High acceptance of HIV testing and HIV awareness among pregnant women in Buea, Cameroon

Master thesis in Medicine

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ABSTRACT

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Background: One of the key actions in eliminating new HIV infections among children, is to provide HIV testing and antiretroviral medicines to pregnant women living with HIV. Without treatment, one third of children born to women living with HIV will become infected in the womb, at birth or through breastfeeding.

Aims: The primary aims were to investigate acceptance of HIV-testing and attitudes towards antiretroviral prophylaxis before and during pregnancy among pregnant women. A secondary aim was to investigate general knowledge, attitudes and risk behaviour towards HIV/AIDS.

Methods: Data was collected at two different health centers; Buea Road Health Center (BRIHC) and Muea Hospital between September 23rd and November 11th, 2013. A questionnaire was used as a platform for semi-structured interviewing.

Results: Of 120 interviews included, 99 % had been (or were about to be) tested for HIV. Ten women tested positive for HIV, all of them accepted antiretroviral prophylaxis during pregnancy. General knowledge about HIV/AIDS was high, everyone had heard about the disease and 97 % knew ways of protection. Misconceptions regarding routes of transmission were frequent among the low educated women. Most useful sources of information was the hospital and school.

Conclusions: The most important step is to attend health care/ANC. If attending, acceptance of HIV testing and antiretroviral prophylaxis among the pregnant women in Buea was high and generel level of knowledge was good. Still, information given by the health staff can be improved, especially regarding specific routes of transmissions.

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INTRODUCTION

Epidemiology

In 2012 an estimated 35.3 million people were living with HIV in the world, 70 % of them in sub-Saharan Africa. Around 1997 the global HIV-epidemic reached its highest peak of incidence with 3.4 million newly infected/year, but has promisingly by the end of 2012 decreased to about 2.3 million newly infected/year(1). Twenty-two of the countries with steep declines in HIV incidence are in sub-Saharan Africa, where the number of people acquiring HIV infection in 2010 (2.7 million people/year) was 21% lower than in 1997(2). Despite these gains, sub-Saharan Africa accounted for 69% of the adults and children newly infected in 2012(1).

One of the targets in the UN Millennium Development goal 6 (MDG 6) is to have halted and begun to reverse the spread of HIV/AIDS by 2015. Since the establishment of the goals in 2000 a remarkable effort has been made regarding new HIV infections among children, where there has been a 52 % decline since 2001 (annual number in 2012 was 260,000). However, there are still great regional differences. For instance, the proportion of women living with HIV globally is 50 %, but in sub-Saharan Africa women are more affected (i.e 59%). One of the key actions in eliminating new HIV infections among children, is to provide HIV testing and antiretroviral medicines to pregnant women living with HIV. Without treatment, approximately one third of children born to women living with HIV will become infected in the womb, at birth or through breastfeeding(2).

The Global Plan

A great number of global programs and services for preventing mother-to-child-transmission (PMTCT) has been introduced ever since the MDG 6, but in order to reach the goal of providing antiretroviral medicines (ART) to 90 % of the pregnant women living with HIV by 2015, a scaling-up of the services is needed. UNAIDS has therefore introduced a Global Plan to eliminate new infections among children, with a scaling-up of services in 22 prioritized countries that collectively account for almost 90 % of all pregnant women living with HIV. One of four key elements in the plan is to ensure that pregnant women have access to HIV testing and counseling, and that those who test positive have access to ART. The other 3 key elements are to:

1) prevent new HIV infections among women of reproductive age

2) helping women with HIV to avoid unintended pregnancies

3) provide HIV care, treatment and support for women, children with HIV and their families(3).

At the moment, antiretroviral medicines for prevention of transmission to the child were provided to 65 % of the HIV positive pregnant women within the 21 sub-Saharan countries[1] prioritized by the Global Plan. However, the percentage of HIV positive pregnant women eligible for treatment who actually received antiretroviral therapy for their own health only covered 58 %, compared with 65 % coverage of HIV treatment for adults overall. It is therefore necessary to determine why pregnant women, despite higher levels of access to care, are not starting (or being reported to start) antiretroviral therapy.

[1] India is the only country (out of 22 countries) outside of the sub-Saharan region.

There has been reported an overall increase in HIV testing among adults in several sub-Saharan countries, and according to surveys HIV testing rates tended to be higher among women than men. This may be due, in part, to an increase of HIV testing at antenatal care services.

Cameroon

Cameroon is located at the crossroads of West and Central Africa, bounded on the North by Tchad, on the South by Gabon and Congo, on the West by Nigeria and on the East by the Central African Republic. The country is accountable as one of the Sub-saharan countries, and is often called ”Africa in miniature” because of its ethnical and cultural diversity.
The population is 20.5 million inhabitants in 2013(4), and annual population growth rate lies around 2 %.

Cameroon is a country rich in natural resources with an economic growth in 2012 of 4.4 %, mainly due to export-oriented agriculture with production of coffee, cotton, rubber and other products. The countrys economic growth does not however seem to reach the health sector, where the public resources allocated to health remains one of the lowest in Africa (1.5% of GDP). As a result, Cameroons’s health indicators lag behind those of the rest of sub-Saharan Africa and those countries to which Cameroon is economically comparable. Life expectancy, for instance, has even declined since 1990 by about two years, giving an average expectancy of 53 years for men and 55 years for women. Other health indicators such as under-five-mortality rate of 122/1000 live births (African region: 95/1000)(5), or maternal mortality where one pregnancy out of 127 is fatal, are equally worrying(6).

HIV Cameroon

The first AIDS cases in Cameroon were reported in 1985, and prevalence rates showed a steady rise in numbers from 0.5 % in 1987 to 11 % in 2000(7). The number of people living with HIV in Cameroon 2012 is estimated to be 600,000 with a prevalence of 4.5 % among adults 15-49 years (8). Cameroon has with these figures the highest reported prevalence of HIV in West- and Central Africa. The prevalence among women is estimated to be 5.6% compared to the prevalence among men 2.9% (2011) (9), and it is thus twice more likely for women to be infected than men (10). The National AIDS Control Committee is projecting an increase of people living with HIV from 560,000 (2010) to 726,000 in 2020.

In response to the increasing prevalence of HIV and AIDS, the Cameroonian Government created a National AIDS Control Committee in 1986 to coordinate a national AIDS programme. Some 14 years later, the first Strategic Plan was drawn for 2000-2005, which included strategies for prevention of STI/AIDS with emphasis on women in child-bearing ages, prevention of mother-to-child-transmission (PTMCT) and enhanced blood-safety. The second National Strategic Plan for 2006-2010 focused on six aspects:

1) universal access to HIV prevention in targeted groups
2) universal access to treatment for adults and children living with HIV
3) protection and support to AIDS orphans and vulnerable children (OVC)
4) involvement of all stakeholders in the fight against HIV and AIDS
5) epidemiological surveillance and research promotion
6) reinforcement and coordination and management of the programme, partnerships and the monitoring and evaluation of its implementation.

Since 2006 there has been a lot of scaling up of institutions both in equipment and human resources. Some positive examples of progress are free ART treatment since May 2007, promotion of both female and male condoms and increased access of testing through a decentralized health care system. There has also been an establishment of certified treatment centers (CTC) throughout the national territory, with a coverage of 113 CTC:s in 82 out of 174 existing health districts(7).

Routes of transmission

HIV is a lentivirus within the retroviral family. HIV is being transmitted through blood and body fluids such as semen, vaginal fluids and breastmilk. These fluids must come in contact with a mucous membrane or damaged tissue for transmission to possibly occur (11). The estimated risk of transmission from mother to child is 15- 45 % without any antiretroviral treatment during pregnancy, delivery and breastfeeding. High viral load (mother) is the single most important risk factor (12).

A little over 80 % of all new HIV infections in Cameroon are caused by risky sexual behavior such as low condom use, multiple concurrent partners and high prevalence of other sexually transmitted infections. Mother-to-child-transmission is responsible for 6-14 % of all new HIV infections in Cameroon (10, 13) and the prevalence of HIV positive pregnant women is estimated to be 7.6 % - 8.4 %(9). Out of all children born to HIV positive mothers, 7 % tested positive (2011) (9).

PMTCT and HIV testing

Prevention of mother-to-child transmission can be seen as a series of action that needs to be taken into consideration (see figure 1). The first step is to attend a clinic, when being pregnant preferrably to a antenatal care center (ANC).

Fig 1. “Chain of actions to prevent mother to child transmission”

The stated objective for 2010 was that the proportion of pregnant women who would have access to HIV counselling and testing services should increase from 10% to 50%(14). Although great progress has been made regarding a scaling-up of PMTCT-services (almost all health districts are equipped to prevent mother to child transmission), the remaining problem is rather a matter of access to health care. Many pregnant women do not go to hospitals and clinics for antenatal care services or delivery and cannot benefit from the services provided(15). Although the first attending rates to ANC have increased from 5 % to 37 % in 2004-2011, there are still great regional disparities in access to services. ANC attendance rates ranges from 24.9 % in the North Region to nearly 58% in Adamawa Region. The attendance rate in the South West Region, where Buea is situated, were 39.3 % in 2011(9).

The next step is to be offered an HIV test, accept it and get the results. Among the women who attended ANC in Cameroon and were offered HIV testing the acceptance was 80 % and 92 % received their results (9). An important contributing factor to the high acceptance rates

may be the fact that HIV testing is free for pregnant women, others have to pay 500 FCFA (around 7 SEK)/test.

Prophylactic treatment in Cameroon

The fifth step in the "chain of prevention" is to be offered antiretroviral therapy (ART) if you get a positive HIV result. In 2012, 44 % of all eligible pregnant women in Cameroon received ART for their own health. 64 % of all women received ARTs to prevent MTCT. To reach the 2015 target with a 90 % coverage will take a lot of effort, but Cameroon has in recent years tripled the coverage of antiretroviral prophylaxis. This has led to 30 % fewer new infections among children (between 2009-2102), and a decrease in MTCT. Still, more than 8 out of 10 eligible children (0-14 years old) are not receiving antiretroviral therapy, which means that the second last step of the chain of prevention is lacking(3).

ART is free for everyone living with HIV since May 2007, although studies have shown that ART-treated patients devoted 4000 FCFA/month for health expenditures other than antiretroviral drugs, meaning that approximately a quarter of them face catastrophic healthcare expenditures(16).

The Ministry of Public Health adopted WHO 2006 recommendations of an antiretroviral triple regimen of azidothymidine (AZT), lamivudine (3TC) and nevirapine (NVP) as its national programme to reduce MTCT (Option A)(17). The new WHO recommendations from 2010, or even from July 2013 where the recommendation is to follow option B+ (or if not feasible, option B), has not yet been implemented (see table 1).

Table 1. "Use of antiretroviral drugs for treating pregnant women and preventing HIV infection in infants"

Table 1. Three options for PMTCT programmes

	Woman receives:		Infant receives:
	Treatment (for CD4 count ≤350 cells/mm³)	**Prophylaxis (for CD4 count >350 cells/mm³)**	
Option A[a]	Triple ARVs starting as soon as diagnosed, *continued for life*	*Antepartum*: AZT starting as early as 14 weeks gestation *Intrapartum*: at onset of labour, sdNVP and first dose of AZT/3TC *Postpartum*: daily AZT/3TC through 7 days postpartum	Daily NVP from birth through 1 week beyond complete cessation of breastfeeding; or, if not breastfeeding or if mother is on treatment, through age 4–6 weeks
Option B[a]	*Same initial ARVs for both*[b]*:*		Daily NVP or AZT from birth through age 4–6 weeks regardless of infant feeding method
	Triple ARVs starting as soon as diagnosed, *continued for life*	Triple ARVs starting as early as 14 weeks gestation and *continued intrapartum and through childbirth if not breastfeeding or until 1 week after cessation of all breastfeeding*	
Option B+	*Same for treatment and prophylaxis*[b]*:*		Daily NVP or AZT from birth through age 4–6 weeks regardless of infant feeding method
	Regardless of CD4 count, triple ARVs starting as soon as diagnosed,[c] *continued for life*		

Note: "Triple ARVs" refers to the use of one of the recommended 3-drug fully suppressive treatment options.

[a] Recommended in WHO 2010 PMTCT guidelines

[b] True only for EFV-based first-line ART; NVP-based ART not recommended for prophylaxis (CD4 >350)

[c] Formal recommendations for Option B+ have not been made, but presumably ART would start at diagnosis.

Buea

Buea is the capital city in the South West Region of Cameroon and located on the slopes of Mount Cameroon, around 1000 m above sea level. It has a population of 138,000 and almost all ethnic groups are represented. The city is located 15 kms from the Atlantic Ocean and 60 km from Douala, the economic capital of Cameroon. Most of the inhabitants practice agriculture as the main economic activity, but due to the University of Buea an increasing number of the population is students. Buea has one of the highest HIV prevalence rates in the country (local infection HIV rate 5.6%) (18).

OBJECTIVES OF THE STUDY

The aim of this study was to investigate the acceptance of HIV-testing and the attitudes towards antiretroviral prophylaxis before and during pregnancy among pregnant women in Buea, Cameroon. An additional aim was to investigate general knowledge and attitudes towards HIV and AIDS and eventual risk behavior among pregnant women.

MATERIAL AND METHODS

Design and settings

The study was conducted between September 23 and November 11, 2013 at two different health centers in the region of Buea; Buea Road Integrated Health Center (BRIHC) and Muea Sub-divisional Hospital.

Buea Road Integrated Health Center

BRIHC is situated on the main road in Buea. BRIHC is a public health center with a main focus on pregnant women and vaccination for children, but is also open for other patient groups who want to conduct a test in the laboratory or come for a nurse consultation. There is no doctor or maternity ward (for in-patients), so for more severe cases and all deliveries the patients are being referred mainly to the Regional hospital in Buea. Most of the pregnant women who come for antenatal care services live in or around Buea, and travelling distance to the clinic is usually not far. It is a mixed population with a variety of different professions, such as students, hairdressers, seamstresses and farmers.

Registration fee for the first ANC-visit (booking) is 9000 CFA (about 117 SEK). Included in the price is test for HIV, malaria, Hb, blood group, syphilis and urin analysis (albumin and

sugar). Every following ANC-visit cost an additional 1500 CFA. All women are obliged to take at least 2 HIV-tests during the pregnancy, and if no HIV test has been done during pregnancy, the hospital will take a HIV test around delivery. The result is handed over the same day, but if negative most of the women do not get their result confirmed. On every visit the nurses also measure blood pressure, do vaginal examination and give information in group. The information is usually given as a lecture by a nurse or sometimes a peer educator; a volunteer informator trained by either a church or another health center. The lectures are being held in ”pidgin english”, and highlights subjects such as the importance of blood group testing, when to do sonography, veneral infections, malaria, family planning etc. When discussing HIV/AIDS, the peer educator often go through the pathofysiology, symptoms, importance of testing, stigma, STI co-infections and benefits of treatment. The women are being told to exclusively breastfeed for 6 months if HIV positive, meaning to breastfeed without any additional food or drink (not even water).

Muea Sub-Divisional Hospital

Muea Sub-Divisional hospital is a public hospital located in Muea, some kilometers distant from Buea. The population of Muea is mainly relying on farming and trading at the market (self-employment). The hospital has both in- and out-patients, 4 different wards (maternity ward, pediatric, male ward, female ward), an emergency unit (out-patient), a theatre (for minor surgeries), a laboratory and a farmacy. The hospital offers ANC 2 days/week and registration fee is 13500 CFA (about 180 SEK). Every following ANC-visit cost 2500 CFA. The hospital has one delivery room and delivery fee is 6000 CFA. There are usually one or two midwives present when delivering, but if needed there is one doctor working for the hospital who can attend the delivery if necessary. HIV testing is being performed like at BRIHC, with the only difference that if the pregnant woman has not yet been tested before

labour, they make an additional test. In contrast to BRIHC, the women are advised not to breastfeed if HIV positive.

Subject recruitment and data collection

Approval and ethical clearance were obtained from the Regional Delegate of Public Health of the Ministry of Public Health in the South West Region of Cameroon. A questionnaire was used as a platform for semi-structured interviewing, and a code number system was used to ensure anonymity. The interviews were held in English or French. Women who consecutively came in for antenatal care, either for their first visit or following visits, were asked by the health staff (nurses) if they wanted to participate in the study after a brief explanation of the study. Inclusion criteria were pregnancy, not having been interviewed before and willingness to participate. All women were informed that their participation was voluntary and their responses would be treated confidentially.

Questionnaire

The questionnaire was originally constructed by Professor Glen Mola at Port Moresby General Hospital, Papua New Guinea(19), then modified by medical students Josefin Sandqvist and Johanna Wahlberg for a similar study in Uganda(20). Finally it was slightly modified to make it suitable for the present study. The questionnaire contained 36 questions divided in to 4 categories: general questions, knowledge about HIV/AIDS, private life and HIV/AIDS and pregnancy. If the woman was HIV positive, there was additional 8 questions about prophylaxis and HIV testing. The respondant could either read the questionnaire herself and reply directly, or reply to the questions when being read out loud.

The questionnaire starts with questions about age, profession, education, living conditions and

family situation. The second part consists questions about if they had heard about HIV/AIDS and for how long, where they got information about HIV/AIDS, knowledge about transmission modes, if they know any ways of protection, knowledge about symptoms, attitudes towards special groups more infected than others and knowledge about prevention of transmission from mother to child. The following part concerns questions about HIV-testing, sexual debut and number of sexual partners, risk behaviour and partner testing. The last two questions elucidate if they got any information about HIV/AIDS when pregnant and if they were offered any HIV testing during the pregnancy.

Statistical analysis

Data were entered into Microsoft Word 2008 for Mac and analyzed in SPSS for Mac, version 21. Percentages from cross tabulations were compared and p-values were calculated in SPSS using Pearson chi-square and if low number of observations Fisher's Exact test. P-values <0.05 were regarded as statistically significant. Descriptive statistics and figures were calculated using Microsoft Excel 2008 for Mac. The 95 % confidence intervals (CI) for proportions were calculated with Coltons formula: mean value (p) +/- 1.96 x √ (p x (100-p)/n), were n is the number of observations and p is proportion in percent. The formula was used when p x n > 500 and (100-p) x n > 500(21). If two intervals are not overlapping the observed difference is considered significant if $p < 0.05$.

RESULTS

In total 120 interviews with the incoming pregnant women were conducted, 85 at BRIHC and 35 at Muea Hospital over a period of two months. Four women were excluded because of interrupted interviews or communication difficulties.

Socio-demographic data

Socio-demographic data are presented in table 2. The median age of the total population was 27 years. Parity ranged from 0 to 7 children, with a mean of 1.1 and a median of 1 child still alive.

Table 2. Socio-demographic data

Variable	Total (n=120)	BRIHC (n=85)	Muea (n=35)
Age (median, years)	27 [17-39]*	28 [17-39]	24 [17-33]
Marital status			
Married	59 %	52 %	77 %
Boyfriend/fiancee	37 %	42 %	23 %
Single	4 %	6 %	0 %
Number of children (median/mean)	1/1.1 [0-6]	1/1.03 [0-6]	1/1.26 [0-4]
Same father for your children (yes)	68 % (n =72)	69 % (n=49)	65 % (n=23)
Profession			
Employed	27 %	34 %	11 %
Self-employed	37 %	32 %	49 %
Unemployed	17 %	15 %	20 %
Student	19 %	19 %	20 %
Living conditions			
House	34 %	31 %	43 %
Apartment	36 %	43 %	17 %
Home of relatives	7 %	8 %	6 %
Other	23 %	18 %	34 %

*Data expressed as median [range]

Highest reached level of education is presented in figure 2.

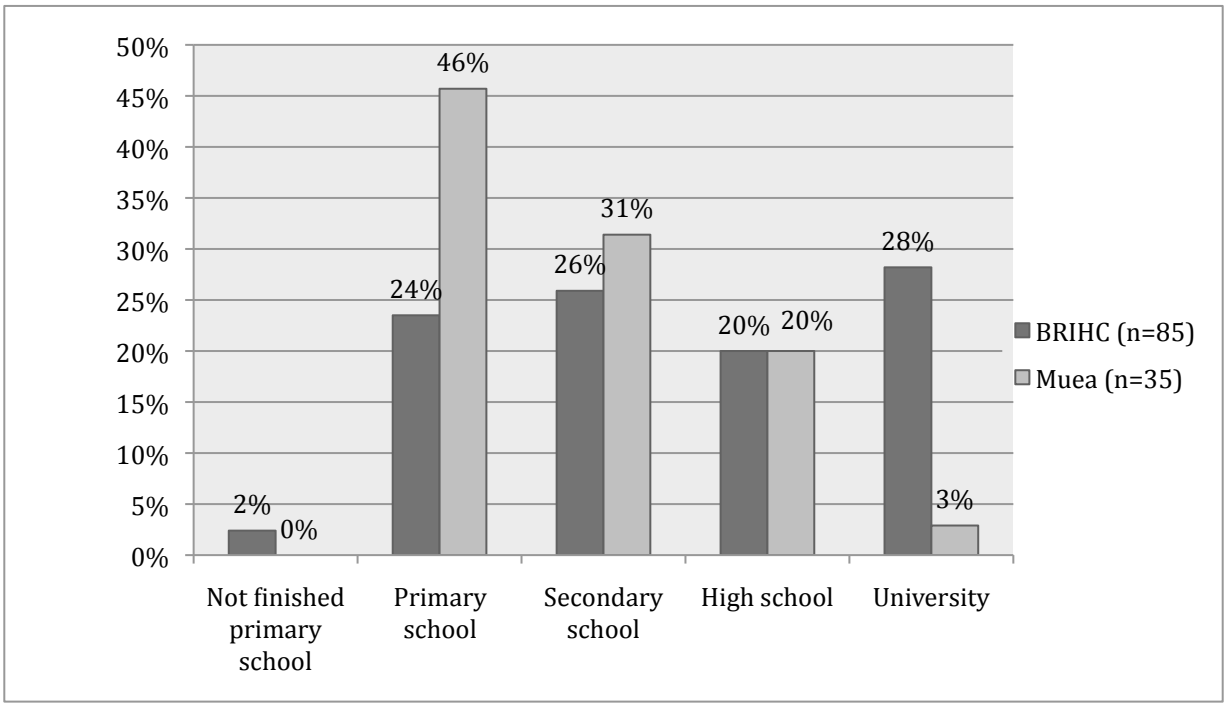

Fig 2. Level of education

General knowledge of HIV/AIDS and sources of information

Everyone had heard about HIV/AIDS and 47 % had first heard about HIV/AIDS 2-10 years ago, 39 % 10-20 years ago, 12 % answered ”as long as I can remember” and 2 % answered ”less than 2 years”. There was no significant difference between the two health centers among the answers.

From where the pregnant women got the most useful information about HIV/AIDS is shown in figure 3. Most of the women at BRIHC answered that they got the best/most useful information in school, but when correlated to education level, women with lower education (primary school or not finished primary school) said they got the most useful information from the hospital or health personnel (p-value = 0.002).

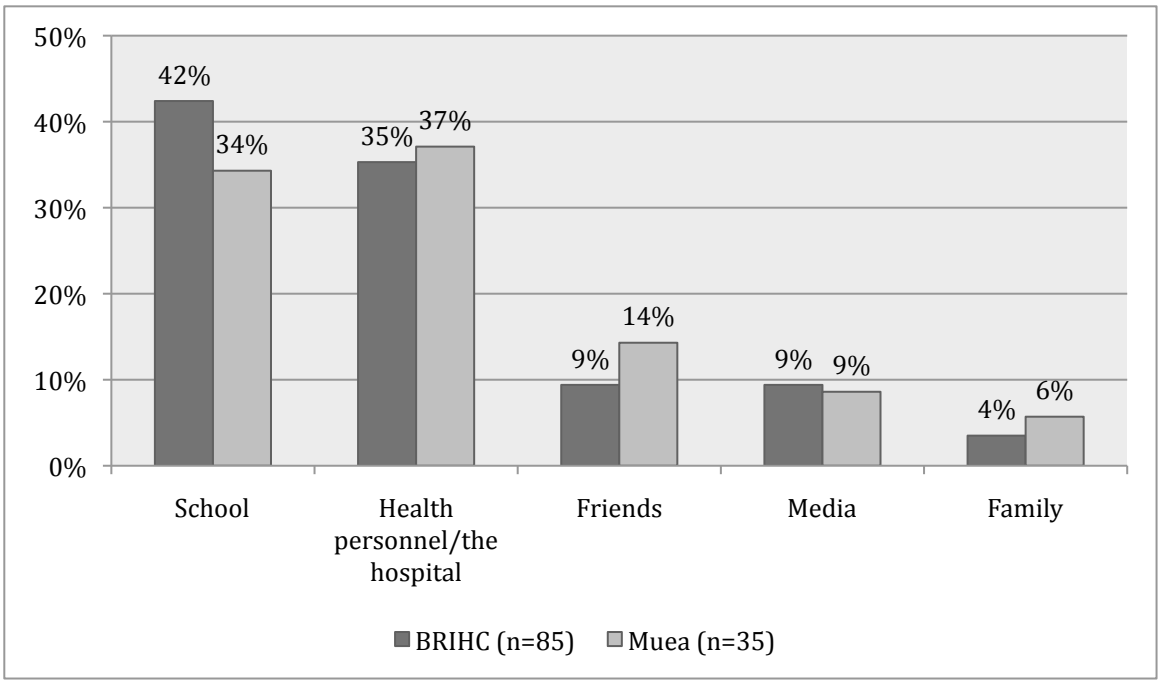

Fig 3. Question nr. 12 (see appendix): ”From where did you get the most useful information about HIV/AIDS?”

When asked ”from where would you like to get *more* information about HIV/AIDS?”, 68 % answered health personnel/the hospital, 21 % other, 4 % media, 3 % friends, 3 % school. By replying ”other” most of the repliants said ”anywhere”, a few mentioned ”internet” or ”books” and two replied ”organized seminars from public health” or ”campaigns”.

Fifty-eight percent of the population (69/119) answered that they did not know anyone who was HIV positive. When correlated to age; 73 % (38/52) of younger women age 17-25 did not know anyone HIV positive compared to 54 % (36/67) within the age group 26-39 years (p-value: 0.005). When asking if the women ”knew anyone who died from HIV/AIDS?” 52 % (62/119) answered ”yes”.

The majority of women who knew someone HIV positive also knew someone who had died from HIV/AIDS (76 %, 38/119). The same correlation was seen among the women who did

not know anyone HIV positive: if you did not know someone HIV positive you also did not know anyone who had died from HIV/AIDS (65 %, 57/119).

Most of the women did not know how many were infected with HIV in the area where they lived, as can be seen in figure 4.

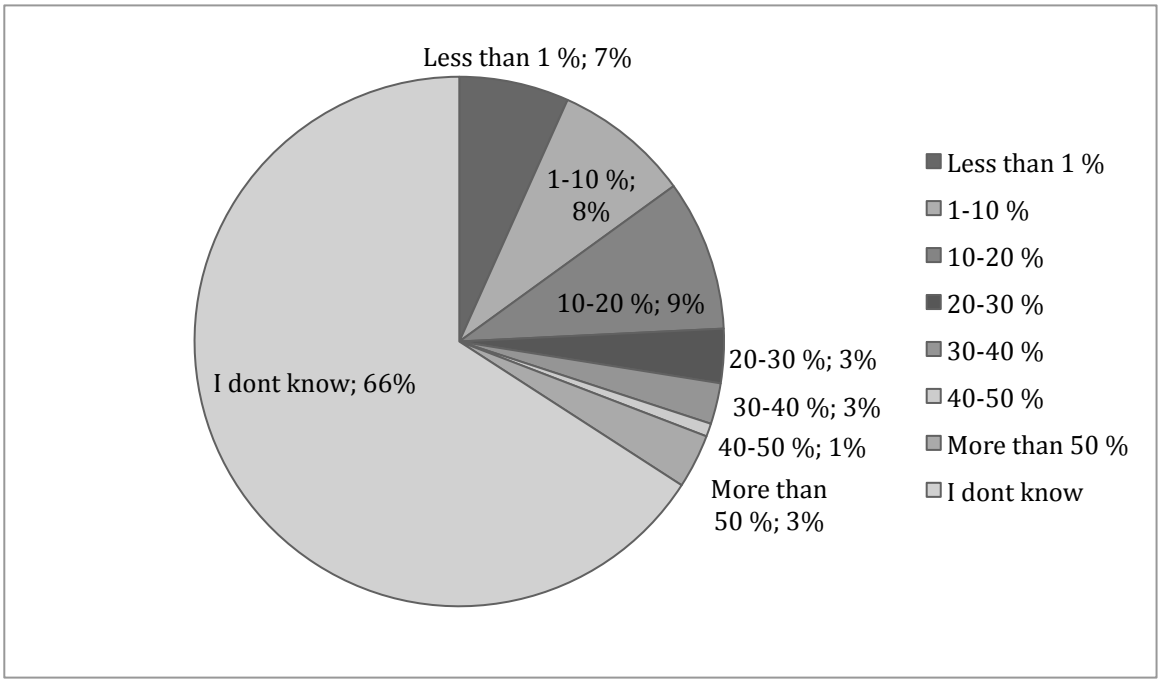

Fig 4. Question nr 20: ”Approximately how many do you think are infected with HIV/AIDS in the area where you live?” (n = 120)

Information and HIV testing during pregnancy

As can be seen in figure 5, the majority of the women had got information or lectures about HIV/AIDS when they got pregnant.

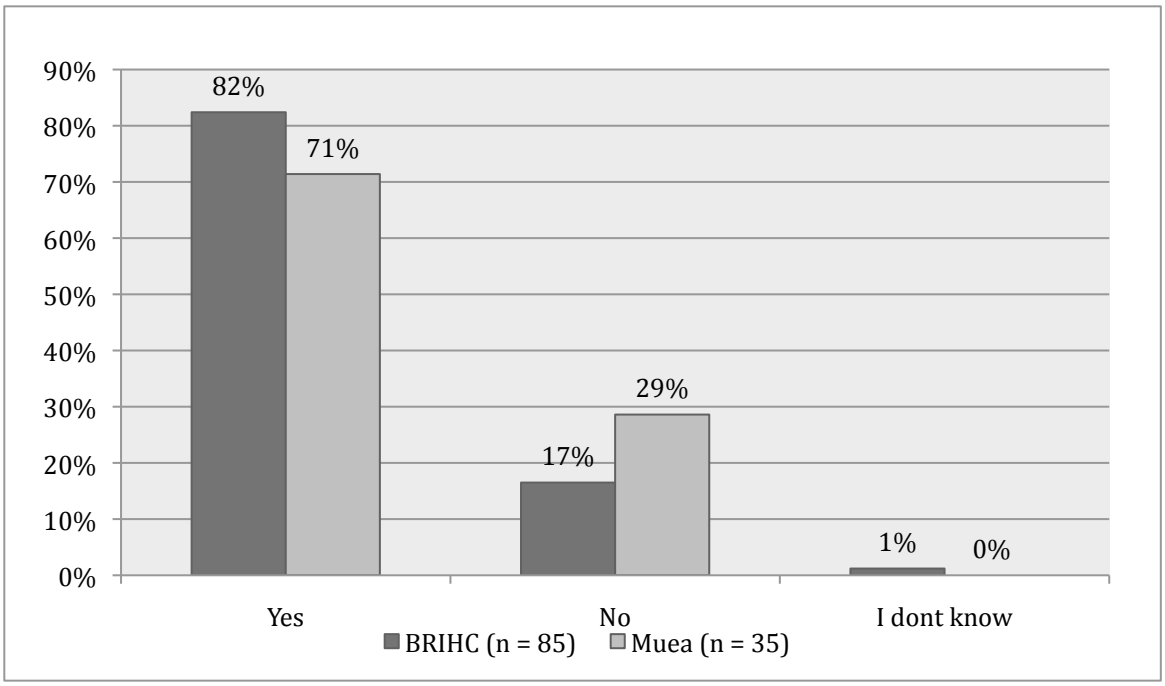

Fig. 5. Question nr 35: "Did you get any information about HIV/AIDS when you got pregnant?"

When asked if they had been offered an HIV test when they got pregnant, 92 % said yes (111/120), seven women answered "no" and 2 women did not know. The number of women who answered that they in fact had been tested for HIV was 95 % (114/120). The five women who had not been tested were waiting to be tested (since it was their first antenatal care visit) which makes it a total 99 % testing rate among the women. One woman did not know if she had been tested or not.

Knowledge about protection, symptoms and risk groups

The majority of all pregnant women (97 %) said that there are ways to protect yourself against sexually transmitted HIV. Sixty-two percent (n=116) answered that you can protect yourself "by using condom", 26 % answered "by being abstinent", 20 % "by being faithful", 15 % "by avoiding sharing needles" and 13 % "by avoiding using unsterilized instruments/sharp objects".

When asking ”Do you know any symptom(s) that you can get from HIV/AIDS?”, 69 % answered “yes”. Among the 84 women who could specify any symptoms the most common answers were skin rashes 51 %, persistent cough 46 %, diarrhea (“running stomach”) 33 %, persistent fever 21 %, loss of immunity 17 %, cachexia/weight loss 12 %, or looking pale/unhealthy 10 %.

Sixty-four percent answered “no” to the question “Can you by looking at a person tell if he/she is infected with HIV/AIDS?”.

Of 119 responders 44 % answered that there are certain groups (in the society) that are more often infected with HIV than others. Among the 52 women replying, the far most common group mentioned by 66 %, was “youth”. Other groups were ”women” (14 %), ”people from a poor area in Buea with low education” (8 %), ”prostitutes” (2/52) and ”nurses (because of the risk of blood transmission)” (1/52).

Knowledge about routes of transmission

As can be seen in figure 6, most of the women answered that HIV/AIDS is mainly being spread through sexual intercourse without using condom. For the question “in what ways HIV/AIDS can be spread from one person to another”, there were ten different replying alternatives as can be seen in table 3.

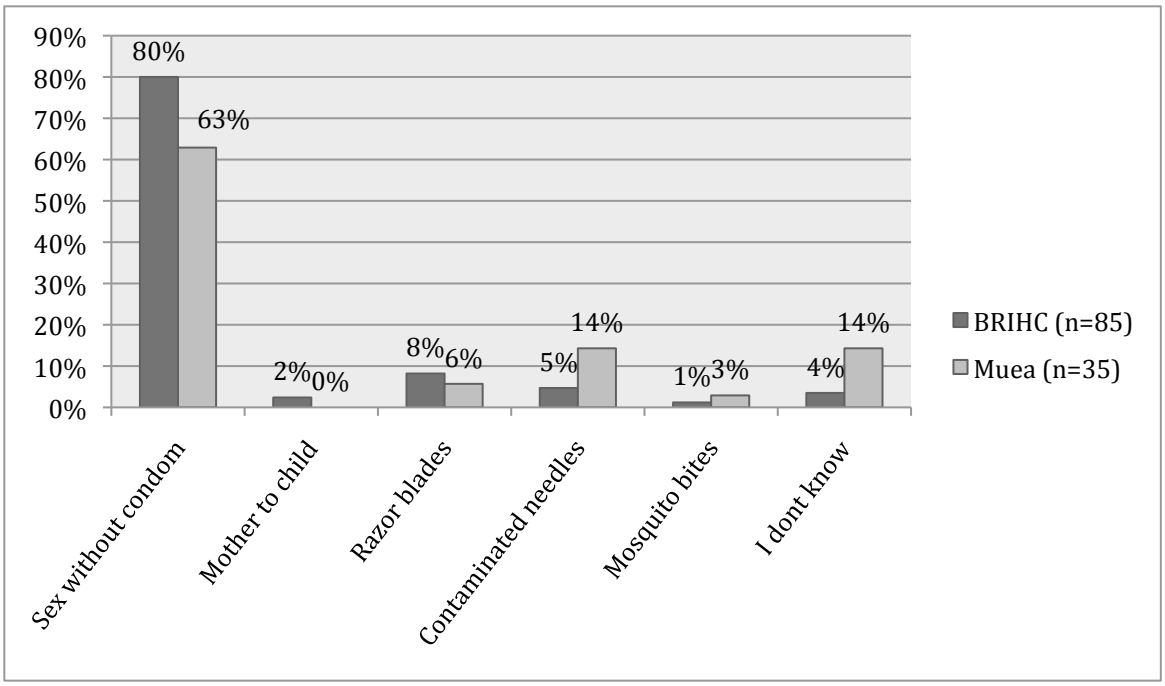

Fig 6. Question nr 15: "Which do you think is the main way HIV/AIDS is spread from one person to another?"

Table 3. Believed routes of transmission related to level of education. (Question nr 14).

Question	Low education* (n = 38)	High education** (n = 82)	P-value	All (n=120) (95 % CI)
1) Sharing food or drinks?	76 % (= no)	95 % (= no)	0.004	89 % (= no) (83-95)
2) Shaking hands/hugging?	95 % (= no)	96 % (= no)	0.651	96 % (= no)
3) Being coughed or sneezed on?	71 % (= no)	77 % (= no)	0.505	75 % (= no) (67-83)
4) Kissing?	58 % (= no or ”yes, if wound in his/her mouth”)	70 % (= no or ”yes, if wound in his/her mouth”)	0.212	67 % (= no or ”yes, if wound in his/her mouth”) (60-74)
5) Sexual intercourse without a condom?	100 % (= yes)	100 % (= yes)	-	100 % (= yes)
6) Sexual intercourse with a condom?	92 % (= no or “yes, if condom burst”)	80 % (= no or “yes, if condom burst”)	0.063	83 % (= no or “yes, if condom burst”) (76-90)
7) Sharing needles?	100 % [1] (= yes)	100 % [1] (= yes)	-	100 % [2] (= yes)
8) Breastfeeding?	84 % (= yes)	85 % [1] (= yes)	0.545	85 % [1] (= yes) (79-91)
9) From mother to child during pregnancy or delivery?	89 % (= yes, during both pregnancy and delivery)	94 % (= yes, during both pregnancy and delivery)	0.462	93 % (= yes, during both pregnancy and delivery) (88-98)
10) Mosquito bites?	37 % (= no)	55 % (= no)	0.079	49 % (= no) (40-58)

[1] One reply missing.
[2] Two replies missing.
*** Low level defined as primary school or not finished primary school.**
**** High level defined as secondary school, high school and university.**

Knowledge about treatment

The majority of all women (89 %) knew that there are ways to treat HIV, or ”cool it down” (as many women explained the effect of treatment). When compared with serological status; 43 % (3/7) of the HIV positive women believed that there is a cure for HIV, compared to 12 % (10/80) of the HIV negative women.

Private life and risk behaviour

Besides health personnel, 91 % of the HIV negative women (95/105) answered they would tell their partner if they found out they were HIV positive. Other than the partner, most women would tell their mother (45 %).

The number of lifetime sexual partners (including current partner) varied from 1 to 10-20, as can be seen in figure 7. The accuracy of the responses must be regarded as estimation, since the nature of the question is very sensitive and the responses might not be completely honest. Most of the women (24 %) were 18 years old when they had their first sexual intercourse, 31 % were 13-17 years, 45 % were 19-26 years.

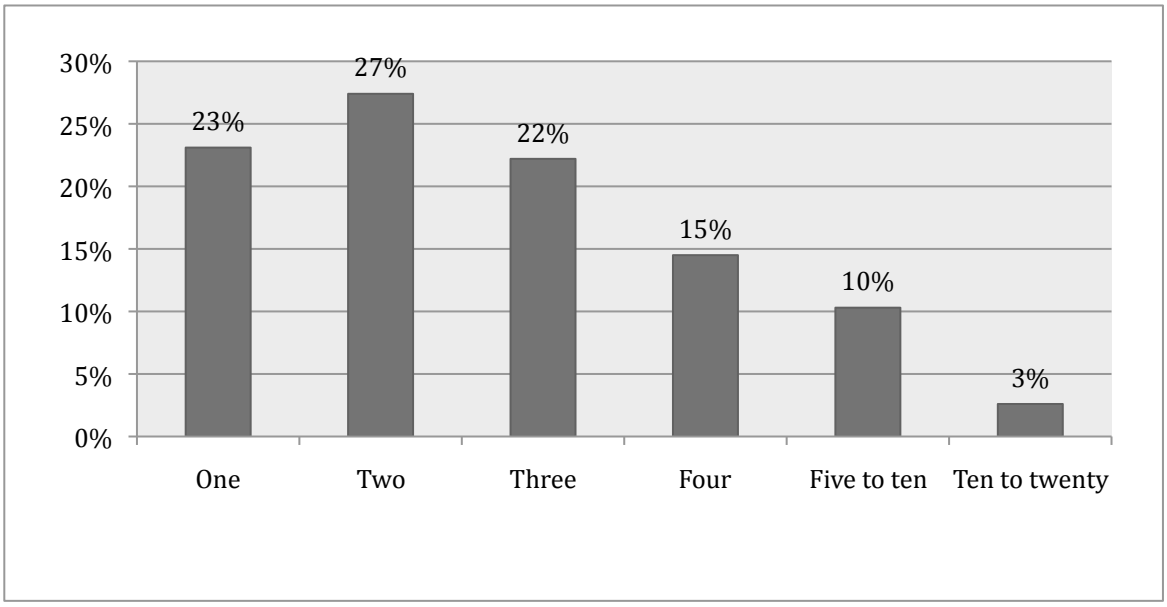

Fig. 7. Question nr 27: Number of lifetime sexual partner (including current partner) (n=118)

More than half of the 103 answering HIV negative women (57 %) reported that their partner did not have any other girlfriend or partner outside of the relationship. Around 8 % replied ”yes” (one woman said she was the second wife), and 35 % answered they did not know if their partner had some other partner outside of the relationship. Among the HIV positive women, 2/10 answered ”yes” and 6/10 did not know.

When the HIV negative women met their currrent partners, 91 % (95/105) asked about previous partners, and 83 % (86/104) asked about the partners HIV status. Only 4/10 among the HIV positive women had asked their partner about his HIV status when they met. Eighty-seven percent of the HIV negative women asked their partner to take an HIV test (93/105), and 98 % of them (89/91) tested negative. Seven of the HIV positive women had partners tested for HIV, and two out of them tested positive. One woman did not know the result of her partners test.

Asking the partner to test himself for other sexually transmitted diseases (STD) was not as common as HIV testing; 62 % said they had asked their partner to test for STD:s. Among the HIV positive women the rate was even lower, only 2/10 had asked their partner to take a test for STD:s.

Around 72 % percent of the HIV negative women (44/61) had not tested their children for HIV, 25 % had tested all of their children and 3 % had tested some of their children. Seven out of eight among the HIV positive women had not tested their children (only one had tested her children). None of the children tested positive.

Having HIV and prophylactic treatment

Nine percent of 115 tested women were HIV positive. They had been diagnosed between 2003-2013. 2 women came from Muea Hospital and 8 women from BRIHC. Five women had primary school educational level, 2 had reached secondary school, 1 had reached high school and 2 had university level. Among the HIV positive women, 7/10 had told their partner about their diagnosis, the rest had not told anyone.

Table 4. Eight additional questions to the HIV positive women (n=10).

Questions	Yes	No	I dont know
1) Receive ARV before pregnancy?	50 %	50 %	-
2) Offered treatment during pregnancy?	100 %	-	-
3) Did you accept treatment?	100 %	-	-
4) Offered to deliver through Cesaerian section?	10 %	80 %	10 %
5) Child planned to recieve HIV treatment after delivery?	70 %	-	30 %
6) Been advised not to breastfeed?	20 %	80 %	-
7) Planning to breastfeed?	70 %	20 %	10 %
8) Child planned to be HIV tested?	70 %	-	30 %

DISCUSSION

Discussion: Socio-demographic data

Close to a majority of the population in Muea had reached the level of primary school (6 years) and these numbers are comparable with national statistics (5.9 years = mean years of schooling among adults)(22). A great number of women at BRIHC compared to the women in Muea had studied or were studying at the university, which is much higher than the national percentage of 10 % of the female population enrolled in tertiary education[2](23). In total, the studied population in Buea were more educated than the average for a female Cameroonian.

[2] i. e high school graduates who successfully enroll into university.

Discussion: general knowledge and sources of information

It is reassuring to see that 100 % of the women had heard about HIV. This corresponds to the findings in several other studies concerning awareness about HIV/AIDS among pregnant women from Uganda(20), Tanzania(24), Kazakhstan(25) and Ghana(26). It was also interesting to see that women with lower education had learned more about HIV at the hospital than from school. Most women said they had received information about HIV/AIDS when they got pregnant, and when asked from where they (total population) would like to get more information, the majority of all women wanted to get more information from the hospital. The information about HIV/AIDS given through the hospital is however not always organized in a systematic manner, and this might be one explanation why almost a third of all women in Muea answered that they had not received any information.

These findings indicates the importance of HIV/AIDS information given by health care facilities, and how important it is that the information needs to be given correctly and in an organized manner.

The majority of women ≤ 25 years of age did not know someone HIV positive, and some of the older women explained that since the HIV epidemic in the country has been stabilized, the large group of HIV positive are now in their late twenties or thirties. This can be confirmed by reports showing that HIV prevalence among women aged 25-29 is the highest(10).

Discussion: HIV testing during pregnancy

It was positive to find out that all of the pregnant women in Cameroon are being tested for HIV without any extra cost, and 99% of all women in this study accepted the test. This rate is much higher than the national rate of HIV testing where only 22.3 % of the female population

recieved an HIV test and result within the last 12 months (1). It is however difficult to compare the studied population with the total female Cameroonian population since the interviewed women were a selected group of pregnant women who attended ANC (where HIV testing is free). Regional attendancy rates in the South West Region to ANC is 39.3 %, and the interviewed women may not be representable for all pregnant women in Buea.

Still, if you compare the results with similar studies made on pregnant women, the rate of testing was much higher than in the Ghana study, where only 13 % of the pregnant women had been tested (26), or compared to a similar study made in Nigeria where 55.7 % (214/384) of the pregnant women had done an HIV test. The reasons not to do the test among the women in Nigeria ranged from inadequate voluntary counseling and testing centers to issues of stigma and absence of family support (27).

Some of the women said they had been tested before pregnancy, in many cases because it was compulsory within some churches to go and get tested for HIV for both partners before marriage. This also correlates with findings in the Ghana study, where the main reason for getting tested was church request before marriage.

These results indicates that HIV testing and counseling at prenatal care centers plays an important part in preventing mother-to-child transmission. The most important step however, is to attend ANC. Once you attend ANC, the chance of taking a HIV test was high. Another influential factor might be to include the partner in testing and counseling, where studies have shown that women whose partners came to the antenatal clinic for counseling were more likely to receive antiretroviral therapy and report condom use(28).

Discussion: protection, symptoms and risk groups

Fortunately, 97 % of all pregnant women knew ways to protect themselves from sexually transmitted HIV. Most of the women specified protection by mentioning condom, but since the majority was married, some women also replied “abstinence and faithfulness”. However, when compared to a similar study made in the capital of Cameroon, Yaoundé, where 88 % (229/260) of the women replied “abstinence” or 46 % (120/260) replied “faithfulness” as effective methods of HIV prevention, these prevention methods was less common answers among the women in Buea. (29)

On a national scale the knowledge about how to protect yourself varies greatly depending on where you live, and is also positively correlated with educational level. According to a national survey, only 29 % of the women in the Northern region of Cameroon (where literacy rate is between 40-50 %) (22) knew of 2 different ways of HIV protection (30). On a national level: only 32 % of the female Cameroonian population had comprehensive knowledge of HIV prevention(31). This shows that the studied population in Buea had a much higher knowledge of protection than the national average, different reasons might be the higher educational level, or a selection bias (the interviewed women are the ones who attend ANC and receive more information).

The knowledge of what symptoms you can get from HIV/AIDS and which groups are more often infected, were in general correct. Many women mentioned symptoms as skin rashes, persistent cough and diarrhea, which more often can be seen as symptoms of AIDS rather than HIV. The question did not however distinguish between HIV and AIDS, and the answers are considered being correct. This distinction could also be recognized with the question if you can tell by looking at a person if he/she is infected with HIV/AIDS. Most of the women

replied ”no”, but among those who answered yes, many women mentioned that it is difficult to tell if a person is infected with HIV but you can see if a person is sick with AIDS.

Regarding the more vulnerable groups in society, the most common answer was either youth or women, both being seen as more vulnerable groups for new HIV infections in Cameroon than others (and thus correct answer). One woman answered ”disabled people are more often infected with HIV” and when asked to explain further, she mentioned that there is a tradition if you have sex with a disabled you can be cured from HIV. This answer shows that there are still various beliefs and traditions remaining which might have an impact on HIV awareness and behavior. The Yaoundé study also gave similar results: 6.5 % of the interviewed women believed that the virus can be transmitted through witchcraft. (29)

Discussion: knowledge about routes of transmission

Most of the women were able to exclude daily domestic contacts such as shaking hands/hugging or living in the same house. When compared with educational level there was a significant difference between women with low education and high education for the question “transmission by sharing food or drinks”. 24 % of the women with lower education believed that HIV can be transmitted by sharing food or drinks, compared to 5 % of the higher educated women. Since the lower educated women had learned more about HIV from the hospital than from school, these results again indicates the importance of correct information being given at the health facilities.

Most of the women knew that HIV is a sexually transmitted disease, and all of the responders knew transmission is possible with sexual intercourse without a condom or when sharing needles. These findings are even better than the studies made in Mateete, Uganda (99 % and

94 %) (20) or Semey, Kazakhstan (89 % and 86 %) (25). Other positive findings were the correct knowledge about mother-to-child transmission and transmission through breastfeeding. The knowledge about mother-to-child transmission was in accordance with the Yaoundé study, where 95 % of the women had knowledge about mother-to-child transmission(29). These two positive examples does not however necessarly reflect the national situation, where a population survey from 2004 reported much lower knowledge of HIV transmission during pregnancy (60 %) and delivery (49 %). (32)

The knowledge that HIV cannot be transmitted by kissing was higher than the women in Mateete. 67 % (95 % CI 60-74) of the women in Buea believed it could not be transmitted, compared to 42 % (95 % CI 32-52) of the women in Mateete. Twenty-five percent of all women also gave the alternative answer that HIV can be transmitted by kissing if there is a wound in the mouth, considered being a correct answer in this context[3] (11).

Although the findings are positive, there still remain many misconceptions about routes of transmission. In agreement with previous studies (20, 25, 33), there lies difficulties in excluding incorrect routes of transmission, and risks are often exaggerated. Twenty-five percent believed that HIV can be transmitted by coughing or sneezing, and 40 % answered that HIV can be spread by mosquito bites. The misconception about mosquito bites has been seen in similar studies (20, 25, 29, 34) and might not be surprising since HIV is a blood-borne disease. Although it is positive that most women know that HIV is a blood-borne disease, it might also exaggerate the route of transmission through contaminated needles or blood transfusion. As many as 14 % of all women in Muea said that contaminated needles is the main way of transmission and 8 % of all women at BRIHC answered blood transfusion, often

[3] Transmission through kissing alone is extremely rare, but theoretically possible through open-mouth kissing if the person with HIV has sores or bleeding gums and blood is exchanged. HIV is not spread through saliva.

meaning contamination through razor blades. However, the perceived risk of blood transmission does not correlate with national surveys; less than 4 % of all HIV infections in Cameroon are estimated to be due to blood supply or other accidental transmissions(35).

Although the general knowledge of HIV transmission routes among the women in Buea was much higher than national average, it is still important to clarify the remaining misconceptions. If not, there is a risk that the fear of getting infected might be exaggerated and you might not always know how to protect yourself correctly. It is therefore again important to highlight these misconceptions when informing about HIV/AIDS, so the women can differentiate between "real" transmission routes and less important (or incorrect) routes.

Discussion: private life and risk behaviour

For the question "who would you tell if you found out your were HIV positive?" 91 % of the HIV negative women answered they would tell their partner if they found out they were HIV positive. This is a high number compared to most other studies (20, 24, 25), and of course a positive finding.

Most of the women were married, and when they met their partner, the majority had both asked their partner about his HIV status and asked him to take a HIV test (or done it together). Worth mentioning is that only 4/10 among the HIV positive women had asked their partner about his HIV status when they met, and the testing rate among the partners was lower than of the partners of the HIV negative women. This again stresses the fact that couple-oriented testing and counseling is proven to be of importance for prevention of transmission(28).

Discussion: having HIV and prophylactic treatment

Since the prevalence rate of HIV among pregnant women in Cameroon is between 7-8 %, the rate of 9 % HIV positive in the study population is credible. Half of the HIV positive women had recieved treatment before their pregnancy, correlating well with the national statistics where 44 % recieved ARV for their own health. It was reassuring to see that all of the women had been offered antiretroviral treatment during pregnancy, and all of them accepted treatment. These figures are better than the national average where 64 % of all women recieved ARVs to prevent MTCT (3).

Although the number of HIV positive women interviewed were too small to draw any conclusions from, seeing that almost half of the women believed there is a cure for HIV was quite surprising. When they were asked to specify, many of the responders referred to a cure from ”God”, or ”God heals people”, and it was understood that ”cure” could be seen as something else but through medical interventions. This may indicate that the HIV positive women expressed a hope for cure, may it be by God or through medical achievements. Another potential explanation might have been that some of the responders confused ”cure” with ”treatment”, since the treatment of HIV often means you can live a long and healthy life.

Only one woman had been offered to deliver through Cesarean section, and most of the women had not even heard about the procedure. A Cochrane review from 2005 showed that elective Cesarean section (ECS) was an efficious intervention for prevention of MTCT among HIV-1 infected women *not* taking ARVs (or only taking Zidovudine). The risk of post-partum morbidity though, was even higher with ECS than with vaginal delivery (36). The main focus of prevention should therefore be on providing ARVs during and after pregnancy in countries such as Cameroon with poor equipped health facilities, rather than promoting ECS.

Positively enough, 7/10 answered that their child was planned to receive antiretroviral treatment after delivery. If this is being fulfilled, the percentage is much better than the national average where 8 out of 10 eligible children were not receiving ART.

Less reassuring were the different advices given regarding to breastfeed or not, the guidelines even differed between the two health centers were this study was conducted. One of the HIV positive women said she would breastfeed even though she had been advised not to, because of fear of being identified as HIV positive when not breastfeeding. This example, and the fact that 3/10 women had not told anyone about their diagnosis, shows that stigma around HIV is still a huge remaining challenge.

LIMITATIONS AND METHODOLOGICAL CONSIDERATIONS

The original plan was to hand out questionnaires for the participants to fill in for themselves, but since the understanding of written English and reading skills varied among the study population, my supervisor in field recommended me to conduct the study as interviews instead. Since the main speaking language in this region is ”English pidgin” (an English-based creole language), one limitation was of course the language barrier. The study was also conducted in French when needed, and the translation and understanding was not always perfect.

One obvious limitation with this study was the selection of participants. The women who came in for ANC were asked by the nurses if they wanted to participate, but since I could not receive accurate numbers of how many women visited the health centers during this time period, I cannot tell the proportion of women interviewed. However, my impression is that

most of the women who came in for ANC were asked and were willing to participate.

Another potential bias is the risk of the participants not being completely honest in their replies. Coming as a foreigner from another part of the world might have made it less likely for the participants to gain trust and being completely honest, especially when some of the questions were very private and could be percieved differently depending on which cultural background you have. On the other hand, coming from ”the outside” and performing the interviews alone in a private room could have made it more likely that the answers given were true.

The sample size was too small too get statistical significance for many of the answers given, particularly for the few HIV positive women.

CONCLUSIONS

If attending ANC, acceptance of HIV testing and antiretroviral prophylaxis among the pregnant women in Buea was high. One remaining challenge though, is the information given about whether to breastfeed or not (if HIV positive). This study indicates that the guidelines are not clear enough, and the issue remains confusing with risk of being a source of stigma.

Based on the results of this present study and other reports, the educating programmes regarding general knowledge have been very successful. Still, misconceptions about routes of transmissions remains, in particular among the lower educated women. It is therefore highly important to educate health staff in an organised manner, so they can correctly inform about

routes of transmission, in order to exclude beliefs of incorrect ways of getting infected, and thereby reducing stigma and fear.

But perhaps the most important action of them all is to increase the number of women attending antenatal care services or health care services. Without any progress in accessibility and acceptibility of antenatal health care services throughout the country, the number of HIV tested women or the level of HIV knowledge will not elevate.

POPULÄRVETENSKAPLIG SAMMANFATTNING (SWEDISH)

”Hög acceptans av HIV testning och god generell kunskapsnivå hos gravida kvinnor i Buea, Kamerun.”

I världen finns det 35.3 miljoner människor som lever med HIV (humant immunbrist virus) och 70 % av dem finns i Afrika söder om Sahara. Antalet människor som blir nyinfekterade med HIV har minskat med 50 % sedan 1997, och den största minskningen har skett i Afrika söder om Sahara.

HIV är ett virus som smittar framförallt via oskyddat samlag men kan även överföras med blod, vid förlossning eller via bröstmjölk. För att förhindra att man blir smittad måste man ha kunskap om hur viruset smittar och hur man kan skydda sig själv och andra. Det är också viktigt att testa sig tidigt, och därefter få behandling. Globalt sett är smitta från mor till barn under graviditet, förlossning eller amning den tredje vanligaste spridningsvägen. Har man tillgång till mediciner som hindrar att viruset förökar sig i kroppen (antiretrovirala läkemedel) kan risken för virusöverföring från mor till barn minska till mindre än 1 %. Än så länge finns inget botemedel för HIV.

I Kamerun (som hör till Afrika söder om Sahara) är ca 8 % av alla gravida kvinnor HIV positiva. Knappt 2 av 5 kamerunska kvinnor söker sig till mödravården under sin graviditet, men av de som kommer accepterar 80% att testa sig för HIV.

För att ta reda på hur kunskapsläget bland gravida kvinnor såg ut, genomfördes under hösten 2013 en intervjustudie på två olika hälsocentraler i Buea, en studentstad i sydvästra Kamerun med ca 138 000 invånare. Sammanlagt intervjuades 120 kvinnor på engelska eller franska, och frågorna handlade bl a om hur HIV överförs och om de hade testat sig för HIV. Det

visade sig att alla gravida kvinnor i Buea hade hört talas om HIV/AIDS och majoriteten kände till hur man kan skydda sig. De flesta av kvinnorna hade lärt sig om sjukdomen i skolan eller från sjukvården, och de flesta önskade få mer kunskap från sjukvården. När frågorna blev lite mer specifika hade kvinnorna sämre kunskap kring hur viruset faktiskt kan överföras, framförallt de med enbart 6 års grundutbildning. Var fjärde kvinna trodde att HIV smittar när man delar mat eller dryck med någon som är HIV positiv, och nästan 2 av 3 svarade att HIV kan överföras via myggor. I övrigt hade 99 % av alla kvinnor testat sig för HIV, och de tio HIV positiva gravida kvinnor som intervjuades fick alla behandling som bidrog till minskad risk för virusöverföring till deras barn.

Denna studie visar att den undervisning gravida kvinnor får om HIV har gett god effekt, men kan fortsätta att utvecklas och även ge information om hur HIV *inte* sprids. Studien visar också hur viktigt det är att komma till sjukvården under graviditet, både för att få information och för att kunna upptäcka en potentiellt livshotande sjukdom och få behandling i tid.

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APPENDICES

QUESTIONNAIRE:

Acceptance of HIV testing and antiretroviral prophylaxis among pregnant women in Buea, Cameroon.

Thank you for taking part in this study about HIV/AIDS. The purpose of this study is to chart the knowledge and attitudes concerning HIV/AIDS among pregnant women in Buea, and also the acceptance of HIV testing during pregnancy. The result of this study will hopefully give us a better understanding on how we can reduce the risk of transmission of HIV from mother to child.

The study is made in cooperation between the University of Gothenburg in Sweden, and HIAMS, Higher Institute of Applied Medical Sciences in Buea, Cameroon. My name is Amanda Sturm, and I am a 5th year medical student who will perform this study in Buea.

The questionnaire is voluntary and anonymous. All information will be treated strictly confidentially. Answering this questionnaire will not in any way affect your visit or treatment at your antenatal care center. Some of the questions are of rather personal character. I hope that this will not make it difficult for you to answer. Your participation is very important for the study.

If you have any questions, do not hesitate to ask me. If you are interested in the results of this study, please contact your antenatal care center for more information.

Thank you once again for taking your time,

/Amanda Sturm

Patient number: _____

Instructions

Please tick the boxes for the appropriate answer. Where a longer answer is required, please fill in your answers in the space provided. If there is no alternative which applies to you, please note this in the space provided at the end of the questionnaire.

A. GENERAL QUESTIONS

1. Age : _____ years

2. Profession : ☐ Employed ☐ Self-employed ☐ Unemployed ☐ Student

☐ Other (please specify) _____

3. Level of education: ☐ Never been to school ☐ Primary school, not finished

☐ Primary school ☐ Secondary school ☐ High school ☐ University

4. Marital status: ☐ Married ☐ Single ☐ Divorced ☐ Widowed

☐ Boyfriend/Girlfriend

5. Number of children: _____

6. If more than one child, do your children have the same father and mother?

☐ Yes ☐ No, how many fathers? _____

7. Living conditions: ☐ House ☐ Apartment ☐ Living in the home of relatives ☐ No stable place to live ☐ Other (please specify) _____

B. KNOWLEDGE OF HIV/AIDS

8. Have you heard about a disease called HIV/AIDS? ☐ Yes ☐ No

9. How long have you known about HIV/AIDS? ☐ As long as I can remember

☐ 10-20 years ☐ 2-10 years ☐ Less than 2 years ☐ Don't know

10. Do you know anyone who is HIV positive? ☐ Yes ☐ No

11. Do you know anyone who has died from HIV/AIDS? ☐ Yes ☐ No

12. From where did you get the most useful information about HIV/AIDS?

(Please select only one option)

☐ Friends ☐ Family ☐ School ☐ From media (TV, radio, newspaper, internet etc) ☐ Health personnel ☐ Don't know

☐ Other _____

13. From where would you like to get <u>more</u> information about HIV/AIDS?

(Please select only one option)

☐ Friends ☐ Family ☐ Health personnel ☐ School ☐ From media (TV, radio, newspaper, internet etc) ☐ Nowhere, I already have enough information

☐ Other (please specify) _____

14. In what ways do you think HIV/AIDS can be spread from one person to another? (Please pick as many options as you think apply)

- ☐ Sharing food or drinks with a person who is infected
- ☐ Shaking hands/hugging/living in the same house
- ☐ Being coughed or sneezed on by someone who is infected?
- ☐ Kissing
- ☐ Sexual intercourse without a condom
- ☐ Sexual intercourse with a condom
- ☐ Sharing needles when injecting drugs
- ☐ A baby who is breastfeeding if the mother is infected
- ☐ From mother to child during pregnancy or delivery
- ☐ By mosquito bite or other insects
- ☐ Other (please specify): _____

15. Which do you think is the *main* way HIV/AIDS is spread from one person to another?

_____

_____

16. Are there any ways to protect yourself against sexually transmitted HIV?

☐ Yes ☐ No ☐ Don't know

If yes, please specify: _____

_____

17. Do you know any symptom(s) that you can get from HIV/AIDS?

☐ Yes ☐ No

If yes, please specify: _____

_____

18. Can you by looking at a person see if he/she is infected with HIV?

☐ Yes ☐ No ☐ Don't know

19. Do you think any special groups are more often infected by HIV than others?

☐ Yes ☐ No ☐ Don't know

If yes, please specify: _____

_____

20. Approximately how many do you think are infected with HIV/AIDS in the area where you live?

☐ Less than 1 % ☐ 1-10 % ☐ 10-20 % ☐ 20-30 %

☐ 30-40 % ☐ 40- 50 % ☐ More than 50 % ☐ Don't know

21. Do you know how to prevent a child from getting HIV from an HIV-positive mother? (Please pick as many options as you think apply)

☐ No breastfeeding
☐ Cesarean section
☐ Medication for the mother
☐ Medication for the child after delivery
☐ There is no way to protect the child
☐ Don't know
☐ Other (please specify) _____

22. Is there any medication that can cure HIV/AIDS?

☐ Yes ☐ No ☐ Don't know

If yes, please specify: _____

_____

23. Are there any ways to treat HIV with reduction and prevention of related symptoms?

☐ Yes ☐ No ☐ Don't know

If yes, please specify: _____

_____

D. PRIVATE LIFE

24. Have you been tested for HIV/AIDS?

☐ Yes ☐ No ☐ Don't know

25. If yes, what was the result?

☐ Positive ☐ Negative ☐ If positive, when were you diagnosed? Year: ___ Month: ____

26. If you were found to have HIV/AIDS, who would you have told?

(Please pick as many options as you think apply)

☐ Mother
☐ Father
☐ Partner
☐ Other relatives
☐ Friends
☐ Nobody
☐ Health personnel
☐ Other (please specify) _____

27. How many sexual partners have you had in total? ☐ 0 ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5-10 ☐ 10- 20 ☐ 20-30 ☐ More than 30

28. How old were you when you had your first sexual intercourse? _____ years

29. Does your sex partner(s) have other sexual relationships? ☐ Yes ☐ No ☐ Don't know

30. When you meet a new partner, do you:

Ask him of previous partners? ☐ Yes ☐ No ☐ Don't know

Ask of his HIV status? ☐ Yes ☐ No ☐ Don't know

Ask him to take an HIV test? ☐ Yes ☐ No ☐ Don't know

Ask him to test for other sexual transmitted diseases? ☐ Yes ☐ No ☐ Don't know

31. Have your current partner been tested for HIV/AIDS?

☐ Yes ☐ No ☐ Don't know ☐ I have no current partner

32. What was the result of your current partners HIV test?

☐ Positive ☐ Negative ☐ Don't know ☐ Not been tested ☐ I have no current partner

33. Have your child(ren) been tested for HIV/AIDS?

☐ Yes, all of them ☐ Yes, some of them ☐ No, none of them ☐ This is my first child

34. If yes, how many of your children tested positive?

☐ None ☐ Number___ out of _____

E. HIV/AIDS AND PREGNANCY

35. Did you get any information about HIV/AIDS when you got pregnant?

☐ Yes ☐ No ☐ Don't know

36. Were you offered any HIV-test when you got pregnant?

☐ Yes ☐ No ☐ Don't know

If there is any question above that you would like to clarify/say more about, please do so here:

_____

Thank you for your participation!

/Amanda Sturm

If HIV-positive, please answer the following questions:

37. Did you receive treatment of HIV before your pregnancy?

☐ Yes ☐ No ☐ Don't know

38. Have you been offered treatment for HIV during pregnancy to protect your child from being infected?

☐ Yes ☐ No ☐ Don't know

39. If you have been offered HIV treatment, did you accept treatment?

☐ Yes ☐ No ☐ Don't know

40. Have you been offered to deliver your child through Cesarean section?

☐ Yes ☐ No ☐ Don't know

41. Is your child planned to receive HIV treatment after the delivery?

☐ Yes ☐ No ☐ Don't know

42. Have you been advised not to breastfeed your child?

☐Yes ☐ No ☐ Don't know

43. Are you planning to breastfeed your child?

☐ Yes ☐ No ☐ Don't know

44. Is your child planned to be HIV-tested?

☐ Yes ☐ No ☐ Don't know