

**AN ANALYSIS OF THE ROLE OF VCT IN THE PREVENTION OF HIV  
INFECTION IN SUB-SAHARAN AFRICA: SWAKOPMUND, NAMIBIA CASE  
STUDY**

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## DECLARATION

I, the undersigned, hereby declare that the work contained in this assignment is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.



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28 February 2006



## **Abstract**

This research paper looks at the role of VCT (Voluntary Counselling and Testing) services in the prevention of HIV – a growing trend throughout Sub-Saharan Africa. The benefits of VCT on the HIV positive segment of the population are clear, i.e. psychosocial support, access to further resources etc. However, the impact of VCT services on the HIV negative segment of society, as a preventive tool, has not been closely studied.

Many organizations are implementing HIV workplace programmes but not emphasising voluntary counselling and testing services, often due to the often high cost of these services and the fact that employees miss out on work time in order to be tested. Organizations need to strive to ensure that their HIV positive employees remain healthy enough to work and also that their HIV negative employees remain negative.

Behaviour change is at the root of HIV prevention. How to bring about behaviour change, however, still remains a major stumbling block to HIV prevention. This is especially true when looking at the multi-cultural environment in Sub-Saharan Africa.

This study was conducted in Swakopmund, Namibia. Data was gathered on individuals voluntarily making use of VCT services. The study focuses on 221 clients who have attended VCT services, tested negative on their initial visit and returned after a three month period for further counselling and testing. Data gathered includes background information, high risk activities, and was gathered during both visits. Information gathered during both visits was then compared and analysed.

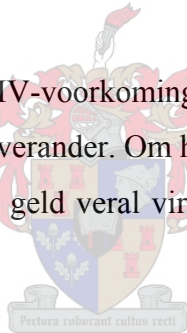
An analysis of the data has shown that indeed VCT services can produce behaviour change and therefore reduce risk to HIV. Clients returning to the VCT centre for further counselling and testing showed a decrease in high risk activities such as unprotected sex, sex while intoxicated and number of sexual partners. This may help to reshape how we think about VCT and to assist in further integrating VCT services into successful HIV/AIDS management programmes.

## Opsomming

Hierdie navorsing behandel die rol van V.C.T ( Voluntary Counselling and Testing ) – dienste vir die voorkoming van MIV/ VIGS – wat merkbare groei in Sub-Sahara-Afrika toon. Die voordele wat V.C.T vir die MIV – positiewe deel van die bevolking inhou spreek vanself nl. sielkundige hulp, die toegang tot ander hulpbronne ens. Maar hul effek op die MIV negatiewe deel van die gemeenskap is tot hede nog nie van naderby gebestudeer nie.

Vele organisasies is tans besig om MIV programme by werkplesse te implimenteer, maar beklemtoon ongelukkig nie vrywillige raadgewing, -voorligting en, -toetsing genoeg nie. Dikwels is dit toe te skryf aan die hoë koste, en ook dat werknemers tyd by hulle werk sou verloor om getoets te kan word. Werkgewers behoort te poog dat MIV-positiewe werknemers gesond genoeg bly om werk te kan verrig, en dat MIV- negatiewe werknemers negatief bly.

Van die belangrikste aspekte vir MIV-voorkoming en bekamping is gedragspatrone en lewenswyse wat noodwendig sal moet verander. Om hierdie verandering te hulp bewerkstellig is en bly steeds 'n groot probleem. Dit geld veral vir die multikulturele bevolking van Suid-Sahara-Afrika.



Hierdie studie is in Swakopmund, Namibia gedoen. Data is by individue wat vrywillig van V.C.T.- dienste gebruik maak het, verkry. Die studie fokus op 221 kliente wat hierdie dienste bygewoon het, negatief getoets is met die eerste besoek, en dan na drie maande teruggekeer het vir verdere berading en toetsing. Die data sluit al die kliente se agtergrond inligting, hoë risiko aktiwiteite, en is ingewin by beide besoeke. Die twee stelle inligting is dan vergelyk en geanaliseer.

Analise van die data toon dat V.C.T-dienste inderdaad gedragsveranderinge tot gevolg kan he en derhalwe die gevaar van MIV kan verminder. Kliente wat opvolgsbesoeke aan die V.C.T-sentrum gebring het, het na voorligting en toetse 'n afname in hoë risiko bedrywighede. getoon.

Voorafgaande kan help om ons denke en benadering t.o.v. VCT-dienste te hersien, asook om steun te help verleen sodat hierdie dienste n integrale deel vorm van doeltrefende en suksesvolle MIV/Vigs bekampings – en voorkomingsprogramme.



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## **1. Introduction**

Voluntary counselling and testing (VCT) services form an integral part of HIV/AIDS national programmes and workplace programmes throughout much of the world. Aside from the evident advantages of VCT services, i.e. informing individuals on their status and assisting them to access other available services, the impact of VCT services on prevention of HIV transmission must be closely looked at.

HIV transmission continues to increase throughout the world. Many factors are affect this increase. Poverty may be one of the root causes of the spread of HIV. While poverty may seem like an insurmountable obstacle in the fight against HIV, there are many facets of poverty that can be successfully tackled individually. Lack of access to information, education as well as access to support services, for instance, can be successfully addressed. While many organizations are attempting to address these issues within the community by developing printed materials, videos and hosting awareness sessions, this involves mainly the giving of information to the community in hope that they are taking it all in. Voluntary counselling and testing services, on the other hand, provide a unique opportunity to assist the community in the prevention of HIV on an individual basis. This should therefore, theoretically, increase the effectiveness of this intervention. So, while VCT service provision aims to assist HIV positive individuals by helping them to cope with their status and referring them to other community services available, it may also decrease vulnerability within the HIV negative segment of the population. The question then is, do voluntary counselling and testing services act as a catalyst to behaviour change? This is an important question to ask considering the recent growth of the provision of VCT services throughout Sub-Saharan Africa.

This study looks at individuals attending VCT services, which have tested negative, and are returning to be retested. The study took place at a voluntary counselling and testing centre in Swakopmund, Namibia.

## **2. Research objectives**

The objective of this research has been to see if voluntary counselling and testing does in fact act as an effective preventive tool in the fight against HIV. Can VCT services act as a catalyst for behaviour change? This study proposed that VCT does effect positive behaviour change and therefore does avert new infection in individuals making use of voluntary counselling & testing services.

## **3. Literature Study**

A limited amount of research has been done into the role of VCT in the prevention of HIV infection. A study done by The Centre for AIDS prevention studies at the University of California showed that the provision of VCT services was more effective than the dissemination of health information in reducing unprotected sex. (UCSF, [www.caps.ucsf.edu/projects](http://www.caps.ucsf.edu/projects)) However, this study only looked at reducing unprotected sex and not at other behavioural aspects of HIV prevention. This study also implemented its own guidelines for VCT provision which means its findings may not be comparable to those of the actual VCT environment.

I have found no such study done in Southern Africa. It is against this background that this study attempts to fill in the gaps by looking at VCT services as they are currently being implemented throughout many Southern Africa nations. This study also takes into account multiple variables such as education, language, marital status, number of children etc. Variables which the above mentioned study failed to take into account. The analysis of these variables and their role in behaviour change has allowed this study to not only conclude that VCT can positively affect behaviour change, it has also assisted in determining extraneous variables that may hinder or accentuate behaviour change in populations.

In the Namibian context, VCT services are quickly sprouting up all over the country. Their impact on HIV prevention in Namibia has not yet been taken into account. In order to provide a complete picture of preventive efforts and their impact on the Namibian population it is necessary to include the role of VCT in behaviour change. This will not



only improve preventive efforts in the country but assist in determining which segments of society are most at risk of HIV infection.

### **3.1 Definition of terms**

#### **3.1.1 Voluntary counselling and testing (VCT)**

VCT involves confidential pre and post-test counselling in the individuals' home language by a trained professional counsellor. The pre-test counselling session is to run an average of thirty minutes per client for both first time and return clients. Post-test counselling sessions run between fifteen and thirty minutes per client. The HIV test performed is a RAPID test and therefore pre and post-test counselling occur on the same day. All counselling is done by the same counsellor, including return visits.

#### **3.1.2 VCT return client**

A VCT return client is a client previously tested at the centre and returning to be retested after a three month period. All clients who test negative are scheduled to return for re-testing by the counsellors.

#### **3.1.3 High Risk behaviour in relation to HIV**

High Risk behaviour in this instance can be defined as any behaviour that can increase an individual's chances of contracting HIV. For the purposes of this study, high risk behaviour will be narrowed down to the following: unprotected sex, sex with multiple partners, sex while intoxicated and contractual sex.

#### **3.1.4 Behaviour change**

Behaviour change is just what it implies, a change from high risk behaviour to low or no risk behaviour such as; consistent use of a condom or femidom, monogamy etc.

### **3.2 Theoretical Model**

Many workplace programmes being implemented throughout Sub-Saharan Africa focus on providing education and information for employees. While this is indeed a valued

first step, it is just that, a first step. In order to produce/bring about behaviour change we need to move past raising awareness. The following model of stages of change from the National Cancer Institute may be used as a guide to identify the various stages that may be required in order to bring about behaviour change in individuals.

### Stages of Change Model

Concept	Definition	Application
<b>Pre-contemplation</b>	Unaware of problem, hasn't thought about change	<b>Increase awareness</b> of need for change, personalize information on risks and benefits.
<b>Contemplation</b>	Thinking about change, in the near future	<b>Motivate, encourage</b> to make specific plans.
<b>Decision/Determination (Preparation)</b>	Making a plan to change	<b>Assist</b> in developing concrete action plans, setting gradual goals.
<b>Action</b>	Implementation of specific action plans	<b>Assist</b> with feedback, problem solving, social support, reinforcement.
<b>Maintenance</b>	Continuation of desirable actions, or repeating periodic recommended step(s)	<b>Assist</b> in coping, reminders, finding alternatives, avoiding slips/relapses(as applies).

SOURCE: [http://oc.nci.nih.gov/services/Theory\\_at\\_glance/PART\\_2.html#anchor264528](http://oc.nci.nih.gov/services/Theory_at_glance/PART_2.html#anchor264528)

Looking at the above table it can be seen that most education and information programmes are centred on step one – Awareness raising. What is the role of VCT in this context of the model of change? Can VCT bridge the gap between step one – awareness raising – and the final step in the model? As the model shows the last three steps in the

stages of change involve assisting individuals in various ways. Considering the nature of VCT (one on one contact) can voluntary counselling and testing services provide this assistance in order to bring about change? This research hopes to identify the role of VCT in bringing about behaviour change in this context.

#### **4. Research problem**

The effective prevention of HIV infection in Sub-Saharan Africa has been a major stumbling block in the fight against HIV. Education and awareness raising efforts have not proven to be enough to curb the spread of HIV. Effective behaviour change may be the key to successfully combating this pandemic. The question then becomes how effective behaviour change can be brought about within large segments of society. Is it possible to bring about effective and wide reaching behaviour change in a complex and multi-cultural environment such as Sub-Saharan Africa?

#### **5. Research methodology**

##### **5.1. Criteria for inclusion in the study**

HIV negative individuals self-identified as being involved in high risk behaviour (having sex without a condom, sex with multiple partners and having sex while intoxicated) and returning to a VCT centre to be retested for HIV at least three months after their initial test.

##### **5.2 Research Design**

The research design used to test this hypothesis is a one group pre-test-post-test research design. This research design poses many problems to internal validity allowing for the possible existence of rival hypothesis due to the effects of maturation and history. Unfortunately due to the nature of the research (testing the natural working procedures of the VCT centre with minimum outside intervention) it is the only available experimental research design.

The problems of a pre-test/post-test research design could be reduced by having a control group, a group that is not subject to the independent variable. Unfortunately, due to many factors this is not possible. Firstly, this would require that data be gathered from individuals not attending VCT services; this may then increase the probability of participant effects such as positive self-presentation as the control group would be made up of volunteers or individuals who chose to be part of the study rather than a random sample. Secondly, the questionnaire must be administered by a third party (as this will be the case with the treatment group.) Also, all participants must understand the questions asked and due to low level of knowledge of the English language and high level of illiteracy in the region this may be difficult to achieve. Thirdly, without some sort of financial reward it is doubtful that the return rate of the control group will be very high.

### **5.3 Sample**

The one group pre-test and post-test research design is the only applicable design. This research looks at the segment of the population that make use of VCT services and the impact of those services, if any, on behaviour change. Due to the nature of the study clients were not be informed of the study as they were not be subject to anything outside of the normal VCT operating procedures. All clients have voluntarily returned to the centre in order to receive these services.

### **5.4 Data gathering**

Data was gathered on all return clients within a six month period. Information gathered on all individuals included the following:

- If the visit is the first or a return visit
- Sex of individual
- Language spoken
- Marital status
- Number of children
- Education level
- Employment status

- Occupation
- Most important reason for attending VCT services
- If individual was referred to VCT services (during 1<sup>st</sup> visit) & by whom
- If the individual has had sex with penetration and at what age was their first time
- Has the individual been sexually abused
- Are they pregnant
- If they have had STIs in the last twelve months
- Is the individual a commercial sex worker
- What they expect their HIV result to be
- Their test result at time of visit

## 5.5 Analysis

Data was gathered on HIV negative individuals returning to the VCT centre for counselling and re-testing. All data gathering was done by trained counsellors. This should have provided control of experimenter expectancy errors as the experimenter/researcher does not directly interact with the participants. This should have also increased the reliability of the data collected as individuals coming for VCT services are frequently unable to communicate in a language other than their mother tongue.

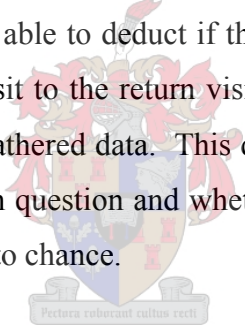
All data collected was used to identify any pre-existing factors that may affect the outcome of the study and to control for history. The information gathered served to monitor if there was any interaction from extraneous variables. Each individual's data was cross referenced to see if there was any correlation between variables. Individuals with correlating answers to the personal and historical related questions were then compared along the following lines:

- Last time the individual had sex
- Whether they used a condom last time they had sex
- Number of partners in the last three months
- Whether the individual had sex while intoxicated in the last three months

- Their expected HIV re-test result

The above data was collected at the initial and return visit and then compared to see if there was any change in behaviour. If, during the initial visit, a perceived risk to the individual due to behaviour was identified, the counsellor worked with the individual to develop a risk reduction plan. By looking at the information gathered during the return visit I have then deducted if the individual has in fact enacted any of the risk reduction strategies discussed during their initial visit.

Answers to the above questions were given a chronological value: Last time individual had sex: 1- 3 months, 2- 2 months, 3- 1 month, 4- 2 weeks etc. The mean of all participants was deducted for each of the above comparison lines. For example, the mean was deducted for the last time all individuals had sex before their initial VCT session and upon their return visit. I was then able to deduct if there has been any visible change in behaviour from the initial VCT visit to the return visit. The level of standard deviation can then be determined from the gathered data. This determined the differences between each individual's responses to each question and whether the differences perceived were real differences or differences due to chance.



## **6. Results**

The results of this study were reached through various methods of examination of the data. Data gathered consisted of 221 return visits to a VCT centre in Swakopmund, Namibia.

A first line look at the data has reflected the following participant background information:

- 52% of participants/clients were female with the remaining 48% being male
- 87% of return clients identified themselves as urban residents.
- 69% had up to a secondary education
- 78% had never been married

- 67% were employed
- 50% were between ages 20-29
- 29% did not have children
- 54% had been previously tested either in a public facility, private practice or other VCT site.
- 84% were self referred to VCT services
- 37% were Oshiwambo speaking (Oshiwambo makes up the largest cultural group in Namibia)
- 30% were employed in the business/service sector
- 68% had sex for the first time between the ages of 12 and 19
- 25% sited client behaviour as the most important reason for being tested

(Please see Annexure A for graphs)

Against this background information, data gathered at the first and second visit was compared. Initially an overall impression of all data gathered along the comparison lines of this research was analysed. Data was analysed along the following comparison lines: Last time individual had sex, if they used a condom last time they had sex, the number of sex partners in the last three months, if the individual has had sex while intoxicated in the last three months and their expected HIV test result.

		1 <sup>st</sup> Visit	2 <sup>nd</sup> Visit
Last time had sex	Within past 3 months	66%	65%
Used a condom last time had sex	No	54%	36%
	Yes	45%	63%
Number of partners in last 3 mths	One	71%	76%
Sex while intoxicated in previous 3 mths	No	66%	70%
Expected test results	Don't know	84%	61%
	Negative	15%	39%

(See Annexure B for graphs)

Initially this data seems to point to the possible positive effect of VCT on behaviour change. As seen above, there appears to be an overall decline in risky behaviour. The increase in expected negative results on the second visit may also reflect an increased knowledge of the role of the individual's behaviour (*see Annexure B for detailed graphs*) Of course this is only a superficial look at the data and a closer analysis must be made before attempting to infer any conclusions.

To see if a correlation exists between the various variables and an increase in behaviour change I then examined individuals who appeared to show the greatest behaviour change (along more than three comparison lines), the following was then determined:

- 53% of this group was made up of women
- 75% had never been married
- 75% had a secondary education
- 39% were Oshiwambo speaking
- 73% had children
- 48% were between ages 20-29
- 62% were employed
- 28% sited client behaviour as the most important reason for being tested
- 56% had been previously tested
- 84% were self referred

(*see Annexure C for detailed graphs*)

From this data we can see similarities between the overall population of this study and those showing the greatest behaviour change.

Of the individuals showing the least increase in behaviour change (along two or less comparison lines), the following was determined:

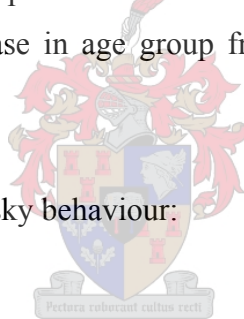
- 63% were male
- 57% were married



- 44% had a secondary education
- 53% were Oshiwambo speaking
- 100% had children
- 30% were between ages 30 and 39
- 73% were employed
- 38% sited employment as the most important reason for testing
- 60% had been previously tested
- 60% were self referred

*(see Annexure C for detailed graphs)*

From the above data we can see distinct variations from previous data. This segment of individuals shows a greater percentage of males, a greater percentage of married individuals, a change in most important reason for testing from client behaviour to employment, as well as an increase in age group from 20-29 (as in the previous two groups of data) to 30-39.



Of those showing an increase in risky behaviour:

- 57% were male
- 83% were never married
- 66% had a secondary education
- 44% were Oshiwambo speaking
- 74% had children
- 66% were aged 20-29
- 56% were employed
- 26% sited client behaviour as the most important reason for testing
- 65% had been previously tested
- 88% were self referred

*(see Annexure C for detailed Graphs)*

This data once again shows an interesting variation from the above sets of data. Here we see the main deviation from the overall data gathered being gender. This group shows an increased male percentage.

This data has helped to identify variables that may influence behaviour change in individuals. Variable such as gender, marital status, age and reason for testing may play a vital role in successfully bringing about behaviour change through voluntary counselling and testing.

In order to further analyse data gathered the mean of all comparison lines was deducted for both visit 1 and visit 2. (*see Annexure D for detailed tables*)

The following was then concluded from this analysis:

VCT services provided little to no change in frequency of intercourse among clients but did positively effect condom use among participants as well as reduce number of sexual partners, reduce frequency of sexual intercourse while intoxicated. It also increased expectancy of negative results amongst participants/clients.

<u>Comparison line</u>	<u>Visit 1 mean</u>	<u>Visit 2 mean</u>
Last time had sex	2.91	2.90
Used a condom last time had sex	1.48	1.63
Number of partners in last three mths	2.03	1.82
Sex while intoxicated in last three mths	2.19	2.22
Expected HIV test result	2.68	2.20

**Key**

<b>Last time had sex</b>	<b>Used a condom last time</b>	<b># of sex partners in last 3 mths</b>
1=same month	1=no	1=zero
2=1 month	2=yes	2=one
3=2 months		3=two
4=3 months		4=three
5=over 3 months		5=n/a
6=inconclusive		

<b>Sex while intoxicated in last 3 mths</b>	<b>Expected test result</b>
1=yes	1=negative
2=no	2=positive
3=n/a	3=don't know

A quick analysis of the means of all data gathered suggests behaviour change between visit 1 and visit 2 along comparison lines (see Annexure D). While frequency of sexual activity remains virtually the same, all other comparison lines seem to reflect behaviour change. Condom use increased, number of sex partners overall decreased, sex while intoxicated decreased and expected test result show an increase in expected negative results. In order to ascertain if this mean difference is in fact due to the provision of VCT services and not chance, standard deviation of scores was then determined using the following formula:

$$S = \sqrt{\frac{\sum 2 - (\sum X)^2}{N-1}}$$

S = standard deviation

X = individual scores

N = number of scores in the group

<b><u>Comparison line</u></b>	<b><u>Visit 1 Standard deviation</u></b>	<b><u>Visit 2 Standard deviation</u></b>
Last time had sex	1.75	1.81
Used a condom last time had sex	0.54	0.49
Number of partners in last three mths	0.66	0.46
Sex while intoxicated in last three mths	0.54	0.51
Expected HIV test result	0.73	0.98

Standard deviation for both Visit 1 and Visit 2 reflects that data vary slightly about their mean. This indicates that the determined mean closely reflects the data gathered. The above data may show a possible influence of VCT on behaviour change on all clients returning to be retested. But as has been shown earlier other variables may also influence behaviour change. In order to control for extraneous variables, data gathered has been sorted and analysed along variable lines determined by participant background information. The mean and standard deviation from the mean has then been determined to rule out a possible interaction from extraneous variables. The outcome of this follows:



The VCT centre employs three counsellors. In order to rule out a possible counsellor interaction data was sorted along counsellor lines using counsellor 1 (the counsellor with the highest percentage of clients).

**Table 1 Counsellor 1 control**

<b><u>Comparison line</u></b>	<b><u>Visit 1 mean</u></b>	<b><u>Visit 2 mean</u></b>
Last time had sex	2.80	2.86
Used a condom last time had sex	1.40	1.60
Number of partners in last three mths	2.1	1.89

Sex while intoxicated in last three mths	2.23	2.28
Expected HIV test result	2.72	2.06

<u>Comparison line</u>	<u>Visit 1 Standard deviation</u>	<u>Visit 2 Standard deviation</u>
Last time had sex	1.79	1.78
Used a condom last time had sex	0.54	0.51
Number of partners in last three mths	0.73	0.43
Sex while intoxicated in last three mths	0.64	0.60
Expected HIV test result	0.69	1.0

The same analysis was done controlling the following variables:

1. Counsellor 1 and female (see Annexure D, table 2)
2. Counsellor 1, female, and in their 20s (see Annexure D, table 3)
3. Counsellor 1, female, in their 20s and Oshiwambo speaking (see Annexure D, table 4)
4. Counsellor 1, female, in their 20s and urban residence (see Annexure D, table 5)
5. Counsellor 1, female, in their 20s, urban residence and never married (see Annexure D, table 6)
6. Counsellor 1, female, in their 20s, urban residence, never married and with a secondary education (see Annexure D, table 7)
7. Males in their 20s (see Annexure D, table 8)
8. Males in their 20s and Oshiwambo speaking (see Annexure D, table 9)
9. Males, 20s, urban residence, never married, secondary education and employed (see Annexure D, table 10)
10. Males in their 40s (see Annexure D, table 11)
11. Females in their 40s (see Annexure D, table 12)

All produced behaviour change along comparison lines with the exception of frequency of sexual intercourse. Frequency of sexual intercourse was shown to be reduced only in four groups: Males in their 20's and Oshiwambo speaking; Males in their 20's, living in an urban environment, never married, with a secondary education and employed; Males in their 40's and Females in their 40's. As shown above frequency of sexual intercourse does not appear to be decreased for all groups through the provision of counselling and testing.

All produced a standard deviation level below 2.0 (See Annexure D for detailed breakdown)

## **7. Conclusions & Recommendations**

Taking in data gathered and findings drawn from this data it can be concluded that voluntary counselling and testing can positively effect behaviour change in HIV negative individuals and therefore reduce risk within vulnerable populations. There appears to be a decrease in risky behaviour in the majority of individuals attending VCT services.

Previous studies into the effectiveness of VCT in the prevention of HIV have found that VCT did reduce instances of risky behaviour amongst research participants. (UCSF, [www.caps.ucsf.edu/projects](http://www.caps.ucsf.edu/projects)). The above-mentioned study integrated its own terms for the counselling sessions given to participants, that is to say individuals may not receive the same level of counselling in a non-experimental VCT environment. All counsellors involved in this study had been trained under a standardised counselling training programme for Sub-Saharan Africa created by Family Health International (FHI). It can then be concluded that other VCT centres trained under the same curriculum and operating in Sub-Saharan Africa should produce similar behaviour change within their populations.

As the data has shown certain segments of the population may be more prone to behaviour change than others but an overall expectancy of behaviour change can be concluded.

Further research needs to be done in this area in order to ascertain the long term effects of VCT on behaviour change. It is also recommended that clients be requested to return for VCT services on a more frequent basis. This would help to establish whether there is sustained behaviour change as well as to possibly reinforce behaviour change within this segment of the population.



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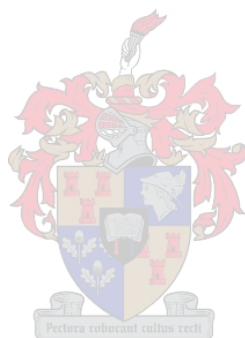
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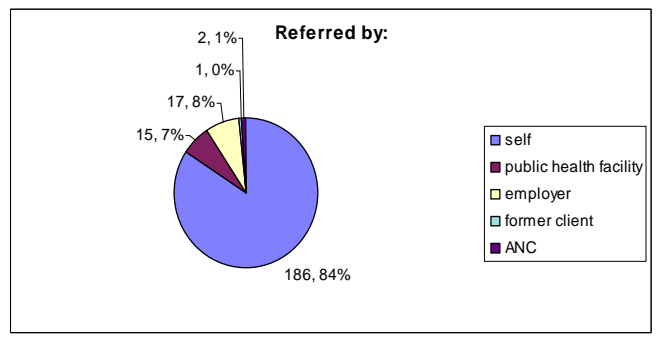
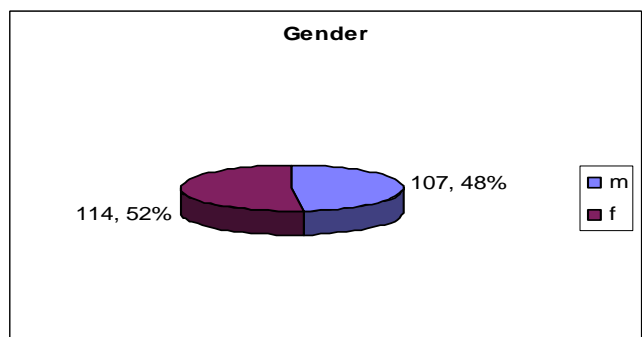
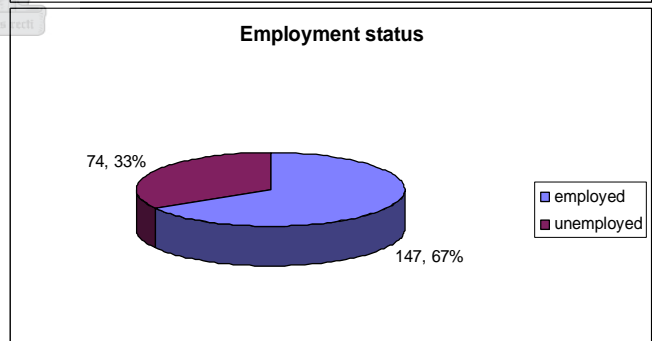
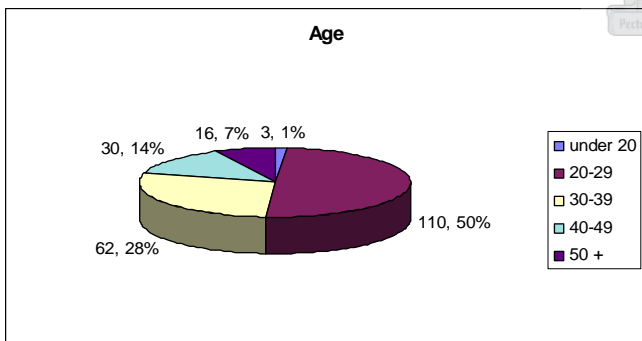
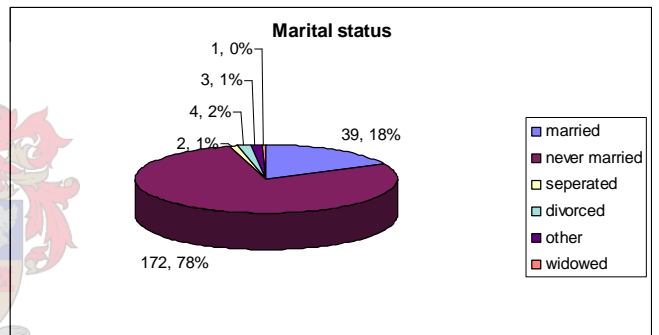
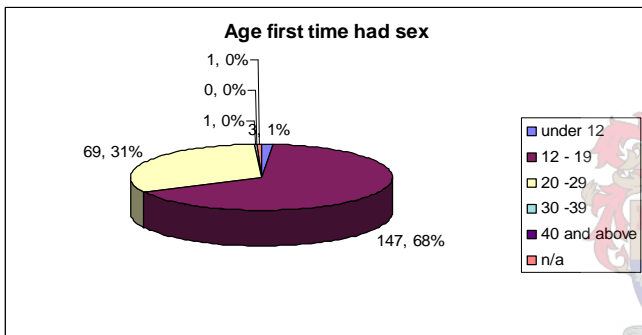
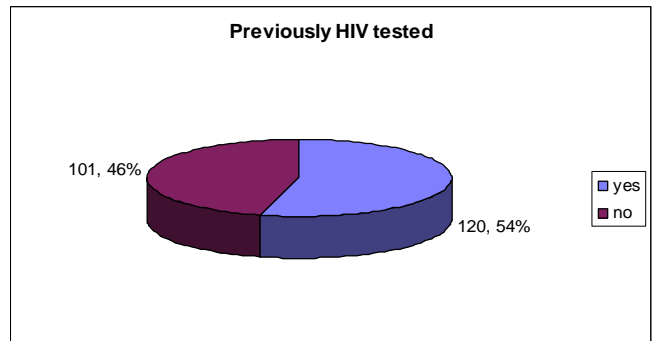
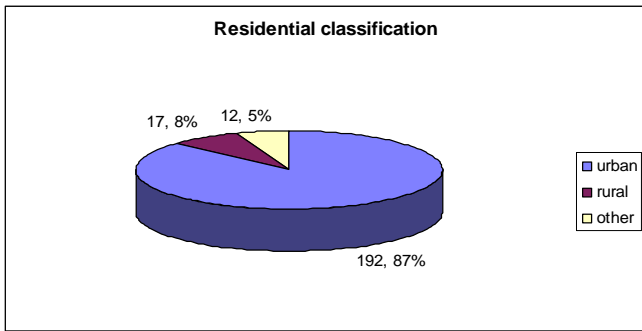
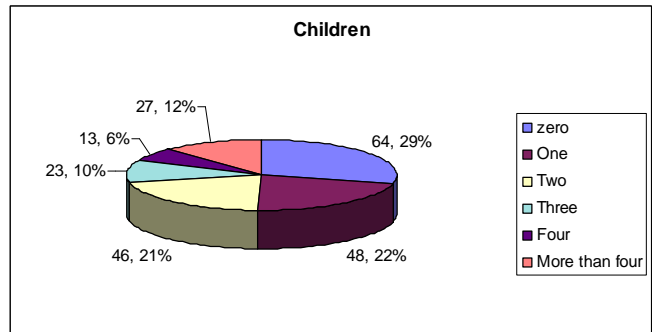
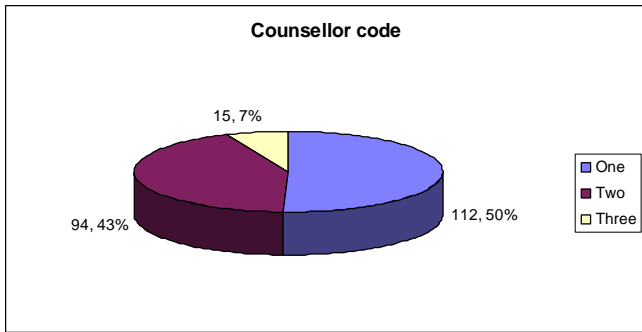
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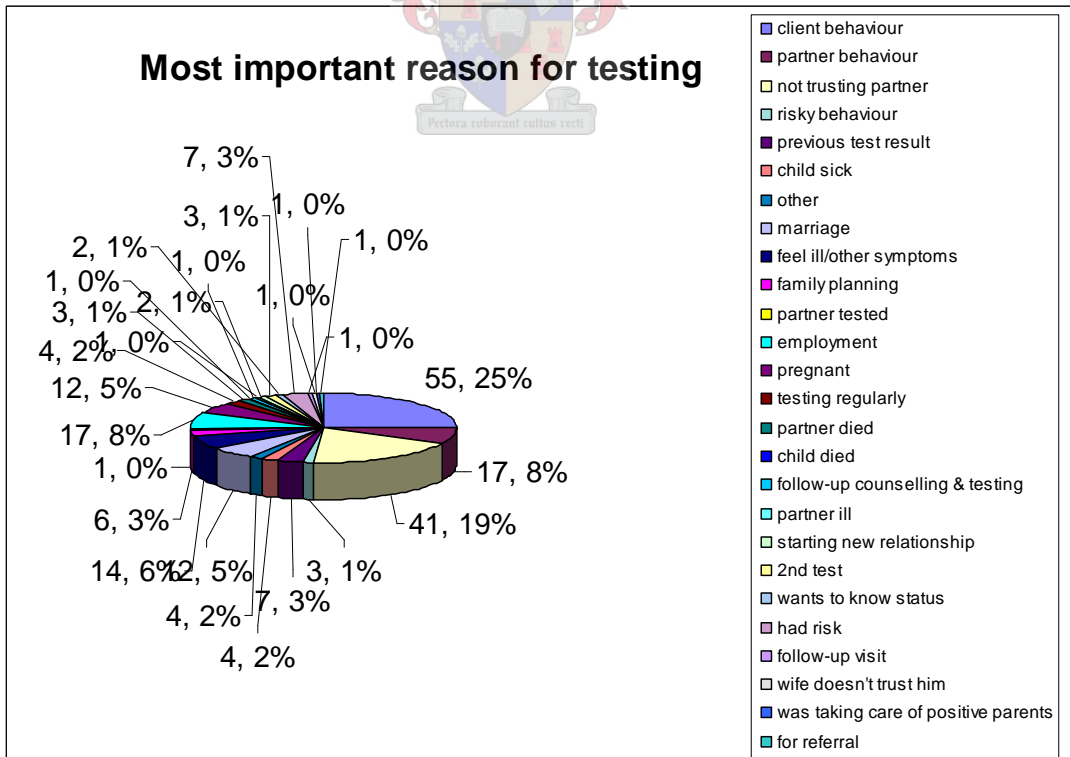
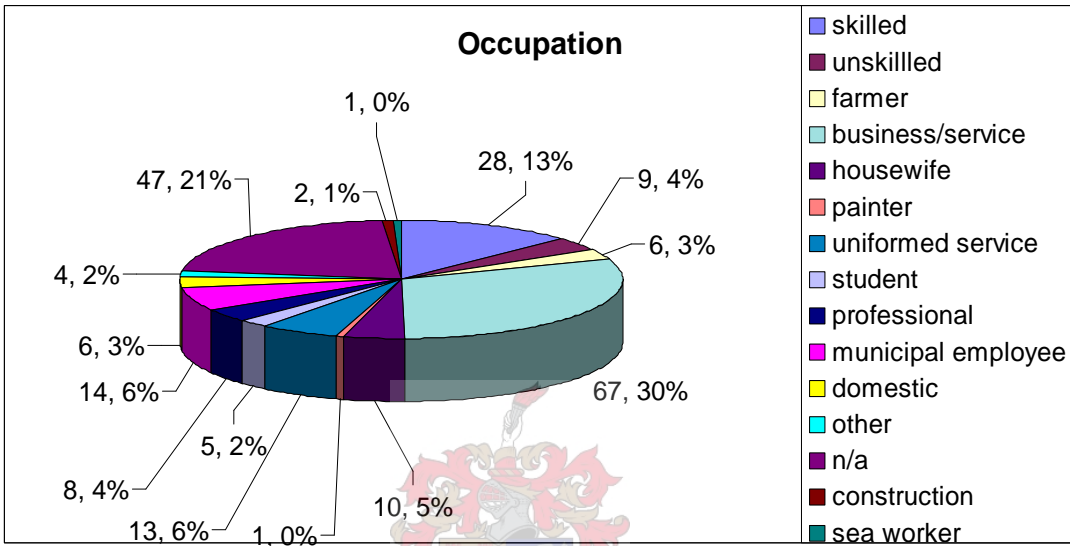
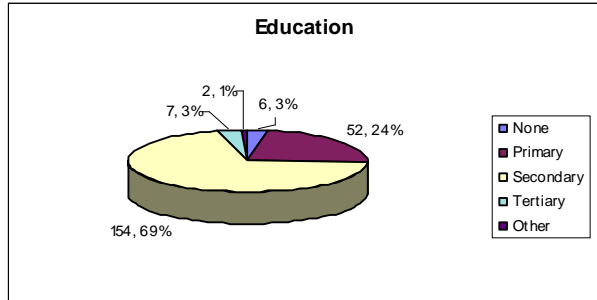
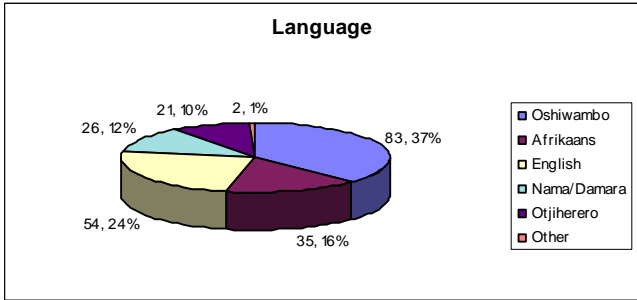






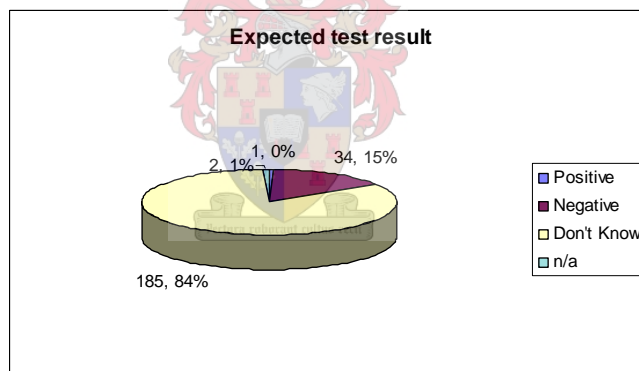
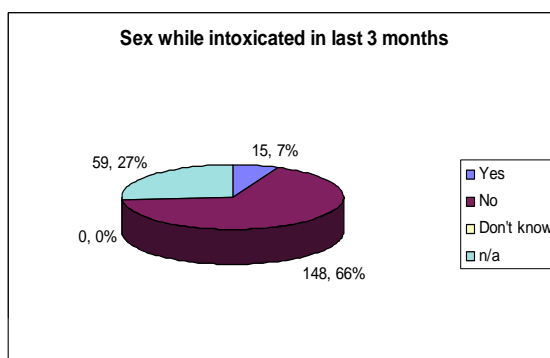
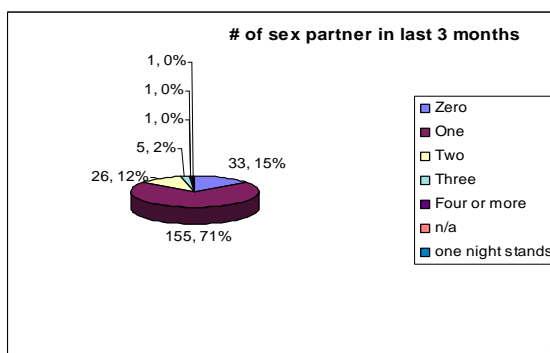
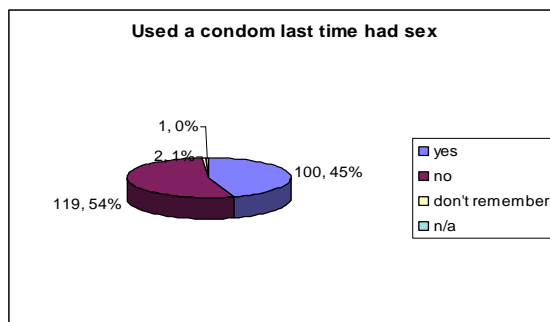
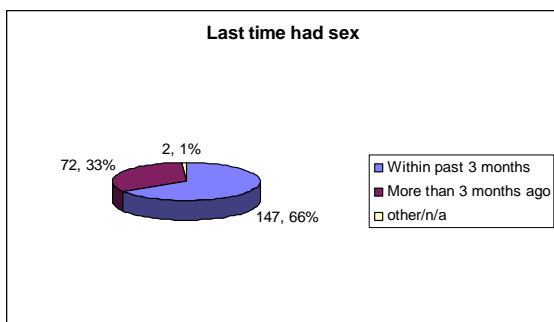
Annexure A



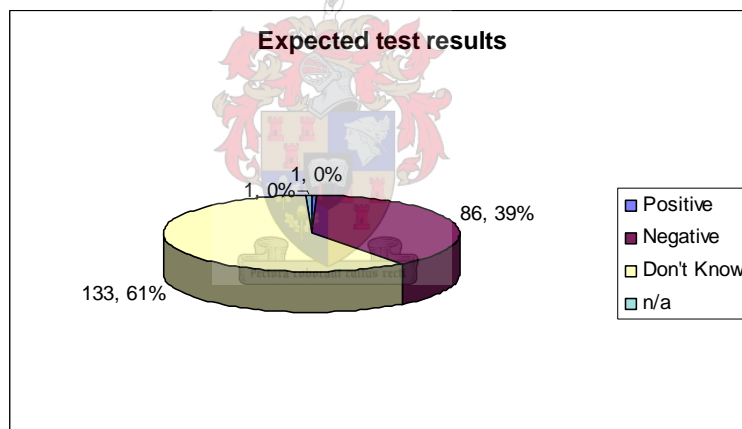
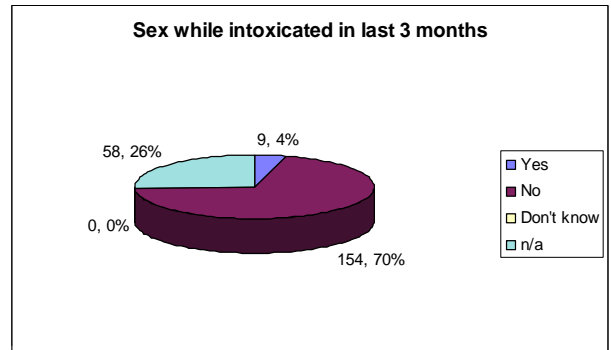
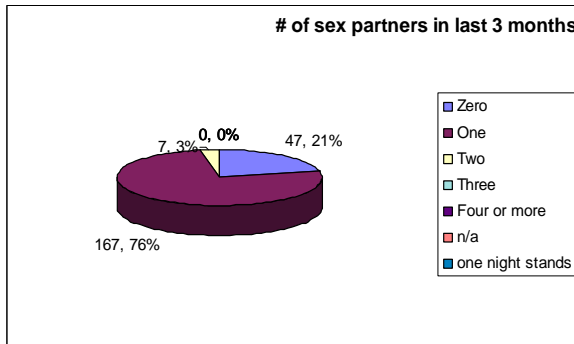
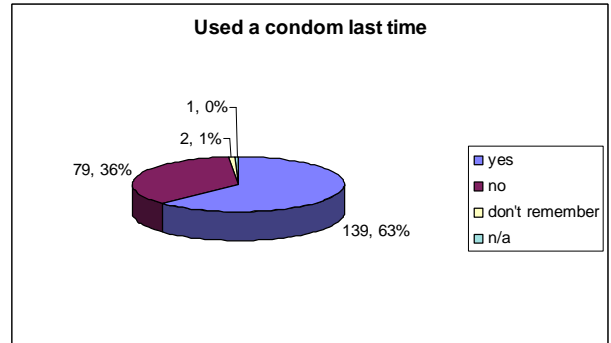
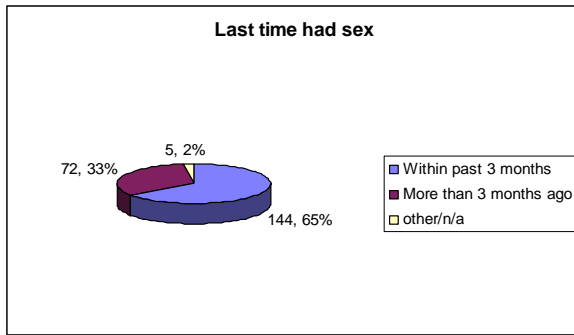


## Annexure B

### Visit 1 Graphs

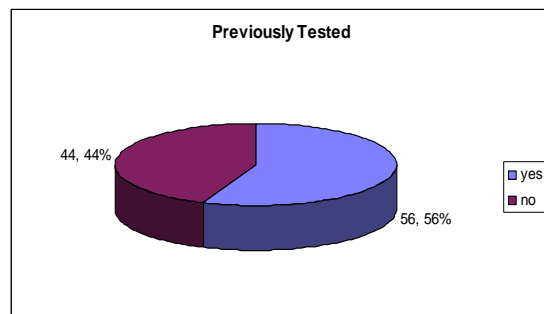
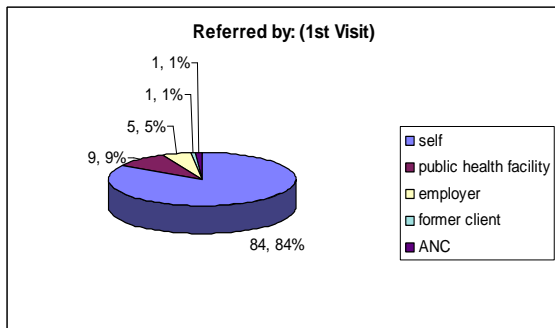
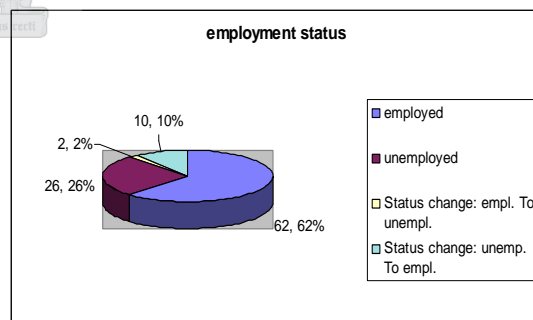
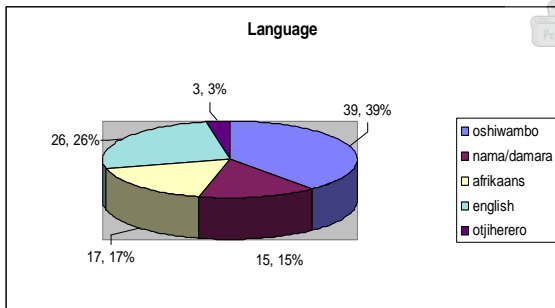
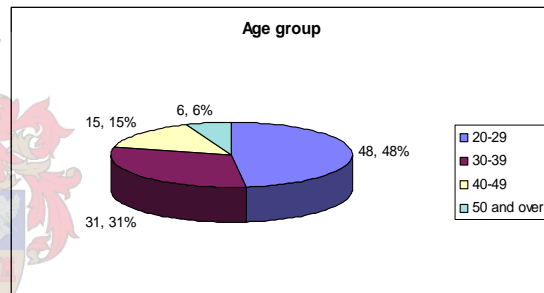
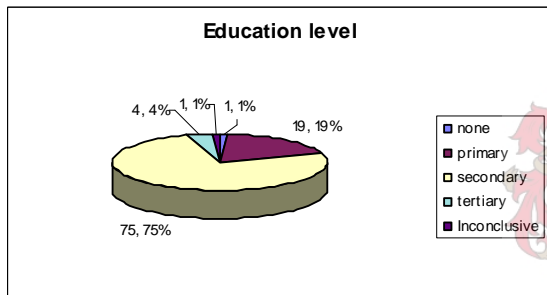
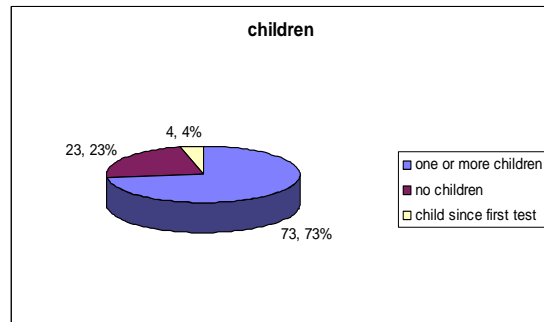
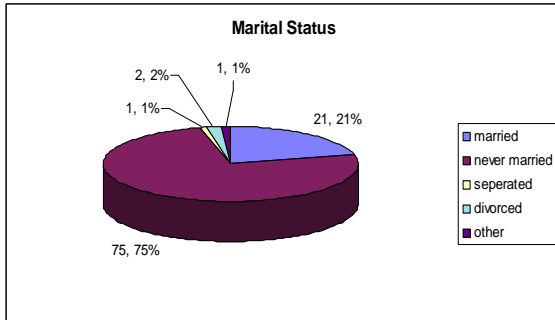
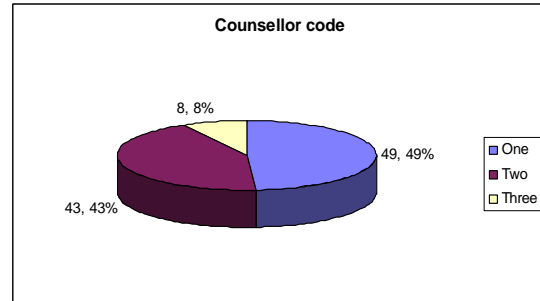
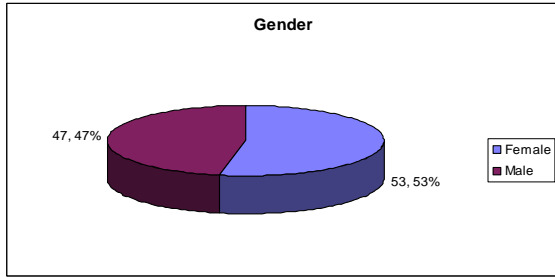


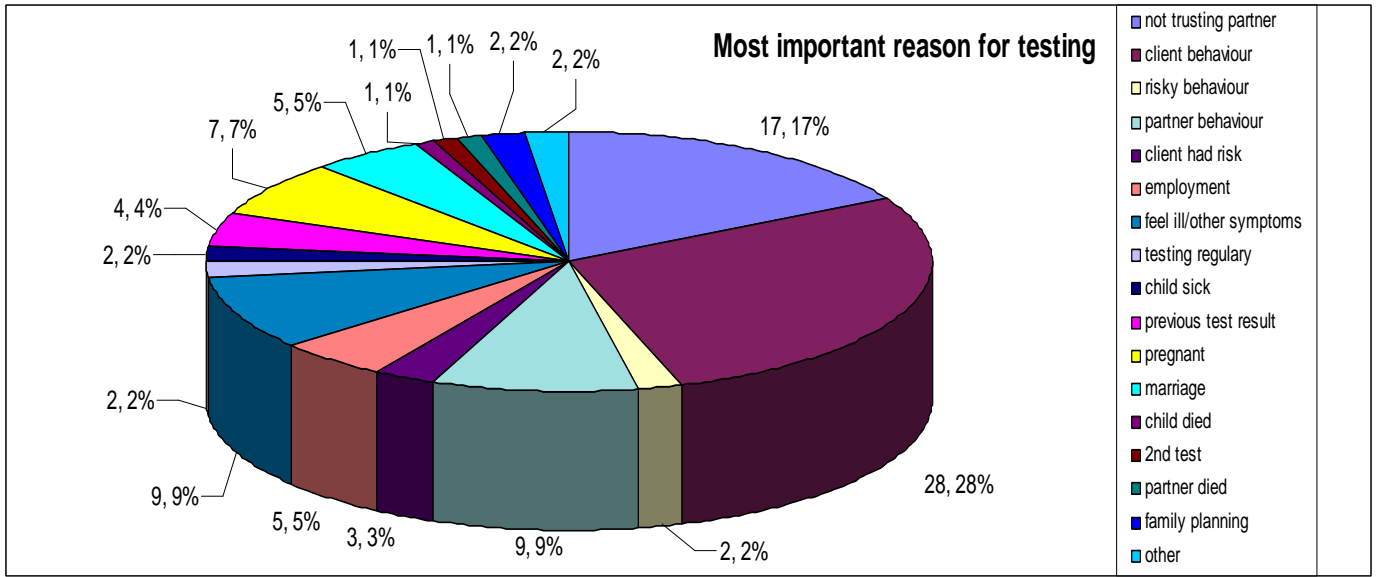
## Visit 2 Graphs



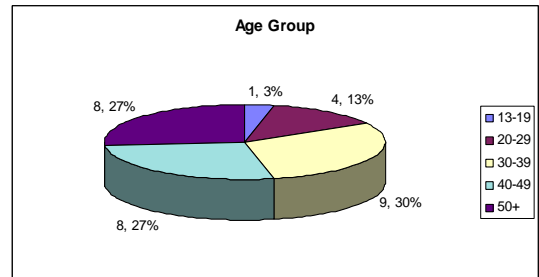
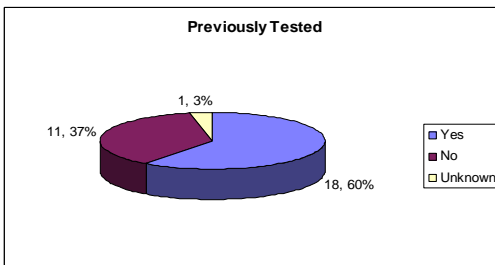
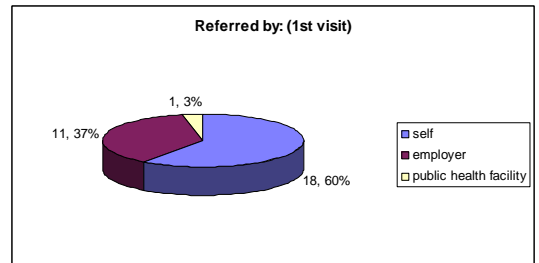
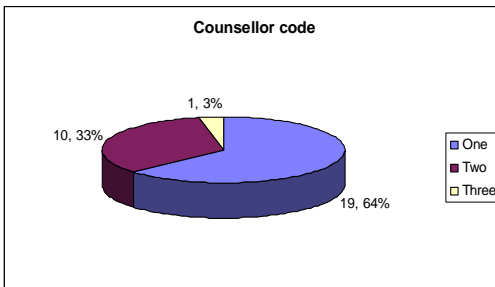
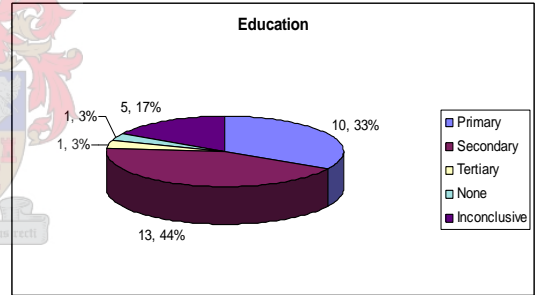
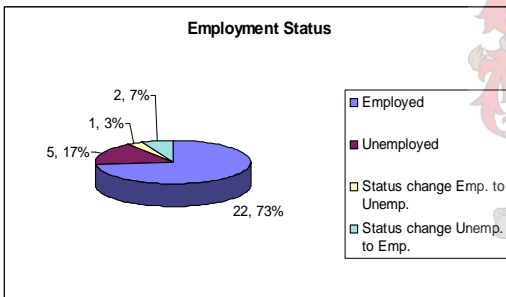
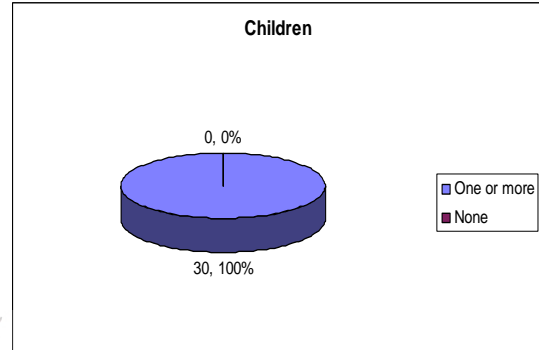
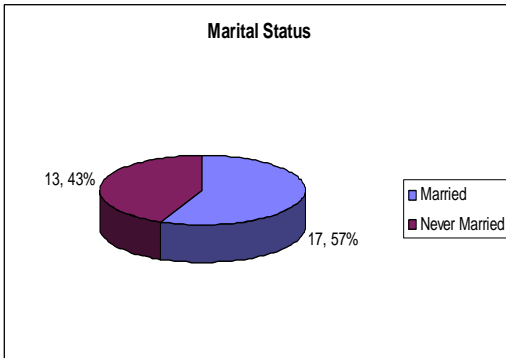
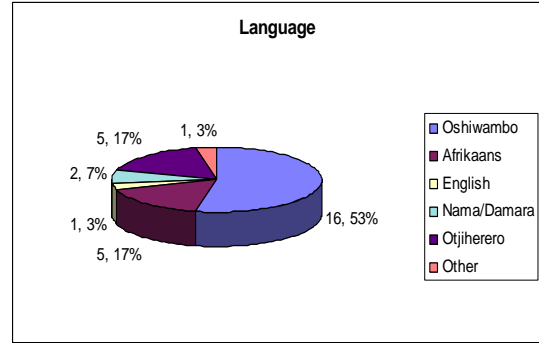
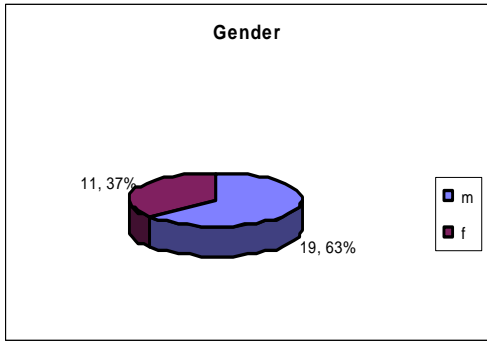
Annexure C

Most Improved

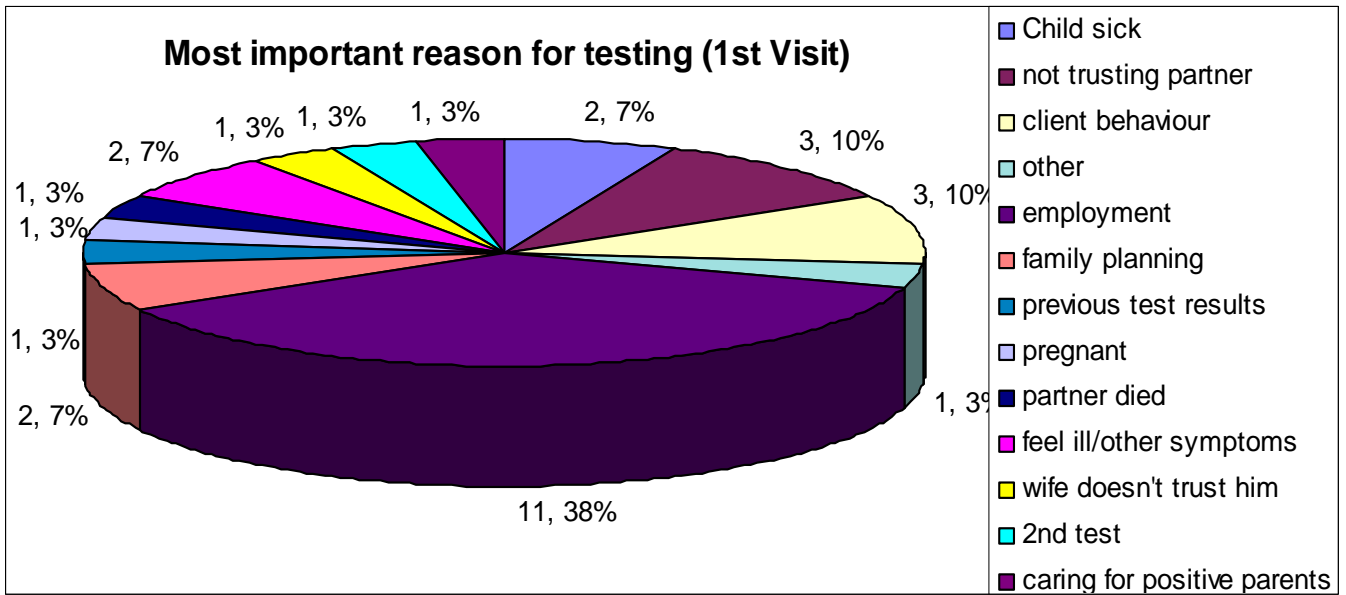




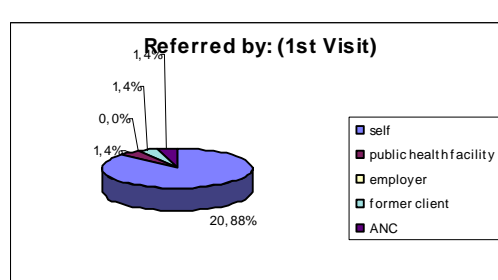
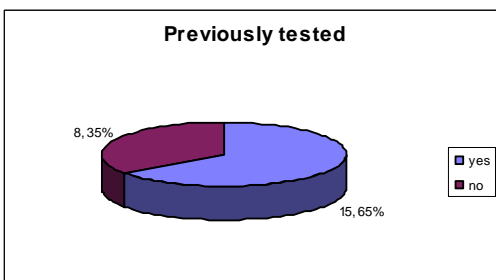
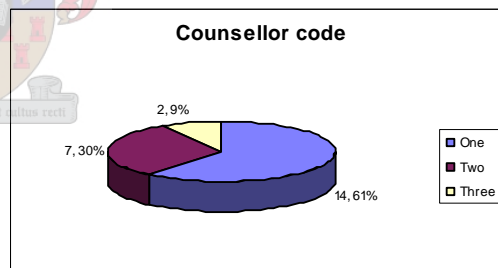
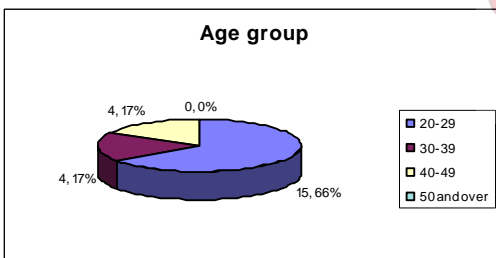
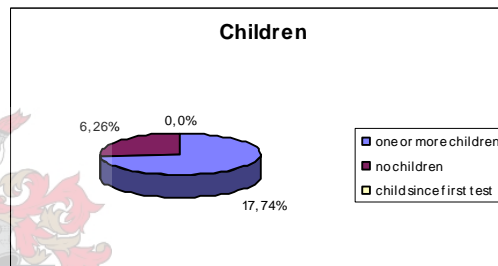
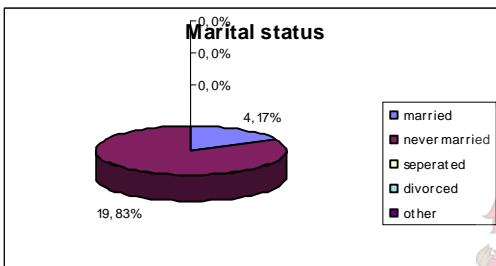
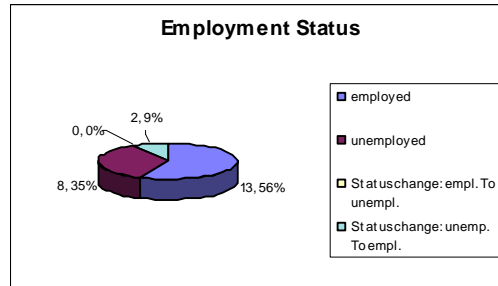
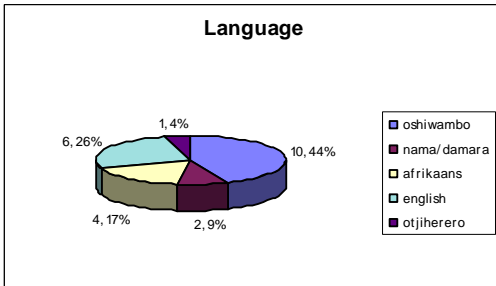
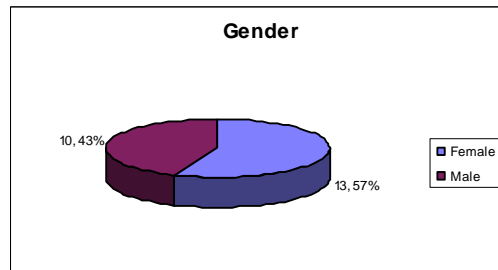
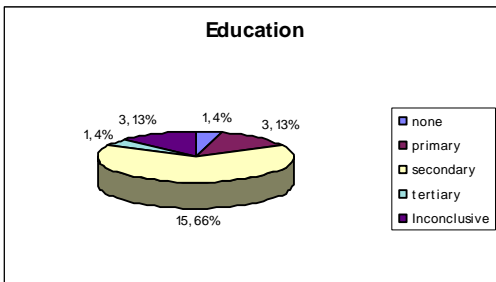
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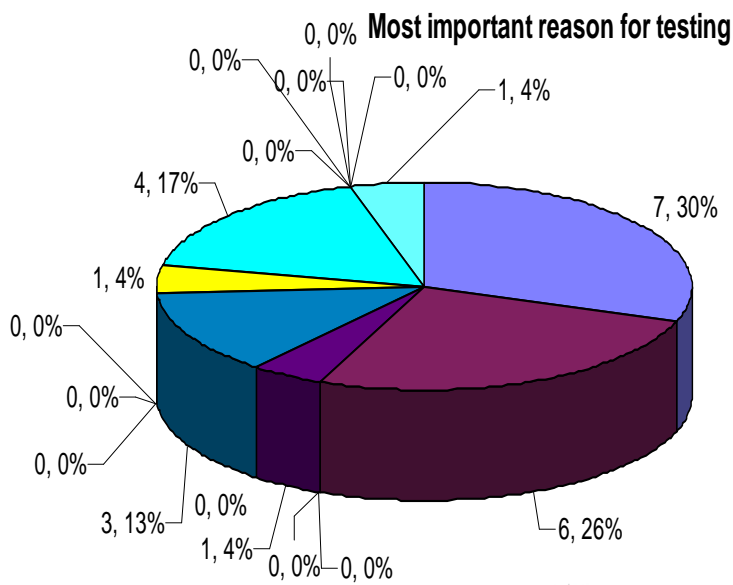






## Increased Risky Behaviour





- not trusting partner
- client behaviour
- risky behaviour
- partner behaviour
- client had risk
- employment
- feel ill/other symptoms
- testing regularly
- child sick
- previous test result
- pregnant
- marriage
- child died



**Annexure D**

**Table 1 Counsellor 1 Control**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>2.80</b>	2.86	1.40	1.6	2.1	1.89	2.23	2.28	2.72	2.06
<b>Standard Deviation</b>	1.79	1.78	0.54	0.51	0.73	0.43	0.64	0.60	0.69	1.00
<b>% of Err of Mean</b>	63.67%	62.30%	38.85%	31.94%	35.02%	22.82%	28.63%	26.50%	25.24%	48.39%
<b>Standard Deviation Population</b>	1.78	1.77	0.54	0.51	0.73	0.43	0.64	0.60	0.68	0.99
<b>% of Err of Mean</b>	63.38%	62.02%	38.68%	31.79%	34.86%	22.72%	28.50%	26.39%	25.12%	48.17%

**Table 2 Counsellor 1 & Female**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>2.5</b>	2.43	1.33	1.7	1.85	1.89	2.26	2.28	2.80	2.13
<b>Standard Deviation</b>	1.73	1.62	0.48	0.46	0.36	0.32	0.62	0.56	0.59	0.99
<b>% of Err of Mean</b>	69.39%	66.81%	35.69%	27.05%	19.36%	16.79%	27.44%	24.74%	21.28%	46.55%
<b>Standard Deviation Population</b>	1.72	1.61	0.47	0.46	0.36	0.31	0.61	0.56	0.59	0.98
<b>% of Err of Mean</b>	68.75%	66.18%	35.36%	26.80%	19.18%	16.64%	27.19%	24.51%	21.08%	46.12%

**Table 3 Counsellor 1, female, and 20's**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>2.68</b>	2.48	1.39	1.74	1.90	1.90	2.23	2.26	2.94	2.10
<b>Standard Deviation</b>	1.89	1.69	0.50	0.44	0.30	0.30	0.67	0.58	0.36	1.01
<b>% of Err of Mean</b>	70.46%	68.06%	35.70%	25.53%	15.79%	15.79%	30.05%	25.49%	12.24%	48.25%
<b>Standard Deviation Population</b>	1.86	1.66	0.50	0.44	0.30	0.30	0.66	0.57	0.35	1.0
<b>% of Err of Mean</b>	69.32%	66.96%	35.12%	25.12%	15.53%	15.53%	29.56%	25.07%	12.04%	47.47%

**Table 4 Counsellor 1, female, 20's and Oshiwambo speaking**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>1.73</b>	2.53	1.47	1.8	2	2	2.20	2.20	2.87	2.2
<b>Standard Deviation</b>	1.03	1.77	0.52	0.41	0	0	0.68	0.56	0.52	1.01
<b>% of Err of Mean</b>	59.58%	69.77%	35.21%	23.00%	0%	0%	30.73%	25.48%	18.01%	46.10%
<b>Standard Deviation Population</b>	1.0	1.71	0.50	0.40	0	0	0.65	0.54	0.50	0.98
<b>% of Err of Mean</b>	57.56%	67.40%	34.02%	22.22%	0%	0%	29.69%	24.62%	17.40%	44.54%

**Table 5 Counsellor 1, female, 20's and urban resident**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>2.93</b>	2.61	1.32	1.75	1.86	1.89	2.25	2.32	2.93	2.0
<b>Standard Deviation</b>	1.90	1.73	0.48	0.44	0.36	0.31	0.70	0.55	0.38	1.02
<b>% of Err of Mean</b>	65.01%	66.30%	35.99%	25.20%	19.19%	16.64%	31.13%	23.60%	12.91%	50.92%
<b>Standard Deviation Population</b>	1.87	1.70	0.47	0.43	0.35	0.31	0.69	0.54	0.37	1.0
<b>% of Err of Mean</b>	63.84%	65.11%	35.34%	24.74%	18.84%	16.34%	30.57%	23.18%	12.67%	50.00%

**Table 6 Counsellor 1, female, 20's, urban resident and never married**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>2.75</b>	2.58	1.33	1.75	1.83	1.88	2.25	2.38	2.92	1.92
<b>Standard Deviation</b>	1.85	1.77	0.48	0.44	0.38	0.34	0.74	0.58	0.41	1.02
<b>% of Err of Mean</b>	67.18%	68.41%	36.12%	25.28%	20.77%	18.02%	32.76%	24.24%	14.00%	53.11%
<b>Standard Deviation Population</b>	1.81	1.73	0.47	0.43	0.37	0.33	0.72	0.56	0.40	1.0
<b>% of Err of Mean</b>	65.77%	66.97%	35.36%	24.74%	20.33%	17.64%	32.08%	23.73%	13.70%	51.99%

**Table 7 Counsellor 1, female, 20's, urban resident, never married with a secondary education**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>2.62</b>	2.33	1.33	1.76	1.81	1.86	2.29	2.38	2.90	1.86
<b>Standard Deviation</b>	1.88	1.71	0.48	0.44	0.40	0.36	0.72	0.59	0.44	1.01
<b>% of Err of Mean</b>	71.92%	73.40%	36.23%	24.77%	22.24%	19.31%	31.37%	24.76%	15.02%	54.61%
<b>Standard Deviation Population</b>	1.84	1.67	0.47	0.43	0.39	0.35	0.70	0.58	0.43	1.0
<b>% of Err of Mean</b>	70.18%	71.63%	35.36%	24.17%	21.70%	18.84%	30.62%	24.17%	14.66%	53.29%

**Table 8 Males in their 20's**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>3.56</b>	3.49	1.63	1.67	2.26	1.72	2.21	2.21	2.63	2.16
<b>Standard Deviation</b>	1.69	1.86	0.62	0.52	1.0	0.55	0.64	0.56	0.79	1.00
<b>% of Err of Mean</b>	47.62%	53.22%	37.97%	31.17%	44.32%	31.89%	28.90%	25.29%	29.97%	46.16%
<b>Standard Deviation Population</b>	1.67	1.83	0.61	0.52	1.0	0.54	0.63	0.55	0.78	1.0
<b>% of Err of Mean</b>	47.07%	52.59%	37.53%	30.81%	43.79%	31.52%	28.56%	25.00%	29.62%	45.62%

**Table 9 Males in their 20's and Oshiwambo speaking**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>3.63</b>	4.0	1.50	1.56	2.44	1.75	2.19	2.25	2.63	2.13
<b>Standard Deviation</b>	1.78	1.67	0.82	0.63	1.15	0.68	0.66	0.58	0.81	1.02
<b>% of Err of Mean</b>	49.22%	41.83%	54.43%	40.27%	47.30%	39.04%	29.95%	25.66%	30.71%	48.22%
<b>Standard Deviation Population</b>	1.73	1.62	0.79	0.61	1.12	0.66	0.63	0.56	0.78	0.99
<b>% of Err of Mean</b>	47.66%	40.50%	52.70%	38.99%	45.80%	37.80%	29.00%	24.85%	29.74%	46.69%

**Table 10 Males, 20's, living in urban environment, never married, with secondary education & employed**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>2.81</b>	3.19	1.69	1.69	2.56	1.94	2.13	2.19	2.38	2.0
<b>Standard Deviation</b>	1.68	1.83	0.48	0.48	0.73	0.44	0.62	0.54	0.96	1.03
<b>% of Err of Mean</b>	59.80%	57.53%	28.37%	28.37%	28.39%	22.84%	29.14%	24.86%	40.31%	51.64%
<b>Standard Deviation Population</b>	1.63	1.78	0.46	0.46	0.70	0.43	0.60	0.53	0.93	1.0
<b>% of Err of Mean</b>	57.91%	55.70%	27.47%	27.47%	27.49%	22.12%	28.21%	24.07%	39.03%	50.00%



**Table 11 Males in their 40's**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>2.53</b>	2.60	1.33	1.53	2.2	2.07	2.07	2.07	2.73	1.93
<b>Standard Deviation</b>	1.64	1.72	0.49	0.52	0.41	0.26	0.59	0.46	0.70	1.03
<b>% of Err of Mean</b>	64.80%	66.30%	36.60%	33.68%	18.82%	12.49%	28.72%	22.15%	25.75%	53.42%
<b>Standard Deviation Population</b>	1.59	1.67	0.47	0.50	0.4	0.25	0.57	0.44	0.68	1.0
<b>% of Err of Mean</b>	62.61%	64.05%	35.36%	32.54%	18.18%	12.07%	27.75%	21.40%	24.87%	51.61%

**Table 12 Females in their 40's**

	Last time had sex		Used a condom last time?		# of sex partners in last 3 mths		Sex while intoxicated in last 3 mths		Expected test result	
	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2	Visit 1	Visit 2
<b>Mean</b>	<b>1.93</b>	2.27	1.33	1.60	1.93	1.93	2.33	2.27	2.80	2.07
<b>Standard Deviation</b>	1.22	1.33	0.49	0.51	0.26	0.26	0.49	0.59	0.56	0.97
<b>% of Err of Mean</b>	63.25%	58.88%	36.60%	31.69%	13.36%	13.36%	20.91%	26.19%	20.02%	47.18%
<b>Standard Deviation Population</b>	1.18	1.29	0.47	0.49	0.25	0.25	0.47	0.57	0.54	0.94
<b>% of Err of Mean</b>	61.10%	56.88%	35.36%	30.62%	12.90%	12.90%	20.20%	25.30%	19.34%	45.46%

**Key**

Last time had sex	Used a condom last time	# of sex partners in last 3 mths
1=same month	1=no	1=zero
2=1 month	2=yes	2=one
3=2 months		3=two
4=3 months		4=three
5=over 3 months		5=n/a
6=inconclusive		

<b>Sex while intoxicated in last 3 mths</b>	<b>Expected test result</b>
<b>1=yes</b>	<b>1=negative</b>
<b>2=no</b>	<b>2=positive</b>
<b>3=n/a</b>	<b>3=don't know</b>

