development but also has a genetic

basis.[24; 25] According to Mohan *et al.*,[22] evidence for low levels of plasma dopamine beta-hydroxylase and low levels of 5-Hydroxy Indole Acetic Acid (5-HIAA) in the cerebrospinal fluid may also play a role in the aetiology of CD. High testosterone levels are also associated with aggression.[19]

Parental and family factors:

Parent temperament and parental psychopathology are important factors to consider in the development of CD and integral in how it presents. Center and Kemp[25] reported on the role of poor socialisation and inadequate structure in a child's environment and how this can affect a child; and how a harsh, cold, aloof or even violent parent may be a risk factor in the development of CD.[25] Similarly, parental illness, including mental illness, may not allow for adequate attachment between child and parent and may also predispose the parent towards aggressive and violent behaviour.[26]

In addition to the above, parenting and attachment styles also play a significant role in the development of CD. Attachment theory as described by Bowlby (1978), explores how the interactional development between a child and her/his primary caregiver can be affected by parental behaviour and can go on to inform lifelong interactional patterns.[27] The effects of disorganised attachment in the development of psychopathology as described by Sroufe *et al.*, are noted to be complex and systemic and appear to have a non-linear causal association in the development of later psychopathology.[28] Fonagy (2000) demonstrated how parental coerciveness and interactional styles in the presence of disorganised attachment, both in the context of the parents as well as the children, result in difficulties in taking responsibility for one's actions and an inability to have empathy for the recipient of antisocial behaviours.[29]

In addition to parenting styles that can influence the risk of development of CD, childhood experiences also play a significant role in development of and severity of CD. Childhood adversity is associated with development of CD. Adverse childhood experiences such as verbal, physical, or sexual abuse, family substance abuse or mental illness, absence of a parent due to death, incarceration or divorce and domestic violence are established risk factors for CD.[30]

While adverse childhood experiences occurring within the household are established risk factors for CD, adversity may also occur at a community or population level. These will be discussed under the school factors category as an environmental contributor.

Neurological factors:

Neurological impairments resulting from early insults to the brain or traumatic brain injuries are well documented to have negative impacts on cognition and behaviour and can thus contribute to aggressive behaviour as seen in CD.[7] In addition to this, CD is associated with children and adolescents who have intellectual difficulties. Low verbal IQ in particular appears to be an important risk factor in the development of disruptive behaviour patterns and even delinquent behaviour.[7]

In a study on the prevalence of psychiatric disorders with and without comorbid intellectual disability, Emerson[31] found that 25% of the children with an intellectual disability (no comment was made on severity) had a diagnosed disorder of conduct (including all types of conduct behaviours) as opposed to 4.2% who had conduct-disordered behaviours without an intellectual disability.

School and environmental factors:

Whilst Mohan *et al.*[22] have classified incidents such as exposure to gang related violence under the school category, there are many other community level and situationally based events which are not accounted for elsewhere, and so will be discussed as part of the school category.

The school environment, large class numbers, and a lack of positive teacher feedback may impact the development and manifestation of CD symptoms.[22] In addition to this, as noted by Sarkel *et al.*, [21] externalising behaviours such as CD are more often reported by teachers.

Events such as war, genocide, culturally linked gender-based violence and displacement may be risk factors for the development of conduct disorders, on the basis of the linkage between the biological stress-response system and development of the brain, as described by Anda *et al.*[32]. In investigating the impact of war and associated comorbidities on children, Thabet *et al.* showed that 38.1% of parents reported features of CD in their children in the six months following the war on Gaza which ended at the end of December 2008.[33] Furthermore, this study also found high comorbidity with Post-Traumatic Stress Disorder (PTSD), Attention Deficit with Hyperactivity (ADHD) and Oppositional Defiant Disorder (ODD).

Protective factors:

As noted above, attachment and home environment play an important role in the aetiology of CD. By extension, protective factors for children who are at higher risk for the development of CD would be: positive role models, attuned and adequate parenting, and teaching the child to self-regulate when distressed.[20]

Comorbid conditions:

In addition to adverse childhood experiences, certain psychiatric comorbidities are also associated with CD, and it is rarely found in isolation. These include comorbid depression, anxiety disorders, Bipolar Disorder, ADHD and substance use disorders.[34] Patel *et al.* noted an eleven times higher risk of psychosis and a nine times higher risk of depression in children with CD,[35] in an in-patient population.

Comorbid depression is common and may be involved in both the development and persistence of CD; according to Cohen-Salmon *et al.*[8] in the collective expert report, co-occurring CD and depression may increase the likelihood of adult substance use disorders as well as the subsequent development of Antisocial Personality Disorder (ASPD).[7]

International Literature

Important factors in the development and perpetuation of CD include[36; 37]: perinatal complications, comorbid psychiatric disorders, intellectual disability (especially low verbal IQ), poor academic performance, poor parental supervision, punitive discipline, exposure to violence, abuse or neglect, and inconsistent home environments. Psychiatric disorders include mood disorders, anxiety disorders, substance use, ODD and ADHD. An inconsistent home environment can be as a result of frequent changes of caregivers, early institutional placement and parental psychopathology.

Poor prognostic factors include: early age of onset, comorbid ADHD, lower IQ, severity and frequency of antisocial behaviours, punitive discipline style, low socio-economic status and ineffective schooling.[11;38]

The South African Context

As many as one in three adults in the South African context may suffer from a psychiatric disorder at some point in their lives.[39] The genetic research required to support South African

experiences is lagging behind that of the western world, thus support for the genetic factors associated with CD is not available for this population.

Other possible factors which may predispose the development of CD in South Africa include factors such as the HIV pandemic, the effects of apartheid and the post-apartheid era, high levels of domestic and gender-based violence, and fragmented family units. All of these may potentially impact on attachment, parenting styles, exposure to adverse childhood experiences and psychiatric comorbidities.[8]

The South African Human Immunodeficiency Virus (HIV) infection rates as per the 2018 Statistics South Africa website were estimated at 13.1%.[40] This is of particular relevance as a result of the physical and mental sequelae of HIV disease. Physical HIV sequelae may include prolonged admissions to hospital or even death of a parent resulting in absence of parental support, poor attachment, and inconsistent parenting styles, all significant risk factors for the development of CD. Up to 40% of HIV-infected patients suffer from a comorbid mental disorder.[21] In HIV-positive children, the prevalence rates of mental disorders have been found to be between 25% and 50%.[41] Common mental disorders in adults living with HIV disease include depression, anxiety, and substance use disorders.[42] Parents suffering from any of these disorders may experience difficulties in maintaining consistent parenting and exhibit poor attachment and possibly aggressive and unpredictable behaviours, the latter of which may be particularly prevalent in association with substance use.

The apartheid regime implemented by the National Party in South Africa was an ideology supporting the separate development of different racial groups.[43] The vast majority of the population were forced to live separately and in abject poverty. They were severely disadvantaged with regards to education, health care and economic stability. The apartheid laws were often violently and cruelly enforced. The result was that many children were exposed to community-based violence, poor socio-economic status, inadequate access to healthcare and basic amenities, and inadequate schooling – all factors associated with a poor prognosis for CD. In the majority of households, one or both parents had to seek employment away from their homes, resulting in fragmentation of the family structure and inconsistent parenting. Despite 26 years having passed since the end of the apartheid era, many of the problems associated with socio-economic, educational and healthcare inequalities persist, with many high-risk environments that are associated with the development of CD.[44]

Violence is another significant and ever-present risk in South Africa. Between 1 April 2018 and 31 March 2019, 2.01 million crimes were recorded. Many of these included contact crimes such as sexual offences, murder and attempted murder as well as non-contact crimes including arson and malicious damage to property.[45] Gender-based violence and domestic violence remain an ongoing problem. Between 25% and 40% of women in South Africa experience intimate partner violence, whether sexual or physical, during the course of their lives.[46] Mohan *et al.* note that children who are exposed to frequent domestic violence, and whose home environments lack structure and adequate supervision, and where there is frequent marital conflict between parents, are more at risk for the development of CD.[22]

The lack of South African literature specific to CD makes the depth of the challenges difficult to quantify. However certain outcomes known to be associated with CD, such as mood disorders, anxiety disorders and substance use disorders, are prevalent and ongoing in South Africa. The South African Stress and Health Study (SASH)[47] conducted between 2002 and 2004 was undertaken as part of the World Mental Health Survey with an adult study population, and a particular focus on trauma in the South African context. The study reported a lifetime prevalence of any one mental disorder to be 30.3%, the lifetime prevalence of two disorders was found to be 11.2% and three or more disorders was reported as 3.5%.[47] Further breakdown of the SASH analysis revealed that anxiety disorders were the most prevalent lifetime disorders at 15.8%, followed by substance use disorders (11.2%) and mood disorders (9.8%).[47]

In a country such as South Africa where interpersonal violence and crime are significant social problems, childhood exposure to such environments increases the risk of the development of CD. Early identification and appropriate intervention would be particularly beneficial to prevent some of the negative outcomes that children with CD experience.

Management of Conduct Disorder

An accurate and early diagnosis in the case of CD is only beneficial if there is the possibility of taking the appropriate action. Ideally, making the diagnosis of CD requires a multimodal evaluation undertaken by a multi-disciplinary team. Standardised interviews, questionnaires and scales ought to be the gold standard towards which every team aspires.[8] An overall approach to the management of CD would ideally include preventative strategies, intervention strategies and research into the field.[7]

Prevention strategies are only useful if they can occur in the context of three different vulnerability areas.[8] Universal prevention is aimed at the population as a whole, with no particular risk group identified. Selective prevention targets 'at risk' individuals who have been identified through environmental or social risk factors. Indicated prevention targets individuals who have been identified as having individual or personal risk factors.[8]

Jacob[48] suggests that management approaches should ideally target many levels. Treatment options for CD include family therapy; behavioural modification, individual psychotherapy or play therapy for the child; as well as substance rehabilitation, management of comorbid illness and pharmacotherapy, ideally in combination.[48] Pharmacotherapy can be useful in the management of comorbid disorders such as anxiety and depression or can be used as an adjuvant in the management of aggression, impulsivity, or mood lability. There is currently no specific pharmacotherapy for the management of CD.[37]

Motivation for this Study

As noted above, CD is a common childhood mental disorder with the potential for significant adverse consequences. There is currently a lack of information in specialised settings specific to CD in South Africa.

Owen *et al.*[49] have highlighted the widening mental health treatment gap in Sub-Saharan Africa as well as the need for research on child and adolescent mental health, the use of screening tools, and interventions in low resource settings. For these goals to be achieved, the prevalence, at risk populations, and factors associated with disorders such as CD need to be identified in settings such as Tara Hospital Child and Adolescent Psychiatric Clinic (Tara Children's Clinic).

In a Strengths Weaknesses Opportunities and Threats (SWOT) analysis conducted by Mokitimi *et al.*[50], strong specialist child and adolescent mental health service units were identified as a strength, whilst collaboration between various units such as provincial government, mental health and paediatrics were identified as a potential opportunity. Studies such as this may assist in identifying areas of referral where future collaboration could take place.

Flischer *et al.*[51] make the argument that with the HIV epidemic, the high rates of violence, the prevalence of childhood maltreatment and other possible risk factors, children in South Africa are at risk of suffering a higher burden of mental illness than many other low- and

middle-income countries. It would therefore be useful to establish the demographics, possible predisposing factors, and a comparison between mild and severe features of CD in the population of interest.

A description of these features in a South African population attending a specialised service may highlight information that could assist parents or caregivers, primary care physicians and teachers to identify, manage and refer appropriately for mental health assessment. This would allow for earlier detection and implementation of management strategies.[52]

1.2 Aims

The aim of this study was twofold:

1. To describe the prevalence, demographic profile and clinical characteristics of children and adolescents with a diagnosis of CD attending the Tara Children's clinic; and

2. To identify possible factors that might predispose to the development of severe CD.

1.3 Objectives

1. To determine the prevalence of Conduct Disorder in children and adolescents presenting to Tara Children's Clinic between January 2013 and January 2017.

2. To describe the demographic profile and clinical characteristics of children and adolescents diagnosed with Conduct Disorder at Tara Children's Clinic.

3. To compare children with mild and severe Conduct Disorder in terms of demographic and clinical characteristics in order to identify possible risk factors for severe Conduct Disorder.

Chapter 2: Study Methodology

2.1 Study Site

This study was undertaken at the Tara Hospital Child and Adolescent Psychiatry Clinic (Tara Children's Clinic) situated within Tara, the H. Moross Hospital (Tara Hospital) in Johannesburg. The Tara Children's Clinic is a tertiary level mental health clinic which caters for children under the age of 18 years or those still at school, who are referred from community clinics, schools, medical practitioners and several other referral sources in the northern regions of Johannesburg. If a child is over the age of 18 years but still attending school, then s/he may still be seen at Tara Children's Clinic until such time as s/he has left school.

Initial contact for the patients is made telephonically to the clinic nursing sister by the parents, caregivers or referral source. Basic demographics, presenting complaint and contact details are manually captured on a standardised form. The patient is then given an appointment for an initial interview.

At the time of the first appointment the child and her/his parents or caregivers undergo clinical interviews both separately and together. The clinical interview is conducted by a doctor, a senior member of the nursing staff or an intern clinical psychologist. This interview is guided by a standardised template which then forms part of the clinical notes for the patient file, stored on-site in the clinic. The prescriptions for patients are not kept in the patient files as they are taken to the pharmacy for filling of the medication prescription. Diagnoses are made clinically and are often discussed at the weekly multi-disciplinary meetings. Patient file numbers are allocated according to the year and number order in which they were opened. For example the first file of 2013 would be assigned a number 01/13. There are, with very few exceptions, no validated screening or assessment tools used.

2.2 Study Design

This study is a descriptive analytic retrospective record review.

2.3 Study Population

All child and adolescent patients with a diagnosis of CD made in the Tara Hospital Child and Adolescent Psychiatric Clinic.

2.4 Approvals

Approvals were sought and obtained from the Human Research Ethics Committee (HREC) medical, the Tara Hospital Research Committee and the Department of Psychiatry Post Graduate Assessor group. Data collection did not commence until all approvals had been granted.

2.5 Data Collection

All patient files from the Tara Children's Clinic for the period from the beginning of January 2013 to the end of January 2017 were reviewed. The study period was chosen to commence with the introduction of the new DSM-5 and to conclude on the last date available for capture according to local Ethics Committee and Hospital Research Committee rules.

All files for this time period (953 in all) were reviewed and those with a documented diagnosis of CD were included in the study. Thereafter clinical case files of all children and adolescents diagnosed with CD underwent a detailed review. Recorded information for each patient was examined and then captured and categorised according to the study parameters.

The categories determined for the study were based on the subsections in the clinical interview template recorded at the time of initial assessment and as reported to the interviewing clinician during the interview.

The severity of CD was captured in the clinical record as mild, moderate or severe according to DSM-5 descriptions of severity. In cases where the severity was not recorded in the notes, an in-depth review of number and severity of presenting symptoms was undertaken by the researcher to determine the severity of the CD. It should also be noted that whilst the mild, moderate and severe groups were based on the number of presenting symptoms, there were instances in which the demarcations between mild and moderate groups, or moderate and

severe groups were quite imprecise. Thus in the comparative analysis the mild group was compared to the severe group as it was felt that a better comparison would be achieved in this manner.

Information was collected on interventions throughout the clinical notes from the initial visit and all documented follow-up visits. Interventions were recorded as only social (social work interventions), only pharmacological, no interventions (i.e. none) and a combination of the above. There were no cases which suggested that there was ever a purely psychological intervention and as such psychological referrals were always in the context of multi-disciplinary team interventions.

There are no standardised guidelines in the clinic as to the frequency of follow-up of patients; this is very much dictated on a patient-specific basis and according to the progress which the patient has made. It is, however, mandatory that patients be followed up in the clinic at least every six months. If a patient had not been followed up for a period of more than six months according to the last recorded date of follow-up in the clinical notes, then this patient was considered to be lost to follow-up. In cases such as these, information was obtained from the clinical notes made at the last clinical contact. As a rule, there were no World Health Organisation Disability Assessment Scale (WHODAS) or Global Assessment of Functioning (GAF) scores recorded in the notes and therefore a clinical impression had to be developed according to what had been captured in the patient files.

Social circumstances were recorded according to the documented answer from the accompanying parent or guardian to the interviewer. In the child psychiatry initial interview questionnaire, there is a question to the interviewee as to whether s/he is currently satisfied with her/his social circumstances.

All patient identifying features were stored separately in order to maintain anonymity of the patients and their families. Data were captured according to the following parameters as documented in the initial and subsequent clinical interviews:

- Gender
- Referral source
- Age of onset of behavioural problems
- Age at diagnosis
- Schooling

- Comorbid diagnosis
- Pregnancy history
- Birth history
- Perinatal complications
- Attachment
- Primary caregiver
- Milestones
- Medical diagnosis
- Discipline style
- Exposure to violence, physical abuse, psychological abuse or neglect
- Social circumstances
- Number of conditions that may be a focus of clinical attention (V codes)
- Family psychiatric history
- Interventions
- Outcomes

For each of the listed categories, an Excel spreadsheet was created, formatted with drop-down boxes with relevant selection options (Appendices B and C). The files were located and reviewed and the relevant options for each data point were captured as per options listed in Appendix B. If the information was not recorded in the file, then an option "ND" (not documented) was selected.

Operational Definitions and Explanations

Age at onset of symptoms: the age when behavioural problems were first noticed by the caregiver, as noted in the clinical notes on the history of the presenting complaint.

Age at diagnosis: the age at which the first diagnosis of CD was made according to the clinical notes.

Severity of CD: determined by assessing the number of symptoms recorded in the clinical notes, then using the DSM-5 criteria for mild, moderate and severe CD. A minimum of three symptoms is required to make a diagnosis of CD. A case with three to four symptoms was captured as mild severity. Five or six symptoms were captured as moderate severity, and seven or more symptoms was captured as severe.

Attachment style and parenting: was determined from the from the clinical parent and child interviews, and a clinical determination was made as to whether the narrative would support a secure attachment or not.

Parental psychopathology: this was often recorded in the clinical notes. In many cases where there was no record of specific psychopathology, there was reference to mental illness of a parent in the family psychiatric history, which was then recorded.

Source of referral: this consisted of GP, clinic, school, ND and other. The "other" group does not refer to a single referral source but included referrals from multiple different sources including children's homes, foster care, adoptive parents, children's courts, church or community referrals, and referrals by friends, family members or other concerned individuals. The numbers from these referrals and the diversity of the referral base were considered to be too extensive for separate analyses and were therefore categorised as "other."

Perinatal complications: included anything untoward which necessitated unscheduled treatment, extended hospitalisation, or put the life of the mother and/or the baby at risk.

Punitive discipline: the term punitive was defined as an act of punishment which was severe, rough or disastrous, as per the Merriam-Webster definition of the word punishment[53]. Invariably in this research punitive discipline included physical and/or verbal punishment. Non-punitive discipline was any discipline which did not involve punishment but was rather a behaviour modification strategy.

Violence: was defined as injury, abuse, damage by the use of physical force or an occurrence of violent treatment and was taken from the clinical notes.

Abuse: clinical records of sexual, physical, or verbal mistreatment.

Neglect: incidences noted in clinical records, of careless disregard or leaving a child unattended.

Lost to follow-up: it is a legal requirement in South Africa, as well as a clinic requirement, that a patient be reviewed in person at least once every six months. As such, a child was considered lost to follow-up if s/he had not attended clinic appointments for longer than six months. The date of last follow-up was obtained from the clinical notes and unless a comment had been made regarding onward referral or transfer to another facility in these

notes, the patient was captured as lost to follow-up. As ethical clearance had been obtained only for retrospective record review, attempts to contact these patients were not made.

V codes: all recorded conditions or problems which may be a focus of clinical attention on the basis that it may affect the diagnosis, course, prognosis, or treatment of the disorder.[53]

2.6 Data Analysis

Data were all retrospective and captured as quantitative data.

Descriptive analyses of the data were carried out. Means and standard deviation or median and interquartile range were produced on continuous variables, depending on their distribution and parametric or non-parametric nature. Categorical variables are described using numbers and percentages. To compare the two groups of severity (mild and severe), unpaired t-tests for parametric data and Mann-Whitney tests for non-parametric data were used. The moderate group was not included in this comparison as the differences between the groups were too small to show significance.

All comparisons were conducted with Chi-squared and Fisher's exact test unless otherwise stated.

Chi-squared tests cannot have zeroes and most numbers should be five or greater in order to be valid. In circumstances where this was not so, the smallest groups were combined until validity measures for the test were reached.

Chapter 3: Results

A total number of 953 patient files were available for review in the relevant period. Of these, 107 patients were identified as having a diagnosis of CD and were entered into the study for more detailed review.

Initial analysis of the demographics was carried out, followed by a comparison of the demographic characteristics of the mild and severe groups. After consultation with a statistician, it was felt that the cases captured as moderate in severity did not contribute meaningfully to the comparative analysis between groups and therefore only the mild and severe groups were compared.

Some descriptive statistics have been summarised in tabular form for ease of reference.

3.1 Prevalence

Of all patients attending the Clinic during the study period, 11.2% (n=107) were diagnosed with CD.

3.2 Demographics and Clinical Characteristics of Sample

The following descriptive results represent the demographic and clinical characteristics of the 107 patients whose records were reviewed.

Gender and Age

The female to male ratio of children diagnosed with CD at Tara Children's Clinic was 1:2. The average age of onset of behavioural problems was 7.3 years (SD 3.86), and average age at diagnosis was 11.6 years (SD 3.35).

Referral Source

The most common single source of referral (44.9%, n=48) was from schools, and the least common single source was from medical practitioners with 3.7% (n = 4) of referrals. Community clinic referrals were marginally higher than those from medical practitioners with 4.7% (n=5). As mentioned above, the "other" group (46.7%) was not from a single source of referral but consisted of referrals from multiple other sources. Any referral source

less than or equal to n=2 was included in the "other" category. Undocumented referral sources were also recorded in the "other" group.

School Attendance at Time of Presentation

At the time of presentation to the clinic, the majority of children were attending mainstream schools (54.2%). Of the remaining children, 16.8% (n=18) were attending remedial school, (14%, n=15) were at special education institutions, and 15% were not attending school at the time of presentation[a]. Reasons for non-attendance included school refusal, truancy, suspension or expulsion from school; however, a number of cases had no reason stated for school non-attendance.

3.3 Comorbid Psychiatric and Medical Conditions

In the population of interest, only 97.2% (n=104) had a documented comorbid psychiatric diagnosis. One file was missing data on medical comorbidities and of the 106 remaining files, 34.9% (n=37) had a medical comorbidity. Multiple comorbid psychiatric diagnoses were common, i.e. 84.1% (n=90). Table 3.1 below summarises psychiatric and medical comorbidities.

Table 3.1 Comorbid diagnoses

	Diagnosis	**%**	**n**
Comorbid second psychiatric diagnosis (n=107)	Depression	79.4	85
	ADHD	10.3	11
	Intellectual Disability	1.9	2
	Oppositional Defiant Disorder	0.9	1
	Substance use disorder	0.9	1
	Anxiety disorder	0.9	1
	Reactive Attachment Disorder	2.8	3
Comorbid Medical Diagnosis (n=106)	Neurological	18.9	20
	Medical (other than neurological)	13.2	14
	Surgical	2.8	3

[a] Remedial schooling is education aimed at children who have an average or even higher than average intellectual ability but are not able to cope in a traditional mainstream schooling environment. Special education is designed to help children who are not intellectually able to cope in a mainstream or remedial learning environment

3.4 Perinatal Background

The variables were grouped into parameters which are relevant to each other; pregnancy history, pregnancy status and birth history, have been grouped under perinatal background.

Table 3.2 Perinatal background

Perinatal data		**%**	**n**
Pregnancy history	Unwanted	58.9	63
	Wanted	27.1	29
	ND	14.0	15
Birth history	Normal Vaginal Delivery	54.2	58
	Caesarean Section	24.3	26
	ND	21.5	23
Perinatal complications	Uncomplicated	55.1	59
	Complicated	24.3	26
	ND	20.6	22

3.5 Attachment Styles

Table. 3.3 Attachment styles and caregiving

Parameter		**%**	**n**
Attachment	Insecure	77.6	83
	Secure	18.7	20
	ND	3.7	4
Primary care giver	Parent	53.3	57
	Multiple caregivers	15.9	17
	Foster/adoptive	14.9	16
	Grandparent	7.5	8
	Not related	6.5	7
	Other relative	1.9	2

3.6 Discipline and Exposure to Violence

Three quarters (75.7 %, n=81) of children diagnosed with CD in this study experienced punitive discipline in their environments, but in 6.5% (n=7) of cases such exposure was undocumented. With regard to either direct or indirect exposure to violence, 66.4% (n=71) had been exposed to violence, abuse or neglect.

3.7 Family Psychiatric History

Regarding family psychiatric history, 57% (n=61) of cases had a documented family psychiatric history. In most cases, 43% (n=46) there was no parent psychopathology recorded; because the recorded non-ASPD comorbidities were only recorded as 0.9% (n=1), it was felt that this would not be valuable for the statistical analysis. Of the parents with a documented psychiatric history ,40.2% (n= 43) were given a diagnosis of ASPD by the documenting practitioner. In one case, the child in question was admitted to the child psychiatry ward at the same time that his mother had been admitted to the personality disorders ward at Tara, for the management of multiple Cluster B personality disorders.

3.8 Severity of Behavioural Problems

Behaviours classified as severe (as per DSM-5 criteria for mild, moderate or severe)[1] were found in 69.2% (n=74) of patients with documented CD.

3.9 Social Circumstances and Number of V Codes

Satisfactory social circumstances accounted for just under half, 48.6% (n=52) of cases, unsatisfactory circumstances for 47.7% (n=51) and 3.7% (n=4) were not documented. A median of two V-codes were recorded per case.

3.10 Interventions and Findings at Follow-Up

With regard to interventions, 84.1% (n=90) received a combination of a psychosocial and pharmacological intervention. Psychosocial interventions only were received by 10.3% (n=11), and 1.9% (n=2) received a pharmacological intervention only. For 3.7% (n=4) there was no intervention.

Of the 107 children in the study, 58% (n=62) were lost to follow-up at six months.

3.11 Comparative Data for Mild versus Severe Conduct Disorder

Fifteen patients met the criteria for mild CD, and 74 met the criteria for severe CD.

There were four areas of significance noted in the findings of this comparative analysis.

1. Mild cases were significantly more likely to have a parent as primary care giver.
2. Severe cases were significantly more likely to have been exposed to violence, abuse or neglect.
3. Severe cases had significantly more V codes than mild cases.
4. In the severe group, there was a significant difference when a child had a parent with a psychiatric history of ASPD (p= 0.0004).

In the tables that follow, mild versus severe CD has been presented in the light of variables under investigation. For each section the p-values for chi-squared tests are given. Chi-squared tests were not performed on the last two sections (V codes and family psychiatric history); it was not possible to combine the groups because there were too many zeroes. Given the results from the Fisher's exact test it is unlikely that there are any differences within these groups.

Table 3.4 Gender and referral source

Variable		**Mild**	**Severe**	**P value**
Gender (F/M)	% (n)	33/67 (5/10)	31.1/68.9 (23/51)	1.000
Referrals	Other % (n) School % (n) Clinic % (n) GP % (n)	26.7 (4) 53.3 (8) 6.7 (1) 13.3 (2)	52.7 (39) 40.5 (30) 4.1 (3) 2.7 (2)	0.0902 0.4013 - -
Chi-squared test P value for all values: Chi = 4.661 p = 0.0972 Last two values combined to make Chi-square valid				

* Unpaired t-test
- Indicates numbers are too small to do a comparison

Table 3.5 Ages of onset and diagnosis; Schooling

Variable		Mild	Severe	P value
Age of onset	Mean (SD)	7.25 (4.1)	7.11 (4.2)	0.9082*
Age of diagnosis	Mean (SD)	10.27 (3.8)	11.93 (3.4)	0.0908*
Schooling	Mainstream % (n) Remedial % (n) None % (n) Special education % (n)	60 (9) 20 (3) 13.3 (2) 6.7 (1)	52.7 (39) 13.5 (10) 16.2 (12) 17.6 (13)	0.7777 0.4537 1.0000 0.4490
Chi-squared test P values for all values: Chi=1.490; p=0.6845				

*Unpaired t-test
- Indicates numbers are too small to do a comparison

Table 3.6 Comorbidities

Variable		Mild	Severe	P value
Comorbid diagnosis	Multiple ADHD None % (n) Intellectual disability % (n) ODD % (n)	13 (86.7) 2 (13.3) - - -	62 (83.7) 6 (8.1) 3 (4.1) 2 (2.7) 1 (1.4)	1.0000 0.6178 - - -
Chi-squared test P value for Multiple versus the rest: Chi=0.0782 p=0.7798				

* Unpaired t-test
- Indicates numbers are too small to do a comparison

Table 3.7 Pregnancy and birth history; Attachment style

Variable		Mild	Severe	P value
Pregnancy History	Unwanted % (n) Wanted % (n)	60 (9) 40 (6)	70.9 (44) 29.1 (18)	0.5355
Birth history	Vaginal Delivery % (n)	53.3 (8)	69.1 (38)	0.3578
	C-Section % (n)	46.7 (7)	30.9 (17)	
Perinatal complications	Uncomplicated % (n)	60 (9)	67.9 (38)	0.5571
	Complicated % (n)	40 (6)	32.1 (18)	
Attachment	Insecure % (n)	60 (9)	84.3 (59)	0.0680
	Secure % (n)	40 (6)	15.7 (11)	

*Unpaired t-test

- Indicates numbers are too small to do a comparison

Table 3.8 Caregiving

Variable		Mild	Severe	P value
Primary care giver	Parent % (n) Multiple Carers % (n) Foster/adoptive % (n) Grandparent % (n) Not related % (n) Other relative% (n)	80 (12) 6.7 (1) - 13.3 (2) - -	50 (37) 13.5 (10) 18.9 (14)** 5.4 (4) 9.5 (7)** 2.7 (2)**	0.0459 0.2654 0.6822
For all values: Chi=1.636 p=0.4414				

***** Mann-Whitney test for non-parametric values.

** values excluded from overall Chi-squared

Table 3.9 Milestones

Variable		Mild	Severe	P value
Milestones	Normal % (n) Delayed % (n)	100 (15) 0	76.4 (42) 23.6 (13)	0.0564

Table 3.10 Medical diagnoses

Variable		Mild	Severe	P value
Medical diagnoses (n=106)	None % (n) Neurological % (n) Medical % (n) Surgical % (n)	71.5 (10) 7.1 (1) 14.3 (2) 7.1 (1)	60.8 (45) 25.7 (19) 10.8 (8) 2.7 (2)	0.5557 0.6740 0.1754 0.4093
Chi all values (Neurological and Surgical combined): Chi=1.232, p=0.5401				

Table 3.11 Discipline; Exposure to violence/abuse

Variable		Mild	Severe	P value
Discipline	Punitive % (n) Non-punitive % (n)	86.7 (13) 13.3 (2)	78.3 (54) 21.7 (15)	0.7247
Exposure to violence or abuse	Yes % (n) No % (n)	46.7 (7) 53.3 (8)	76.5 (52) 23.5 (16)	0.0297
Chi for all values: chi=19.32 p<0.0001				

Table 3.12 Social circumstances; Number of V codes

Variable		Mild	Severe	P value
Social circumstances	Satisfactory % (n) Unsatisfactory % (n)	60 (9) 40 (6)	48.6 (34) 51.4 (36)	0.5710
No of V codes	Median (range and IQR)	1 (0-4)	2 (0-5)	0.0003*
Chi for all values: chi=19.32 p<0.0001				

***** Mann-Whitney test for non-parametric values.

Table 3.13 Family psychiatric history

Variable		Mild	Severe	P value
Family psychiatric history	ASPD % (n)	20 (3)	75.6 (31)	0.0004
	None % (n)	40 (6)	21.9 (9)	0.1926
	Other % (n)	40 (6)	2.5 (1)	0.0009
Chi for all values: chi=19.32 p<0.0001				

In summary, factors associated with a diagnosis of severe CD included exposure to violence, abuse or neglect, having a family history of ASPD, or having two or more V codes. Having a parent as the primary caregiver seemed to have been a protective factor.

Chapter 4: Discussion

The aims of this study were firstly to determine the prevalence, demographic profiles, referral sources and clinical characteristics of children with CD presenting to Tara Hospital's Child Psychiatry Clinic between January 2013 and January 2017; and secondly to compare children with mild and severe CD in order to identify any potentially significant features between these categories of severity.

4.1 Prevalence of Conduct Disorder

Of the 953 files reviewed for diagnoses in the clinic, 11.2% (n=107) had a diagnosis of CD. It is important to note that the Tara Children's Clinic is a tertiary mental health setting, not a community setting. The estimated prevalence of CD in the general population worldwide is 3.2%,[9] whilst studies in certain tertiary mental health settings have been quoted as being up to 28.1%,[13] however the prevalence of CD in this study was lower than that of the San Diego study.[11] It is suggested that the results of the San Diego study may be higher than expected because children with behavioural difficulties were predominantly targeted rather than all mental health problems. Kamau *et al.*[54] conducted a study in a tertiary referral facility in Kenya in 2017, which examined a similar population to the current study population, and the prevalence of CD in that study was 7.2%.[54]

4.2 Demographic profile

The overall male to female ratio of the sample was 2:1 (males, n=74; females, n=33). This is in keeping with international literature which describes the gender profile of CD across different age ranges. In the general population, younger children have a higher male to female ratio (as high as 4:1)[2] and as age increases, the ratio of males to females narrows so that in adolescents the ratio of males to females is approximately 2:1.[2] In a cross-sectional study of physician billing data by Spady et al. in Canada, it was noted that the prevalence of CD in boys was consistently higher than in girls.[55]

Age of onset and age at time of initial diagnosis

There was a mean difference of just over four years between the documented age of onset of behavioural problems and the diagnosis of CD in this study. The earliest reported age of onset of symptoms was recorded as two years old which is uncommon. In several cases age of

onset was unknown. For these reasons, mean age ranges were used instead of childhood and adolescent onset. The reported age ranges in this study ranged from two to thirteen years for onset of symptoms and from five to seventeen years for age at diagnosis of symptoms. In Kamau *et al*. the mean time taken between onset of symptoms and reaching child and adolescent mental health clinics was 16.6 months (note that this was for multiple-cause morbidity and not specific to CD).[54] Although there is a lack of literature available regarding the onset of symptoms versus time of diagnosis, the difference in age groups found in this study is important because of the distinction between childhood and adolescent onset. According to the DSM-5,[1] childhood onset presents with at least one symptom of CD prior to the age of 10 years, and adolescent onset shows no symptoms before 10 years. The DSM-5 also describes estimates of onset often two years later than actual onset.[1] It is important to make this distinction as younger age at onset is associated with a worse prognosis, potential associated deficits in cognitive function, a higher number of psychiatric symptoms and a tendency towards commission of more violent crimes.[56]

In the South African context where young children are likely to have been exposed to high levels of deprivation, violence and trauma, a delay in time to diagnosis and treatment could have negative consequences regarding the long-term prognosis.[19]

It is also important to note that children in South Africa begin formal schooling in the year in which they turn seven. This is likely to be the first point at which they first interact with a number of other children in a formal setting; thus, only at this stage problematic behaviours which have a negative impact on others are likely to become more noticeable.[18]

The lengthy delay between onset of conduct-disordered behaviour and time of diagnosis may be multifactorial. Tara Hospital is a tertiary referral centre, meaning that some of the patients may only have been referred after seeking help at another facility such as community clinics. However, 48 of the patients in this study seen at Tara Children's Clinic were first-time patients referred directly from schools for assessment. Factors such as denial or ignorance of the problems, delays in referral, lack of knowledge of appropriate referral procedures and long waiting lists at appropriate facilities potentially play a role in this delay.[19]

Referral to Tara Children's Clinic

The largest single referral source category was school-based referrals with 44.9% (n=48) patients having been referred directly from their educational environments, lending credence

to the notion that many problematic behaviours are first noticed by teachers and peers in the school environment. The least common source of referral was by medical practitioners with only 3.7% (n = 4) of referrals.

The "other" group is not defined as a single source of referral but made up the largest overall referral category (n=50); this group consisted of referrals from multiple other sources, and any source less than or equal to n=2 was grouped in the "other" category, as were undocumented referral sources.

Schooling

At the time of presentation to the clinic, 54.2% (n=58) of children were attending mainstream schools. Of the remaining children, 15% (n=16) were not attending school at the time of presentation. Some of the reasons for non-attendance were documented, including suspension from school, school refusal, expulsion from school and truancy; however other cases had no reason documented for school non-attendance. Reasons such as truancy, suspension and expulsion from school were in keeping with a diagnosis of CD. The Community Agency for Social Enquiry and joint educational trust (2007) reported a prevalence of learner absenteeism in South Africa of 5–15%.[57] As the children under review were diagnosed with CD, of which truancy can be a symptom, the number of children presenting with school non-attendance may have been in keeping with the above-mentioned statistics. However, the outcomes of school non-attendance reported by Hawkrigg and Payne include mental health disorders as well as economic, social and relational difficulties, all of which may progress into adulthood.[58] With this in mind, a non-attendance rate of 15% is clearly problematic.

With regard to the school referrals, the majority of children were attending mainstream schools at the time of diagnosis. South Africa has an inclusion policy in education, which recommends inclusion of learners with special educational needs into mainstream schools as far as possible. This has resulted in a reduction in the number of Learners with Special Education Needs (LSEN) schools in South Africa. Sourander *et al.*[59] evaluated children in Finland in an eight-year prospective cohort follow-up and found that a teacher's report of a child needing referral was one of the three highest predictors that a child would later need mental health services.

4.3 Comorbidities

At the Tara Children's Clinic, the majority of children (84.1%, n=90) diagnosed with CD had at least one comorbid psychiatric diagnosis including ADHD, ODD, intellectual disability, anxiety, substance use disorders and depression. This data is consistent with international trends and is also indicative of a poorer prognosis.[1] Depression was the most common comorbid diagnosis at 79.4% (n=85). This was in keeping with the study by Patel *et al.*,[35] although this study also found a higher occurrence of psychosis, possibly because it was conducted with hospitalised patients; the current study was based in an outpatient clinic. The rates of ODD, anxiety and substance use disorder rates were low in the current study, accounting for 0.9% (n=1) in each diagnosis category in comparison to international literature.[7] The Patel study[35] also reported that substance use disorder in the hospitalised children was the lowest comorbidity group. Possible reasons for the low anxiety rates in this study could include a diagnosis of Major Depressive Disorder with anxious distress specifier, resulting in fewer stand-alone anxiety diagnoses. The lower rate of ODD could be due to a diagnosis of ODD often preceding a diagnosis of CD,[1] thus patients who have been diagnosed as CD for this study may have had a pre-existing ODD which had been superseded. In this study, ADHD as a comorbidity was found in 10.3% (n=11) of the study population. In their review on ADHD and its comorbidities, Gnanavel *et al.* cite an incidence of 3.5% to 10% comorbidity between ADHD and CD,[60] whereas comorbidity rates of 16% to 20% are cited between ADHD and CD by Villodas *et al.*[61] Only 2.8% (n=3) cases were recorded as having no concomitant diagnosis.

A comorbid neurological diagnosis was found in 18.9% (n=20) cases of CD which consisted almost exclusively of epilepsy, and 13.2% (n=14) had a non-neurological medical diagnosis.

4.4 Perinatal Details

The perinatal history taken at the time of the clinician interview includes a multitude of different factors, including delivery method, whether the pregnancy was wanted or unwanted, the reported social circumstances by the presenting caregiver and whether or not the child's developmental milestones were considered normal or not. On average, approximately 22% of the data in these various categories were not captured. Whilst perinatal complications are known to be associated with a higher risk of the development of CD,[26; 27] such complications could not be inferred from the data.

4.5 Attachment and Parenting

As expected, the reported occurrence of children in this study having insecure attachments to their caregivers was high, 77.6% (n=83). Attachment is a particular risk factor for the development of behavioural problems such as CD because of the effects that insecure attachments have on an individual's relationships with others.[27] The insecure vs secure attachment was ascertained from a combination of specifiers found in clinical notes, as well as other comments written in clinical notes. In 3.7% (n=4), no reference to attachment styles could be ascertained. There was no differentiation made between the different types of insecure attachment and therefore these data could not be further subdivided.

Disruptive behaviours such as those associated with CD frequently impact on those around them, notably the patient's family members. As such, interventions for CD may require a systemic approach in addition to individual treatment for the child.[62] For the sake of optimising management, it is important to note who the main caregivers for the child are, so that home circumstances can be taken into account for family-based interventions. In 53.3% (n=57) of the cases of CD at Tara Children's Clinic, children were being cared for by a biological parent or parents. There were 14.9% (n=16) cases in which a foster care facility or adoptive parents were involved.

4.6 Discipline

In 75.7% (n=81) of the cases of CD, a punitive discipline style was recorded. There was no clear way to tell how punitive discipline style was determined, although in many cases there was evidence in the notes that punitive referred to physical punishment such as smacking the child. Only 18.7% (n=20) were documented as non-punitive. These included disciplinary measures such as behaviour charts and time-out. Punitive discipline is known to be a risk factor for the development of CD.[26; 27]

4.7 Exposure to Violence, Abuse, or Neglect

Exposure to violence abuse or neglect in children was shown to be a statistically significant risk factor in the development of severe CD, with 66.4% (n=71) of cases in the current study having been documented with exposure to violence, abuse or neglect. This is in keeping with evidence found in international literature.

Children who have been exposed to violence, abuse or neglect are significantly more likely to develop severe CD, as are children with a family history of ASPD (for which CD is a precursor). Adoption studies indicate that both genetic and environmental components are likely to be involved in the development of both CD as well as a subsequent ASPD.[1]

Bower-Russa[63] explored intergenerational patterns of violence and abuse. According to that study, victims of abuse in childhood are at a 12-fold increased risk for perpetration of similar behaviours.[63]

4.8 Family Psychiatric History

As per the DSM-5[1] definition of ASPD, individuals show a pervasive pattern of disregard for the rights of others. Lack of remorse, irritability and aggressiveness, indicated by repeated physical fights or assaults, are all behaviours consistent with the diagnosis of ASPD. Taken in the context of the discipline styles and exposure to violence abuse or neglect, a parent who displays the aforementioned traits of ASPD is likely to be aggressive, violent or abusive in the home environment; thus a child who grows up in an environment where such behaviour is modelled for her/him may be more likely to display aggressive behaviours and lack of remorse. It was found that a child with CD was more likely to have a parent (or parents) with a diagnosis of ASPD.

If taken in the context of genetic heritability,[15;16] a family psychiatric history of CD or subsequent ASPD is also an important predictive factor in the development of CD in these children.

4.9 Severity of Behaviour

Severe behaviours, as were found in 69.2% (n=74) of patients (as per DSM-5[1] criteria for mild, moderate or severe), are associated with higher risk of comorbid disorders.[2]

4.10 Social Circumstances and V Codes:

The DSM-5[1] V codes are areas of potential clinical concern which are used to identify conditions other than disease which may have bearing on the development or course of the disease. In this study, the V codes that had been captured were mostly related to child abuse or neglect, sibling relational problems, parent-child relational problems and non-adherence to

treatment. The median of V codes found per patient was two. All V codes were related to a diagnosis of CD, either as a causal factor or consequence of the disorder.

The social circumstances documented in the clinical record, where 48.6% (n=52) were recorded as satisfactory and 47.7% (n=51) unsatisfactory, were based on a subjective question and were not quantified in any way and therefore cannot be extrapolated to reflect socio-economic status in this study.

4.11 Mild vs Severe Conduct Comparison:

There were four areas of significance noted in the findings of this comparative analysis: one with respect to mild cases of CD, and three with severe CD.

Mild Cases of Conduct Disorder

Mild cases were significantly more likely to have a parent as primary care giver. The mild cases showed that 80% (n=12) had the primary caregiver listed as a biological parent whereas this was the case in only 50% (n=37) of the severe cases (p=0.0459).

Having a biological parent as a primary caregiver could therefore be interpreted as a protective factor for children who develop CD, in that they seem to develop less severe symptoms than those who have other primary caregivers; however, more information regarding each case would be required before such an assumption could be made. This is currently beyond the scope of this study.

Severe Cases of Conduct Disorder

Exposure to Violence: Severe cases were significantly more likely to have been exposed to violence, abuse, or neglect where for 76.5% (n=52) of the severe cases versus 46.7% (n=7) of the mild cases (p= 0.0297), some kind of exposure to violence abuse or neglect was documented.

V Codes: Severe cases had significantly more V codes than mild cases (two V codes in the severe group versus one V code in the mild group; p= 0.0003). As per the international literature, exposure to violence, abuse or neglect, poor socio-economic status and relational difficulties are some of the many risk factors and poor prognostic factors in both the development and the severity of CD.[26; 27; 28] These are all included in V codes in the DSM-5.[1]

Parent Psychiatric History: In the severe group there was a significant difference in having a parent with a history of ASPD (p=0.0004). Once again this is consistent with the literature showing that parent psychopathology is a risk factor for the development of CD.[26]

4.12 Limitations of the Study

This was a retrospective record review, in which data collection relied on the clinical notes written by the interviewing doctor or psychologist at the time of first assessment and for follow-up visits. No standardised tools of any sort were used and therefore inconsistencies are likely to have occurred due to variations in documentation between the different practitioners.

Another limitation is that due to incomplete data, it was not possible to distinguish between childhood vs adolescent onset CD.

With regard to comorbid diagnoses, these were tentative, and there may have been other underlying conditions. All diagnoses were made on clinician assessment, not rating scales, and were therefore not objectively assessed. It was not possible to determine whether DSM-5[1] criteria were fulfilled.

Many of the records for children who had been referred by courts and/or children's homes were incomplete. Thus, for many of these children there was a paucity of information on their perinatal and early developmental history, their family history and in particular, family psychiatric history.

The lack of referral documentation for patients is a weakness of this study. When there was no information regarding the referral, the case was placed in the "other" group. This could mean that some records in the "other" category may have contributed significantly to any of the possible referral groups, such as schools or general practitioners.

For the majority of children in this study (84.1%), interventions were multidisciplinary in nature, involving a combination of pharmacology, social work, occupational therapy, and psychotherapeutic approaches. Despite these interventions, 58% (n=62) of the children were considered lost to follow-up. As this was a retrospective record review, none of these were contacted.

Other problems identified which may have confounded diagnosis, management and the development of comorbidities, include delay from onset of behaviour to diagnosis (Mean = 4

years). A further weakness of this study is that due to incomplete data it was not possible to distinguish between childhood vs adolescent onset CD.

Documentation of home circumstances relied on subjective data which was not quantified in any way and therefore cannot be extrapolated to reflect socio-economic status in this study. The sample size was small, data were missing, and a few files were duplicated due to original files being misplaced.

Lastly there were no scores such as GAF or WHODAS used to indicate current level of function and therefore tracking of outcomes was impossible in this study.

Chapter 5: Conclusions and Suggestions for Future Research

Conduct Disorder is a serious mental disorder resulting in externalising behaviours which have the potential to negatively impact the wellbeing of both the patient as well as those with whom s/he interacts. Many cases of infringement on the rights of others, substance use and violent or aggressive behaviours are likely attributable to a diagnosis of CD.

This study has established that schools are an important referral source in South Africa. It may be useful to implement screening programmes in primary schools in order to provide early intervention. Community or population-based interventions could also be introduced into schools, by providing psycho-education to teachers and parents, instituting school-based educational and recreational programmes, and facilitating referral pathways. These programmes would need to be evaluated on an ongoing basis. Future research may include a more in-depth exploration of referring schools to determine what factors (school-related or other) are associated with referrals of children with CD to psychiatric services.

Early identification and intervention could improve these behaviours, leading to better quality of life for the child, as well as lessening the impact that s/he may have on others. As such, psycho-education about CD could be delivered to the areas which struggle the most with these externalising behaviours (schools and families, for example).

Violence, abuse and neglect has also been highlighted as an area of concern. In future studies the type of exposure to violence abuse or neglect should also be documented so that it can be correlated as to whether a certain type of exposure (such as exposure to sexual abuse vs domestic violence) carries a higher risk of the development of CD.

It is a concern that the majority of children diagnosed with CD in the clinic were lost to follow-up over a five-year period. Further research would be valuable in establishing the reasons for this, in order to improve interventions provided by the clinic. More research would be required to ascertain which diagnoses predominate at long term follow-up and explore factors associated with these diagnoses. Further research would also be beneficial to establish the outcomes in the patients being treated for CD.

Other suggestions for future research include detailed analysis and comparison of management strategies and correlation with severity and outcomes. Prospective longitudinal

cohort studies would assist in determining the outcomes of any screening and management programmes and would allow a review of the types of interventions made including many the number of clinic visits per patient and the duration of attendance at the clinic.

Centralised data bases would be invaluable in assisting with the ongoing research and management of children with CD and psychiatric disorders in general.

Appendix A: Diagnostic Criteria for Conduct Disorder

The criteria for Conduct Disorder include the following:

A: A repetitive and persistent pattern of behaviour in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of at least three of the following 15 criteria in the past 12 months from any of the categories below, with at least one criterion present in the past 6 months:

- Aggression to people and animals
  - Often bullies intimidates or threatens others
  - Often initiates physical fights
  - Has used a weapon that can cause serious harm to others
  - Has been physically cruel to people
  - Has been physically cruel to animals
  - Has stolen while confronting a victim
  - Has forced someone into sexual activity
- Destruction of property
  - Has deliberately engaged in fire setting with the intention of causing serious damage
  - Has deliberately destroyed others' property
- Deceitfulness or theft
  - Has broken into someone else's house, building or car
  - Often lies to obtain goods or favours or to avoid obligations
  - Has stolen items of nontrivial value without confronting a victim
- Serious rule violation:
  - Often stays out at night despite parental prohibitions, beginning before age 13 years
  - Has run away from home overnight at least twice while living in the parental or parental surrogate home, or once without returning for a lengthy period
  - Is often truant from school, beginning before age 13 years

B: The disturbance in behaviour causes clinically significant impairment in social, academic or occupational functioning.

C: If the individual is age 18 years or older, criteria are not met for antisocial personality disorder.

Specify whether:

Childhood-onset type:

Individuals show at least one symptom characteristic of Conduct Disorder prior to age 10 years.

Adolescent onset type:

Individuals show no symptom characteristic of Conduct Disorder prior to age 10 years.

Unspecified onset:

Criteria for a diagnosis of Conduct Disorder are met, but there is not enough information available to determine whether the onset of the first symptom was before or after age 10 years.

Specify if:

With limited prosocial emotions:

To qualify for this specifier, an individual must have displayed at least two of the following characteristics persistently over at least 12 months and in multiple relationships and settings. These characteristics reflect the individual's typical pattern of interpersonal and emotional functioning over this period and not just occasional occurrences in some situations. Thus, to assess the criteria for the specifier, multiple information sources are necessary. In addition to the individual's self-report, it is necessary to consider reports by others who have known the individual for extended periods of time (e.g. parents, teachers, co-workers, extended family members, peers).

Lack of remorse or guilt:

Does not feel bad or guilty when he or she does something wrong (exclude remorse when expressed only when caught and/or facing punishment). The individual shows a general lack of concern about the negative consequences of his or her actions. For example, the individual is not remorseful after hurting someone or does not care about the consequences of breaking rules.

Callous-lack of empathy:

Disregards and is unconcerned about the feelings of others. The individual is described as cold and uncaring. The person appears more concerned about the effects of his or her actions on himself or herself, rather than their effects on others, even when they result in substantial harm to others.

Unconcerned about performance:

Does not show concern about poor/problematic performance at school, at work, or in other important activities. The individual does not put forth the effort necessary to perform well, even when expectations are clear, and typically blames others for his or her poor performance.

Shallow or deficient affect:

Does not express feelings or show emotions to others, except in ways that seem shallow, insincere, or superficial (e.g. actions contradict the emotion displayed; can turn emotions "on" or "off" quickly) or when emotional expressions are used for gain (e.g. emotions displayed to manipulate or intimidate others).

Specify current severity:

Mild: Few if any conduct problems in excess of those required to make the diagnosis are present, and conduct problems which cause relatively minor harm to others (eg. lying truancy and staying out after dark without permission).

Moderate: The number of conduct problems and the effect on others are intermediate between those specified in "mild" and those in "severe" (eg. stealing without confronting a victim and vandalism).

Severe: Many conduct problems in excess of those required to make the diagnosis are present, or conduct problems cause considerable harm to others (e.g. forced sexual activity, physical cruelty, use of a weapon, stealing while confronting a victim and breaking and entering).

Diagnostic criteria taken from DSM-5[1]

Appendix B: Excel Spreadsheet used for Data Capture

Study number	Gender	Referral source	Age of onset	Age of diagnosis	Schooling	Comorbid diagnosis
1						
2						
3						

Pregnancy history	Birth history	Perinatal history	Attachment	Primary caregiver	Milestones	Other medical diagnosis

Discipline style	Exposure to violence/ abuse/ neglect	Behavioural problems	Social circumstances

Number ov V-cod	Family history	Interventions	Outcomes

Appendix C: Drop-down Box Options for Parameters

(See also Appendix A).

Gender	
M	
F	
	ND= Not documented
Referral source	
GP	
Clinic	
School	
other	
ND	
Age of onset	
Age at diagnosis	
Schooling	
Mainstream	
Remedial	
Sed	Sed= special education
none	
ND	
Comorbid diagnosis	
ADHD	
ODD	ODD= Oppositional defiant disorder
ID	ID= Intellectual disability
Other psych	
Multiple	
None	
Pregnancy history	
Wanted	
Unwanted	
ND	
Birth history	
NVD	
CS	
ND	
Perinatal history	
Complicated	
Uncomplicated	
ND	
Attachment	
Secure	
Insecure	
ND	
Primary caregivers	
Parent	
Grandparent	OR= other relative
Sibling	NR= non-relative
OR	MC= multiple caregivers
NR	
MC	
Foster/ adopted	

Milestones											
Normal											
Delayed											
ND											
Other medical problems											
N											
MP							N= neurological				
S							MP= medical problem				
None							S=surgical problem				
Discipline style											
Punitive											
Nonpunitive											
ND											
Exposure to violence/ abuse/ neglect											
Y											
N											
ND											
Behavioural problems											
Mild											
Moderate											
Severe											
Social circumstances											
S								S=satisfactory			
US								US= unsatisfactory			
ND											
Family psychiatric history											
ADHD											
CD								CD= Conduct disorder			
ASPD								ASPD= Antisocial Personality disorder			
None											
Other											
ND											
Interventions											
Pharmacological											
Psychology											
Social											
Combination											
None											
Outcomes											
Mood											
Anxiety											
Psychosis											
Substance											
ASPD											
Combination											
Lost to follow up											

Appendix D: Permissions Obtained

Wits Human Research Ethics Committee (medical)

R14/49 Dr Claire Lownie

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M170263

NAME: (Principal Investigator)	Dr Claire Lownie
DEPARTMENT:	Psychiatry Tara Hospital, Child Psychiatry Clinic
PROJECT TITLE:	Conduct Disorder: A Retrospective Record Review of Patients Diagnosed with Conduct Disorder at Tara Psychiatric Hospital Children's Clinic
DATE CONSIDERED:	24/02/2017
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Prof Rita Thom and Dr Heather Alison
APPROVED BY:	Professor A. Woodiwiss, Co-Chairperson, HREC (Medical)
DATE OF APPROVAL:	04/12/2017

This clearance certificate is valid for 5 years from 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, Philip Tobias Building, Parktown, University of the Witwatersrand. I/We fully understand the conditions under which I am/we are authorised 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 resubmit to the Committee. **I agree to submit a yearly progress report**. The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. in this case, the study was initially review February and will therefore be due in the month of February each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature

Date 5/12/2017

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

CEO Tara Hospital

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH
TARA the H. Moross Centre
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(011) 535-8026

20 June 2017

For attention: **Dr Madigoe and Dr Otieno**

Dear Doctors

Re: Application by Dr C. N. Lownie to do research at Tara Hospital

I hereby request permission for Dr C.N. Lownie to conduct research at Tara Hospital. Dr Lownie is a registrar in the Department of Psychiatry and currently enrolled as a Masters student at the University of the Witwatersrand. Her supervisors are Prof Thom and Dr Alison. The title of his research is: "Conduct Disorder: A retrospective record review of patients diagnosed with conduct disorder at Tara Psychiatric Hospital Children's Clinic". The aim of the study is to determine demographics, referral source and clinical characteristics of these children, with a view of being able to give feedback to the schools and medical facilities in these areas. No concerns were raised by the Tara Research Committee.

.....
Dr Rafiella Price-Hughes
Chairperson- Tara Research Committee
Recommended/Not Recommended

Date: 20-6-2017

As Amended

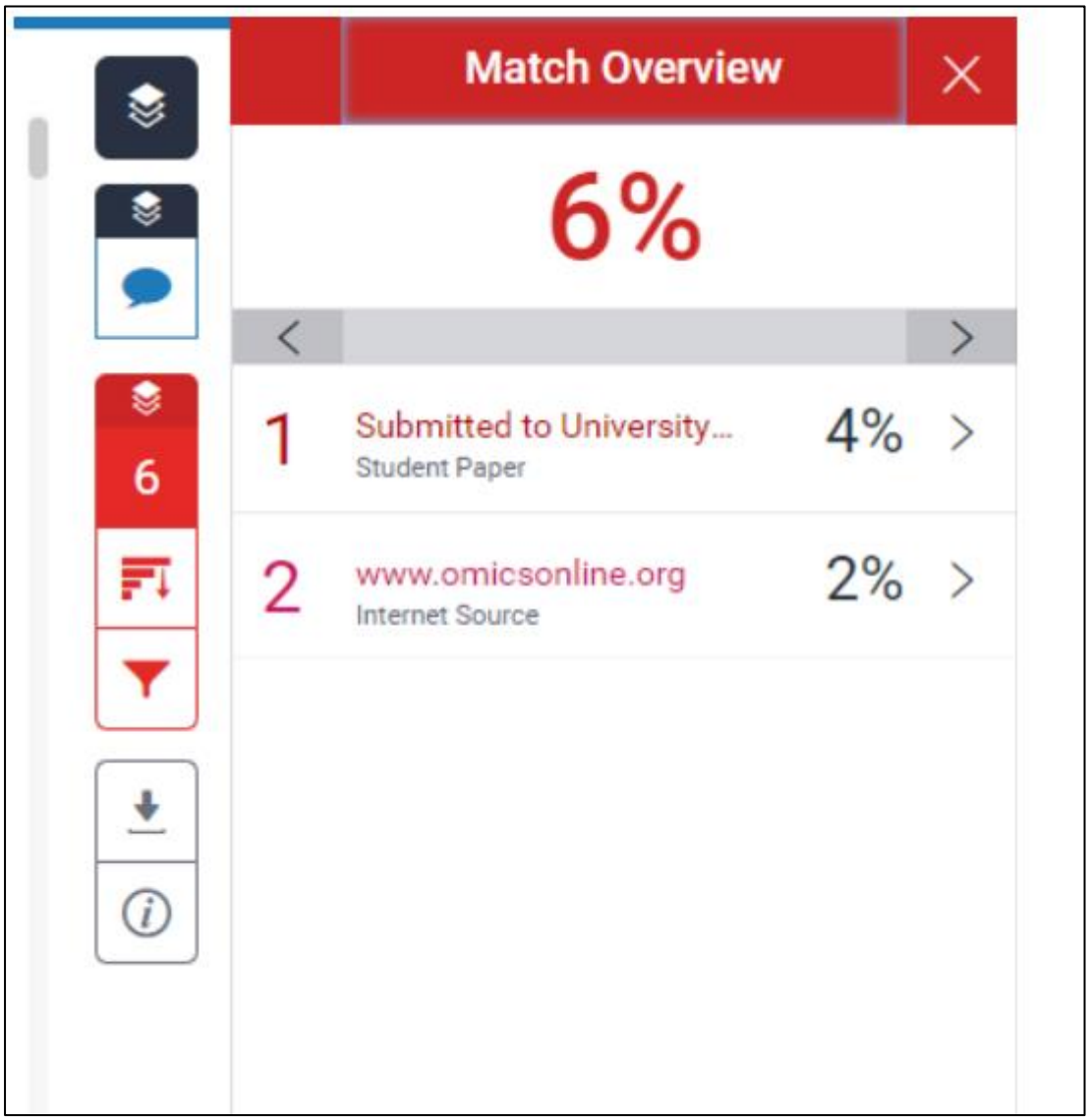
.....
Dr Thabe Madigoe
Clinical Head
Date: 21/6/17

Approved/Not Approved (pending Ethics approval)

.....
Dr Florence Otieno
CEO
Date: 22/6/17

No research to commence until Ethics approval is received by the hospital.

Appendix E: Turnitin Report



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