CONTRACEPTIVE USE AMONG FEMALE MENTAL HEALTH CARE USERS OF CHILDBEARING AGE ATTENDING CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL IN SOWETO

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Johannesburg, 11 December 2018

DECLARATION

I Lisa Galvin declare that this Research Report is my own, unaided work. It is being submitted for the Degree of Masters of Medicine in the branch of Psychiatry at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other University. _____ _____ (Signature of candidate)

_____11____day of___December__2018 in Johannesburg.

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ABSTRACT

Background: Women with mental illness are at increased risk of unplanned pregnancy and adverse pregnancy outcomes for themselves and their offspring.

Aim: This study described patterns of contraceptive use, family planning education and contraceptive preferences in female mental health care users of childbearing age at Chris Hani Baragwanath Academic Hospital (CHBAH), Soweto. The study also aimed to determine associations between demographic and clinical characteristics and contraceptive choices and to assess perceived barriers to contraception.

Methods: A convenience sample of 190 women aged 18-49 were recruited from outpatients and inpatients. A structured interview using a questionnaire was administered and diagnosis and treatment were obtained from patients' files.

Results: Consistent contraceptive use was 44.7%. Total contraceptive use was 60%. Family planning education had been done with 26.8% of participants. The commonest reason for not using contraception was not being in a relationship (21.6%). The commonest form of contraception was the male condom and 28.9% participants used barrier methods of contraception. Family planning education ($p=0.87$) and teratogen use ($p=0.56$) were not associated with contraceptive utilisation. Positive associations were found between contraceptive use and depression ($p=0.0068$); and between employment and family planning education ($p=0.015$)

Conclusion: Despite contraceptive use being similar to that of the general South African population, there were low levels of family planning education. Participants may be at risk of teratogen exposure during pregnancy. They may also be at risk of unplanned pregnancy and sexually transmitted infections due to inconsistent contraceptive use and low rates of barrier contraception use.

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LIST OF ABBREVIATIONS

AMC: Another Medical Condition

CHBAH: Chris Hani Baragwanath Academic Hospital

HIV: Human Immunodeficiency Virus

HLOE: Highest Level of Education

IQR: Interquartile Range

IUD: Intrauterine Contraceptive Device

JW: Jehovah's Witness

Trad. African: Traditional African

SSRI: Selective Serotonin Reuptake Inhibitor

SNRI: Serotonin Noradrenalin Reuptake Inhibitor

TCA: Tricyclic Antidepressant

CHAPTER 1: INTRODUCTION

1.1 LITERATURE REVIEW

1.1.1 Family Planning

"Family planning" is the planning of the number of children desired, the spacing between births and the process of deciding on methods of contraception to assist in this.[1, 2] Family planning should be accessible to all women, however for women with mental illness there is an added need for effective family planning services. The Maudsley Prescribing Guidelines recommend that all women with psychiatric illness be offered family planning advice.[3]

1.1.2 Need for Family Planning in Women with Mental Illness

Women with psychiatric illness receive inadequate support with family planning and reproductive health.[4,5] A systematic review of the literature on sexuality in mental health care users conducted in 2009 by Chris Quinn and Graeme Browne in Australia found that nurses did not assess sexuality adequately with mental health care users.[5] Similarly, systematic reviews of international literature conducted by Laura Miller in 1997 and Blegen; Hummelvoll and Severinsson in 2010 found that inadequate family planning and parenting support were prevalent in female mental health care users.[4,6]

South African literature reports almost a half to two thirds of pregnancies are unplanned.[7,8,9] The female psychiatric population has been shown to have higher rates of unplanned pregnancy than the general population and unplanned pregnancy is a risk factor for relapse of mental illness.[4,10,11] Women with mental illness may have increased risk of gender based violence and sexual coercion.[4,12] Women with mental illness are also at increased risk of contracting sexually transmitted infections including human immunodeficiency virus (HIV).[13] Family planning advice assists with contraceptive choice but also assists with screening and prevention of these risks.[7,8]

The consequences of unplanned pregnancy in mental health care users are extensive. Women with mental illness have higher rates of unemployment, poverty and weak social support.[4,10] Unplanned pregnancy is known to increase psychosocial stress.[8,14] There is an increased risk of suicidality, intimate partner violence and abortion in women with unplanned pregnancies.[8,12]

Mental illness contributes to maternal mortality and reduces quality of life in pregnant and post-partum women.[15,16] Women with mental illness are at an increased risk of relapse during pregnancy and the postpartum period due to psychosocial stress associated with pregnancy, physiological changes and abrupt discontinuation of medication.[3,11,12,14,17] There are also physiological changes in pregnancy which can affect medication levels.[18] Hormonal changes may influence mental illness.[16]

Parent-child attachment may be adversely affected by maternal psychiatric symptoms or because of side effects from medication such as reduced affect responsiveness and spontaneity.[4,19] Neglect, increased impulsivity, poor judgement and lack of obstetric care may result from mental illness in mothers and place their children at risk.[4] Maternal mental illness has been linked to infanticide.[20]

Not only is there direct risk to children due to untreated symptoms of mental illness, children born to mothers with severe mental illness have been shown to be at increased risk of mental illness and behavioural difficulties themselves.[21,22] Children born to mothers with severe mental illness may also have increased risk of childhood infections, prematurity and low birth weight.[21,22,23] Biochemical and physiological changes occur in infants born to mothers with depression including changes in cortisol levels and serotonin levels, potentially predisposing infants to low birth weight and prematurity.[23] These complications lead to increased risk of mental illness and lower educational attainment in children born to mothers with mental illness.[24,25,26]

The consequences of untreated mental illness and relapse of mental illness in mothers thus has a transgenerational effect, predisposing subsequent generations to mental illness and psychosocial adversity.[17,19] Family planning education assists mothers in planning when to have children and thus aids in reducing obstetric risk and risk of children being born to mothers who are psychiatrically unwell. Family planning education may thus reduce adverse

maternal and infant outcomes and result in reduced risk of mental illness in subsequent generations.

1.1.3 Teratogenicity and Postnatal Complications of Psychiatric Medication

The consequences of unplanned pregnancy and risk of relapse of mental illness on the well-being of women with mental illness and the wellbeing of their children is not the only reason why family planning education is needed in women with mental illness. A number of medications that are used in the management of psychiatric disorders are associated with teratogenic risk and adverse postnatal effects. It is therefore vital that family planning education be done with women taking psychiatric medication as there is a need for women to understand the risks of treating mental illness with medication balanced against the risks of not treating with medication.

According to the Medicines and Healthcare Products Regulatory Agency, Valproate must not be prescribed in women of childbearing age unless family planning education has been done and an annual signed acknowledgement of teratogenic risk has been completed as part of the valproate pregnancy prevention programme. [27,19] Valproate is contraindicated in pregnant women unless there is no alternative medication available to switch to. [18,28] International guidelines therefore highlight the need for family planning education and effective contraception in women with mental illness. [3,28,19]

Valproate; Lithium ;Carbamazepine and Phenytoin are known teratogens[28,19,29,30,31,32] Sodium Valproate is also associated with poor neurodevelopmental outcomes.[33] While Lamotrigine is safer in pregnancy than other antiepileptic and mood stabilizing agents, some literature describe an increased risk of cleft palate, gastrointestinal abnormalities and hypospadias with in utero Lamotrigine exposure.[20,22] Lithium and Carbamazepine have also been associated with perinatal complications such as hypoglycaemia and low one minute Apgar scores. [20,22]

Although generally considered safe in pregnancy, selective serotonin reuptake inhibitors (SSRIs) lack conclusive evidence of safety and congenital abnormalities such as persistent pulmonary hypertension of the new-born, cardiac abnormalities and hypospadias have been reported.[3,34,36,35] Paroxetine has an increased risk of cardiac abnormalities in infants exposed in utero compared to other SSRIs and is contraindicated in pregnancy.[35,36] Bupropion may be

associated with cardiac abnormalities however evidence is limited.[36] Bupropion is not recommended in pregnancy.[36] Monoamine oxidase inhibitors are associated with persistent pulmonary hypertension of the newborn and are not recommended n pregnant women.[36,37] There is conflicting evidence regarding the risk of pre-term birth in women using SSRIs and serotonin noradrenalin reuptake inhibitors (SNRIs).[35,38, 39] Some studies have reported higher rates of poor neonatal adaptation, lower Apgar scores and increased need for monitoring after delivery in infants exposed to SSRIs.[27, 40,41] A self-limiting neonatal behavioural adaptation syndrome has been documented in infants exposed to antidepressants including SSRIs, SNRI's and tricyclic antidepressants (TCAs).[25,28,36] In utero SSRI exposure has also been associated with postnatal complications resulting in longer hospital stays and neurodevelopmental abnormalities.[42, 43, 44]

The decision to treat depression in pregnancy pharmacologically is complex given that untreated depression carries significant risks to mother and infant, however medication is not without risks either. The risks and benefits of antidepressant use in pregnancy therefore have to be considered and discussed with patients. These risks vary on an individual level depending on multiple factors such severity of illness and risk of relapse and need to be evaluated on an individual level.[36]

There is no clear evidence that either first or second generation antipsychotics are teratogenic however antipsychotic use has been linked to increased risk of perinatal complications.[3,4,20,36,41,45] Perinatal complications due to antipsychotic use include neonatal seizures, respiratory distress, hypotonia, difficulty feeding, jitteriness, self-limiting extrapyramidal side effects in the neonate and transient neurodevelopmental delay.[3,4,20] The literature reports altered stress responses, altered pain regulation, delays in psychomotor development and poorer social and adaptive behaviour in children exposed to antipsychotics in utero.[46]

Women exposed to second generation antipsychotics in particular during pregnancy may have increased risk of obesity and gestational diabetes.[3,47] Second generation antipsychotic use in pregnancy has been associated with both low and increased birth weight along with fetal macrosomia.[3,47] Although clozapine may induce agranulocytosis in the infant, the risk of relapse in treatment resistant mental illness may necessitate the use of clozapine.[36] Clozapine is not contraindicated in pregnancy.[36] First generation antipsychotics are less likely to cause

maternal obesity and weight gain however they may be more likely to cause extrapyramidal side effects in infants.[36]

1.1.4 Prevalence of Contraceptive Use, Family Planning Education and Awareness among Mental Health Care Users

Despite the recognised risk associated with unplanned pregnancy in female mental health care users, there is a paucity of literature examining family planning and contraceptive use in this population. A dissertation by Gitari conducted in 2015 examined contraceptive knowledge and contraceptive use in 306 women with mental illness aged 18-49 years attending Mathari psychiatric outpatient services in Kenya.[48] Psychotic disorders, mood disorders with psychosis and major depressive disorders constituted over 90% of the diagnoses.[48] Current contraceptive utilization was 42.2% and previous contraceptive utilization was 53.6%.[48] The prevalence of contraceptive use in female Kenyan mental health care users was comparable with the Kenyan general population. [48]

A Nigerian study by Tunde-Ayinmode published in 2013 examined contraceptive use and awareness in 100 female mental health care users attending outpatient psychiatric services by administering a semi-structured questionnaire.[49] Despite 88% of female mental health care users knowing at least one method of contraception, only 27% used contraception and 5% had received family planning advice from the clinic.[49] This study did not specify consistency of contraceptive use.[49]

Bursalioglu conducted a structured interview in 2013 of randomly sampled female inpatients aged 15-49 in Turkey over one year with a diagnosis of schizophrenia, bipolar affective disorder and depressive disorder. [10] Patients with schizophrenia and bipolar affective disorder were less likely to use contraception and the group with depression were the most likely to use contraception. [10] Prevalence of reliable contraception was as follows: 29.4% of patients with schizophrenia; 44.44% of patients with bipolar affective disorder and 44.29% of patients with depression used reliable contraception compared to 40% of the control group.[10] The control group and schizophrenic group were more likely to use contraception inconsistently. [10]

A similar study was conducted in Turkey, where fifty schizophrenic, fifty bipolar, fifty unipolar depressive and fifty control patients completed a semi-structured interview to assess

contraceptive needs, use and sociodemographic characteristics. [50] The study found that 60.5% of patients with bipolar affective disorder, 75.5% of patients with depression and 68.6% of patients with schizophrenia reported contraceptive use during last intercourse compared with 81.4% of the control group.[50] There were low rates of counselling by the psychiatrist on contraception in all patient groups with 88.1% of patients not having been counselled.[50]Contraceptive awareness was lower in patients with schizophrenia than other groups and comparable between the unipolar depression and control groups however no mention was made of the group with bipolar affective disorder. [50]

While the above studies were from low and middle income countries, low rates of family planning education have also been noted in women with mental illness from high income countries. Langan, Perry and Oto also found low rates of contraceptive advice in women of childbearing age prescribed mood stabilizers for treatment of mental illness in a retrospective analysis of all secondary care psychiatric contacts in NHS Lanarkshire in Scotland, 2013. [51] Low rate of contraceptive counselling was defined as less than 50%.[51] They reported rates of counselling of 17% for women taking carbemazepine, 13% for valproate and 0% for topiramate and lamotrigine. [51]Teratogenic risk was discussed in 40% of women taking carbemazepine, 22% of women taking valproate and 0% in women taking topiramate and lamotrigine. [51]Not all women who had had teratogenic risk discussed had had contraception issues discussed, and not all women who had had contraception issues discussed had had counselling on teratogenic risk. [51]

There were low rates of contraceptive counselling in the study by Gitari conducted in 2015 in Kenyan women with mental illness, with 65.7% of women having received no family planning counselling over the previous year.[48] Knowledge of contraception was high, with 99% of patients knowing at least one method of contraception.[48] Having been counselled on family planning was associated with contraceptive use however contraceptive advice given was often incomplete and women were not always told about alternative methods available or side effects.[48]

1.1.5 Prevalence of Contraceptive Use and Family Planning Education in the General South African Population

There is no literature examining contraceptive prevalence in South African female mental health care users, however contraceptive prevalence in the general population has been studied. The South African Demographic and Health Survey 2016 (SADHS 2016) was a national survey making use of face-to-face interviews. SADHS 2016 reported that 58.3% of women who were married or unmarried but sexually active currently used contraception.[2] A study conducted in 2010 at the Perinatal HIV Research Unit in Soweto by Kaida *et al.* found contraceptive prevalence rates of 69% in HIV negative women, 89% in the HIV positive women on antiretrovirals, and 82% in HIV positive women not on antiretrovirals.[52] Kaida *el al.* defined contraceptive use as reliable contraceptive use over the last six month period.[52] In Cape Town, contraceptive prevalence ranged between 44.9% and 89%.[7,9,53] Lower rates of contraception were found where access to contraception was more difficult, such as in rural areas.[53] There is inconsistency in the literature regarding the definition of contraceptive use, with definitions varying from point prevalence to prevalence over the past year as well as varying in reporting on consistency of use. [7,9, 52]

1.1.6 Association between Demographic Characteristics and Contraceptive Use

Bursalioglu conducted a Turkish study which examined employment, family and marriage characteristics and family planning behaviour and opinions in women with mental illness. Women with mental illness had higher rates of unemployment.[10] Demographic details were not assessed specifically relating to contraceptive use despite being reported on in this study.[10] Gitari examined contraceptive use, counselling and awareness in female mental health care users in Kenya in 2015.[48] Having a higher education level and having received family planning advice was associated with contraceptive knowledge.[48] Marital status and employment were associated with contraceptive use. [48] There was no association between religion; future pregnancy intent; previous adverse pregnancy outcomes or number of children and contraceptive utilisation.[48] Peer and Morojele in 2013 in the Western Cape reported that being single was associated with contraceptive non-use compared to being married/co-habiting in a rural setting.[53]

1.1.7 Patterns of Contraceptive Use

Hormonal contraception was the most popular form of contraception in Kenyan mental health care users in the study conducted by Gitari, with injectable methods being first choice, implant hormonal contraception being second choice and oral hormonal contraception being third choice.[48] It was also found that only 2.6% of the sample used male condoms.[48]
In Nigerian women with mental illness attending outpatient follow up, Tunde-Ayinmode reported that condom use was the most popular form of contraception (37% of the sample) followed by injectable contraception (10%) and oral hormonal contraception (6%).[49]

In the general South African population, the SADHS (2016) reported that injectable hormonal contraception was the most popular choice of contraception (25%), followed by male condoms (15%), oral contraception (7%) and female sterilization (6%).[2] Traditional methods such as coitus interruptus were the least popular, with less than 1% of women choosing them.[2] Contraceptive preference was similar between married and unmarried women however more unmarried women used male condoms.[2]

The majority of women in the studies by Credé *et al.* and Iyun *et al.* in the Western Cape used injectable hormonal contraception.[5,7] Iyun *et al.* reported 36% of women used injectable contraception and 30% used condoms, with sterilisation, oral hormonal contraception and IUDs being the least popular choices of contraception.[7] Credé *et al.* reported that over 90% of women used injectable contraception in both the HIV positive and negative groups and condoms were used by 2.5% of HIV negative women and 5.5% of HIV positive women.[5] Female sterilization was used by 7.1% of HIV positive women and 5.8% of HIV negative women in the study by Credé *et al.*[5] Oral hormonal contraception was used by 2.5% of HIV negative women and 0.8% of HIV positive women.[5] Effectiveness in preventing pregnancy, convenience, side effect profile and health care provider recommendation were the commonest factors influencing contraceptive choice.[5]

1.1.8 Barriers to Contraception

Wood and Jewkes interviewed South African adolescents in Limpopo in 2006 to assess reasons for not accessing contraception.[54] They reported that nurses would scold them for

contraceptive choices they made or for not abstaining from sexual intercourse.[54] They also reported pressure to prove that they were fertile from their family and partners.[54] Partners refused to allow them to use contraception and some experienced intimate partner violence because of contraceptive use. [54] They were also afraid that they would become infertile if they used contraception. [54] There was a lack of medical knowledge about reproduction and contraception among patients. [39]

Haider and Sharma conducted a systematic review of the literature on barriers to family planning and contraception in Sub-Saharan Africa and found similar barriers to those found by Wood and Jewkes.' [54,55] Additionally, limited access to contraception was noted due to financial and geographic constraints.[55]

Another systematic review of qualitative research on barriers to contraceptive use reported themes of lack of access to family planning; lack of knowledge; fear of infertility and need to prove fertility; partner coercion and concerns over side effects of contraception.[56] The bulk of the literature was obtained from African countries however one study was Vietnamese.[56]

1.1.9 Summary of Literature Review

The need for family planning services in the female psychiatric population is evident and yet there is a lack of literature examining how frequently family planning is done with female mental health care users of childbearing age in South Africa. The prevalence of contraceptive use, contraceptive preferences and barriers to accessing contraception experienced by female mental health care users in South Africa are unknown.

It is therefore important to assess whether family planning is being done and to assess contraceptive prevalence and choice in the female psychiatric population in a South African context. Family planning needs in female mental health care users of childbearing age can only be identified and met once this information has been obtained.

1.2. AIM OF THE STUDY

To describe patterns of family planning education, contraceptive use and preferences as well as barriers to contraception in female mental health care users who utilized Chris Hani Baragwanath Academic Hospital (CHBAH) psychiatric services.

1.3 OBJECTIVES OF THE STUDY

1. To describe patterns of regular contraceptive use in women of childbearing age making use of CHBAH inpatient and outpatient services.
2.To compare demographic factors and clinical characteristics between female psychiatric patients of childbearing age attending CHBAH on contraceptives and those not on contraceptives.
3. To determine the association, if any, between demographic and clinical characteristics, and the choice of specific contraceptives in female psychiatric patients who are using contraceptives.
4. To assess perceived barriers to contraception in female mental health care users of child bearing age making use of CHBAH inpatient and outpatient services**.**
5. To determine family planning education exposures in female psychiatric patients of childbearing age attending CHBAH.
6. To determine the association, if any, between demographic and clinical characteristics and having received family planning education in female patients of childbearing age attending CHBAH psychiatric services.

CHAPTER 2: MATERIALS AND METHODS

2.1. STUDY DESIGN AND SETTING

This was a quantitative cross-sectional study which made use of a structured questionnaire which was administered by the researcher. A convenience sample of 190 participants was obtained. Female adult psychiatric patients of childbearing age at CHBAH were invited to participate. Participants were recruited from the CHBAH Psychiatric Outpatient Clinic and from inpatients in the psychiatric wards. CHBAH is a tertiary level hospital with two female inpatient wards, each housing approximately 36 female patients. There is also a psychiatry outpatient clinic which operates daily.

CHBAH services the Southern Metro District Johannesburg area in the province of Gauteng, South Africa. The bulk of patients seen at CHBAH psychiatry department are African patients and there is a mixture of urban and rural dwelling patients. Data was collected from 3 October 2016 until 28 April 2017.

2.2 SAMPLE SIZE

Sample size estimation was based on the estimation of the percentage of women who use contraceptives. Kaida *et al*[52] reported contraceptive rates of 69% in South African HIV negative women; the SADHS (2016) [2] reported contraceptive rates of 58.3% and international literature[35] reported contraceptive rates between 60.5% and 75.5% depending on psychiatric diagnosis. Based on these studies, an estimated contraceptive use of 60% was used to calculate sample size. Using an estimated contraceptive use prevalence of 60% with precision levels set at 7% and the 95% confidence interval, an estimated sample size of 190 was required. Sample size for prevalence was calculated using the formula: [57]

$$n = \frac{Z^2 P(1-P)}{d^2}$$

where n = sample size,

Z = Z-statistic for the chosen level of confidence,

P = expected prevalence or proportion

d = precision

2.3 DATA COLLECTION

The questionnaire was administered by the researcher. The participant was given a copy of the questionnaire and the researcher read out questions and explained further as needed in order to assist the participant in answering the questionnaire. Copies of the questionnaire, consent and distress protocol were available in English and Zulu as it was anticipated that the majority of participants would be able to communicate using these two languages. These documents were translated into Zulu and back into English to ensure translation accuracy. A pilot study with ten participants was conducted and adjustments were made to the questionnaire after the pilot study. (Appendix C)

The questionnaire was formulated by the researcher based on demographic characteristics noted to be relevant to contraceptive preferences in the literature review.[48,49] Contraceptive use and choice of contraceptive was asked. Contraceptive use was defined as current use. Barriers to contraception experienced were based on those noted the literature review as discussed above.[53-55] When an answer to a question was not listed on the questionnaire, space was provided next to the option "other" on the questionnaire for further answers. Participants were asked whether they had ever received family planning by a mental health care provider and, if so, when this had occurred. Participants were also asked if they were post-menopausal. (Appendix C)

Diagnosis was obtained from the patient file in order obtain the working diagnosis according to the DSM-V diagnostic criteria. Current medication was also obtained from the patient file. Diagnoses were grouped for statistical analysis according to the cluster they belonged to according to the DSM-V. Medication was grouped according to the medication class that they belonged to and whether or not they were known teratogens according to the South African Medicines Formulary, 11th edition.[58] Diagnosis and medication were recorded on the back of the questionnaire after completion.

Patient confidentiality was maintained by the researcher by ensuring that there was no personal information that could be used to identify participants in the data collection sheets. Participants were interviewed in private in an adjoining room in the clinic and ward where other participants and staff were unable to hear the patient's response to questions. A uniform

sticker was placed on the front page of every patient's outpatient file and in the ward file in order to ensure duplication of participants in data collection did not occur. The sticker was placed regardless of whether the patient participated, was excluded from the study or refused to participate.

2.4 OPERATIONAL DEFINITIONS

- Contraception: Use of a method of pregnancy prevention.
- Family planning education: Any form of family planning discussion rather than exclusively regarding contraception or possible teratogenicity of medication. Family planning education in this study specifically examined family planning education provided by a mental health care service provider, such as a psychiatrist or psychiatric nurse.
- Child bearing age: 18-49 years of age.[10,48,49]
- Consistent contraception use: Contraceptive use during every instance of sexual intercourse. Consistent contraception use was defined as current use of contraception at time of interview.
- Extrinsic hormonal contraception: Contraception that prevents pregnancy through changes in the endocrine system, divided into depot and oral hormonal contraception.[59] Hormonal contraception was defined as only depot and oral contraception where exogenous hormones were used to prevent pregnancy. Hormonal contraception did not include endogenous hormonal changes such as occurring during the menstrual cycle naturally (rhythm method) nor did it include hormonal changes caused by breastfeeding. Emergency oral contraception was not included in hormonal contraceptives because it is not recommended for regular contraception.[60]
- Non-hormonal contraception: Includes permanent methods (such as surgical sterilisation by means of tubal ligation or hysterectomy), barrier methods, natural methods which relied on the natural hormonal changes within the body (such as the rhythm method and breast feeding) as well as natural methods such as coitus interruptus[58,59]Intrauterine contraceptive devices (IUDs) were grouped with non-hormonal contraception because participants were unable to specify which form they were using and copper IUDs are more commonly used than hormonal IUD's. [58]

- Barrier method: Contraception whereby pregnancy is prevented by means of a physical barrier such a male condom, female condom or diaphragm. Barrier methods also included spermicidal methods whereby a substance with sperm-killing properties is inserted into the vagina. [57]
- Natural methods: Contraceptive methods such as coitus interruptus (withdrawal method) and rhythm method. [57] Breast feeding was also included.
- Teratogenic medication: Defined in this study as a medication known to cause congenital malformations in the fetus. Teratogenic medications were defined as those medications classified as category D or X according to the South African Medicines Formulary.[58] Teratogenic medications included lithium; carbamazepine; valproate and paroxetine.

2.5 INCLUSION CRITERIA

Female inpatients and outpatients between the ages of 18 and 49 years making use of CHBAH psychiatric services who were conversant in English and/or Zulu were included.

2.6 EXCLUSION CRITERIA

As the study only examined women of childbearing age, women were excluded if they were post-menopausal even if they were less than 49 years old. Patients currently exhibiting psychotic, significant mood symptoms, significant cognitive deficits or other symptoms rendering them unfit to give informed consent were excluded.

2.7 DATA ANALYSIS

Descriptive analysis of the data was carried out as follows: Categorical variables were summarised by frequency and percentage tabulation. Continuous variables were summarised by the mean, standard deviation, median and interquartile range.

The association between categorical demographic, diagnosis data and in/out-patient status, presence/absence of regular contraceptive use and presence/absence of family planning education was determined using the X^2 test. Fisher's exact test was used for 2 x 2 tables or

when the requirements for the X^2 test could not be met. The associations between HIV status and condom use/barrier contraception were determined in the same way.

The relationship between age and in/out-patient status, presence/absence of regular contraceptive use and presence/absence of family planning education were assessed using the Wilcoxon Rank Sum test.

Data analysis was carried out using SAS version 9.4 for Windows. The 5% significance level was used.

2.8 ETHICAL CONSIDERATIONS

Informed consent was obtained from participants by the researcher. Participants were given a written copy of the participant information sheet in both English and isiZulu and this was also verbally administered and opportunity given to ask questions about the study. Participants were reassured that there were no negative consequences should they elect not to participate. They were reassured that they were able to refuse to answer any questions they were not comfortable answering without any negative consequences. Informed consent included both consenting to answer the questionnaire and consenting to the interviewer collecting data by accessing their file to confirm diagnosis and medication. Verbal consent was obtained as written signatures would have identified which patients had participated and which had not and would have negatively impacted on patient confidentiality and possibly have been perceived as threatening by participants.

Ethical clearance was obtained from the Human Research Ethics Committee of the University of the Witwatersrand. Approval was also obtained from the CHBAH psychiatry department. There was a distress protocol in place, should a participant report intimate partner violence or other forms of abuse, whereby participants could access assistance. There was a referral system for participants requiring more information on family planning.

2.9 COMPENSATION

There was no compensation for time used to participate in this study.

CHAPTER 3: RESULTS

3.1 COMPOSITION OF STUDY GROUP

A total of 324 patients was screened until the sample size of 190 was obtained (Figure 3.1).

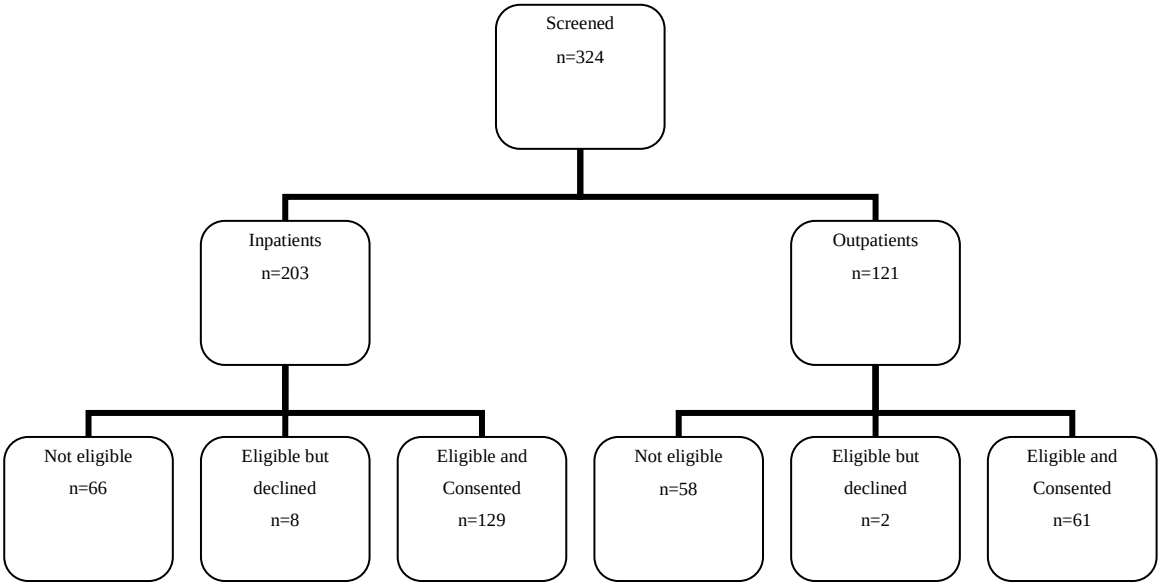

Figure 3.1: Screening of Patients for Inclusion in Study

The median age of the total sample was 31 years (IQR: 26-39; range 18-49). The mean age of the total sample was 32 years of age. Two thirds of participants were single (66.3%, n=126) and 44.2% (n=84) were sexually active. Of the participants, 42.6% (n=81) planned to have children in the future. Most participants (48.9%, n=93) had not completed high school, with 28.9% (n=55) having attained matric and 22% (n=42) having attained a tertiary education. Only 17.9% (n=34) of participants were employed. Most participants were Christian (77.4%, n=147) (Table 3.1). There were no significant differences in demographic characteristics between inpatients and outpatients.

The commonest diagnoses were bipolar affective disorder (49.5%, n=94); depression (30.2%, n=57) and psychotic disorders (23.2%, n=44). The commonest medication classes were antipsychotics (71.4%, n=135) followed by mood stabilizers (45.5%, n=86) and antidepressants (36%, n=68) (Table 3.2). There was missing data for one patient regarding diagnosis and medication however no other data was missing. This missing data was due to one participant's diagnosis and medication erroneously not being recorded after completion of

the questionnaire. When only one participant had a particular diagnosis, the diagnosis was grouped under “other”. There were two such participants; one had an eating disorder and the other had a sleep disorder.

3.2 CONTRACEPTIVE USE

A total of 85 participants (44.7% of the total sample) used contraception consistently and 114 (60.0% of the total sample) used contraception either always or sometimes. Of the 114 participants using contraception, 20 women used more than one form of contraception.

3.2.1 Association between Demographic Characteristics and Contraceptive Use

With the exception of relationship status (as discussed below), there were no significant differences in the demographic characteristics of the women using contraception consistently and those not using contraception consistently. (Table 3.1) There was no significant difference in contraceptive uptake between inpatients (40.3% used contraception consistently and 16.3% used contraception inconsistently) and outpatients (54.1% used contraception consistently and 13.1% used contraception inconsistently) (Fisher’s exact test, p=0.20).

Table 3.1 Comparison of Demographic Characteristics Between Participants Using Contraception Consistently and Participants Not Using Contraception Consistently.

		Total (n=190)	**%**	**Consistent contraception (n= 85)**	**%**	**No consistent contraception (n=105)**	**%**	***p*-value**
Age median (IQR) Range		31 (26-39) 18-49		31 (27-38) 18-49		31 (26-39) 19-49		0.62[a]
Relationship status	Single	126	66.3	49	57.5	77	73.3	0.030*
Employed	Employed Unemployed Student	34 150 6	17.9 78.9 3.2	14 67 4	16.5 78.8 4.7	20 83 2	19.0 79.0 1.9	0.58
HLOE (grouped)	Primary/high matric tertiary	93 55 42	48.9 28.9 22.0	43 23 19	50.6 30.5 21.9	50 32 23	47.6 30.5 21.9	0.87
Religion	Christian Trad. African Muslim None JW Buddhist Unsure	147 22 10 8 1 1 1	77.4 11.6 5.3 4.2 0.5 0.5 0.5	72 6 5 2 0 0 0	84.7 7.1 5.9 2.4 0.0 0.0 0.0	75 16 5 6 1 1 1	71.4 15.2 4.8 5.7 1.0 1.0 1.0	0.068[b] - - - - -
Future Children	Yes No Unsure	81 103 6	42.6 54.2 3.2	31 53 1	36.5 62.4 1.2	50	47.6 47.6 4.8	0.089
Family planning advice given (yes)		51	26.8	22	25.9	29	27.6	0.87
Sexually active (yes)		84	44.2	43	50.6	41	39.0	0.14

p value calculated using Fisher's exact test unless otherwise stated; a= Wilcoxon rank sum test; JW= Jehovah's Witness; Trad. African= Traditional African; HLOE=Highest Level of Education;* = statistically significant; [b] = size of group too small to perform statistical analysis (*p* value only calculated between Christian and Traditional African group)

Only 33.7% (n=64) of the total sample were in a relationship. There was a significant association between relationship status and consistent contraceptive use (Fisher's exact test, p=0.030). In the group of participants using consistent contraception, 57.5% (n=49) were single. In the group of participants not using consistent contraception, 73.3% (n=77) were single. Consistent contraception was used by 51.2 % of sexually active participants (43 of the 84 sexually active participants). Being single did not equate to sexual abstinence as there were 64 women who were in a relationship yet 84 women were sexually active (Table 3.1). Being sexually active was not significantly associated with consistent contraceptive usage (Fisher's exact test, p=0.14). (Table 3.1).

3.2.2. Association between Clinical Characteristics and Contraceptive Use

Diagnosis

There were no significant associations between psychiatric diagnosis and consistent contraceptive use with the exception of the diagnosis of having a depressive disorder. There was a significant association between consistent contraception use and having a depressive disorder. Of the participants using consistent contraception, 40.5% (n=34) of women had a depressive disorder compared to 21.9% of women who did not use consistent contraception (n=23) (Fisher's test, p=0.0068).

There was no significant association between known HIV positive status and consistent contraception use, with 21.2% of women using consistent contraception being known to be HIV infected (n=20) compared to 19% (n=20) of women not using consistent contraception who were known to be HIV infected (Fisher's exact test, p=0.48). (Table 3.2)

Medication

There was no significant association between psychiatric medication used and consistent contraception use. (Table 3.2) Teratogen use did not influence whether or not women used consistent contraception. Results showed that 39.3% of women on consistent contraception (n=33) used a teratogenic medication while 43.8% of women not using consistent contraception (n=46) used a teratogenic medication. (Fisher's exact test, p=0.56). (Table 3.2)

Table 3.2 Comparison of Clinical Characteristic Between Participants Using Contraception Consistently and Participants Not Using Contraception Consistently.

		Total (n=189)	**%**	**Consistent contraception (n= 84)**	**%**	**No consistent contraception (n=105)**	**%**	**P-value**
Diagnosis								
	Bipolar	94	49.5	36	42.9	58	55.2	0.110
	Depressive	57	30.2	34	40.5	23	21.9	0.0068*
	Psychotic	44	23.3	19	22.6	25	23.8	0.86
	AMC	28	14.8	11	13.1	17	16.2	0.68
	Personality	25	13.2	13	15.5	12	11.4	0.52
	Substance	17	9.0	6	7.1	11	10.5	0.46
	Cognitive	8	4.2	5	6.0	3	2.9	-
	Somatic	4	2.1	3	3.6	1	1.0	-
	Trauma	2	1.1	2	2.4	0	0.0	-
	Anxiety	2	1.1	2	2.4	0	0.0	-
	Other specified	2	1.1	2	2.4	0	0.0	-
Medication								
	Antipsychotic	135	71.4	58	69.0	77	73.3	0.52
	Mood Stabilizer	86	45.5	37	44.0	49	46.7	0.77
	Antidepressant	68	36.0	35	41.7	33	31.4	0.17
	Benzodiazepine	54	28.6	22	26.2	32	30.5	0.63
	Other[c]	2	1.1	1	1.2	1	1	-
Teratogen (yes)		79	41.8	33	39.3	46	43.8	0.56
Known HIV (yes)		40	21.2	20	23.8	20	19.0	0.48

p value calculated using Fishers exact test unless otherwise stated; c= Other medication used for the management of psychiatric illness (excludes medication for non-psychiatric conditions); AMC= Another Medical Condition; * = statistically significant; - = size of group too small to perform statistical analysis

There were 86 women using mood stabilizers. Of these women, 68 used valproate; 14 used lamotrigine; 10 used lithium and 3 used carbamazepine. Consistent contraception was used by 41.2% (n=28) of women using valproate; 64.3% (n=9) of women using lamotrigine; 40% (n=4) of women using lithium and no women using carbamazepine used contraception.

3.3 FAMILY PLANNING EDUCATION

Of the 190 participants, 26.8% (n=51) had received family planning education (Table 3.1 and Table 3.3). Of the 51 participants who had received family planning education, 43.1% (n=22) used contraception consistently, 23.5% (n=12) used contraception sometimes and 33.3% (n=17) never used any form of contraception. Of the 139 participants who had never received family planning education; 45.3% (n=63) always used contraception, 12.2% (n=17) sometimes used contraception and 42.4% (n=59) never used any form of contraception (Table 3.3).

Receiving family planning education was not significantly associated with increased utilisation of consistent contraception as 43.1% of women (n=21) who had received family planning education used consistent contraception compared to 45.3% (n=63) of women who had not received family planning education (Fisher's exact test, p=0.15).

3.3.1 Association between Demographic Characteristics and Exposure to Family Planning Education

There was a significant association between receiving family planning education and employment status (Fisher's exact test, p=0.015). In the group of participants who had received family planning education, 31.4% were employed (n=16); 66.7% were unemployed (n=34) and there was one student (2%). In contrast, in the group who had not received family planning education, 12.9% (n=18) were employed; 83.5% (n=116) were unemployed and 12.6% (n=5) were students. There were no differences in other demographic characteristics between the group who had received family planning education and those who had not (Table 3.3). There was no significant difference in family planning education rates between inpatients (22.5% had received planning education) and outpatients (37.7% had received family planning education) (Fisher's exact test, p=0.055).

Table 3.3 Comparison of Demographic Characteristics between Participants Who Had Received Family Planning Education and Participants Who Had Not Received Family Planning Education.

		Total (n=190)	**%**	**Family Planning Education (n= 51)**	**%**	**No Family Planning Education (n=139)**	**%**	**P-value**
Age median (IQR) Range		31 (26-39) 18-49		31 (27-35) 20-49		31 (26-40)18-49		0.59 [a]
Relationship status	Single	126	66.3	37	72.5	89	64.0	0.30
Employed								
	Employed	34	17.9	16	31.4	18	12.9	0.015
	Unemployed	150	78.9	34	66.7	116	83.5	
	Student	6	3.2	1	2	5	12.6	
HLOE (grouped)	Primary/high	93	48.9	23	45.1	70	50.4	0.70
	matric	55	28.9	17	33.3	38	38	
	tertiary	42	22	11	21.6	31	31	
Religion								
	Christian	147	77.4	45	88.2	102	73.4	0.068[b]
	Trad. African	22	11.6	3	5.9	19	13.7	
	Muslim	10	5.3	2	3.9	8	5.8	-
	None	8	4.2	1	2.0	7	5.0	-
	JW	1	0.5	0	0.0	1	0.7	-
	Buddhist	1	0.5	0	0.0	1	0.7	-
	Unsure	1	0.5	0	0.0	1	0.7	-
Future Children	Yes	81	42.6	20	39.2	61	43.9	0.71
	No	103	54.2	30	58.2	73	52.5	
	Unsure	6	3.2	1	2.0	5	3.6	
Sexually active (yes)		84	44.2	27	52.9	57	41.0	0.19
Contraception								
	Always	85	44.8	22	43.1	63	45.3	0.15
	Sometimes	29	15.3	12	23.5	17	12.2	
	Never	76	40.0	17	33.3	59	42.4	

p value calculated using Fisher's test unless otherwise stated; a= Wilcoxon rank sum test,* = statistically significant; HLOE= Highest Level of Education; [b] = size of group too small to perform statistical analysis (*p* value only calculated between Christian and Traditional African group)

3.3.2 Association between Clinical Characteristics and Exposure to Family Planning Education

Diagnosis

There were no significant differences in psychiatric diagnoses between the group who had received family planning education and those who had not. (Table 3.4) Results showed that 20.0% (n=10) of women who had received family planning education were HIV positive while 21.6% (n=30) of women who had not received family planning education were HIV positive (Fisher's exact test, $p>0.99$) (Table 3.3).

Medication

There was no significant association between medication and family planning education having been given (Table 3.4). Of the 189 women whose diagnosis and medication were known, 41.8% (n=79) used a teratogen. Results showed that 44% (n=22) of women who had received family planning advice were using teratogenic medication while 41% of women who had not received family planning advice used teratogenic medication (n=57). There was no association between teratogen use and family planning education having been done (Fisher's exact test, $p=0.74$). (Table 3.4)

Family planning education had been given to 28.0% (n=19) of women using valproate; 35.7% (n=5) of women using lamotrigine; 30% (n=3) of women using lithium and none of the women using carbamazepine.

Table 3.4 Comparison of Clinical Characteristics between Participants Who Had Received Family Planning Education and Participants Who Had Not Received Family Planning Education.

		Total (n=189)	**%**	**Family Planning Education (n= 50)**	**%**	**No Family Planning Education (n=139)**	**%**	**P-value**
Diagnosis								
	Bipolar	94	49.5	28	56.0	66	47.5	0.33
	Depressive	57	30.2	15	30.0	42	30.2	>0.99
	Psychotic	44	23.3	7	14.0	37	26.6	0.081
	AMC	28	14.8	8	16.0	20	14.4	0.82
	Personality	25	13.2	6	12.0	19	13.7	>0.99
	Substance	17	9.0	3	6.0	14	10.1	0.57
	Cognitive	8	4.2	1	2.0	7	5.0	-
	Somatic	4	2.1	2	4.0	2	1.4	-
	Trauma	2	1.1	2	4.0	0	0.0	-
	Anxiety	2	1.1	0	0.0	2	1.4	-
	Other specified	2	1.1	0	0.0	2	1.4	-
Medication								
	Antipsychotic	135	71.4	33	66.0	102	73.4	0.36
	Mood Stabilizer	86	45.5	26	52.0	60	43.2	0.32
	Antidepressant	68	36.0	18	36.0	50	36.0	>0.99
	Benzodiazepine	54	28.6	10	20.0	44	31.7	0.15
	Other[c]	2	1.1	0	0.0	2	1.4	-
Teratogen (yes)		79	41.8	22	44.0	57	41.0	0.74 [b]
Known HIV (yes)		40	21.2	10	20.0	30	21.6	>0.99 [b]

p value calculated using Fisher's exact test unless otherwise stated; c= Other medication used for the management of psychiatric illness (excludes medication for non-psychiatric conditions)AMC= Another Medical Condition;- = size of group too small to perform statistical analysis

3.4 CONTRACEPTIVE PREFERENCE

The male condom was the most popular choice of contraceptive (n = 51; 26.8% of the total sample), followed by depot contraception (n= 39; 20.5% of the total sample) and permanent methods (n=15; 7.9% of the total sample). The least popular choices were coitus interruptus (n=1; 0.5% of the total sample) and implant hormonal contraception (n=2; 1.1% of the total sample). Barrier methods were used by 28.9% of the total sample (n=55). No participants used spermicides or the rhythm method. Four women chose the category "other". Of these, two women used breastfeeding as a means of contraception, one used the "morning after" emergency contraceptive pill and one preferred not to elaborate on which "other" method she used. As has been discussed, the emergency oral contraceptive pill is not recommended as a form of routine contraception and was therefore not classified with hormonal contraceptive methods.[57] (Figure 3.2)

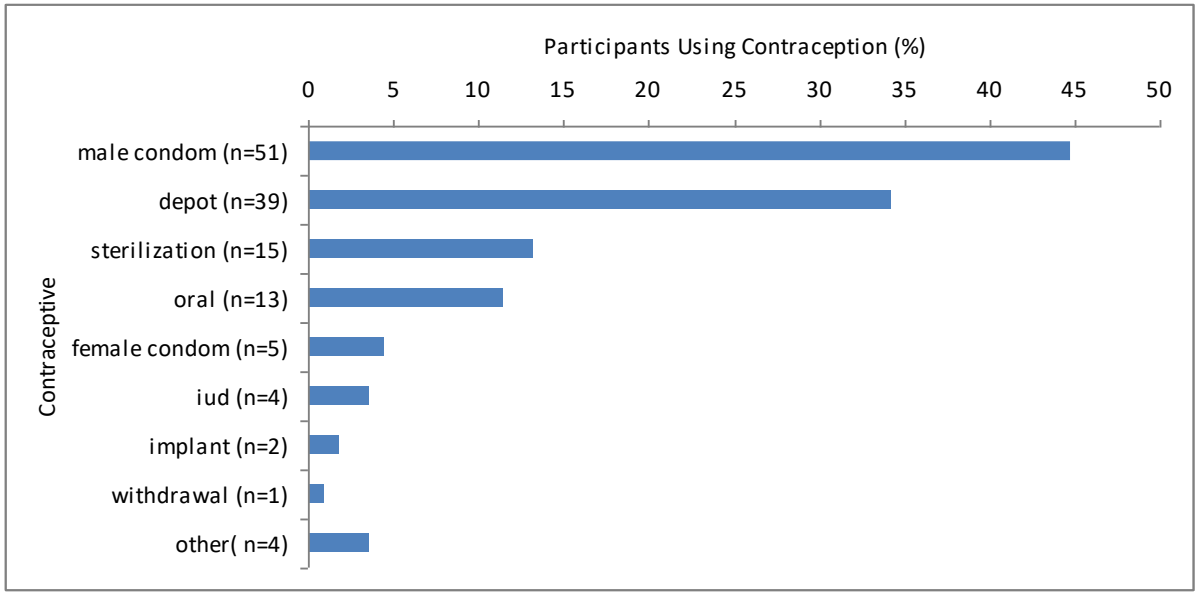

Figure 3.2 Individual Methods of Contraception Displayed as a Percentage of Total Number of Participants Using Contraception (n=114).

3.4.1 Exogenous Hormonal Contraception

Exogenous hormonal contraception was used by 27.9% (n=53) of the total study group. Exogenous hormonal contraception was used by 45.6% of participants using contraception.

3.4.2 Non-Hormonal Contraception

Non-hormonal contraception was used by 38.9% (n=74) of the total study population. This equated to 64.9% of the participants using contraception. The percentages of non-hormonal and exogenous hormonal contraceptive use do not sum to 100%, since some participants used more than one method.

3.4.3 Influence of Demographic Characteristics on Contraceptive Preference

The median age of women using hormonal contraception was lower than those who used non-hormonal contraception (Wilcoxon rank sum test, p= 0.0031). The age of women using hormonal contraception ranged from 20 to 45 years with a median (interquartile range) of 28 years (24 to 34 years of age) compared those not using hormonal contraception whose age ranged from18 to 49 years with a median (interquartile range) of 33 years (28 to 41 years of age).

There were no other significant associations between the demographic characteristics of women using hormonal contraception versus those who did not use hormonal contraceptives.

3.4.4 Influence of Clinical Characteristics on Contraceptive Preference

Diagnosis

There were no significant associations between diagnosis and choice of exogenous hormonal versus non-hormonal contraception.

Medication

There were 53 women using contraception who used mood stabilisers. Of these women, 75.5% (n=40) chose non-hormonal contraception while 24.5% (n=13) chose methods of contraception other than non-hormonal methods. There were significantly more women (35.1% of women using contraception) using non-hormonal contraception in conjunction with mood stabilizers compared to women who used mood stabilizers and other methods of contraception (11.4% of women using contraception)(Fisher's exact test, p=0.048). Similarly, more women on contraception using benzodiazepines used non hormonal contraception

(n=23, 20.2% of women using contraception) compared to methods other than non-hormonal contraception (n=5, 4.4% of women using contraception) (Fisher's exact test, p=0.040).

3.4.5 Type of Exogenous Hormonal Contraception

Depot Contraception

Depot contraception was the second most popular choice of contraception after the male condom and the most popular form of exogenous hormonal contraceptive. (Figure 3.2) Depot contraception was used by 20.5% of the total sample (n=39) (Figure 3.2). There were no significant associations between demographic characteristics, diagnosis or medication and choice of depot contraception. Family planning education was not significantly associated with choice of depot contraception (Fisher's exact test, p=0.67). There were 34 (29.8%) women who were using contraception who had received family planning education. Of these women, depot contraception was chosen by 38.2% of contraceptive users (n=13) while 61.8% (n=21) chose other methods of contraception.

Oral Contraception

Oral contraception was used by 6.8% (n=13) of the total sample (Figure 3.2). There were no significant associations with demographic characteristics or diagnosis and choice of oral contraception.

There was a higher percentage of women using oral contraception who had received family planning education compared to those using methods other than oral contraception. Results showed that 61.5% (8 out 13) of women on oral contraception had received family planning education compared to 25.7% (26 out of 101) of women using contraception other than oral contraception. (Fisher's exact test, p=0.020).

Women were less likely to use oral contraception if they used an antipsychotic compared to other forms of medication (Fisher's exact test, p=0.038). Only 6.3% (n=5) of women using antipsychotic medication used oral contraception compared to 21.2% (n=8) of women not using antipsychotic medication. There were no other associations between psychiatric medication and oral contraceptive choice.

Implant Contraception

Two women (1.1% of the total sample) used implant contraception (Figure 3.2). No statistical analyses were performed owing to the small size of the group.

3.4.6 Type of Non-Hormonal Contraception

Barrier Methods of Contraception

Male condom; female condom and spermicidal foam and jelly were grouped together as barrier methods. Barrier methods of contraception were used by 28.9% (n=55) of all participants in the study. There were 51 participants using the male condom. Five participants used a female condom. One patient used both male and female condoms. No participants reported using spermicidal foam or jelly.

There was a significant association between relationship status and barrier contraception use, with 57.6% of single contraceptive users using barrier contraception (n=38) compared to 35.4% of contraceptive users in a relationship (n=17) (Fisher's exact test, p=0.023).

A higher level of education was associated with increased use of barrier methods of contraception (Fisher's exact test, p=0.048). Results showed that 68.2% (n=15) of women with a tertiary level of education using contraception used barrier methods of contraception compared to 53.3% (n=16) of women using contraception with a matric and 38.7%(n=24) of women using contraception who had not completed high school.

Permanent Methods

Permanent methods of contraception (sterilisation and hysterectomy) were used by 7.9% (n=15) of the total sample. Median age of participants who used permanent methods was significantly higher than those who used other methods of contraception (Wilcoxon rank sum test, p=0.0001). The age of women using permanent contraception ranged from 28 to 49 years with a median (interquartile range) of 43 years (34 to 46 years of age) compared those not using permanent contraception whose age ranged from 18 to 49 years with a median (interquartile range) of 29 years (25 to 35 years of age).

Women using permanent methods were less likely to desire future children compared to women using other methods of contraception (Fisher's exact test, p=0.013). Only one woman out of the fifteen women using a permanent method of contraception (6.7%) desired children in the future while 41.4% of women using other forms of contraception (41 out of 99 women) desired children in the future.

There was no significant association between diagnosis and medication and choice of permanent methods of contraception.

Intrauterine Contraceptive Device (IUD)

Four women (2.1% of the total sample) used an IUD. Statistical analysis was not performed owing to the small number of women using this method.

Natural Methods

Natural methods included coitus intteruptus (withdrawal) and the rhythm method. Breast feeding was also included as a natural method. There were three women (1.6% of the total sample) using natural methods of contraception. One patient used coitus interruptus and none of the participants used the rhythm method. Two women listed breast feeding in the category "other". Owing to the small sample size, no statistical analyses were performed on natural methods of contraception.

3.5 BARRIERS TO CONTRACEPTION

There were 105 participants who never used contraception or used it inconsistently. Three participants elected not to specify their reason for non-use of contraception. One participant stated that she always used contraception but felt she was limited in her choice by stock shortages of implant contraception and therefore specified a reason for non-use. Barriers to contraception are shown in Figure 3.3 below.

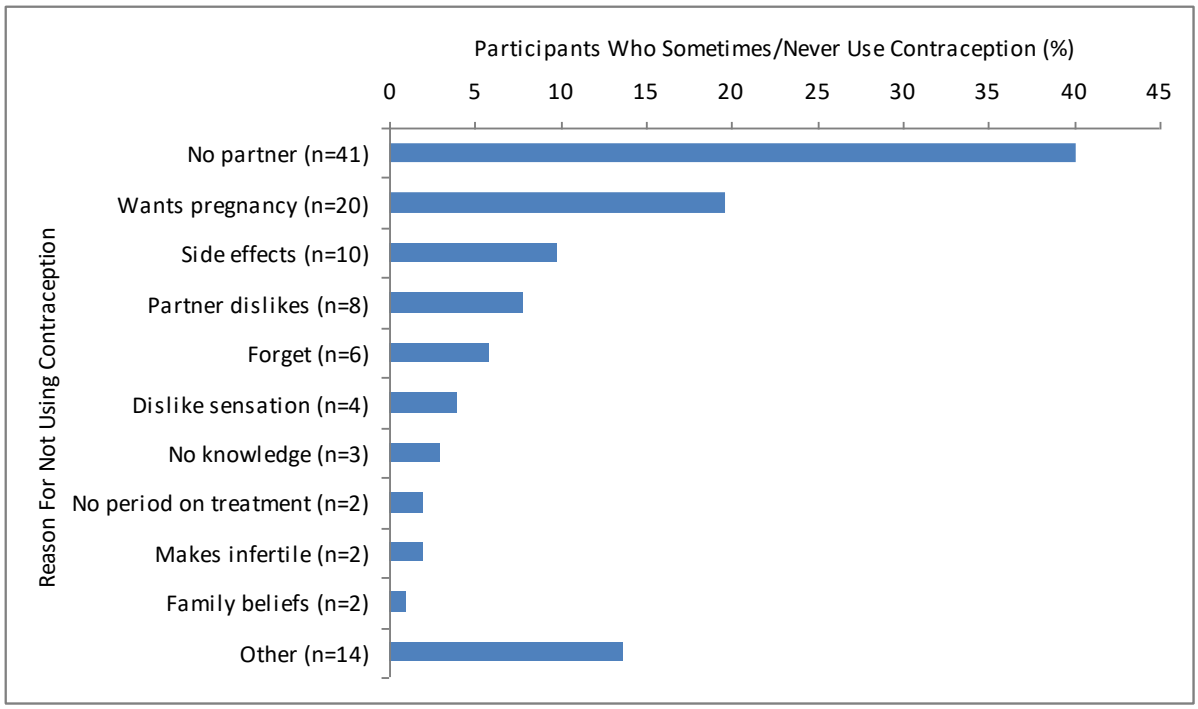

Figure 3.3 Specific Barriers to Contraception Reported by Those Not Using Consistent Contraception (n=105)

Barriers to contraception can be grouped as according to patient perception of need; lack of knowledge and/or fear of side effects from contraception; lack of access and cultural/societal barriers. While there may be overlap, for example stigma by nurses may limit access and be a cultural/societal barrier, different barriers to contraception were broadly grouped as above for ease of reading. “No period on treatment” refers to amenorrhoea specifically as a side effect from psychiatric medication use.

3.5.1 Perception of Need for Contraception

Patients may feel that they do not need contraception because they may not have a partner; may desire to fall pregnant or believe that they cannot fall pregnant.

The commonest reason for not using consistent contraception was not being in a relationship. Results showed that 40.2% of women who did not use consistent contraception (n=41; 21.6% of the total sample) did so because they were single. The second most common reason for non-use of consistent contraception was the desire to fall pregnant. Desire for pregnancy accounted for 19.6% of women who did not use consistent contraception (n=20; 10.5% of the total study group). (Figure 3.3)

Of the women who did not use contraception because they desired to fall pregnant, seven were using a teratogen. Three of these seven women had received family planning education however there were four women using a teratogen who were not using contraception as they wished to fall pregnant who had not received family planning education. They were offered referral for family planning education.

A further two women (2% of women not using contraception or 1.1% of the total sample) did not see a need for contraception while in a relationship however they did not specifically desire to fall pregnant. Two women suspected that they were infertile and therefore did not use contraception (2% of women not using contraception; 1.1% of the total sample). One woman (1% of women not using consistent contraception; 0.5% of the total sample) reported not needing contraception because she avoided sexual intercourse after being diagnosed with HIV. The belief that they could not fall pregnant because they had amenorrhoea while taking psychiatric medication was reported in 2% of women not using consistent contraception (n=2; or 1.1% of the total sample). (Figure 3.3)

3.5.2 Lack of Knowledge and/or Fear of Side Effects

Fear of side-effects accounted for 9.8% of women not using consistent contraception (n=10; or 5.3% of the total sample). Three women (2.9% of women not using consistent contraception; 1.6% of the total sample) felt that they did not have sufficient knowledge to feel comfortable using contraception. A further two women (2% of women not using consistent contraception; 1.1% of the total sample) were afraid of permanent infertility due to contraceptive use. Amenorrhoea secondary to psychiatric treatment was discussed under perception of need however it is also relevant to lack of knowledge. (Figure 3.3)

3.5.3 Societal/Cultural Barriers

Partner Preference

There were 7.8% of women (n=8; 4.2% of the total sample) who did not use consistent contraception who reported that they did not use contraception because their partner disliked them using it. No women reported that their partner coerced them into not using contraception through violence or by threatening to end the relationship. (Figure 3.3)

Family Preference

Only one woman (1% of women not using consistent contraception; 0.5% of the total sample) reported that the reason she did not use contraception was because it went against her family's beliefs. (Figure 3.3)

Fear of Stigma

No women reported fear of stigma by the community, friends or nursing staff.

3.5.4 Lack of Access to Contraception

No women who did not use contraception or used it inconsistently reported a lack of access to contraception being a barrier to contraceptive use. One woman was using contraception consistently however she felt limited in her choice and specified the reason for non-use of her specific choice (implant contraception) as being stock shortage at the clinic.

3.5.5 Other Patient Specific Barriers

Results showed that 5.9% of women not using contraception (n=6; 3.2% of the total sample) reported forgetfulness as a barrier to consistent contraceptive use while 3.9% of non-users of contraception (n=4; 2.1% of the total sample) disliked the sensation of using contraception and therefore did not use contraception consistently (Figure 3.3).

One woman (1% of women not using contraception; 0.5% of the total sample) reported that she had stopped using contraception while pregnant and had become psychiatrically unwell postpartum and been admitted before she had the opportunity to restart contraception. Five women (4.9% of women not using consistent contraception; 2.6% of the total sample) had defaulted contraceptive use when they became psychiatrically unwell. One woman (1% of contraception non using women; 0.5% of the total sample) reported that she did not use contraception but reported that she had stopped it because she had found out that she was pregnant while admitted. One woman (1% of women not using contraception; 0.5% of the total sample) said she did not know why she did not use consistent contraception (Figure 3.3).

CHAPTER 4: DISCUSSSION

4.1 DEMOGRAPHIC COMPOSITION OF THE SAMPLE GROUP

This is the first study that has examined contraceptive use in female mental health care users in South Africa. As such, it was not possible to compare findings to other studies with a similar patient profile. This study provides much needed formative research into family planning needs in female mental health care users from South Africa by comparing contraceptive use in this population compared to the general South African population.

The demographic characteristics of this study were similar to the South African general female population, with the exception that women with mental illness in this sample had lower levels of employment than the general South African female population.[2,52] (Table 3.1 & Table 3.3) Only 17.9% of women in this study were employed. This was almost half of the rate of employment (38%) found in the general South African female population reported in the literature.[52,61] The lower level of employment in female mental health care users is however consistent with other African studies from Nigeria and Kenya.[48,49]

4.2 CONTRACEPTIVE USE

Results showed that 44.7% of women in the study used contraception consistently and 60.0% used contraception either always or sometimes. Overall contraceptive uptake in female mental health care users was therefore similar to contraceptive prevalence in the general South African female population, with the literature reporting contraceptive prevalence varying between 44% and 89% in the general South African female population. [2,7,9,52]

This study examined current contraceptive use. An interviewer administered survey conducted in the general South African population in the Western Cape by Credé *et al.* reported that contraceptive rates were 89% and no significant difference was found between women with HIV and those who did not have HIV.[7] The study by Credé *et al.* also only examined current contraceptive use by means of a survey however the study by Credé *et al.* examined postpartum women attending outpatients clinics in the Western Cape and this may have explained the different level of contraceptive use compared to this study.[7]

Another study conducted in the Western Cape by Iyun *et al*. reported contraceptive use in pregnant South African females of 69%.[9] Contraceptive use in the past 12 months was determined by examining data collected at first antenatal visits. There was similar contraceptive uptake to this study. Although contraceptive use was similar to this study, the duration of contraceptive use and the fact that women were pregnant made it difficult to compare the results of this study to the study conducted by Iyun *et al.*[9]

A study conducted by Kaida *et al.* in Soweto at the Perinatal HIV Research Unit examined contraceptive use in HIV positive and negative women using a survey.[52] They found contraceptive prevalence of 78%, with significant differences in contraceptive prevalence dependent upon HIV status.[52] Contraceptive prevalence may have been higher in the study by Kaida *et al.* because women were recruited specifically from the Perinatal HIV Research Unit and wellness clinic where they were testing for HIV and as such may have had an increased awareness around family planning and prevention of transmission of HIV through barrier contraception.[52]

The SADHS (2016) reported similar contraception use to this study however direct comparison with this study was difficult as SADHS (2016) only examined contraception in sexually active women..[2] Married women had a contraceptive prevalence of 55% and 64% of unmarried sexually active women used contraception.[2] The similarity between levels of contraceptive use in this study and other South African studies examining the general female population shows that women with mental illness do not use contraception less than the general female population of child bearing age in South Africa.[2,9]

There were higher levels of contraception use in this study compared to female outpatient mental health care users in Nigeria who had current contraceptive use of 27% in the study conducted by Tunde-Ayinmode in 2013.[49] Demographic characteristics between this study and the study from Nigeria were not however comparable as more women with mental illness in Nigeria were in a relationship.[49] Two thirds of women with mental illness in the Nigerian study were in a relationship compared to a third of women in this study.[49] Almost 80% of the women in this study were unemployed however only ten percent of women with mental illness in Nigerian women with mental illness were unemployed.[49] Over half of the women in the study conducted in Nigeria were Muslim, while this study consisted predominantly

(77.4%) of Christian women.[49] It is therefore difficult to assess the impact of the differences of demographic and cultural factors on contraceptive use.

A study was conducted in Kenya by Gitari in 2015 which examined contraceptive use in outpatient female mental health care users.[48] Current contraceptive use in female mental health care users in Kenya was 42.2% and the prevalence of ever having used contraception their lifetime was 53.6%.[48] Neither current nor lifetime contraceptive prevalence is directly comparable to this study, which examined six month contraceptive prevalence however Kenyan mental health care users had similar contraceptive prevalence rates to the general population.[48] The Kenyan Demographic Health Survey (2014) reported contraceptive prevalence in the general female population to be 58%.[62] This was consistent with this study's results.

Contraceptive awareness was examined in studies from Nigeria and Kenya. Contraceptive knowledge was assessed by Gitari in Kenyan mental health care users by asking participants if they knew of any methods of contraception and if they knew of "safe days" when were not able to become pregnant.[48] Contraceptive awareness was described as high in mental health care users in Kenya in the study by Gitari because 99% of participants were able to name at least one contraceptive and 79% knew of the existence of safe days. [48] In comparison, 88% of Nigerian women with mental illness in the study by Tunde-Ayinmode knew of a method of contraception when answering a questionnaire.[49]

The fact that female mental health care users in the study by Tunde-Ayinmode in Nigeria had lower levels of contraceptive use (27%) compared to female mental health care users in the study by Gitari, (42.2%) was attributed to lower contraceptive awareness in Nigerian mental health care users compared to Kenyan mental health care users. [48, 49]

Approximately one third of young South African women have HIV.[7] Barrier contraception reduces HIV transmission.[60] Family planning consequently became a significant part South Africa's National Strategic Plan on HIV, STIs and TB (2012-2016).[60] Increasing contraceptive awareness and access to family planning are therefore part of South Africa's national policy. [60] This could not however be commented on as a possible reason for female mental health care users in South Africa having similar rates of contraception to the general female population in South Africa as there was no data on contraceptive awareness in the

South African female psychiatric population. There are also no other studies on contraceptive prevalence in South African mental health care users. Further studies are therefore needed.

4.2.1 Association between Demographic Characteristics and Contraception

Relationship status was the only demographic characteristic associated with contraceptive use. (Table 3.1) Women were more likely to use consistent contraception if they were in a relationship compared to if they were not in a relationship. This was consistent with the literature as Gitari examined possible associations between demographic characteristics and contraceptive utilisation in female Kenyan mental health care users and found that participants who were in a relationship were more likely to use contraception.[48]

There are no similar studies from South African mental health care users however relationship status has been shown to influence contraceptive perceptions, choices and unplanned pregnancy rates in Southern Africa. Being married was associated with contraceptive use in a study that was conducted in Lesotho by Akintade, Pengpide and Peltzer in 2015.[63] In this study, rates of contraceptive use and use of family planning services were examined by means of a survey of female undergraduate university students at the University of Lesotho.[63] There was a contraceptive prevalence of 55.3% and the most commonly cited reason for non-use of contraception was that they were not currently sexually active (57.6%).[63] Married women were more likely to perceive modern contraceptives positively (74.6% had positive perceptions of modern contraception) compared to unmarried women (57% viewed modern contraception positively). [63]

The significant association in this study between contraceptive use and being in a relationship demonstrates that there was a perception that women who are single do not need to use contraception. This was supported by the fact that participants in the study reported that the commonest reason for not using contraception was that they were single. (see discussion under barriers to contraception) Being single did not equate to sexual abstinence as there were 20 women who were sexually active despite being single (Table 3.1).

Women's perceived need for contraception only if they were in a relationship suggests that women with mental illness may be vulnerable to unplanned pregnancy. In the Eastern Cape, 71% of pregnancies in parturient women with HIV who delivered at Cecelia Makiwane, Frere

and Bisho Hospital were unplanned.[8] Similarly, over 60% of women attending primary health care clinics in the Western Cape for health care services for their infants reported that their pregnancy had been unplanned.[7] Iyun *et al*. also reported that 50% of HIV positive pregnant women and 33% of HIV negative pregnant women in the Western Cape reported that their pregnancy was unplanned.[9] There is therefore a need for education to address this gap in family planning knowledge.

Gitari also reported that being employed was significantly associated with increased contraceptive utilisation in female mental health care users in Kenya.[48] This finding was not supported by this study although there was an association between employment and family planning education rates which will be discussed under family planning education.

There were no other significant associations between demographic characteristics and contraceptive utilisation, which was consistent with results from the Kenyan study conducted by Gitari.[48] (Table 3.1)

4.2.2 Association between Clinical Characteristics and Contraception

Women with depressive disorders were more likely to use consistent contraception than those with other psychiatric diagnoses. There was no significant association between other psychiatric diagnosis and contraceptive utilisation (Table 3.2).

No significant associations between psychiatric diagnosis and contraceptive use were found in the study by Gitari examining contraceptive use in women with mental illness attending outpatient follow-up in Kenya except for an association between contraception use and bulimia nervosa. [48] The size of the subgroup with bulimia nervosa was however small (n=1) and the significance of the result is uncertain. [48]

There was also no significant association between psychiatric diagnosis and contraception utilisation in the Turkish literature by Pehlivanoglu *et al*. which examined contraceptive needs, use and sociodemographic characteristics by means of a semi-structured interview of patients with depression, schizophrenia and bipolar affective disorders in 2007.[50] The association between depressive disorders and increased contraceptive utilisation in this study was not consistent with the international literature.

Some studies have reported significant associations between hormonal contraceptive use and depression. [61] This could explain the association between depression and contraceptive use in this study, however the literature suggesting that hormonal contraception causes depression is controversial.[61] There was also no significant association between hormonal contraception and depression in this study and therefore it is unlikely to be the explanation for this association. There is no literature examining desire for pregnancy in women with depression and it is therefore unknown whether this influences contraceptive prevalence in women with depression.

The association between depression and contraceptive use in this study may be explained by the fact that women with depression may have had better neurocognitive ability and functioning compared to women with other diagnoses. Women with depression may thus have been more likely to be able to manage their reproductive health more effectively. Although there may be impairment in cognitive ability and functioning in depression, schizophrenia and bipolar disorder have a greater degree cognitive impairment and functional impairment than depression even when treated. [64,65] Functional impairment was not assessed in this study however and cannot be commented on. Lastly, the small sample size (57 women in the study had a diagnosis of depression) may account for the association between depression and contraceptive use.

There was no significant association between HIV and consistent contraception use in this study despite HIV being associated with increased contraceptive use in the study by Kaida *et al*. in women attending the Perinatal HIV Research Unit in Soweto.[52]This study obtained diagnosis from patient files and only recorded HIV infection status if it was documented in the file. The absence of HIV infection as a diagnosis in this study did not equate to being HIV negative as it did not document HIV infection status based on testing but only noted if HIV infection was listed as a diagnosis for that participant. This may have resulted in inaccurate picture of HIV prevalence rendering analyses inaccurate.

There was no significant association between medication and contraceptive use.
Teratogen use did not influence (p=0.56) consistent contraception use. Only 41.8% of women who were using teratogenic medication used consistent contraception. International guidelines recommend that women using teratogenic medication receive family planning advice and

some teratogenic medication such as valproate is contraindicated unless women have had family planning advice as part of the valproate pregnancy prevention plan.[28]

The lack of association between mood stabilizer use and contraception is an important negative finding in this study. Various mood stabilizers are known to be teratogenic and therefore the lack of contraceptive use in women using mood stabilizers places infants born to women using mood stabilizers at risk of congenital abnormalities.[27,28,29,30] Exposure to mood stabilizers such as valproate in utero may also result in lower cognitive ability.[32] Despite guidelines that contraindicate valproate use in women not using contraception, only 41.2% of women taking valproate used contraception consistently. [28] None of the women taking carbamazepine and 40% of women using lithium used contraception consistently despite studies reporting teratogenicity of these agents. [27,28,29,30]

Children born of mothers in this study may therefore be at risk of lower educational achievement, congenital abnormalities and worse socioeconomic outcomes.[4,10,16,27,28,29,30,32] Mood stabilizers are frequently used in bipolar affective disorder, a chronic illness that may relapse during pregnancy.[11,12,14] Women with bipolar affective disorder may also engage in sexual risk taking when manic.[66] The lack of an association between mood stabilizers and contraceptive use in this study may reflect an increased risk of unplanned pregnancy, potentially worsening socioeconomic outcomes in these women.

Given that psychosocial adversity is a risk factor for mental illness[67], this may perpetuate the cycle of mental illness and poor socioeconomic outcomes in future generations. This study therefore demonstrates a vital unmet need for family planning services for female mental health care users and a need for further research to improve provision of these services. (Table 3.2)

4.3 EXPOSURE TO FAMILY PLANNING EDUCATION

The percentage of women who had received family planning education by mental health care practitioners was 26.8% (51 of 190 women had been counselled by a mental health care provider). Langan *et al.* specified a low level of contraceptive counselling to be less than 50%.[51] The Maudsley Prescribing guidelines recommend that contraceptive counselling be done in all women of child bearing age attending mental health care services.[3]

The low level of family planning education was consistent with the literature.[48,50,51] In the study by Gitari examining women with mental illness in Kenya, Mathari, 34.3% of women had received family planning advice.[48] In the study by Tunde-Ayinmode, examining women with mental illness in Ilorin, Nigeria, family planning education had been given to 5% of female mental health care users despite 88% having knowledge of at least one method.[49] The lower level of family planning education in Nigerian mental health care users however may be explained by the fact that this study and the study from Kenya examined lifetime prevalence of family planning while the study by Tunde-Ayinmode in Nigeria examined family planning advice over the preceding year.[48,49]

Less than 20% of women with mental illness in Turkey had received family planning education.[50] In Scotland, family planning education was examined in female mental health care users taking valproate; lamotrigine; topiramate and carbamazepine.[51] Levels of family planning education in female mental health care users in Scotland were 17% for women taking carbemazepine compared to 0% in this study and 13% for women taking valproate compared to 28% in this study.[51] Family planning education was not done with any women taking lamotrigine while 35.7% of female mental health care users in this study reported having had family planning education. [51]

The low levels of family planning education emphasise lost opportunities by mental health care providers to offer this service. Contraceptive counselling has been shown to reduce unmet contraceptive needs and could improve contraceptive uptake and reduce unintended pregnancies.[68] While only 26.8% of women in this study received family planning education, more than double that number (60%) used contraception. It is possible that women accessed family planning services at non-psychiatric facilities such as community clinics, or did not seek advice at all as some contraception, such as condoms, are freely available without family planning education being done.

While it is beneficial that female mental health users are able to access contraception despite the low levels of family planning done by mental health care providers, this raises concerns that family planning education given to these women has not been tailored to their specific needs as mental health care users. There may also be lost opportunities for screening and support if women have not received any family planning education. Inadequate family

planning education and lack of ongoing family planning education may contribute to the difference in percentage of women reporting contraceptive use versus consistent contraceptive use.

4.3.1 Association between Demographic Characteristics and Exposure to Family Planning Education

Women with mental illness who were employed were more likely to have received family planning education than unemployed women with mental illness in this study. Gitari assessed prevalence of family planning education, contraceptive knowledge and utilisation of family planning and where family planning was sourced from in Kenyan female mental health care users.[48] Data was collected using questionnaire administered to women attending a psychiatric outpatient clinic. [48] No statistical analyses were done to assess if there were associations between demographic characteristics and family planning advice having been given and therefore it unknown if employment status influenced family planning education rates in Kenyan female mental health care users[48]. There was, however, a significant association between employment and contraceptive utilisation.[48] Employment is associated with increased contraceptive utilisation in the international literature, where an association was shown using data collected from the Bangladesh demographic and Health Survey in 2011.[69]

4.3.2 Association between Clinical Characteristics and Exposure to Family Planning Education

There was no significant association between family planning exposure and diagnosis or medication (Table3.3). Women with HIV did not have any difference in family planning education levels. Contraception and family planning has been shown to reduce mother-to-child transmission of HIV and as such is one of the World Health Organization's four strategic prongs for the prevention of mother-to-child transmission of HIV.[60] Contraception and family planning therefore form part of the National Strategic Plan on HIV, STIs and TB (2012-2016).[60] Women with mental illness are at increased risk of contracting HIV.[11] There is therefore a need to improve family planning education in women with mental illness in order to reduce HIV transmission in line with international and national policy. [60]

Teratogen use did not influence prevalence of family planning education. As has been discussed, (4.2.2), women in this study may therefore be at risk of teratogen exposure in pregnancy as teratogen use was not associated with either contraceptive utilization or family planning education being provided.

4.4 CONTRACEPTIVE PREFERENCE

Non-hormonal contraception was more popular than exogenous hormonal contraception. This study combined women who are currently sexually active and those who are not because the Maudsley prescribing Guidelines recommend that all women or child bearing age receive family planning advice.[3] The literature discussed below only examined the general female South African population who are currently sexually active or married and as such a direct comparison is not possible however many of the findings of this study were similar to the contraceptive preferences of the general South African sexually active or married female population as a whole.[2,52]

4.4.1 Non-hormonal Methods of Contraception

Barrier Methods of Contraception

The male condom was the most popular choice of contraceptive with 28.9% of the total sample using condoms. This was different to South African literature which ranked condom use second most popular after depot hormonal contraception in the general South African population according to the SADHS (2016).[2] In the SADHS (2016) where 15% of the participants reported male condom use (no female condom use was reported).[2]
Iyun *et al*. reported similar rates of condom use (30%) in the Western Cape in women attending their first antenatal visit at clinics compared to this study although condom use was the second most popular choice after depot hormonal contraception (36%).[9] Credé *et al.* reported lower rates of condom use in females in the Western Cape, with use ranging between 2.5% and 5% in HIV negative and positive women respectively.[7] The low level of condom use reported by Credé *et al*. however were due to the high amount of depot contraception use (90%).[7]

In the international literature, Gitari reported that current condom use was 2.6% in Kenyan female mental health care users attending follow-up at psychiatry outpatient services. [48]

Women with mental illness attending outpatient psychiatry follow up in the Nigerian study by Tunde-Ayinmode however had similar levels of condom use (37%) to the women in this study however it was unclear as to whether women reported current use or lifetime use.[49] Variations in contraceptive preference exist as there is wide variation in study methodology and sample populations and as such it is difficult to compare the literature.

There are several possible reasons why women with mental illness in this study may have had higher rates of barrier use that the general South African female population. A qualitative interview of mental health care users in America by Gordon *et al*. reported that sexual activity was often spontaneous and unplanned. It may be that women with mental illness in this study did not anticipate engaging in sexual activity and thus did not use hormonal contraception, instead utilizing barrier methods that were more easily accessible at the time of intercourse.[70] This is consistent with results from this study that the most common reason for contraceptive non-use was not being in a relationship.

Psychiatric illness also frequently requires chronic medication use. There is a paucity of literature on mental health care users' perceptions of hormonal contraception however it may be that oral or depot hormonal contraception may be viewed as an additional burden, requiring being prescribed more medication to use or additional clinic visits if not prescribed concurrently with other chronic medication. Lastly, women with mental illnesses such as depression may internalise negative information more and be more concerned about side effects,[71,72] Women with mental illness may therefore prefer barrier contraception rather than medication which may have potential risks and side effects.

Women were more likely to use barrier methods of contraception if they had a higher level of education. In this study, 68.2% (n=15) of women using contraception with a tertiary level of education used barrier methods of contraception compared to 53.3% (n=16) of women using contraception with a matric and 38.7% (n=24) who had not completed high school. International literature supports these findings. A survey of women conducted in Bangladesh in 2016 found that level of education is associated with contraceptive use.[69] Another community based study of both male and female youth in Lusaka, Zambia in 2002, also found that level of education was associated with consistent use of condoms.[73]

Permanent Methods of Contraception

There were similar levels of permanent contraception (7.9% of the total sample) compared to the general South African population (6%) in the SADHS (2016).[2] Women who were sterilized had a higher median age (43 years; IQR 34-46; range 28-49) compared to women using other forms of contraception (29years; IQR 25-35; range 18-49). As women grow older, they become more likely to have completed their families as they have had more time to do so. This is supported by the fact that women who were sterilised were also less likely to desire future children, with only 1 woman (6.7%) of women who had elected to be sterilized desiring future children.

Analysis of cross-sectional data from the 2006–2010 National Survey of Family Growth (NSFG) in America found that the largest determinants of sterilization were factors relating to parity.[74] Women who had been married multiple times or had early child bearing were more likely to be sterilized, while women who were not married or had spent more time being single were less likely to be sterilized.[74] These factors were significantly associated with having had children already and not desiring to have further children. [74]

There was no significant association between permanent contraceptive use and diagnosis. There is a paucity of information on current rates of sterilization in women with mental illness. Tunde-Ayinmode reported that 16% of female mental health care users attending outpatient mental health care services in Ilorin, Nigeria, used permanent methods of contraception. [49] The associations between type of contraception and demographic and clinical characteristics were however not examined. [49]

Permanent methods of contraception are occasionally used for purposes such as menstrual hygiene in women who have mental illness such as severe intellectual disability.[75] Permanent methods of contraception in women who are unable to consent to contraception are, however, becoming less popular as they violate the woman's right to reproductive autonomy. [75]

Intrauterine Contraceptive Devices

Only 2.1% of the total sample in this study used intrauterine contraceptive devices (IUD's). This was less than the 6.5 % reported by Gitari in Kenyan outpatient female mental health care users in Mathari and 7% of women with mental illness attending outpatient follow up in

Nigeria as reported by Tunde-Ayinmode.[48,49] IUD use was not discussed in the study by Kaida *et al*. which examined HIV positive and negative women in Soweto.[52] The number of women in this study who used IUDs was similar to IUD use in the South African general population, with 1.2% of sexually active or married women in SADHS (2016) using IUDs.[2] Studies from the Western Cape reported IUD use to be 0% in both the study by Credé *et al*. who examined contraceptive use in post-partum women, and the study by Iyun *et al*. who examined contraceptive use in pregnant women in women attending antenatal clinics in Cape Town.[7,9]

Natural Methods

Only one woman in the study (0.9% of women on contraception) used a natural method such as coitus interruptus. This was similar to the one percent use found by Gitari in the study examining contraceptive use in women with mental illness attending outpatient clinic in Mathari, Kenya.[48] It was similar to the three percent of women with mental illness attending outpatient review found by Tunde-Ayinmode in Nigeria.[49] The SADHS (2016) similarly found low levels of natural methods such as withdrawal (0.3%) and rhythm method (0.1%) in sexually active women and married women combined.[2] Natural methods are not as reliable and some, such as the rhythm method, may be more arduous to use correctly.[60] The findings of this study were therefore consistent with the literature.

4.4.2 Exogenous Hormonal Contraception

Injectable Hormonal Contraception

The second most popular choice of contraceptive (20.5% of the total sample), after condom use, was injectable hormonal contraception. This was different to the South African general population where injectable hormonal contraception was the most popular choice.[2,7,9] Despite ranking second in popularity, injectable contraception use was similar to that of the general South African population, where 25% of the SADHS (2016) total sexually active or married female population used injectable hormonal contraception.[2]

Iyun *et al*. reported in 2018 that 36% of pregnant women attending antenatal clinic in the Western Cape had reported depot contraceptive use during the past year.[9] Credé *et al*. reported higher levels of depot contraception in the Western Cape (over 90%) than in this study and the literature described above however the women in the study by Credé *et al*. were

postpartum and the sample populations of the various studies are not directly comparable owing to variations in sample population and study design.[2,7,9]

Only 9.8% of Kenyan women with mental illness from Mathari in the study by Gitari used depot contraception. [48] Only 6% of female Nigerian mental health care users from Ilorin in the study by Tunde-Ayinmode used depot contraception.[49] A possible reason for the higher levels of depot contraception use in this study may be the lower levels of implant hormonal contraception use in the South African setting.[2]

Implant Hormonal Contraception

Kenya had larger numbers of implant hormonal contraception than the general South African population which reported a prevalence of 3.9% of all contraception being implant hormonal contraception.[2,48] The study by Gitari examining contraception in female mental health care users from Kenya had similar rates of hormonal contraceptive use to this study however it was divided differently with more women favouring hormonal implant contraception.[48]

The implantable hormonal contraceptive was only approved for use in the public sector in South Africa in 2014 and was possibly not be as freely available or as well understood by the population and health care providers as some other methods of contraception and this may account for the lower use of implantable hormonal contraceptive in this study, with only two women (1.8% of the total sample) using it.[60] This is supported by the low national South African prevalence of implant contraception in the SADHS (2016)[2] and by the fact that one woman reported that she desired an implantable hormonal contraceptive but had been told by the clinic that there were none in stock currently.

Oral Hormonal Contraception

Oral contraception was chosen by 6.8% of participants. This was similar to the general female South African population in the SADHS (2016), where 7% used oral hormonal contraception.[2] Oral contraception was used by 6% of female mental health care users in Nigeria and 7.9% of Kenyan female outpatient mental health care users in the studies conducted Tunde-Ayinmode and Gitari.[48,49]

There was a significant association between oral contraceptive use and family planning advice having been done by mental health care providers. Participants were more likely to have

received family planning advice (61.5%) if they used oral contraception compared to other forms of contraception (25.7%). This study did not examine reasons why women chose one method over another. Further research is needed to assess contraceptive preferences in female mental health care users.

4.4.3 Clinical Characteristics and Individual Contraceptive Choice

Diagnosis

Despite depressive disorders being associated with increased contraceptive utilisation as a whole, there was no significant association between the various diagnostic groups and individual methods of contraception.

Medication

Within medication class, women receiving benzodiazepines were more likely to be using non-hormonal contraception (82.1% of women using contraception receiving benzodiazepines, n=23) compared to exogenous hormonal contraception (17.9% of women using contraception using benzodiazepines, n=5). Similarly, women using mood stabilizers were more likely to use non-hormonal contraception (74.5% of women on contraception using a mood stabilizer, n=40) compared to hormonal contraception (24.5% of women on contraception using a mood stabilizer, n=13).

There is no literature examining benzodiazepine use or mood stabiliser use and contraceptive choice. More research is needed to confirm an association with benzodiazepine use and mood stabiliser use and preference of non-hormonal contraception. Benzodiazepines may have been prescribed because patient symptoms were not fully controlled. Women who are psychiatrically unwell enough to need admission may also need sedation, which may be weaned off gradually as their symptoms improve. The significant association between benzodiazepines and non-hormonal contraception does not infer causality. Other factors necessitating the use of benzodiazepines, such as illness severity, may have influenced contraceptive choice.

Less women using oral contraception took antipsychotic medication compared to women using other forms of contraception. In women using non-oral forms of contraception, 74%

were using antipsychotics while in women using oral contraception, 38.5% were using antipsychotic medication. The South African department of health clinical guidelines on contraception advise that women with cardiovascular or metabolic illness should not use combined oral contraception because it increases the risk of cerebro-vascular accidents and myocardial infarction.[60]

Many anti-psychotics have metabolic and cardiovascular side effects.[3] This study did not however examine metabolic complications due to medication and can therefore not comment as to whether this was the explanation for the low rate of concomitant oral contraception and antipsychotic medication use. No other associations were found between medication and uptake of oral contraception

4.5 BARRIERS TO CONTRACEPTION

4.5.1 Perception of Need for Contraception

In this study, 40.2% of women who did not use consistent contraception (n=41; 21.6% of the total sample) felt that they did not need it as they were not in a relationship. The literature examining contraception in female mental health care users only examined women who were married or currently sexually active therefore it was difficult to compare results. [2,8,33,49,37] There were more single female mental health care users than single women in the general South African female population however, which may account for this being the most common reason for non-use of consistent contraception in this study.[2]

A high number of pregnancies are unplanned, with some studies showing an unplanned pregnancy prevalence rate as high as 81.7%.[8] Being single is associated with unplanned pregnancy. A study by Haffejee et al. (2017) examined unplanned pregnancy rates in women attending a primary health care clinic in KwaZulu Natal.[76] Single and divorced women were more likely to have unplanned pregnancy (56% of pregnancies) than married women (6.4%) of pregnancies.[76]

The second most common reason for non-use of consistent contraception was the desire to fall pregnant (19.6% of women not using contraception, n=20). Of the women who desired to fall pregnant, seven women who were using teratogens reported that they desired pregnancy. Four

of these seven women had not been given family planning education despite the risks associated with teratogen use.

In Nigeria, Tunde-Ayinmode reported that 33.3% (21 of the 63) of women with mental illness in Ilorin not using contraception were not using contraception because they desired more children.[49] The SADHS 2016 examined desire for future children in married women only and found that 42% desired future pregnancy.[2] Kaida *et al*. found that 66% of women not using contraception in the study conducted at the Perinatal HIV Research Unit in Soweto in HIV infected and uninfected women did not use contraception because they desired future pregnancy.[52] The lower level of non-use of contraception because of a desire to fall pregnant in this study may be because results were influenced by the high number of women who did not use contraception because they were single.

Women in this study also felt that they did not need contraception because they believed they were infertile or avoided sexual intercourse with their partner after being diagnosed with HIV. In the study conducted by Haffejee *et al.* in 2017, 31.1% of women who had experienced unplanned pregnancy reported that they had not thought they could fall pregnant at the time.[76] Belief of infertility was associated with both non-use of contraception and with unplanned pregnancy.[76]

4.5.2 Lack of Knowledge and/or Fear of Side Effects

Ten women (9.8% of women not using contraception; 5.2% of the total sample) cited concerns over side effects as a reason for non-use of contraception. In Nigeria, Tunde-Ayinmode reported that 39.7% of women with mental illness attending Ilorin outpatient psychiatric services not using contraception (25 out of 63) feared side effects from contraception. [49] The lower number in this study may have been because of large number of women who cited not having a partner as a reason for non-use of contraception.

4.5.3 Societal/Cultural Barriers

While no women in the study reported that their partner would “beat them” or “leave them” if they used contraception, 7.8% (or 4.2% of the total sample) reported that they did not use contraception because their partner “disliked them using it”. In South Africa, 21% of women

who have ever been in a relationship have experienced intimate partner abuse.[2] Miller reported that women with mental illness are at increased risk of being subject to intimate partner violence.[4] This suggests that women with mental illness do not always have full autonomy regarding their sexual health. This also emphasises the need to involve partners of patients with mental illness in family planning education when possible and highlighted a need for further research to assess partner contraceptive awareness.

Despite this, reported partner influence and coercion as a barrier to contraception was lower than that of the general female South African population.[77] South African literature reported that partner influence was a barrier to contraception in up to 30% of women.[77] Similarly, stigma from others was reported in over 20% of women in South African studies.[77] Only one woman reported that she did not use contraception because it went against her family beliefs. Family beliefs and a desire by the family to prove fertility have been cited in the literature as a barrier to contraceptive use.[54,55,56]

4.5.4 Lack of Access to Contraception

Previous studies have described access to family planning as a barrier to contraceptive use.[54,55,56] This lack of access has previously been described as "clinics being too far away", "queues at clinics being too long" or related to stigma by the community and nursing staff.[54,55,56] Only one woman reported that her contraceptive of choice was not in stock at her local clinic however no other women reported that a lack of access to family planning prevented them from using contraception.

The low reported lack of access, along with lower reports of fear of side effects, may suggest that women with mental illness in South Africa may have access to family planning services and information. SADHS (2016) reported that 18% of sexually active women have an unmet need for family planning or, in other words, 82% of women in South Africa have had their need for family planning met.[2]

4.5.5. Other Patient Specific Barriers

Six women (5.9% of women not using contraception or 3.2% of the total sample) reported that they did not use contraception consistently because they forgot it. Impairment in

cognition and functioning have been noted in women with psychiatric illness even when treated.[65,78] Women with mental illness may therefore forget to take treatment, struggle to assess consequences of risky behaviour or may struggle to plan clinic visits.[65,78] Although barrier methods were the most popular form of contraception in this study, cognitive impairment may result in inconsistent use of barrier methods. Family planning services for mental health care users therefore need to take cognitive difficulties into account by utilising methods of contraception that are long acting.

IUDs, implant contraception and depot contraception do not require remembering to take medication daily and are also not reliant upon women negotiating use with their partner every time they engage in sexual activity. These methods do not prevent sexually transmitted infections and should be used in conjunction with barrier methods however they are valuable in preventing unplanned pregnancy in women with mental illness who may have difficulties with adherence to oral contraception and barrier methods of contraception.

These results reflect lost opportunities to provide reliable contraception for women who desired it and emphasise the need to provide patient specific family planning advice.

4.6 LIMITATIONS

There were several limitations to this study. Although the statistical power of the sample size was adequate to assess total contraceptive use, when individual diagnoses and medications were examined the numbers in each group were small.

Convenience sampling was used and the sample may therefore not be indicative of the population as a whole. Data collection from outpatients was usually conducted in the morning when the clinic was busiest however it is not known if demographic and clinical characteristics of women arriving later in the day were similar. Diagnosis was obtained from files and as such was subject to the accuracy of the person treating the patient and writing in the files rather than diagnosis being assessed using strict DSM-5 diagnostic criteria applied by the interviewer.

The study depended upon women answering a questionnaire. Like all questionnaires, it was subject to the accuracy of what patients reported. Informed consent was obtained and the

researcher maintained confidentiality therefore it was unlikely that women would withhold information or deliberately provide inaccurate answers. Women may however have forgotten if they had received family planning education in the past. This emphasises the need for ongoing family planning education so that patients retain the information and so that family planning choices may be re-discussed as the patient's life circumstances and medical history evolve.

It was beyond the scope of this study to assess reasons for choosing one form of contraception over another. It was also beyond the scope of this study to examine patient life circumstances, factors influencing contraceptive adherence and perceptions around medication and contraception. These factors may have influenced contraceptive choice. More research is needed to assess contraceptive knowledge and awareness and sources of family planning education accessed by women.

This study also only examined current contraceptive use rather than lifetime use. While most of the studies that this study has been compared to have also reported current contraceptive use, the study by Kaida *et al.* of women attending the PHRU in Soweto defined contraceptive use (78% prevalence) to be over the past six months.[52] Iyun *et al*. also reported contraceptive use (69% prevalence) to be over the past 12 months because the sample in their study consisted of pregnant women from the Western Cape.[9] Other studies examining contraceptive use examined current contraceptive use or contraceptive use at time of last intercourse and found contraceptive prevalence to range from 27% to 89%.[7,10,48-36] The different definition of contraceptive use therefore cannot account for differences in contraceptive use between studies alone.

The studies that have been discussed did not define whether they examined consistent contraception or any contraception. The only exception was the study by Kaida *et al.* in 2010 where effective condom use was defined as consistent condom use but consistency of other contraceptive methods was not discussed in women attending the PHRU in Soweto. It is therefore difficult to compare contraceptive rates between studies.

This study examined contraceptive use in all women, whereas the studies that were discussed in the literature review only examined sexually active women. (as has been discussed: 4.2 Prevalence of Contraception).

Lastly, doctors treating patients in this study were aware of the study and this may have influenced results. It is possible that the study being conducted increased the frequency of family planning being done and that family planning education exposure was lower than found in this study.

4.7 CONCLUSION

Women in South African with mental illness have similar levels of contraceptive usage to the general female South African population. Having a higher level of education was associated with barrier contraceptive use, and a diagnosis of a depressive disorder was associated with consistent contraceptive use overall. Being single was associated with not using contraception.

Similarly, the primary reason for lack of contraception usage was a lack of perceived need for use. Perception around need for contraception centred on a belief that if they were single they did not need contraception, highlighting the risk for unplanned pregnancy in this population.

This study therefore showed that patients' perceptions of need for contraception may be different to what their treating mental health care provider's perceptions are. Levels of family planning advice were comparable to those found in female mental health care users from Mathari, Kenya, in the study by Gitari however they were higher than those found by Tunde-Ayinmode in female mental health care users from Ilorin, Nigeria. [48,49] Employment was positively associated with having received family planning advice. Teratogen awareness was not assessed in this study however it was noteworthy that teratogen use did not influence contraception rates.

Teratogenicity due to psychiatric medication is only one facet of family planning education in mental health care users. Mental health care users may have difficulties with contraceptive adherence, as described above, and long acting methods of contraception such as IUD and implant hormonal contraception may be underutilised. Non-hormonal methods of contraception were more popular than hormonal contraception. Barrier methods were expected to be popular given the high prevalence of HIV in South Africa.[7] Despite condoms being the most popular method of contraception, they were only utilized by 28.9% of the

sample. The women in this study may therefore be at increased risk of contracting sexually transmitted diseases such as HIV as well as being at risk for unplanned pregnancy. This further emphasises an unmet need for family planning education in mental health care users.

More research is needed to further describe contraceptive awareness, specific contraceptive needs and how to tailor family planning education to the female South African psychiatric population. Family planning education did not influence contraceptive utilisation. This suggests that family planning education is not meeting the patients' needs and addressing knowledge gaps.

4.8 RECOMMENDATIONS

The researcher recommends family planning be done with all women attending psychiatric services on an ongoing basis. International literature reports that women with mental illness are not only more likely to engage in unplanned sexual activity but also engage in risky sexual activity.[70, 79]. Family planning education has been shown to reduce but not cease risky sexual behaviour in women with mental illness.[80] Women attending psychiatric services should be educated on the risk of unplanned pregnancy even if they are not currently in a relationship.

Health care workers should be vigilant regarding the frequency and quality of advice and regularly reassess patient contraceptive needs and wishes. Especial vigilance in the provision of family planning education should be given to women with mental illness using teratogenic medication. All women using a known teratogen such as valproate should be screened to ensure adequate contraception has been provided. Women with mental illness using teratogenic medication are at risk of congenital abnormalities in the child however there are also far reaching psychosocial implications of raising a child with congenital abnormalities for the family.

Although barrier contraception was the most popular form of contraception in this study, most women engaging in sexual activity did not make use of barrier contraception. Barrier methods should be accessible and promoted as a means of preventing sexually transmitted infections. Given that women with mental illness may not consistently use barrier methods however,

barrier methods should not be the only method of contraception but rather be used in conjunction with another method of contraception.

Long acting methods of contraception such as IUDs, depot contraception and implant contraception require less clinic visits and may be of value when women struggle with adherence. Combining family planning services with psychiatric follow up visits may further improve adherence by decreasing number of clinic visits. Long acting methods of contraception are also valuable in that they do not rely upon women negotiating safe sexual practises with their partner every time they engage in sexual activity. While fewer women in this study reported partner coercion than in the literature, where possible, partners would also benefit from family planning education.

More research is needed examining family planning awareness in female mental health care users in South Africa and further studies with a larger sample size are needed to examine associations between diagnosis and specific medication and contraceptive choice. There is an urgent need for improved family planning education and increased screening for women all women with mental illness, and in particular those using teratogenic medication, to ensure that they have been offered family planning services. Training mental health care providers and developing programmes that combine family planning services with psychiatric services may improve contraceptive use and reduce unsafe sexual practises in female mental health care users in South Africa.

APPENDIX A

R14/49 Dr Lisa Jane Galvin

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M160433

NAME: (Principal Investigator)	Dr Lisa Jane Galvin
DEPARTMENT:	Psychiatry Chris Hani Baragwanath Academic Hospital
PROJECT TITLE:	Prevalence of Contraceptive Use among Female Mental Health Care Users of Childbearing Age Attending Chris Hani Baragwanath Academic Hospital Soweto
DATE CONSIDERED:	06/05/2016
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Dr Yvette Nel
APPROVED BY:	Professor P Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	19/09/2016

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 in Room 301, Third floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand.

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 resubmit the application 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 reviewed in April and will therefore be due in the month of April each year.

Principal Investigator Signature

Date 3/10/2016

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX B

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

MEDICAL ADVISORY COMMITTEE
CHRIS HANI BARAGWANATH ACADEMIC HOSPITAL

PERMISSION TO CONDUCT RESEARCH

Date: 23 March 2016

TITLE OF PROJECT: Prevalence of contraceptive use among female mental health care users of child bearing age attending a psychiatric outpatient clinic at Chris Hani Baragwanath Academic hospital

UNIVERSITY: Witwatersrand

Principal Investigator: LS Galvin

Department: Psychiatry

Supervisor (If relevant): Y Nel

Permission Head Department (where research conducted): Yes

Date of start of proposed study: March 2016
Date of completion of data collection: Dec 2017

The Medical Advisory Committee recommends that the said research be conducted at Chris Hani Baragwanath Hospital. The CEO /management of Chris Hani Baragwanath Hospital is accordingly informed and the study is subject to:-

- Permission having been granted by the Human Research Ethics Committee of the University of the Witwatersrand.
- the Hospital will not incur extra costs as a result of the research being conducted on its patients within the hospital
- the MAC will be informed of any serious adverse events as soon as they occur
- permission is granted for the duration of the Ethics Committee approval.

.....
Recommended
(On behalf of the MAC)
Date: 23 March 2016

.....
Approved/Not Approved
Hospital Management
Date: 24/03/16

APPENDIX C

Questionnaire / *Uhlu lwemibuzo*

Contraception or "prevention" is the deliberate prevention of falling pregnant.
Ukuhlela umndeni noma "ukuvimbela ukukhulelwa " yindlela yamabomu yokuvimbela ukukhulelwa

Please indicate your answers by making an X in the blank space. More than one answer may be selected per question.
Sicela ukhombise izimpendulo zakho ngokubeka uphawu ''X'' esikhaleni esingenalutho.Impendulo engaphezu kweyodwa ingakhethwa embuzweni ngamunye.
You may leave out questions you prefer not to answer.
Ungayiyeka imibuzo ongathandi ukuyiphendula.

1. What is your age?_____
Yini iminyaka yakho yobudala?

2.What is your marital status?
Yini isimo sakho sezomshado?

Single/ *Awukaze ushade*
Married/ *Ushadile*
Divorced/ *Wahlukanisa*
Widowed/ *Washonelwa*
Separated/ *Nahlukana*

3.What is your religion?:
Yini inkolo yakho?:

Christian/ *UbuKrestu*	
Muslim*/ Isulumane*	
Hindu*/ I-Hindu*	
Traditional African/ *Okwendabuko*	
Jewish*/ IJuda*	
Buddhist/ *I-Buddhist*	

4. Other (please specify)_____
Okunye (sicela ucacise)

5. Are you employed?
Ngabe uyasebenza?

Yes/*Yebo*	
No/*Cha*	

6. What is your highest level of education?:
Ufunde waginaphi?:

None/ *Angifundanga*	
Primary school/ *Isikole samabanga Aphansi*	
Secondary/high school/ *Isikole samabanga Aphezulu*	
Matric/equivalent/ *u-Matric/okulingana naye*	
Diploma/ *i-Diploma*	
Undergraduate/ *Angikakazitholi iziqu*	
Postgraduate/ *Izifundo emva kokuthola Iziqu*	

7. Have you reached menopause? (The age when a woman stops seeing her periods every month or "the change of life")
Ngabe usufikile kwi-menopause? (Isikhathi lapho owesifazane eyeka khona ukuya esikhathini nyanga zonke noma "ukuguquka kwempilo")

Yes/*Yebo*	
No/*Cha*	

8. Do you plan to have any more children?
Ngabe uhlela ukuba nezinye izingane?

Yes/*Yebo*	
No/*Cha*	

9. Have you been sexually active in the past six months?
Ngabe uke waya ocansini ezinyangeni eziyisithupha ezedlule?

Yes/*Yebo*	
No/*Cha*	

10. Do you use contraception ("prevention")?
Ngabe uke wakusebenzisa ukuhlela umnden ('/ukuvimbela")

Always/ *Njalo nje*	
Sometimes/ *Kwesinye isikhathi*	
Never/ *Akuzange kwenzeke*	

11. If you use contraception ("prevention"), which method did you use (you may choose more than one)?
Uma usebenzise ukuhlela umndeni (ukuvimbela ukukhulelwa) ezinyangeni eziyisithupha ezedlule, yiyiphi indlela owayisebenzisa (ungakhetha engaphezu kweyodwa)?

Withdrawal (removal of the penis from the vagina before ejaculation or "finishing"/ *Ukukhipha (ukukhipha umthondo esithweni sangasese sowesifazane ngaphambi kokuchama noma "ukuqeda"*	
Rhythm method (avoiding sex during some parts of the month where falling pregnant is most likely to occur/ *Indlela yomgqumo (ukubalekela ukuya ocansini ngezikhathi zenyanga lapho ukukhulelwa okungavama ukuthi kwenzeke ngazo*	
Male condom/ *Amakhondomu abesilisa*	
Female condom or diaphragm/ *Amakhondomu abesifazane noma untu*	
Spermicides (e.g. Foam or jelly)/ *Ama-Spermicides (isib. igwebu noma intikintiki)*	
Oral contraception "the pill" (e.g. ovral, trigestril)/ *Okokuhlela umndeni okuphuzwayo "iphilisi" (isib. i-ovral, i-trigestril)*	
Injectable hormonal contraception "the injection" (eg depot provera, nuristerate)/ *Ukuhlela umndeni ngomjovo wamahomoni "umjovo" (isib i-depot provera, i-nuristerate)*	
Implant contraception/ *I-Implant contraception*	
Sterilisation/ *I-Sterilisation*	
Intrauterine device (I.U.D./loop/coil) / *I-Intrauterine device (i-I.U.D./iluphu/i-coil)*	

Other contraceptive (Please specify):_____

Okunye okokuhlela umndeni (Sicela ucacise):

12. How long have you been using contraception for?_____
Unesikhathi esingakanani usebenzisa imithi yokuthi ngingakhulelwo?

13. If you did not use contraception (prevention) in the past six months, what are the reasons? (More than one answer may be selected)

Uma ungazivimbelonga ukukhelelwa kulemingoka emibalwa edule, kungabe kubongwa yini lokho? (*Impendulo engaphezu kweyodwa ingakhethwa embuzweni ngamunye.)*

I want to fall pregnant *Ngifuna ukukhelelwa*	
I don't see my period while I take my medication for mental illness so I cannot fall pregnant *Nginokungayi esikhathini mangithtatha imithi yezingondo lokho kungivembela ekethini ngingi khulelwa.*	
My partner will leave me if I use contraception *Isithandwa sami sizongishaya uma ngisebenzisa ithimi yokungivembela ukuthi ngignga khulelwa*	
My partner will physically force me not to/hurt me if I use contraception *Umuntu wami uzongi khubazauma engathola mayelana ngokuzivikela ukutheni ngimithe*	
My family do not believe in contraception *Umndeni wami awukholelwa ekutheni ngizivikela ukukhulelwa*	
My friends/ the community would judge me if they found out I was using contraception *Abangoni/kanye nomphakathi bazongikhuluma uma bengathola ukuthi ngizivekela ukukhulelwa*	
I am afraid of side effects from contraception *Ngiyethuka uma ncigabanga okukhula okungangi veleta uma ngizivekela ukukhulelwa*	
I am afraid I will not be able to fall pregnant permanently if I use contraception *Kuyangthusa njalo mangikobanga ukuzivekela ukukhulelwa ngiye ngikobanga ukuthi ngase ngumosheke ngingabe ngisa khulelwa okwangempela*	
I don't know enough about contraception to feel comfortable using it *Kuningi engingakwazi okumayelana nokuzivikela ekutheni ngikhulelwa*	
The nurses are rude/ treat you badly if you ask for contraception *Odokotela baluhlazo/kanti futhi bayasihlukumeza uma sibacela ukuthi basivikelo ukuthi singakhulelewa*	
There are long waiting times at the clinic for family planning *Izikhathi zokulinda kumthola mpilo kuthatha izikhathi ngokuhlela umdeni*	
The clinic is too far away *Umthola mpilo ukude kakhulu*	
I cannot afford to go to the clinic *Angibi nayo imali eyokuthi ngiye kwa mthola mpilo*	

12. Have you ever spoken about contraception/family planning with your psychiatrist or mental health sister?

Ngabe uke waxoxa ngokuhlela umndeni/ukuvimbela ukukhulelwa nodokotela wakho wezengqondo noma umhlengikazi wezempilo yengqondo?

Yes/*Yebo*
No/*Cha*

13. If you answered yes to question 11 above, how long ago was this?_____

Uma uthe yebo kumbuzo waku 11, uneskhothi esingakanoni?

Thank you for completing this questionnaire. Please remember to fold it and put it in the box at the nurses' station.

Siyabonga ngokuthi ugcwalise lolu hlu lwemibuzo. Sicela ukhumbule ukulugoqa ulufake ebhokisini elisetafuleni lab

APPENDIX D

Patient Information Sheet With Distress Protocol

Study name:
Prevalence of contraceptive use among female mental health care users of child bearing age attending Chris Hani Baragwanath Academic Hospital in Soweto.

Isihloko Socwaningo:
Ukuvama kokusetshenziswa kwezivikanzalo kwabesifazane abasengakhulelwa abelashelwa izifo zengqondo eChris Hani Baragwanath Academic Hospital eSoweto.

Introduction:
My name is Dr Lisa Galvin, and I am a registrar doctor in the Department of Psychiatry at the University of the Witwatersrand. Research is the process of how we learn the answer to a question. In this study I would like to find out how many women of child bearing age attending Chris Hani Baragwanath Academic Hospital for mental illness are using contraception. Contraception is the deliberate prevention of pregnancy.

Isingeniso:
Ucwaningo wuchungechunge lokufunda ukuphendula umbuzo. Kulolu cwaningo ngifisa ukuthola ukuthi bangaki abesifazane abasengakhulelwa abalashelwa izifo zengqondo eChris Hani Baragwanath Academic Hospital abasebenzisa izivikanzalo. Ukusebenzisa izivikanzalo kuyikuvimbela ukukhulelwa ngenhloso.

Invitation:
I would like to invite you to participate in this research by answering a questionnaire asking you about whether you are using contraception or not. which method of contraception did they choose and what influenced their choice to use or not use contraception. It will also ask you general information about your age, religion, level of education, and whether you still see your period and if you are sexually active. Lastly, it will ask if you have ever been offered family planning before.

Isimemo:
Ngithanda ukukumema ukuba ubambe iqhaza kulolu cwaningo ngokuphendula iphepha lemibuzo elikubuza ngokuthi ngabe uyazisebenzisa yini izivikanzalo noma cha, nhloboni yokuvika inzalo owayikhethayo nokuthi yini eyaba nomthelela ekukhetheni noma ukuba ungakhethi ukusebenzisa izivikanzalo. Liyokubuza futhi ngolwazi olujwayelekile mayelana neminyaka yakho, inkolo, izinga lemfundo, nokuthi ngabe usaya yini esikhathini kanye nokuthi ngabe uyaya yini ocansini. Okokugcina, lizokubuza ukuthi ngabe sewake wanikezwa yini ithuba lokuhlela umndeni phambilini.

What is involved in participating?
If you choose to participate, the doctor interviewing you will write down your diagnosis and medication on the back of your questionnaire. You will then be asked the questionnaire which should take 5-10 minutes to complete. You will then put the questionnaire into the box that the doctor has with them.

Kwenzekani uma ubamba iqhaza?
Uma ukhetha ukubamba iqhaza, udokotela okubuza imibuzo uyothatha imininingwane yakho yokugula kanye nemithi owelashwa ngayo efayeleni lakho ayibhale phansi ngemuva kwephepha lemibuzo. Uyobe usuphendula imibuzo esephepheni okumele ithathe imizuzu engu-5 kuya kwengu-10 ukuyiphendula. Uyobe usufaka iphepha lemibuzo ebhokisini likadokotela.

Risks and discomfort:
Some of the questions asked may cause discomfort to answer as they ask about sexual information and menstruation. There is no risk of others finding out your answers as the questionnaire cannot be traced back to you and there is no risk to your health or reputation. Participating or not participating will not affect the care that you receive or any treatment decisions made by your doctors. Your treating doctor will not know whether or not you chose to participate.

Ubungozi kanye nokungaphatheki kahle:
Eminye yemibuzo ebuzwayo ingabangela ukuthi ungaphatheki kahle ukuyiphendula ngoba ibuza ngokuya ocansini kanye nokuya esikhathini. Akukho ngozi yokuthi abanye abantu

bayokwazi izimpendulo zakho njengoba iphepha lemibuzo kalinalo igama lakho futhi akukho ngozi empilweni yakho noma isithunzi sakho. Ukubamba iqhaza noma ukungalibambi ngeke kube nomthelela wokunakekelwa okutholayo noma izinqumo zokwelashwa kwakho ezenziwa ngodokotela bakho. Udokotela okwelaphayo ngeke azi ukuthi uyalibamba iqhaza noma cha.

Benefits of the research and benefits to you:
There is no direct benefit to you from participating and you will not receive any reimbursement.
Imihlomulo yocwaningo kanye nemihlomulo yakho:
Akukho mhlomulo oza kuwe ngqo ngokubamba kwakho iqhaza futhi akukho nkokhelo oyoyithola.

Voluntary participation:
Your participation in the study is voluntary and you may stop participating at any time without giving a reason. Not participating will not affect your treatment in any way.
Ukubamba iqhaza ngokuzikhethela:
Ukubamba kwakho iqhaza kulolu cwaningo kungukuzikhethela futhi ungayeka noma nini ukubamba iqhaza ngaphandle kokunikeza isizathu. Ukungabambi kwakho iqhaza ngeke kube namthelela nhlobo ekwelashweni kwakho.

Confidentiality:
Your name will not be written on the survey. You can also hand in the survey blank if you do not want to complete the survey or you may leave out questions you would rather not answer. The answers you provide will be seen only by the researcher and cannot be traced back to you. Your doctor will not know if you participated or not.
Ubumfihlo:
Igama lakho ngeke libhalwe kuleli phepha lemibuzo. Ungalibuyisa iphepha lemibuzo ungaphendulanga lutho uma ungathandi ukuligcwalisa noma ungayiyeka imibuzo ongathandi ukuyiphendula. Izimpendulo ozinikezile ziyobonwa kuphela ngumcwaningi kanti akekho oyokwazi ukuthi zingezakho. Udokotela wakho ngeke azi ukuthi ulibambile iqhaza noma cha.

Questions about the research?traaac

If you have questions about the research or your role in it, you can contact the researcher on 0201546N@students.wits.ac.za.

If you have any concerns or questions around the ethical activities of this study, please contact :

HREC (Medical): Prof P Cleaton Jones, Tel 011 717 2301, email peter.cleaton-jones1@wits.ac.za or Ms Z Ndlovu/ Mr Rhulani Mkansi/ Mr Lebo Moeng Administrative Officers 011 717 2700/2656/1234/1252 zanele.ndlovu@wits.ac.za; Rhulani.mkansi@wits.ac.za; and Lebo.moeng@wits.ac.za

Imibuzo mayelana nocwaningo?

Uma unemibuzo mayelana nocwaningo noma ngeqhaza lakho kulo, ungaxhumana nomcwaningi kule imeyli 0201546N@students.wits.ac.za.

Uma unokukhathazeka noma imibuzo maqondana nobuqotho bokwenziwa kulolu cwaningo, siza uthintane no:

HREC (Wezokwelapha): uSol. P Cleaton Jones, Ucingo 011 717 2301, i-imeyli peter.cleaton-jones1@wits.ac.za noma uNk. Z Ndlovu/ uMnu. Rhulani Mkansi/ uMnu. Lebo Moeng Omabhalane 011 717 2700/2656/1234/1252 zanele.ndlovu@wits.ac.za; Rhulani.mkansi@wits.ac.za; kanye no Lebo.moeng@wits.ac.za

If you feel that you would like more information about contraception after reading this questionnaire, please take the slip of paper with the heading “Dear Local Clinic” that you were given when you were given this questionnaire and take it to your nearest local clinic.

Uma udinga ulwazi oluthe xaxa mayelana nokuvika inzalo ngemuva kokufunda leli phepha lemibuzo, siza uthathe isigqebhezana sephepha esinesihloko esithi “Mtholampilo Wendawo Othandekayo” osinikeziwe ngenkathi unikwa leli phepha lemibuzo uye naso emtholampilo wendawo oseduze.

Attention:

If you are currently in a situation whereby you feel that you are unsafe at home and may be experiencing violence or being forced to participate in sexual acts against your will, please report this to the doctor who is doing this study or your treating doctor. They will refer you for appropriate help.

Alternatively, if you feel unsafe or uncomfortable doing this, please contact the below organisation, who offer support to women who are victims of domestic violence:
POWA (Chris Hani Baragwanath Academic Hospital Branch): 011 9332333.

If you find yourself in immediate danger, call your local police station or 10177/112 for emergencies.

Please feel free to tear off and keep this page should you need the telephone numbers and feel that it is safe to have them on you.

Uma okwamanje usesimweni lapho uzizwela ungaphephile ekhaya futhi mhlawumbe uzithola uhlukumezeka noma uphoqwa ukubamba iqhaza ngokuya ocansini ngaphandle kokuvuma, siza ukubike lokhu kudokotela owenza lolu cwaningo noma udokotela okwelaphayo. Bayokwedlulisela lapho uyothola khona usizo olufanele.

Ngakolunye uhlangothi, uma uzizwela ungaphephile noma ungaphathekile kahle ukwenza lokhu, siza uxhumane nenhlangano engezansi, eyeseka abesifazane abayizisulu zokuhlukunyezwa ekhaya:
POWA (Chris Hani Baragwanath Academic Hospital Branch): 011 9332333.

Uma uzithola usengozini ngokuphuthumayo, shayela isiteshi samaphoyisa esiseduze nawe noma ku-10177/112 ngezimo eziphuthumayo.

Sicela ukhululeke ukudabula futhi ugcine leli khasi uma udinga izinombolo zocingo futhi ubona kuphephile ukuhlala unazo.

APPENDIX E

Letter to Local Clinic

Dear Local Clinic.

This patient has been referred to your family planning sister because she has requested more information on family planning/contraception. She wishes to know more about how her psychiatric diagnosis and medication may influence her family planning choices after having been approached to participate in a questionnaire on contraception at Chris Hani Baragwanath Academic Hospital Psychiatry Outpatient Department.

Please would you assist with providing the information outlined and, should contraception be requested, please assist with the provision of appropriate contraception and family planning services.

With thanks,
Dr L. Galvin
Psychiatry Registrar
Department of Psychiatry
University of the Witwatersrand

APPENDIX F

Turnitin Report

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by Lisa Galvin

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APPENDIX G

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Plagiarism declaration for written work

I ...LISA JANE GALVIN..... as a postgraduate student registered for a MMed at the University of the Witwatersrand declare the following:

- I am aware that plagiarism is the use of someone else's work without their permission and or without acknowledging the original source.
- I am aware plagiarism is wrong.
- I confirm that this written work is my own work except where I have stated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or if I have failed to acknowledge the ideas or writing of others.

Signature .....

Date .....11 Dec 2018...

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