Knowledge and willingness to use emergency contraception, among post partum women at Chris Hani Baragwanath Academic Hospital

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DEDICATION

This is dedicated to my late father, Professor EK Lukhaimane and my grandmother Priscilla Seabela who instilled in me the desire to be more and the will to persevere. May the sacrifices that you have made not be in vain, your legacy shall continue in Phindulo Aifheli, my son.

ACKNOWLEDGEMENT

I would like to thank Dr Yasmin Adam, my supervisor, who kept me goal orientated. Thank you for your tireless support and persistent motivation. To Dr Karlyn Frank your advice in the inception stages of this research was invaluable.

To the Chris Hani Baragwanath Academic Hospital, the Obstetrics and Gynaecology departments' staff and patients that were very accommodating and allowed me to conduct this research with the smoothest of proceedings.

To my family thank you for being so accommodating of my absenteeism in pursuit of a dream. This would not be possible without your support and His grace.

DECLARATION

Statement 1

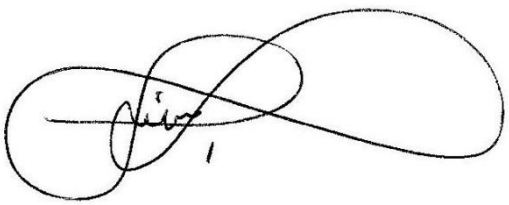
I, Dr Tshimangadzo Abigail Lukhaimane, hereby declare that the work in this research paper is my own original work.

Statement 2

I hereby declare that all sources used or referred to have been documented and recognised.

Statement 3

I declare that this research paper has not been previously submitted in full or partial fulfilment of the requirements for an equivalent or higher qualification at any other education institution.



29 April 2014

Dr Tshimangadzo Abigail Lukhaimane

FIGURES

TABLES

ABBREVIATIONS

ANC	Ante Natal Care
APH	Antepartum Haemorrhage
ART	Antiretroviral Therapy
APLS	Antiphospholipid Syndrome
AZT	Zidoduvine, Retrovir
BW	Birth Weight
CBD	Central Business District
CD_4	Cluster Difference 4
CoH	Cohabitation
COC	Combined Oral Contraceptive
CIUD	Copper Intrauterine Contraceptive Device
CHBAH	Chris Hani Baragwanath Academic Hospital
DHS	Demographic Health Services
EC	Emergency Contraceptive
ECP	Eastern Cape Province
ENG	England
EE	Ethinyl Estradiol
EFV	Efavirenz
FS	Free State Province
FDA	Food and Drug Administration

GP	Gauteng Province
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
IUCD	Intrauterine Contraceptive Device
IUGR	Intra Uterine Growth Restriction
IQR	Interquartile range
KZN	Kwazulu Natal Province
LES	Lesotho
LNG	Levonorgestrel
LNMP	Last Normal Menstrual Period
LP	Limpopo Province
MCC	Medicine Control Council
MOZ	Mozambique
MP	Mpumalanga Province
NW	North West Province
NVP	Nevirapine
NC	Northern Cape Province
N/A	Not Applicable
OTC	Over the Counter
PPH	Postpartum Haemorrhage
POP	Progestogen Only Pill

PCC	Post-coital Contraception
PIH	Pregnancy Induced Hypertension
PMTCT	Prevention of Mother to Child Transmission
RCT	Randomised Control Trial
STI	Sexually Transmitted Infection
SA	South Africa
SD	Standard Deviation
TOP	Termination of Pregnancy
UNICEF	United Nations Children's Fund
USA	United States of America
WC	Western Cape Province
WHO	World Health Organisation
ZIM	Zimbabwe

ABSTRACT

BACKGROUND:

Emergency contraception (EC) has been shown in observational studies to prevent pregnancy after unprotected intercourse. EC is available in South Africa (SA) in the public and private health sectors, without prescription. Prior studies of EC in SA demonstrated a low level of EC awareness. Establishing the awareness of EC among women in the greater Soweto region that attend the Chris Hani Baragwanath Academic Hospital (CHBAH) for delivery may give us an indication of the need for education on emergency contraceptive methods. We will aim also to establish where women would prefer to source their EC, once a basic understanding of EC is conveyed. The need for targeted education and media campaigns has been demonstrated to improve EC awareness in other countries and this should be considered when programs are instituted to get wider coverage. It would be advantageous to have insight as to the sources of current EC information and client preferences.

OBJECTIVE:

The main aim of this study is to establish awareness and knowledge of EC in postpartum women at CHBAH. Secondary objectives were to establish the source of the information, and differences in women who were aware of the method from those who were unaware. We also assessed the woman's planned pregnancy rate for their pregnancy, previous and current pregnancy. The final objective is to determine if there is a willingness to use EC among this population, after informing all women about the method.

STUDY DESIGN:

This was a cross sectional prospective study looking at 100 postpartum women at the CHBAH over a period of three months (May 2012 to July 2012). A self-designed questionnaire was utilised to collect data and women were recruited from the 5 postnatal wards. A total of 20 women per ward were interviewed on days which were convenient to the researcher. Women were given a leaflet an information leaflet on EC. The information of the leaflet was discussed with her and EC education was given. Participants were then assessed for willingness to use EC.

RESULTS:

Attendance at antenatal clinic was 96%. Thirty two percent of the women were HIV positive. We found that there was, a high proportion of unplanned pregnancies (68%), among the current pregnancies. There was a significant association with planned pregnancies and an HIV negative status. We demonstrated an awareness of EC (44%), most women (77.27%) knew about the timing of EC use. Knowledge on other aspects of EC use was lacking. Awareness of EC was significantly associated with women that were, single; employed (formal or informal sectors); education level higher than Grade 9 (late secondary and higher) and originally from Gauteng Province (GP). A great proportion of mothers were willing to use EC (84%) after getting more information regarding EC. There was a significant interest in advanced supply of EC.

CONCLUSION

The awareness and knowledge in the SA public sector is still low (44%) and yet the willingness to use EC is high (84%). This study population had an unplanned pregnancy rate of 68% that further accentuates the potential for EC utilization. Underutilization of EC was noted as only 9 women had ever used EC before their current pregnancy. "The EC knowledge (type of contraceptive and the time within which it had to be taken) was assessed. The knowledge was thought to be good when women knew that EC had to be taken within 72 hours of intercourse for the EC pill, and within 120 hours for the intrauterine contraceptive device (IUCD), this 77.27% of those that were aware. For the utilization of EC to increase in SA we need to have basic family health care education incorporate and highlight EC as a 'back-up' method of contraception. Media campaigns need to target the large sector of public health care clientele that are dependent on the state health care services for their basic health care needs. A woman's ability to control her fertility choices is the cornerstone of women's reproductive health and all options need to be available, accessible and affordable to all woman.

INTRODUCTION

Unintended pregnancy is a global phenomenon. The World Health Organisation (WHO) estimates that 80 million women per year have unintended pregnancies.[1] In South Africa (SA) the rate of unplanned pregnancies is estimated to be 53%,[2] which is similar to the rate in the United States of America (USA)[3]and higher than that in France (2000) which is 33%.[4] In the majority of cases more than half of the unplanned pregnancies are unwanted and will be terminated as reported by Trussell (1992).[5]Similar figures have been reported in SA.[2,3,6]These unplanned pregnancies are a great burden to the health care services of a society.[7,8] Not only do they impact directly upon the maternal morbidity and mortality but also influence socioeconomic conditions.[9]

The use of emergency contraception may lead to the decrease in unplanned pregnancy and decrease the rate of induced abortions. Globally over two thirds of adolescent pregnancies are unintended and these mothers are at risk for greater maternal morbidity and mortality.[7] Recent SA surveys estimate that 75% of pregnancies by mothers of 19 years and younger are unplanned.[10] This is consistent with findings in USA, Mexico and North African countries.[3,7]

Unplanned pregnancies that proceed to viability have an increased incidence of being unbooked or late bookers to antenatal care.[11] This inadequate attendance of antenatal care (ANC) is associated with a higher rate of poor maternal and fetal outcomes.[11] Studies of unbooked mothers in SA, Nigeria, Kenya, Egypt and many other countries have shown that the unbooked mothers profile tends to be young, unmarried, have a lower level of education and are of a lower socioeconomic class.[12,13]

Some strategies to reduce the unplanned and unwanted pregnancy rate included policies and standards for family planning and the legalisation of termination of pregnancy.[11] EC has the ability to impact on unplanned pregnancy rates at the time of possible risk of pregnancy.

Studies outside of SA such as Turkey, Iran and Kuwait demonstrated a wide range of EC awareness with rates between 6.1% and 39.6%.[14]In more developed countries such as the United Kingdom, EC awareness is as high as 94%.[15]The uptake of EC was 35.6% in the Turkish study population, but less than half of those respondents knew the correct timing that EC should be used.[12]The challenges are to increase EC awareness and knowledge. Uptake of EC has been seen to increase when dedicated EC products are available as seen in France, Nigeria and USA.[15]

In prior SA studies on awareness of EC in termination of pregnancy (TOP) seekers in Cape Town (CT) exhibited a low (35.4%) awareness of EC. Women younger than20 years of age; with a higher level of education, and spoke either English or Afrikaans were more aware of EC.[16]Students in a tertiary institution in Durban, Kwa- Zulu Natal Province (KZN), had a 56.5% EC awareness in 2004 and 49,8% in 2012.[17,18]

Other factors' which may contribute to the underutilization of EC is the knowledge and awareness amongst providers of contraception. In Durban (2001) only a third of pharmacists and doctors could correctly initiate Yuzpe regime, there were still misconceptions of EC as an abortificient, or an agent promoting promiscuity, HIV and STI's.[19] A third would not provide EC to minors less than 18 years of age.[17]

In 2003 pharmacists located in Soweto central business district (CBD) fared better with majority initiating timeously and exhibiting a better knowledge base of EC.[20]

LITERATURE SEARCH

Emergency contraceptives are not a new phenomenon in reproductive health. Post-coital preparations have been documented on Egyptian papyri as early as 1850 BC. Preparations involved a pessary made with crocodile dung and honey. Colocynth pulp, bryony, sulphur, iron scoria, scammony, and cabbage seeds were used in 12thcentury Persia; and a douche containing a sulphate mixture of zinc, alum, and perlash in 19th-century America was used as post-coital contraception (PCC). Post-coital douches were also made from infusions of substances as diverse as white oak bark, red rose leaves, nutgalls, wine, and fennel bulb or caustic household agents including disinfectants, mercuric chloride, vinegar, lemon juice, alum, pomegranate juice, and even cola soda.[21] Tribes in Polynesia and Australia have been practicing a method that involves them gyrating their lower body aggressively, while in a seated or squatting/crouching position so as to shake the seminal fluid from the vagina, thereby preventing conception.[22] Modern medicine has come with EC modalities that are taken within a specified time post unprotected sex or failure of regular contraception.

EC, alternatively, post-coital or 'morning-after' was aptly defined by Van Look in 1993 as "methods that are used as emergency procedures to prevent pregnancy following unprotected intercourse".[23] Its criterion being that it should be administered post-coital; it should not be routine contraceptive but rather a once off contraceptive, with the aim of preventing pregnancy and includes all modalities that can be adopted prior to the establishment of pregnancy and the commencement of menses.[24]

The initial post-coital hormonal contraceptive was utilised in the 1960's for rape victims. These being the high dose oestrogen (diethylstilboestrol or Ethinyl Estradiol [EE]), the regimen had good efficacy but very significant side effects of nausea and vomiting.[25]At present, the use of EC is not so limited. EC is a back-up contraceptive method that can be

utilised by women within the first few days after unprotected intercourse to prevent unwanted pregnancy and is intended for use when:[26]

(1)No contraceptive has been used;

(2)There is contraceptive failure,

(2.1)Condom breakage or slippage,

(2.2) Intrauterine contraceptive device expulsion;

(3) Incorrect use of contraception,

(3.1) Combined oral contraceptive pills missed, three or more,

(3.2) Progestogenonly pill delayed by more than three hours,

(3.3) More than two weeks late for intramuscularDepo Provera®(Depo Medroxyprogesterone Acetate)® or more than one week for intramuscularNur-Isterate® (Norethisterone enantate),

(3.4) Dislodgement, delayed placement or early removal of hormonal contraceptive transdermal patch or vaginal ring,

Of importance is that all these regimens are not abortive agents.

EC is not for management of established pregnancies that are unwanted. This distinction from abortifacient agents is a phenomenon that also contributes to the misconceptions and poor knowledge of emergency contraception.

The advent of new medical innovations is accompanied by moral and acceptability issues which will ultimately dictate their success or failure. Generations of pioneers have fought so that women today can have a reproductive choice. Yet research has shown that although EC is available there has been no significant decline in unplanned pregnancy rate and abortion rates globally.[27,28]

As no trials can ethically test EC against a placebo, randomised trials are done to compare efficacy of different regimens of EC.[29,30,31] Studies have thus been comparative assessing efficacy, utilisation and/or tolerability.

The gold standard of EC according to the WHO is the Levonorgestrel single dose of 1,5mg. The divided dose regimen is equally effective without additional side effects,[32] and is recognised by the WHO. Recent analysis of copper containing IUCDas emergency contraceptive inserted within 5 days of unprotected intercourse may be more effective than all other EC modalities, with a pregnancy rate of 0.1%.[33] Levonorgestrel-releasing IUS as EC has not been studied and is not recommended for EC use. Table 1 below summarises the EC modalities that are available and their mechanisms of action.

Table1 : Emergency contraception and mechanisms of action

	EE	Yuzpe	LNG	RU 486	COPPER IUCD	Ulipristal acetate
Dose	5x 1mg EE for 5 days	0.2mg EE + 2mg norgestrel (0.5mg Levonorgestrel) in 2 divided doses 12hours apart	0.75mg x 2 doses 12hrs apart , or 1.5mg as a single dose or 0.3mg/0.35mg X 21 tablets in the mini pill	600mg/50mg/10mg as a single dose	Copper containing IUCD	30mg as a single dose
Timing of treatment to be taken after the coital event	< 72hrs	< 72hrs	< 72hrs (up to 5 days if after ovulation)[3]	< 5days or up to 5 days after ovulation[3]	5 days- (12 days)[3]	< 120hrs
Mechanism of action	Disruption or inhibition of ovulation and renders the endometrium unfavourable for implantation	Disruption or inhibition of ovulation and renders the endometrium unfavourable for implantation	Disruption or delay in ovulation	Halt follicular maturation, inhibition of ovulation, alteration of endometrial maturation, regression of the corpus luteum	Inflammatory reaction that affects the sperm the ova and the endometrium making it a hostile environment for fertilization and implantation	Inhibition of ovulation
Side Effects	Nausea (70%) Vomiting (33%)	Nausea (50%) Vomiting (30%)	Nausea (18%) Vomiting (4%) abdominal pain, diarrhoea, up to 1 week delay in menses	Delay in menses more so with the higher doses, 600mg dose up to 3weeks delay 10mg dose 2 day delay	Menorrhagia, dysmenorrhea	Headache, nausea, abdominal pain, 2 day delay in menses
Treatment failure rates, every 12hr delay in treatment increases failure rate by 50%	0.4 - 1.6%	1.7 – 3.2%	1.1%	0% -1.3%	0 – 0.2% CuT380A copper lowest failure rate	0.9%-2.1%, 12hr rule not a factor[3,31]
SA preparation		E-Gen C® Ovral®	Norlevo® Escapelle® Micro-Novum®(Norethisterone) Microval®	Not registered for EC	Copper T 380A IUD	N/A

The rates of unintended pregnancies vary by region and differences in regions are influenced by development (urban or rural), community educational level and affluence (low/medium/high income).[27,34,35] Affluent regions have better and more easily accessible resources. It is now commonly accepted that female literacy and education have an inverse relationship on fertility.[34,36,37]

EC could be viewed as the least invasive, last resort to preventing unwanted pregnancy. So what are the obstacles to the effective usage of EC that would impact on the unintended pregnancy rate? Although EC is available on the market unless there is an awareness of the products, it will not be used.[38,39] The awareness is not the sole responsibility of the user but also that of service providers.

Awareness and knowledge and willingness to use

Studies have cited a lack of knowledge as a reason for underutilization of EC[4]. Knowledge is not measurable without awareness of EC. Certain studies have had to abandon their attempt to assess EC knowledge due to no awareness.[40] Awareness, and to a lesser extent knowledge of EC, is better in high income countries in comparison to medium to low income countries.[18,41,42,43,44]Studies conducted in the 1990's, in the developed world found low rates of awareness of EC, and to address these rates instituted various campaigns to improve awareness of EC. In the USA EC awareness was low at 6 years post Food and Drug Administration (FDA) approval of dedicated EC product.[45] In California surveys in 1999 to 2004 found an increase in awareness after interventions for EC awareness were instituted.[46]These media campaigns included public and private services which were launched to make EC more accessible to women. Media campaigns for the public were aired on various radio and television stations, print media was circulated at regular intervals and an EC Hotline was promoted and monitored. The awareness of EC was markedly improved in these cities and states.[45,46] Differences were noted in the degree of improved awareness if both public service and private/paid service campaigns were utilized. Socioeconomic and demographic variances remained evident in all studies especially in those considered high risk for unintended pregnancy women. Low and middle income groups; less than high school level of education; age less than 24; native and immigrant populations, were features

common with lower levels of knowledge and awareness of EC.[46]The use media campaigns resulted in a significant rise in the overall group awareness in an evaluation by Trussel et al. However differences in awareness still persisted with less than two thirds of the high risk population groups being aware of EC.[46]

The quality of knowledge in these surveys also increased but to a far lesser extent and this was a gap that still needed to be addressed.[43,45,46]The awareness among adolescents in a Turkish study at the University of Gazi in Ankara had a slightly higher awareness of EC, this comprising of both males and female freshman students. This study population also demonstrated a low knowledge base and their attitude were not necessarily affected by their religious beliefs.[47]Moral, religious or cultural objections vary according to the individuals and the social conditions.

Provider awareness has been looked at in the public service and the private sector, looking at pharmacists, paediatricians in emergency departments, general practitioners and gynaecologists, awareness among this sector was encouraging but there is a clear need for more training with emphasis on safety, efficacy and the need to dispel misconceptions.[19,20,48,49,50]Provider awareness also seems to be impacted by user demand.

Access to EC in SA has little restrictions it is available from nurses, doctors and pharmacists without a prescription similar to Australia, France, Ghana and the United Kingdom (UK).It is important for family planning policies to address access and knowledge of EC.[51]Policies vary, with some not providing over the counter (OTC) EC and others not allowing adolescents access of OTC EC. Only 3 States in the USA provide OTC EC to all women including women under the age of 17 without prescription, namely Washington State, California and Alaska.[52] The USA has about 24 states that have pharmacists that will not provide EC to women of all ages.[53,54]

SA studies looking at provider knowledge revealed that there were still misconceptions of EC being an abortifacient agent, or that the use of EC will be promoting and increasing promiscuity, HIV and STI's.[19,20,46,47] A third would not provide EC to minors less than 18 years of age, while legislation permitted medical treatment consent above the age of 14 (Child care Act 1983) which has since been revised to 12 years and older (Children's Amendment Act 41 of 2007).[55]

The majority of women are found to be willing to use EC, when provided with the correct knowledge and having access toit.[41,56]

Source of information about EC and access to EC

Policy makers, health care facilitators and commercial services are necessary to assist in increasing the awareness, knowledge and access to EC, and in thus increasing the use of EC.[57,58]Health care regulators like the Medicines Control Council (MCC) are responsible for the establishment of policies that dictate how a product is marketed. Conflicts of the right of the individual and independent thinking and decision making are continuously debated and tested. In SA our healthcare policies provide access to minors for termination of pregnancy, contraception without the consent of an adult. EC in SA is available without a prescription, and can be issued by a pharmacist over the counter. Age restrictions, cost and access are all factors that need to be addressed to attempt to achieve high rates of effective utilization of EC.[39-42] Advertising of products in public and private sector facilities, and providing information to high risk populations utilizing different media modalities that are understood by the target population need to be established.[57] South African studies with pharmacists have shown that commercial pharmacy EC provision was driven by user demand and that the majority of pharmacists were willing to provide advertising material or information pamphlets regarding EC.[30,35,36,39]

PROBLEM STATEMENT

In SA EC is freely available in the public and in the private health care sectors without a prescription. This study will seek to assess the level of awareness and knowledge of EC and identify potential gaps that need to be addressed.

EC or PCC is a method to prevent pregnancy after unprotected sexual intercourse or failure of contraceptive. There are dedicated products that are available on the market or various doses of oral contraceptives that can be utilized for this purpose. These have to date produced highly effective, well tolerated products that are acceptable to the medical fraternity and endorsed by the WHO.

In the Johannesburg Metropolitan area EC is available at clinics, the provincial government also supplies contraceptive to general practitioners free of charge to increase accessibility and availability and this allows for the Yuzperegime to be utilized for EC in these facilities.

The basic science on the effectiveness of EC shows that it can reduce pregnancies when taken appropriately. EC has been proven in large randomized trials to be effective in decreasing unintended pregnancy. The question is then why has EC not made the impact it should have on the unplanned pregnancy rate. This is termed Type Three Translational Research. This is where EC research is developing, it seeks to determine why EC has not made the impact that it had in clinical studies in the general population as in trials.[3]These other factors need to be determinedthatcontribute to the rate of unplanned pregnancy. It may be that EC is not a major factor in the reduction of unplanned pregnancy, but it may help women who have had unprotected intercourse if they are aware of the method. Very little is known in SA about usage of EC, in fact very little is known about whether women are aware and what the depth of knowledge is in those who are aware.

JUSTIFICATION

As of July 2011 SA had a population of 50.59million people of which 52% were female, and 57% of these women are in the reproductive age group of 15 to 49 years. Gauteng province, being the most densely populated region, has 11.3 million inhabitants.[2,7]Unplanned pregnancy contributes negatively to maternal health and socioeconomic wellbeing. A gap seems to exist between the availability of EC and the rate of unplanned and unwanted pregnancies. This study will seek to assess the level of awareness and knowledge of EC and identify potential gaps that need to be addressed.

This study will also look at women's willingness to use EC when made aware of it potential for use. This process may help identify misgivings and misconceptions that will need to be addressed when creating awareness campaign tools.

We will try and develop recommendations that can further be channelled into education campaigns to improve the overall effective utilization of EC. These will include what current mediums are informing women about EC and where there is a potential for greater coverage.

OBJECTIVES

General objective:

- To establish the level of awareness and knowledge of emergency contraceptives amongst postpartum women, who delivered at Chris Hani Baragwanath Academic Hospital (CHBAH) from May 2012 to July 2012.The depth of knowledge of emergency contraceptive modalities in women who are aware of EC will also be evaluated

Specific objectives:

- To assess the proportion of women who are aware of EC
- To assess the extent of knowledge of emergency contraceptive modalities
- To find the differences, if any, in women who have a planned pregnancy versus women who have had an unplanned pregnancy
- To describe the difference in women who are aware of EC versus those who are not aware
- To determine their source of information regarding emergency contraceptives;
- To establish the willingness of this study population to use emergency contraceptive.

METHODOLOGY

The CHBAH Maternity unit does an average of 70 deliveries per day of which approximately 24 are caesarean sections. There are approximately 23 000 deliveries a year. This institution is a secondary and tertiary level facility that manages high risk pregnancies from Soweto and the Southern Gauteng region. The low risk pregnancies are being delivered by the local clinics and district hospitals.

STUDY DESIGN

The study was conducted as a prospective cross sectional study, using a self-styled questionnaire and case records. The questionnaire was initially piloted with 5 women, who are not included in the study. The participants were interviewed by the researcher who spoke in 6 different languages and was able to communicate with all participants. The interviews were conducted in a private side room of each of the wards that were utilised. The participants were approached on different dates with varying times in the 5 wards at the convenience of the researcher.

EXCLUSION/INCLUSION CRITERIA

All women who were in the ward were eligible for participation provided that they were not under the age of 18 and that they were not in too much pain postpartum.

After random selection 4 mothers were not interviewed as they were under the age of 18, so another 4 were randomly selected. There was no one who felt that pain was an obstacle to them participating in the interview.

SAMPLE SIZE

The main aim of this study was to describe the proportion of women who were aware of EC and to determine the depth of knowledge of EC, therefore a sample size was not calculated. From May 2012 to July 2012,at the researcher's convenience, bed numbers in 5 postnatal wards would be randomly chosen, from a box with all the bed numbers. The patient occupying this bed would be screened for eligibility and then requested to participate in the study. If participants agreed they were then consented and the interview was then conducted. A total of 20 patients were selected from each ward to comprise the full sample of 100 participants. Each ward has a bed capacity of 34. The wards are designated as follows. Two

wards are allocated to normal vaginal delivery patients with no postpartum complications and/or medical and/or surgical co-morbidities. One ward accommodates postpartum high risk pregnancies and/or deliveries both vaginal and operative cases, and postpartum mothers who had stillbirths and early neonatal deaths. One takes patients that are uncomplicated post-caesarean section cases. The 5th postnatal ward accommodates patients with infectious diseases and other sepsis. Only the postpartum women were eligible to be in the study.

CONTROL GROUP

This study did not have a control group.

STATISTICS

The data were captured onto specially designed data sheets, and entered onto a Microsoft Excel spread sheet. The data was then exported to the Stata 10.1 (StataCorp, Texas, USA) statistical software package for analysis. Categorical variables were described using frequencies and continuous variable using means and medians. Comparisons between categorical variable were made using the chi-squared test or the Fischer's exact test. For comparisons of continuous variables, the Student's t-test or the Wilcoxon rank test. A p-value of <0,05 was accepted as being statistically significant.

TOOLS

Patients were given a brief introduction to the research and the purpose of research and the process that would occur in the event that patient agreed to participate in the study. Particular care was taken not to mention the specific terms emergency contraception/pill/method. A detailed questionnaire was compiled and approved by the Ethics Committee. The questionnaire included demographics, socioeconomic status, obstetric and gynaecological

history, current pregnancy status and contraceptive history and EC awareness and knowledge. Hospital records were also utilised, specifically the antenatal care (ANC) clinic card, the hospital admission clerking sheet prior to delivery, the delivery notes and neonatal outcome records in the maternity records. The ANC clinic cards were used with all booked patients to obtain information on medical, gynaecological and obstetrical history obtained and discussed during the antenatal visits. There was then an information leaflet regarding EC that was conveyed after awareness and knowledge questions were answered to establish willingness to use.

FUNDING

All costs were paid by the researcher.

ETHICS

Ethics Committee permission for this study has been obtained from the Human Research Ethics Committee (HREC), at the University of the Witwatersrand, Ethics clearance certificate number M120354 (see appendices attached).

The University of the Witwatersrand post graduate committee approved the research study for a post graduate dissertation.

Permission to conduct the study at CHBAH, Department of Obstetrics and Gynaecology was obtained from the Chief Executive Officer of the institution, for this specified period.

CONSENT

All participants signed written consent to participate in the study.

RESULTS

One hundred postpartum women were interviewed from May 2012 to July 2012.

DEMOGRAPHICS:

Age:

The mean age of the women interviewed was 27.43 (SD 6.33) and the median was 26 years (IQR 22-32). The youngest participant was 18 years and the oldest was 42 years.

Residence:

Fifty six percent lived in Gauteng Province, 29% were from the other eight provinces of South Africa,15% women were foreign nationals, as shown in Figure 1 below:

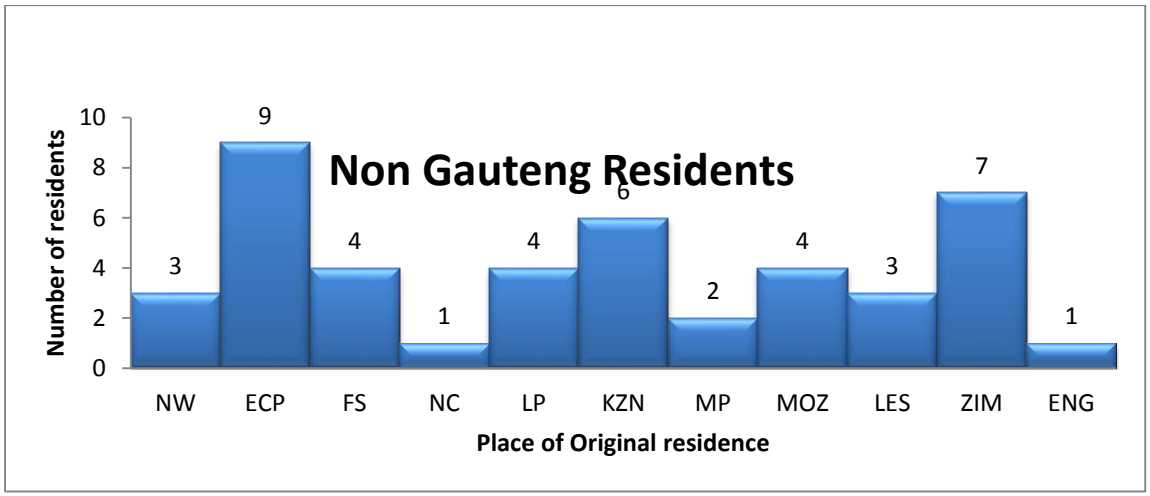


Figure 1: An illustration of the distribution of the non-Gauteng province residents

NW-North West Province, KZN- Kwa-Zulu Natal Province, ECP- Eastern Cape Province, MP - Mpumalanga Province, FS- Free State Province, MOZ – Mozambique, NC- Northern Cape Province, LES – Lesotho, LP- Limpopo Province, ZIM – Zimbabwe, ENG - England

Marital Status:

Most women (57%) were single, 32% were cohabitating, 9% were married, 1% widowed and 1% divorced.

Religion:

Six percent of the women reported having no religious affiliation, 3% were Muslim and 91% were of various Christian faith denominations.

Education:

One woman had no formal schooling, one was still attending late secondary school and one had only done primary school level. The secondary schooling was divided into early and late secondary, Grades 8-10 and Grades 11-12 respectively. Figure 2 below, illustrates the highest level of education achieved by the women in the study.

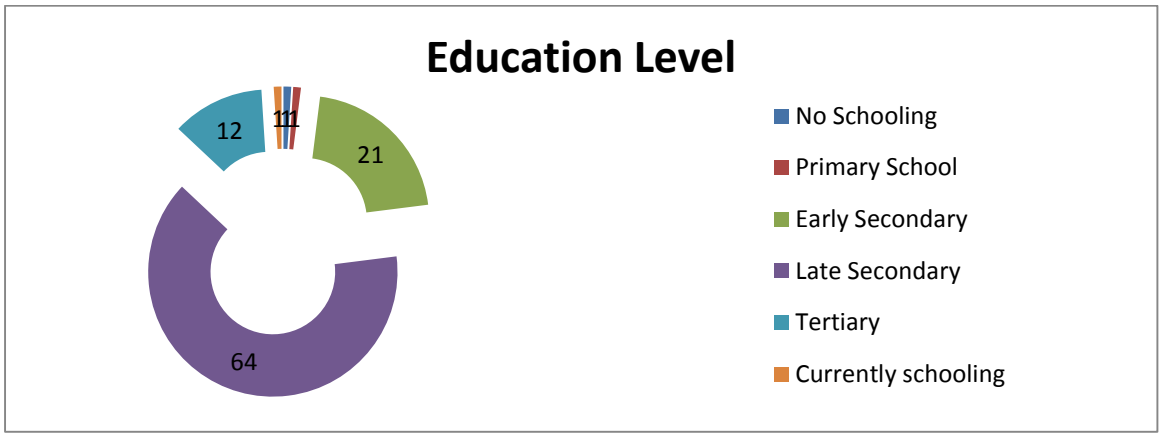


Figure 2: An illustration of the levels of education in the group

Employment & Income:

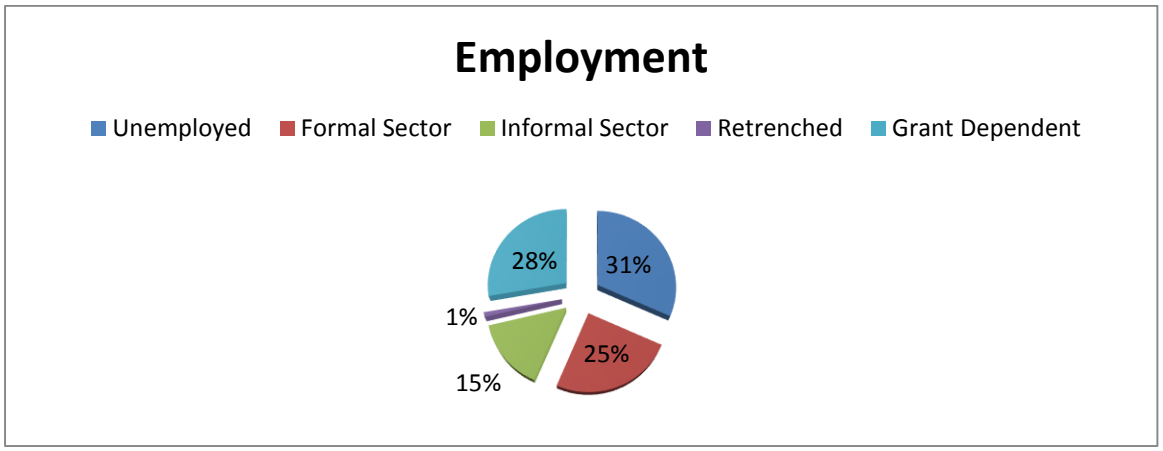


Figure 3: An illustration of the employment categories

Figure 3 above depicts the employment status in the women. A total of 59 % women are unemployed and these included 28% whose income was obtained from a social grant. One woman was retrenched 2 months prior to interview. Figure 4 below is a breakdown of the total income obtained including income obtained from a grant:

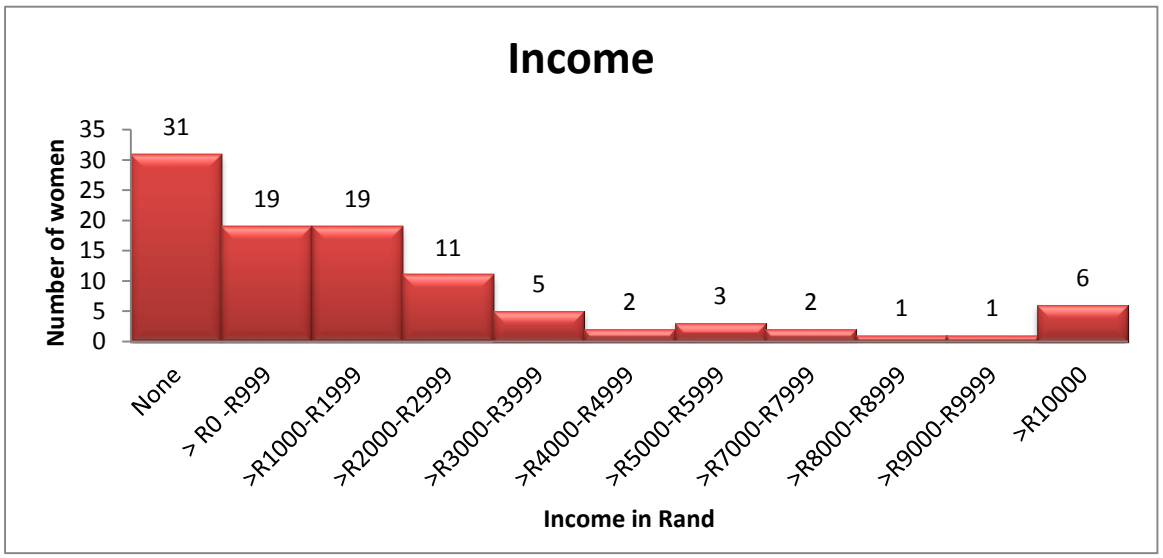


Figure 4: The distribution of income in Rand

ANTENATAL CARE:

The majority,96%were booked at antenatal care (ANC). The mean number of visits was 4.7(SD 2.27) visits and median of 5(IQR 3-5). The number of visits ranged from 1 to 11.

The mean gravidity was 2.37 (SD 1.16) and a median of 2 (IQR 1-3). They ranged from gravida 1 to 5. The mean parity of the group is 1.21 (SD 1.09) with a median of 1 (IQR 0-2).The parity ranged from 0-4.There were 22 women who had a history of previous pregnancy loss (ectopic [1], termination of pregnancy [2], stillbirth [8], miscarriage [11]). Two women had each had 2 prior stillbirths and one other woman had more than 1 prior miscarriages.

Fifty eight percent women were sure of their last normal menstrual period (LNMP).

Sixteen percent of the women presented with past medical conditions at ANC as shown in Figure5 below:

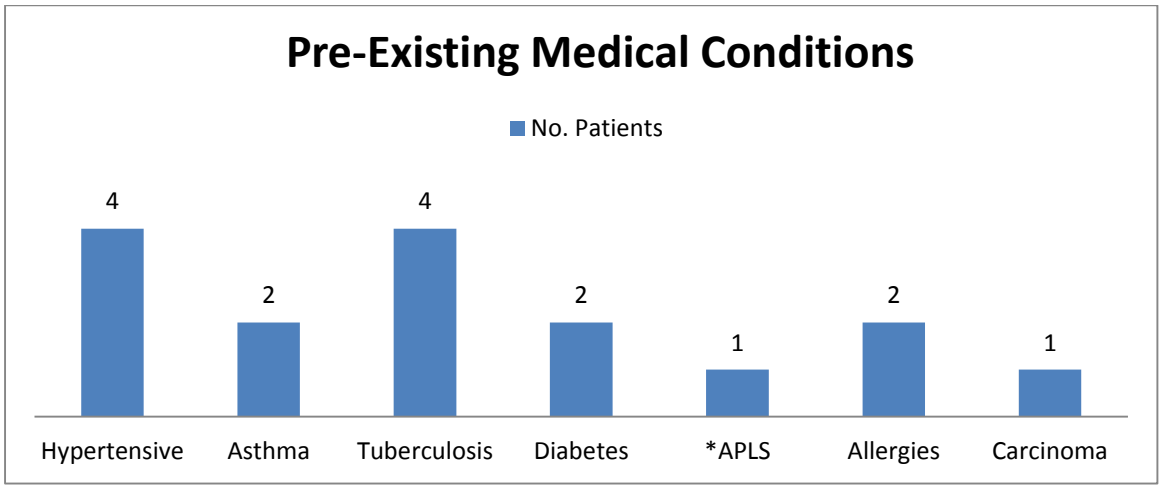


Figure 5: An illustration of the pre-existing medical conditions

*APLS: Antiphospholipid syndrome

Only two women at delivery had an unknown HIV status and both of these were unbooked. The other two unbooked mothers were known to be HIV positive. Thirty two percent were HIV positive and 66% HIV negative and 2% unknown. The CD_4 results were available for 28(87.50%) of these women and the mean was 388.96 (SD 260.29), the median CD_4 was 375 (IQR 195-537). The CD_4 ranged from14 to 1129.

Only 1 (0.03%) HIV positive mother was not on any antiretroviral treatment during this pregnancy, she was a booked patient. There were 5 (16.13%) women who were already on antiretroviral therapy (ART) prior to their pregnancies. The other 26(83.87%) women were initiated on prevention of mother to child transmission (PMTCT) regimes, of which 17 (54.84%) were on Zidoduvine (AZT) daily and Truvada and Nevirapine at birth, and 9 (29.03%) were initiated on highly active antiretroviral therapy (HAART) daily, demonstrated in Figure6 below:

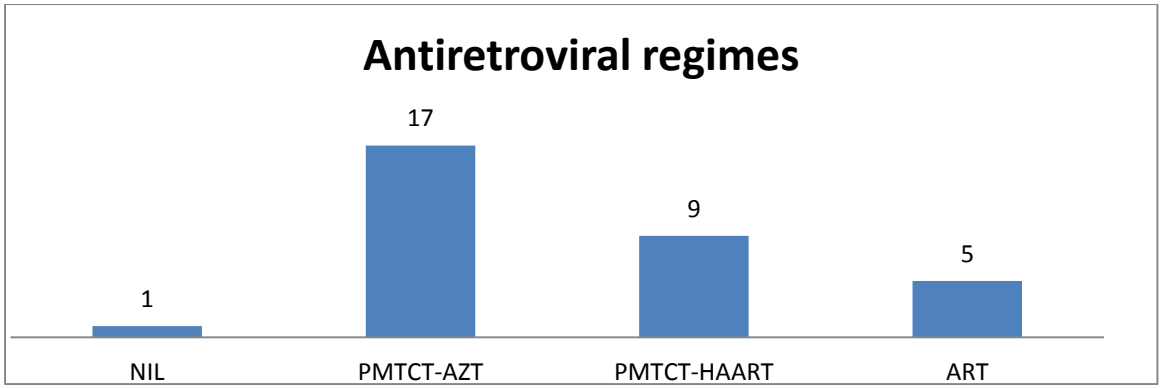


Figure 6: An illustration of treatment regiment

CONTRACEPTION

All the booked women carried the ANC card which has a space available to document past and future contraceptive use. In more than half (52%) of the women, their ANC cards reflected that they had used some form of prior family planning method. Past family planning usage was not documented in 13% and in 35% it was documented as "never" having used any prior contraceptive method. On their ANC cards, 13% had no future family planning documented, the space was left blank, and 4% indicated that their intention was to use no future family planning methods. The majority of women, 83%, were documented as wanting to utilize some method of future family planning. Of these women, 44 were undecided as to their choice of contraception modality, 1 wanted barrier contraception. There were 7% who wanted sterilization and 71% opted for hormonal contraception. These comprised of 60 (84.51%) opting for injectable and 11 (15.49%) chose a combined oral contraception.

During the interview all women were asked further details of their contraception history to provide that information where it was lacking, or to confirm or refute the information on their ANC card. In this instance 16% reported no prior form of contraception at all and an additional 15% indicated that their only prior form of family planning was barrier contraception specifically condoms.

The duration and/or frequency of use of condoms were not quantified. Most women, 69%, reported usage of various hormonal contraceptive methods, these are shown in Figure 7 below:

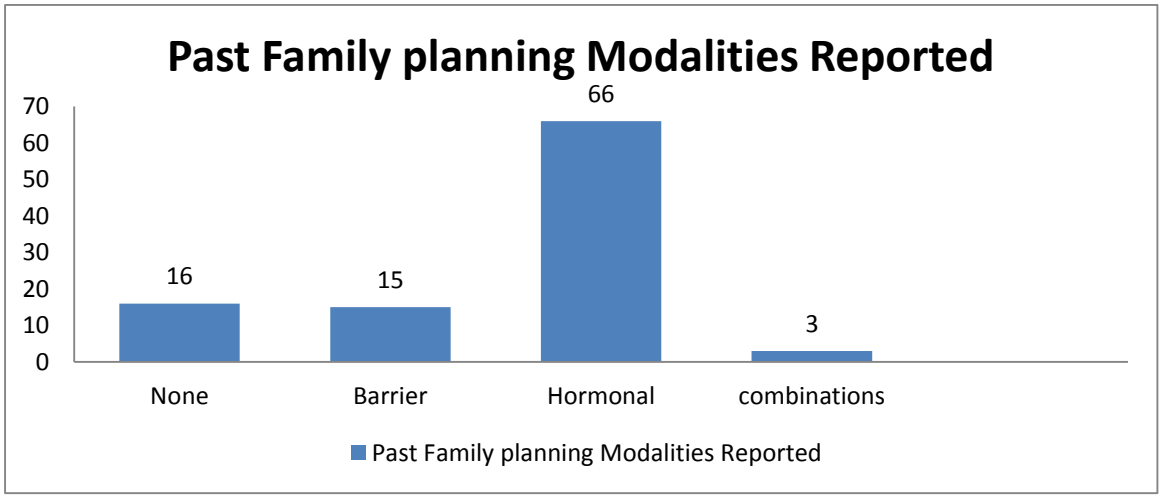


Figure 7: A description of the type of family planning used in the past

Of the 69 (81.18%) on hormonal contraception there was a mean duration of usage of 50.18 months (SD49.22) and a median duration of 30(IQR12-72) months. The shortest duration on hormonal contraception was 3 months and the longest was 205 months.

The women were also asked for their reason for cessation of the contraceptives, and their responses are illustrated in Figure 8 below:

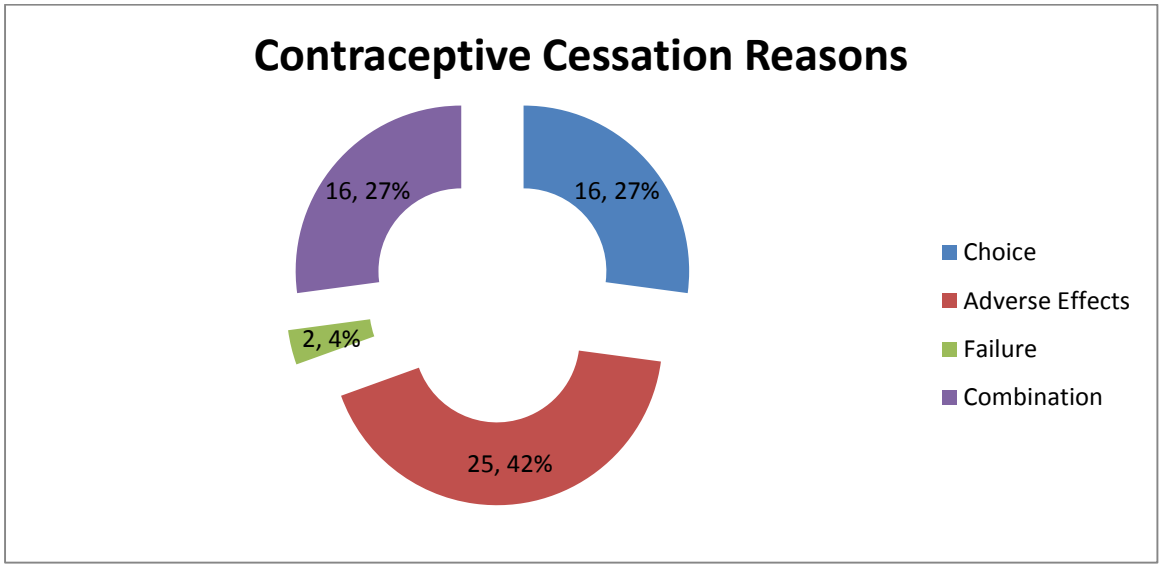


Figure 8: A graphic display of reasons for cessation of contraception method

The responses that are excluded are of 31 women who were a combined group of the barrier contraceptives (16 women) and the women who had never been on any form of contraceptives (15 women). The majority of women 25 (42%) stopped their choice of contraception due to adverse effects, namely inter-menstrual bleeds, headaches and weight gain. There was an equal number of women who stopped by choice (with no specific reason) 16 (27%) and those that stopped due to a combination of choice and adverse effect 16 (27%). Not all of the women who chose to stop contraception necessarily wanted to have a baby. Two (4%) women attributed their pregnancy to failure of their contraceptive method.

Figure 9 below shows the future contraception choices:

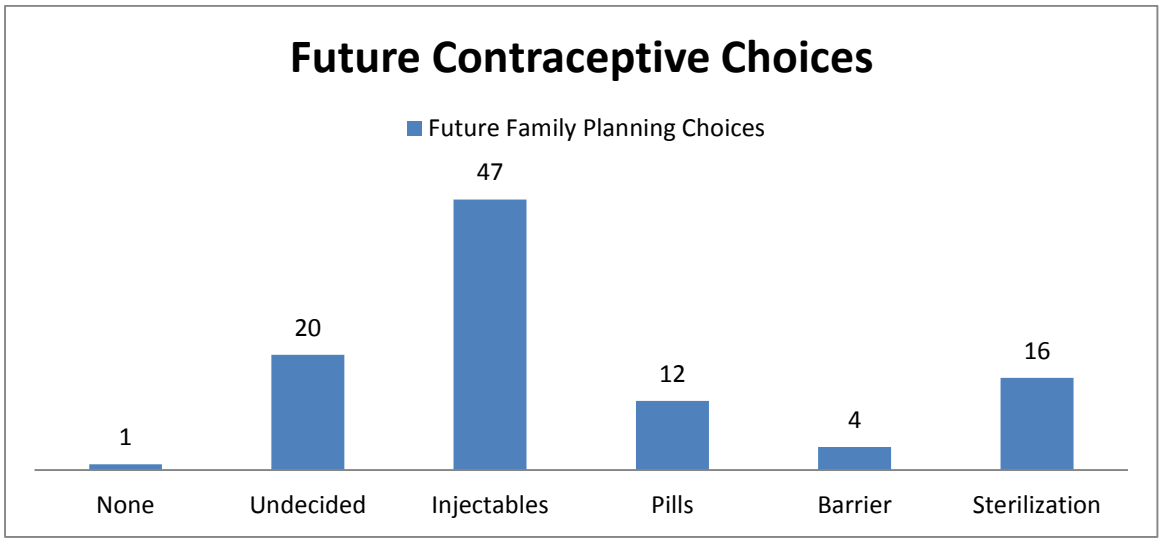


Figure 9: An illustration of future contraceptive choices

Sixteen women chose Sterilization as a future method and 7 of these had been sterilized at the time of the caesarean section.

CURRENT PREGNANCY

Gestation:

The mean gestational age on admission was 36.70 weeks (SD 4.26) with a median of 38weeks (IQR35-39). This excluded one woman whose gestation on admission was not documented.

Delivery Outcomes:

The mode of delivery was 43% by caesarean section.

The mean birth weight of the newborn infants was 2807g (SD 860.70) with a median weight of 2995g (IQR 2320g-3395g). The birth weights ranged between 160g to 4250g. The 100 women had a total of 101 deliveries with one set of twins.

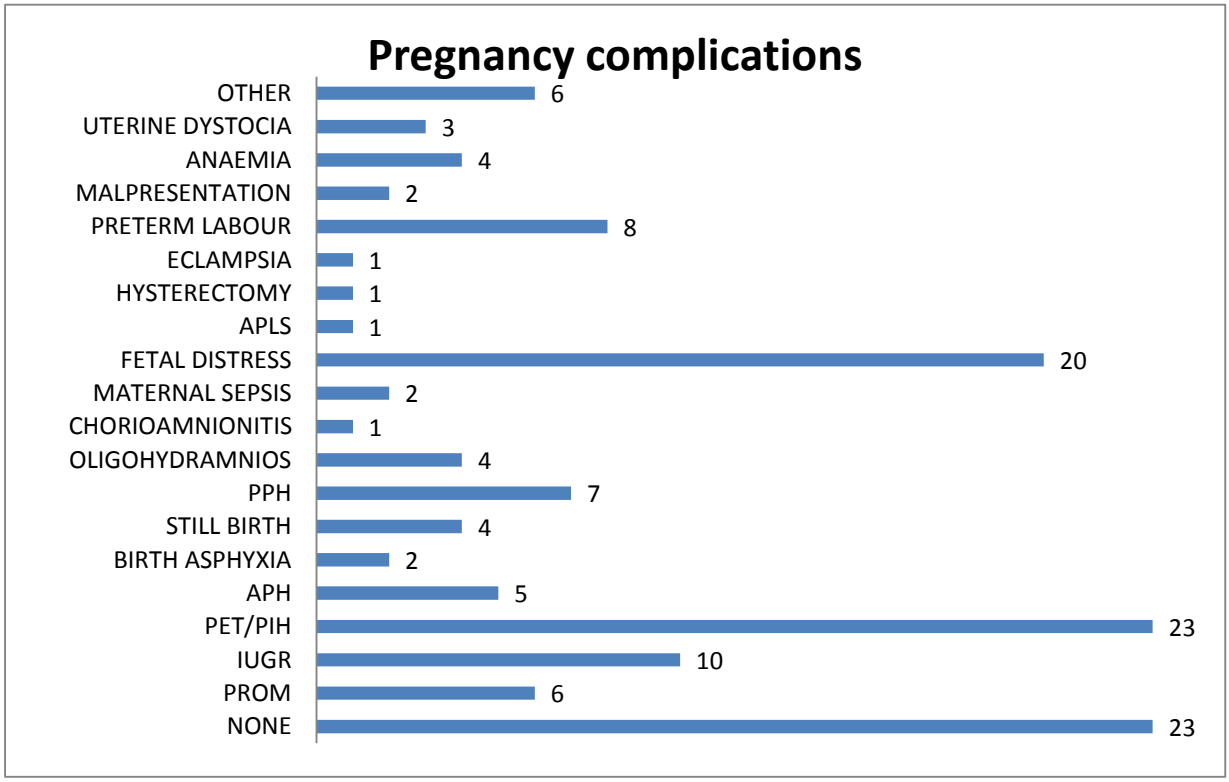


Figure 10: An illustration of the type and proportion of complications experienced during this pregnancy

Only 23% mothers experienced no pregnancy complications whatsoever. The complications ranged from antenatal conditions such as anaemia to potentially life threatening haemorrhage and eclampsia. Still births and medical terminations were the results of some of these complications. Other complications included advanced maternal age, maternal vaginal/

perianal warts and food allergies. There were 35 (45.45%) women with more than 2 complications/. The complications are demonstrated in Figure 10 above.

PLANNED VS UNPLANNED

Only 32%of the pregnancies were planned in this current pregnancy and 68% unplanned. The 100 women have all in all had 238 pregnancies that have carried to term and of these only 39% were reported to be planned pregnancies.

The proportion of unplanned pregnancies as per maternal parity is demonstrated in Table 2 below. The table shows that the proportion of unplanned pregnancies rises with each increase in parity. The greatest proportion of planned pregnancies (27.59%) was in the women having their first child.

Table 2: The proportion of unplanned pregnancies based on maternal parity

Unplanned	P1	P2	P3	P4	P5
0	8	6	2	2	-
1	21	20	10	5	-
2	-	-	14	4	-
3	-	-	-	5	2
4	-	-	-	-	1
total	21/29	20/26	24/26	14/16	3/3

The mothers were then asked what their desired family size. The Figure 11 below reflects their responses:

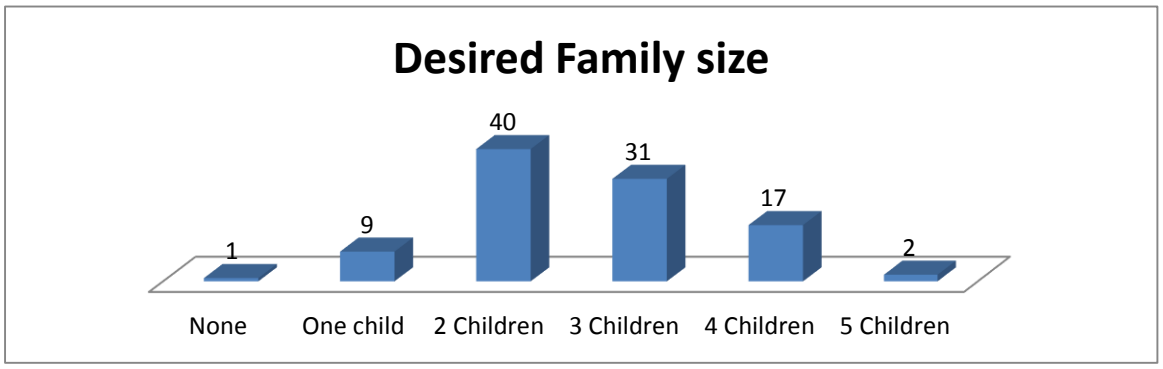


Figure 11: An illustration of the desired family size of the group

The desired family size was then analysed based on maternal parity at ANC. Interestingly there was one mother who given the choice would have preferred to have no children stating that her current pregnancy that resulted from non-consensual intercourse. Of the 16 women with 4 children each, there were 4 who still wanted more children, the rest would desired fewer children, their responses are illustrated in the Table 3 below:

Table3: A description of desired family as per gravidity

Desired No. Children	Gravida 1	Gravida 2	Gravida 3	Gravida 4	Gravida 5
0	1	-	-	-	-
1	2	3	2	2	-
2	13	12	8	7	1
3	12	4	11	3	-
4	1	7	4	3	2
5	-	-	1	1	-
	29	26	26	16	3

When the women were asked about their desired family size a quarter of them stated that they had more children than their desired family size.

When looking at the trends between planned and unplanned pregnancies, the following were noted, but not statistically significant;

- The maternal age, 26.66 years vs. 27.79 years and parity 1.06 vs 1.28 were fairly similar
- The gestation at booking for the planned pregnancies was slightly earlier 19.91 weeks vs. 21.73 weeks,
- All planned pregnancies were booked at ANC 32 of 32 vs 64 of 68,
- The planned pregnancy group had s slightly higher clinic visit rate 5.15 visits vs. 4.37 visits,
- The planned pregnancies had lower rate of unsure dates 31.25% vs 47.06%
- The caesarean section rate for the planned pregnancies was higher 56.25% vs. 36.76%, accounted for greater than half its deliveries as compared to a third of the unplanned pregnancies

- EC awareness was also slightly greater in the planned group16 of 32 vs. 28 of 68

The singular trend that was statistically significant was that of the HIV status:

Only 18.25% of the planned pregnancy group was HIV positive compared to the 39.39% positive in the unplanned group and illustrated in Table 4 below:

Table 4: A comparison of planned and unplanned pregnancy

	PLANNED (n=32)	**UNPLANNED** (n=68)	**P value**
Age **<25 yrs.** **25<35 yrs.** **>35 yrs.**	26.66 (5.17) 13 15 4	27.79 (6.81) 28 24 16	0.335**
Education level **Nil-Early Primary:** **Late Secondary - Tertiary:**	 4 28	 19 49	0.126**
Employment **Nil:** **Informal Sector:** **Formal Sector:**	 16 6 10	 48 5 15	0.093
Income **Nil:** **R0-R1999:** **>R2000:**	 3 5 24	 15 15 38	0.159**
Single	15	44	0.09*
Married	17	24	
Gestational Age at Booking (n=94)	19.91 (+7.95) (17.08-22.77)	21.73 (5.87) (20.23-23.22)	0.21*
Parity	1.06 (0.91) 0.73-1.39	1.28 (1.17) 0.10-1.56	0.36*
Booked (n=96)	32 (100.00%)	64 (94.12%)	0.30**
Number of Visits	5.15 (1.95) (4.45-5.86)	4.37 (2.54) (3.75-4.99)	0.13*
Sure of Dates	22(68.75%)	36 (52.94%)	0.14*
Unsure of Dates	10 (31.25)	32 (47.06%)	
HIV Negative status	26 (81.25%)	40 (60.61%)	0.04*
HIV Positive status	6 (18.75%)	26 (39.39%)	
C/S	18 (56.25)	25 (36.76)	0.07*
NVD	14 (43.75)	43 (63.24)	
EC Aware	16 (50.00%)	28 (41.18%)	0.41*
EC Unaware	16 (50.00%)	40 (58.82%)	

*Student t-test,**Fisher's exact test

EC AWARENESS

Forty four women were aware of the existence of emergency contraceptive. Only one of these forty four women identified an intrauterine device as a method of EC. The remaining 43 said it was a pill.

Table 5below is a comparison of women who were aware and unaware of EC.

Table 5: Is a tabulation of indices in emergency contraceptive awareness

	Aware of EC	Unaware of EC	p-value
Age <25 yrs. 25<35 >34	27.05 (SD 6.74) 19 18 7	27.73 (SD 5.83) 22 21 13	0.663*
Parity Primiparous: Multiparous:	1.16 (SD 1.16) 16 28	1.25 (SD 1.04) 18 38	0.658**
Single status	32	27	0.013*
Married	12	29	
Income Level None: <R2000: >R2000:	 9 5 30	 9 15 32	0.159**
Employment status: Unemployed Formal Sector Informal Sector	 23 17 4	 41 8 7	0.02**
Education: None till Lower Secondary	4 (0.09%)	19 (33.93%)	0.004**
Education: Late Secondary and Tertiary	40 (90.10%)	37 (66.07%)	
Maternal Birth Place Foreign: Non Gauteng Province: Gauteng Province:	 3 9 32	 12 20 24	0.009**
HIV Positive	31 (70.45%)	35 (62.50%)	0.67*
HIV Negative	12(27.27%)	20 (35.71%)	
HIV Unknown	1 (1.79%)	1 (2.27%)	

*Student t-test, **Fisher's exact test

Awareness of EC was significantly associated with being single; being from Gauteng Province; having a late secondary or tertiary education and being employed.

EC KNOWLEDGE

Forty four women were aware of the existence of emergency contraception and these women's knowledge is as follows:

The correct time of usage of EC was stated by34 (77.27%) women who stated correct timing "being less than 72 hours" for the EC pill and 120 hours for the intrauterine devices. There were 42 (95.45%) of those aware of EC that knew where EC could be obtained, specifically a health care facility or health care practitioner both in public and private institutions. As to the need for a prescription, there were 30 (68.18%) women who knew that EC is available OTC in South Africa, 2 (4.55%) incorrectly said that a prescription was required and the remaining 12 (27.27%) were not sure. Repeat usage of EC was reported as being possible by 11(25%) and 10 (22.73%) believed to not be possible and 23(52.27%) that were unsure. There were 4(9.10%) women who correctly identified side effects of EC, 24 (56.82%) believed that there were no side effects and 15 (34.09%) were unsure if there were side effects. Only one woman was aware that intrauterine contraceptive device could be used as type of EC. The other 43 knew of EC as a pill formulation.

Thirty five (79.55%) of the women, reported that they did not recognise an opportunity in their past sexual encounters to use EC. The 9 (20.45%) that had recognised an opportunity in their past sexual encounters to utilize EC, had previously done so.

There were 7(15.91%) that could name more than one place to obtain EC, the majority 28 (63.64%) identified the pharmacy as a location to obtain EC. There were 7 (15.91%) who reported a public health facility as a location and 2 (4.55%) that could not identify a location to obtain EC.

Sources of information on EC, the majority 28(63.64%) women heard of EC from friends and/or peers. This was followed by 9(20.45%) who heard of EC at their local clinics. Figure 12 below is an illustration of the reported sources of information on EC.

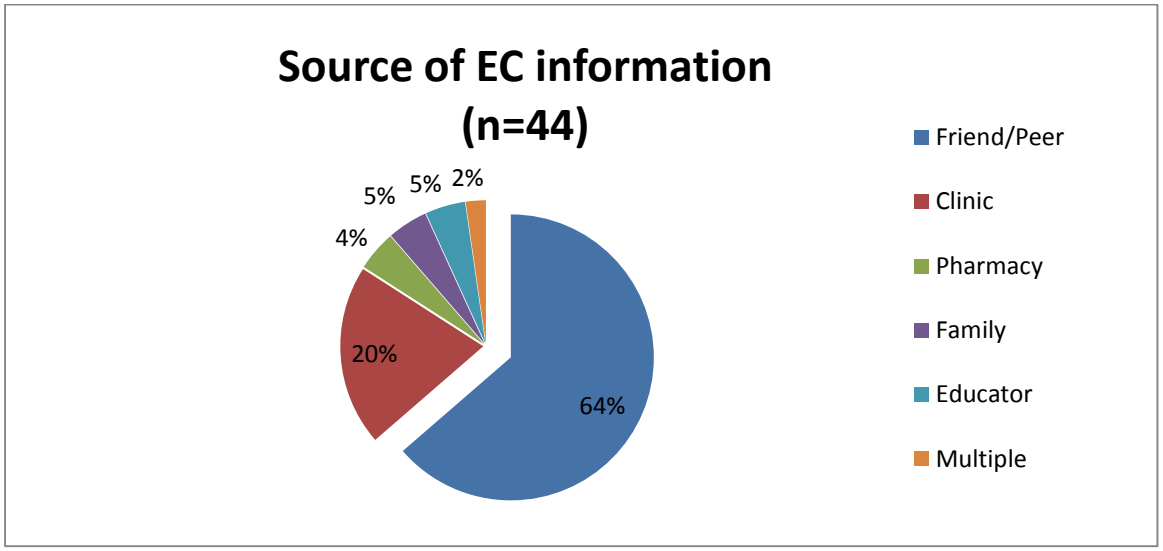


Figure 12: An illustration of the source of EC information

WILLINGNESS TO USE

After briefly going through the EC information leaflet with all of the 100 women they were then asked about whether they would be willing to use EC if the opportunity arose. There were 85% of women that were willing to use EC, 14% were not willing and 1% was still unsure. Both willing and unwilling women were asked if they had concerns regarding EC and 87% had no concerns regarding EC usage. Of the 13% that did raise concerns they are demonstrated in the Figure 13 below:

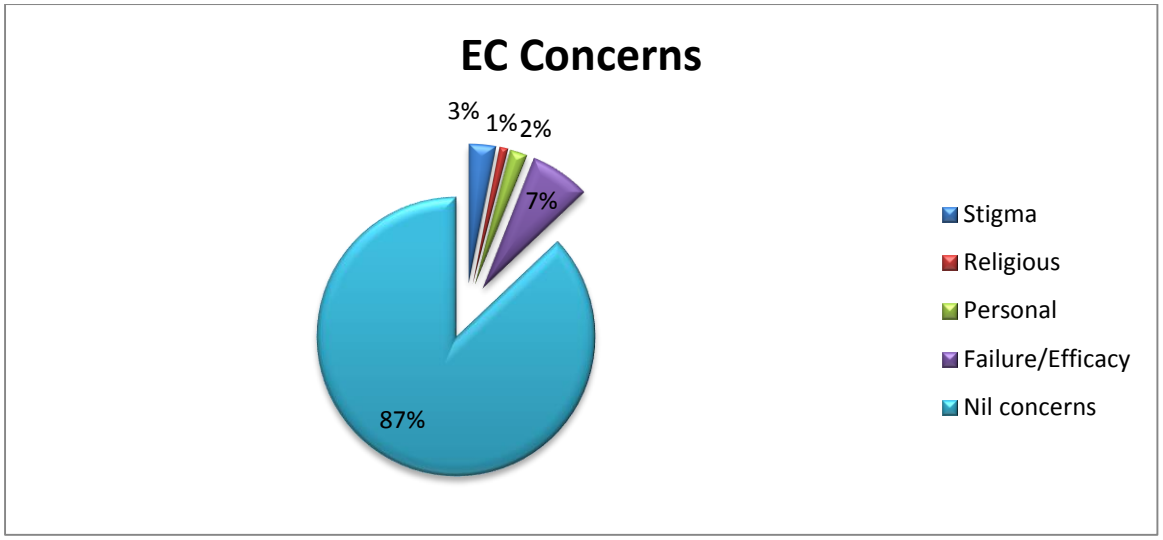


Figure 13: An illustration of the concerns demonstrated by the women for EC

When asked where would be their preferred source of the EC provision, 4% had no preference, 63% the local clinics, 30% a private pharmacy, 1% general practitioner and 2% had strictly private preference (either pharmacy or general practitioner).

Women were then asked if the concept of advanced supply of EC was something that they considered favourable or not and any concerns with advanced supply. There were 70% who supported advanced supply of EC, 29% were against advanced supply and 1% was undecided regarding the choice.

Even among those that approved of the concept of advanced supply of EC there were concerns that were raised. There were 24 women who expressed negative influences that were of concern such as: potential for abuse; promotion of promiscuity, especially by the youth; incorrect use, no medical advice; wastage of unused substance, deliberate misuse of regular contraception. The majority (43%) had positive comments regarding advanced supply of EC such as: convenience of access, no queue's, no closure of facility; privacy and anonymity, no negative staff attitudes; promotes responsible behaviour; control over reproductive choice; affordability.

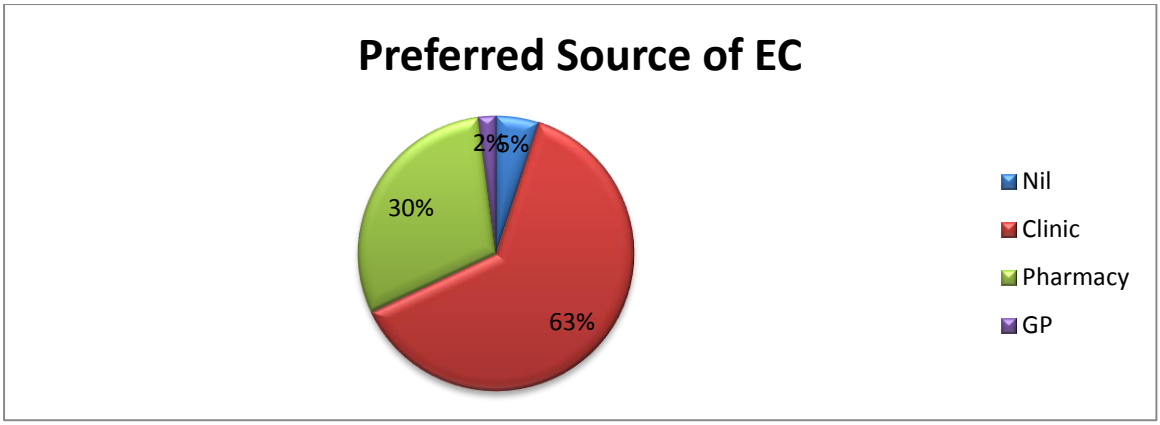


Figure 14: An illustration of the preferred source to obtain EC by participants

Figure 14 above is an illustration of the responses on where women would prefer to obtain their EC from. The majority (63%) sited the local health care clinics due to convenience and affordability. Those that sited a doctor (2%) or the pharmacy (30%) highlighted issues such as stigmatisation by clinic staff, long queues, closure of healthcare clinics on weekends or limited access as reasons for opting for sources that would incur a monetary value.

Finally the women were asked if they had discussed contraception with their partners, 54% stated that they had not discussed contraception with their partners.

DISCUSSION

Unintended pregnancies are not unique to SA, they occur worldwide.[1]The latest population survey reported that the unplanned pregnancy rate in SA was 53%.[2] These rates are comparable to those of the USA,[3] and higher than that some Western European countries such as France (2000) with a rate of 33%.[4] We found a higher rate of unplanned pregnancy at 68%. This was the first study in SA to look at the awareness of EC in the postpartum women. Other studies have predominantly been in women attending TOP clinics where the pregnancies are all unwanted (35% awareness);[16]tertiary referral centre (60% in the TOP seekers);[59]tertiary students in Durban in 2004(56,5%) and in 2012 (49.8%);[18] public sector clients in the greater Gauteng Province (22.8%);[60] HIV infected women in ART program (7%).[61]

In our study we had a 44% awareness of EC and the knowledge in more than two thirds of this group was correct for source of access to EC, correct timing of use and the availability OTC. The rest of the knowledge was poor and yet the willingness to use was high (85%) once given the knowledge. The willingness to use EC despite some concerns highlights the need for better access to information to dispel concerns and misconceptions and thus address the gap in utilisation. This study group was 70% in favour of advanced supply of EC. Advanced supply of EC was thought to pose a risk to the consistency of regular contraceptive but this was not found to be the case in a RCT done in the US were it was found that advanced supply of EC increased the usage of EC(relative risk 4.0) in the women given EC at postpartum discharge from hospital.[43]

The awareness was greater in women that were single, had higher level of education and were employed. This supports the concept that female socioeconomic development may impact on female fertility choices.

There were 44% of women who were aware of EC of these9 (20.45%) had taken EC before. These women were aware that there was a potential for pregnancy at the time of contraceptive failure, within 3 days of intercourse. In those developed countries where EC awareness has been found to be high the depth of knowledge was found to be the reason for underutilization of EC, specifically the lack of knowledge of the potential risk of pregnancy after condom slippage or missed tablets.[41]

We were able to demonstrate an association of EC awareness with single status (widowed/divorced/single); late secondary or tertiary education levels; residency of origin Gauteng (urban area) and being actively employed. This further supports findings in prior studies where education and socioeconomic advancement impact on women's fertility choices.[36,37]

We were unable to find a statistically significant association to maternal age and income threshold. This may be attributed by the exclusion of women underthe18 years of age. Globally over two thirds of adolescent pregnancies are unintended and these mothers are at risk for greater maternal morbidity and mortality[6]. Recent SA surveys estimate that 75% of pregnancies by women of 19 years and younger are unplanned[7]. This is consistent with findings in USA, Mexico and North African countries. In our study more than two thirds of the pregnancies s were unplanned which is higher than the national average[2]. The unplanned pregnancies had a slightly later gestational age at booking; marginally older mean age; they tended to a higher incidence of unsure dates at booking; their gestational age at booking was roughly 2 weeks later; they had fewer average number of clinic visits; greater proportion of participants were unaware of EC but all of these parameters were not statistically significant. All 4 unbooked mothers had unplanned pregnancies (4% unbooked rate), this was similar to the Gauteng regions public health centre statistics of unbooked patients and slightly lower than the CHBAH unbooked rate, of 5.6% for July 2012 to December 2012.[62]

Pregnancy is an important time to discuss contraceptive education. The majority of patients were booked and this was an opportunity for health care workers at health care facilities to not only attend to the current pregnancy, but as per ANC "green card", also discuss past and future contraception. It is disconcerting that 13 mothers had no indication on their ANC cards indicating that this opportunity was not utilized. We are not able to comment on whether this was as a result of poor note keeping or because contraception was not discussed with the woman. To be noted was that 20% of women who were aware of EC had heard of it at a public health care facility and none of them had heard of it during their ANC visit for their current pregnancy. The majority of EC knowledge is gained from non-health care sources and this could be the reason for the poor knowledge.

This study did not seek to look at neonatal outcomes thus no comment can be made on morbidity and mortality of these unplanned pregnancy outcomes. The CHBAH institution is a referral hospital and all pregnancies that are high risk would have been booked to deliver here. The overall rate of caesarean deliveries were43% and this was greater than the average rate of caesarean deliveries for the institution and the national caesarean rate for tertiary care facilities.[62] This could have been due to a selection bias as only 2 out of the 5 wards samples are exclusively vaginal delivery patients, although the other wards would have had a combination of post caesarean and vaginal deliveries. The unplanned pregnancies were more likely to have normal vaginal deliveries whereas the planned pregnancies had greater than 50% possibility of delivering via caesarean section. This could be due to the fact that the planned pregnancies where of high risk profile and by virtue of their obstetrical indications were predestined to caesarean deliveries at this tertiary facility.

Of statistical importance (p value of 0.04) was the finding that the majority of the planned pregnancies (81.25%) were HIV negative. This significance is not seen when looking at awareness of EC and HIV status. There were 70.45% HIV positive and aware of EC,

compared with 62.50% that were HIV positive and unaware of EC. This was also found in a previous study of HIV positive women in SA on antiretroviral therapy where there was a 67% awareness of EC among women <30 years of age.[59]Health care program's in SA for HIV therapy entail reproductive health care education and this data raises the concern that why is the awareness not better in the HIV positive women that are on antiretroviral therapy. This needs to be addressed as part of the HIV counselling programs specifically address contraception and it was lacking in the unaware group. Speculation on whether women's pill load and contraceptive programs within HIV positive population need to be revised or re-emphasised and be more holistic. Of concern was that 1 HIV positive tested woman was never on any form of PMTCT and that 2 other women had delivered and HIV status was yet unknown.

This study found that 8 of the 29 primiparous women had planned pregnancies and this was the greatest proportion of planned pregnancies. This demonstrates a further opportunity for contraceptive health care education can be further emphasised at ANC. This is further emphasised by the fact that 25% of women in this study had more children than their desired family size. This should be a point of re-emphasis rather than sole point of education for the adolescent women need to be accessed at educational facilities.

LIMITATIONS & STRENGTHS

As the researcher was the interviewer there was only one person conducting the interviews. The questionnaire was detailed and long and included an information leaflet that was explained to the patient prior to final questions on patient opinions. To prevent patients from sharing information regarding the study only a single session of participants was done in a ward per day and patients were requested not to share their experience or information with

the others until all candidates for that session were done. The interviewer is proficient in 6 South African languages and this was sufficient for communication with all participants.

Teenage pregnancies are high risk pregnancies with higher incidence of maternal and fetal morbidity and mortality. This study excluded these mothers due to ethical constraints. As there were no participants younger than 18 years of age in the study, no comment can be made as to the practices of teenagers.

CONCLUSION

We have identified that EC awareness is lacking and knowledge is poor in our public health sector. With EC being freely available but underutilized, it is unable to make a positive impact in women's health and fertility regulation. Women need to be made aware of EC and receive effective, correct knowledge about EC from appropriately informed sources. Health care workers in the public and private sector must utilize the current reproductive health care programs and incorporate education on EC and implementation of better access to EC. Keeping in mind, that healthcare providers are themselves conversant with EC.

EC awareness and knowledge campaigns need to be holistic in their coverage of EC access, opportunities and effectiveness. Specific issues, such as contraceptive failures, how to deal with such failures and risk of possible pregnancy need to be emphasised, in these campaigns.

Implementation campaigns need to address health care educators at all levels of care and specifically address depth of knowledge. In SA changes in legislation as to the rights of minors needs to be re-educated and this would better allow for access to reproductive health care to adolescents.

Women in the public sector are not getting their awareness of EC from the public sector nor is it from health based sources. There is a clear indication that they do want this knowledge and are willing to utilise EC and want to be able to access it from their local health care facilities. Primary health care facilities have the widest reach to communities and these institutions are where EC awareness and knowledge can be dispersed but the educators need the tools and the knowledge to do so.

Further studies can also establish what other media sources could be of benefit in advertising/dispersing EC awareness and knowledge. Media campaigns need to consider the target population factors such as language medium, level of education, access to media and socio economic standings.

More research is needed into the awareness of EC in adolescents and TOP populations so as to generate a fuller perspective into the challenges of EC.

The concept of advanced EC supply should be taken into consideration and studies in our SA population should be done with particular attention to addressing misconceptions and concerns regarding attitudes and impressions of public health care clinics.

APPENDICES

Ethics Certificate

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Tel: (011) 717-2076

Reference: Ms Salamina Segole
E-mail: salamina.segole@wits.ac.za
24 August 2012
Person No: 422402
PAG

Dr TA Lukhaimane
P O Box 892
Ruimsig
1732
South Africa

Dear Dr Lukhaimane

Master of Medicine in the specialty of Obstetrics and Gynaecology: Approval of Title

We have pleasure in advising that your proposal entitled "*Knowledge and willingness to use emergency contraception amongst postpartum women in Chris Hani Baragwanath Academic Hospital*" has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences

Faculty of Health Sciences

INFORMED CONCENT

Hello, my name is **Dr Tshimangadzo Abigail Lukhaimane**; I am a registrar in the department of Obstetrics and Gynaecology with the University of the Witwatersrand. Part of my training towards my speciality requires me to conduct a research study and mine is called "Knowledge and Willingness to Use Emergency Contraception among Post-Partum Women in Chris Hani Baragwaneth Academic Hospital".

I would like to request your participation in my study and before you to do so I would like for you to go through this leaflet and fully understand what your participation entails.

All information that will be obtained from you will be:

- Confidential
  All information gathered from you and your file will be utilized only for the study and publishing purposes
- Anonymous
  All information gathered will not contain names, file number, contact details or any other information that can identify you as the participant. All information will be processed anonymously

I would also like to advise you that:

- Participation
  Your participation in this study does not affect your current and/or future management and/or treatment at this and/or any other institution.
- Incentives
  There is no financial benefit/gain to your participation in the study.

- Withdrawal
  At any time that you feel you no longer wish to proceed with the study please feel free to inform me and I will stop.

- Access to records
  I would also like your permission to look at your file for information on your antenatal care, delivery and baby outcome. I will also be looking at blood results.

Your further participation will be in the form of a small interview, which will take about 20 minutes. Please do not hesitate to ask me any questions if you have them.

If you want information regarding your rights as a research participant, or complaints regarding the research study you may contact Professor Cleaton-Jones, of the University of the Witwatersrand, Human Research Ethics Committee (HREC), which is an independent committee established to help protect the rights of research participants at (011) 717 2301.

I do hope that you find the above acceptable, and will proceed to partake in my research study.

Thank you,

I, (*name of participant)* _____, herby acknowledge my informed consent to partake in this study; "Knowledge and Willingness to Use Emergency Contraception among Post-Partum Women in Chris Hani Baragwaneth Academic Hospital" and give the researcher, Dr TA Lukhaimane, permission to use the information gathered from this participation for this study.

Participant Signature: _____ Date: _____

Witness Initial and Surname: _____

Signature: _____ Date: _____

POST-COITAL CONTRACEPTION QUESTIONAIRE

Information from patient File

Patient Age- at time of booking

Booked ***Unbooked***

No of clinic visit ***Gestation at booking***

LMP

Sonar (if available) Documented previous Family planning ***documented future Family planning***

HIV ***Reactive*** ***CD4 count***

Non-reactive ***ARV***

Unknown ***PMTCT***

Medical Conditions:

Hypertension		***Cardiac***	
Epilepsy		***Tuberculosis***	
Asthma		***Diabetes***	
		Other	

Obstetric History

YEAR	***DURATION***	***MODE OF DELIVERY***	***BIRTH WEIGHT***	***OUTCOME***

Gestation at delivery: ***Birth Weight:***

Obstetrical complication:

PROM		***Prolonged 1st stage***		***IUFD***	
PTL		***Prolonged 2nd stage***		***Stillbirth***	
PPROM		***Mal-presentation***		***Birth Asphyxia***	
APH		***Multiple pregnancy***		***Congenital Abnormality***	
MSL		***3rd Degree tear***		***Meconium Aspiration***	
PPH		***Shoulder dystocia***		***IUGR***	
PIH/PET		***Fetal Distress***		***Other***	

Questionnaire

GENERAL INFORMATION:

Province of Mothers Birth: *Other (Specify)* _____

Single *Married* *Divorced* *Widowed* *Co-Habitation*

*Religion*_____ *Denomination*_____

EDUCATION LEVEL:

*None*_____ *Primary*_____ *Secondary*_____ *Tertiary*_____

Currently in Grade: _____ *Other:* _____

INCOME (See table below-How much money do you make):

Formal Sector _____ Informal Sector_____

Unemployed_____ Grant Dependent_____

If still a scholar, who is your financial guardian? _____

Other (specify):_____

Comment_____

Income per month (in Rand): *How much money do you make?*

None		R2000-R2999		R6000-R6999		>R10000	
Unknown		R3000-R3999		R7000-R7999		Other	
>R999		R4000-R4999		R8000-R8999			
R1000-R1999		R5000-R5999		R9000-R9999			

OBSTETRIC HISTORY:

Previous contraceptive usage:

Type of Contraceptive		*Duration of usage*	*Year of use*	*Reason for cessation*	*Additional comment*
None					
Rhythm/withdrawal					
Barrier Contraceptive					
Combined Oral contraceptive					
Injectable					
Intrauterine Contraceptive device					
Progesterone only Pills					
Emergency Contraceptive					
Other(specify)					

*Comment*_____

_____

Previous pregnancy:

Year/month of pregnancy	*Planned*	*Unplanned*

CURRENT PREGNANCY:

Planned_____ Unplanned_____

Future Family Planning: _____

What is your desired family size? _____

AWARENESS:

DO YOU KNOW OF ANYTHING THAT ONE CAN BE TAKEN AFTER UNPROTECTED INTERCOURSE OR FAILURE OF CONTRACEPTION THAT CAN PREVENT PREGNANCY OCCURING BEFORE YOUR NEXT MENSTRUATION TIME?

_____

_____

Those that responded **YES**- may proceed to the knowledge questionnaire

Those that responded **NO –** may proceed to the information leaflet were brief information on emergency contraception will be provided. They may then proceed to the Willingness to use question.

KNOWLEDGE:

Emergency Contraceptive Modality	Yes	No
None		
Pill		
Intrauterine Contraceptive Device		
Other		
Comment		
Effective timing of usage		
Not known		
Before intercourse		
Within 72 hrs.		
>72 hrs.		
<120hrs for IUCD		
Other		
Comment		
Where can it be obtained From?		
Unknown		

Clinic		
Pharmacy		
General Practitioner		
Traditional Healer		
Hospital		
Other		
Comment		
Do you Need a prescription?		
Can it be used more than once within a cycle?		

WHERE DID YOU HEAR ABOUT?

Friend/Peer		Radio		Clinic (Health care Provider)	
Educator		Newspaper		Private Practitioner	
Spouse		Television		Pharmacy	
Parent		Church		Hospital	
Magazine		Internet		Traditional Healer	
Other					

HAVE YOU EVER HAD OCCASION TO USE IT? _____

HAVE YOU EVER USED IT? _____

Side Effect Knowledge:

Nausea		Dizziness		Menstrual delay	
Vomiting		Headache		Irregular Bleeding	
Diarrhoea		Breast tenderness		Lower abdominal pain	
None		Other			

WILLINGNESS TO USE (BRIEF INFORMATION REGUARDING EMERGENCY CONTRACEPTION)

WOULD YOU CONSIDER THIS FORM OF CONTRACEPTION IN THE FUTURE**? YES** **NO**

IF NOT, WHAT ARE YOUR CONCERNS?

_____

_____

WHERE WOULD YOU PREFER TO BE ABLE TO OBTAIN IT FROM? _____

WOULD YOU PREFER TO BE GIVEN AN ADVANCED SUPPLYOF EC TO USE IT WHEN YOU NEED IT? **YES**

NO

Comment_____

_____

HAVE YOU EVER DISCUSSED FAMILY PLANNING OPTIONS WITH YOUR PARTNER? **YES** **NO**

Comment_____

_____

THANK YOU FOR YOUR PATICIPATION. INFORMATION LEAFLET PROVIDED

PATIENT INFORMATION LEAFLET: EMERGENCY CONTRACEPTION

- So you have just had unprotected sex?
- The condom broke/leaked/slipped?
- You forgot to take your regular contraceptive (missed more than 2 tablets)?
- You could fall pregnant. You are not ready to have a baby. You don't have to wait to find out if you are pregnant. You can prevent the pregnancy, if you act fast.

How, you ask?

- Morning after pill=Emergency contraception=Post coital (meaning after sex)
- They are your action against unplanned pregnancy. For whatever the reason maybe you still have a choice to prevent a pregnancy.

What is it?

- It comes as a tablet form or a 'loop'
- It's a hormone that prevents a pregnancy from developing.
- It is not an abortion treatment

When do I take it?

- The sooner you take it, after the intercourse, the better it works hence 'morning after'
- You have three days (72hrs) to take the tablets and 5 days to place a loop
- Importantly the more time that passes you decrease how well it works
- Every time that you have sexual intercourse and there is failure of contraception or none at all

What will it do for to me?

- It's a hormone in your body which when given soon enough, will stop a pregnancy from occurring.
- The loop will also prevent pregnancy from establishing and you can continue to work as contraception for long term

Will it harm me?

- Different medicines are available and some do have side effect
- Abdominal cramps/ vomiting / nausea are the most common but newer pills less so
- Some can delay your menstruation for not more than a week, so ask your provider what to expect
- It will not prevent HIV or STI

When is this not going to help?

- If you were already pregnant from a previous sexual episode

- If you take it before the sexual encounter
- When taken later than 3 days after the event you greatly decrease the efficacy of the treatment

Where can I get it?

- Clinic
- General Practitioner
- Pharmacist (does not need a prescription)
- Hospital

You can just ask for emergency contraception, but these are what the different types are called

- E-Gen-C®
- Norlevo®
- Escapelle®
- Yuzpe®
- Copper T®

Chris Hani Baragwanath Academic Hospital Research Permission

MEDICAL ADVISORY COMMITTEE

CHRIS HANI BARAGWANATH HOSPITAL

PERMISSION TO CONDUCT RESEARCH

Date: 20 March 2012

TITLE OF PROJECT: Knowledge and Awareness of emergency contraception in post-partum women I n a tertiary hospital, Chris Hani Baragwanath Hospital

UNIVERSITY: Witwatersrand:

Principal Investigator: Dr TA Lukhaimane

Department: Obstetrics and Gynaecology

Supervisor (If relevant): Dr Y Adam

Permission Head Department (where research conducted): yes

Date of start of proposed study: April 2012

Date of completion of data collection: June 2012

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 Committee for Research on Human Subjects 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.

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Recommended

(On behalf of the MAC)

Date: 20 March 2012

Dr P. Lingham
Dep CEO

Approved/~~Not Approved~~

Hospital Management

Date: 22 MAR 2012

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