Factors affecting hormonal contraceptive use and its association with HIV risky sexual behaviors among women in Siaya, Kenya: a cross-sectional study
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I. Summary

• English Summary

This is the activity report on my field work conducted in Kenya from January to May 2017 under the Global Leadership Training Programme in Africa (GLTP) of the United Nations University Institute for the Advanced Study of Sustainability (UNU-IAS).

The fieldwork was not only useful for my research but also helpful in deepening my understanding of life and culture in rural Kenya and obtaining practical experience. The GLTP enhanced both my academic and practical skills. I believe that this experience will help me commit to the health and well-being of people living in Africa through my career in the future.

The following is the abstract of my research.

Background: HIV infection remains a global health problem with 36.7 million people living with HIV worldwide. Sub-Saharan Africa bears the greatest burden of the HIV epidemic, and about three-quarters of people living with HIV reside in this region. The main route of HIV transmission is via heterosexual sex and women of reproductive age bear the brunt of the epidemic in sub-Saharan Africa.

Such women are also at risk of unwanted pregnancies. Appropriate contraceptive methods can prevent unwanted pregnancies. Hormonal contraceptives are highly effective at preventing pregnancy but provide no HIV protection. They even might put women at higher risk of HIV acquisition because of the inverse relationship between condom and hormonal contraceptive use. Condoms must be used consistently to prevent HIV infection. Thus, dual protection, using condoms in combination with hormonal contraceptives, is recommended.

Objectives: This study aims to examine the association between hormonal contraceptive use and HIV-risky sexual behaviors such as inconsistent condom use among hormonal contraceptive users and factors associating with dual protection in areas with high HIV prevalence.

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Methods: I conducted a cross-sectional study among 834 women aged 18-49 years old in Siaya County, Kenya. Siaya has the second highest HIV prevalence rate of 23.7% among all 47 counties. Trained female research assistants interviewed each participant using a structured interview format. Then, I conducted a multiple logistic regression analysis to identify associations between hormonal contraceptive use and HIV-risky sexual behaviors and factors associating with dual protection.

Results: Hormonal contraceptive use was significantly associated with inconsistent condom use with their partners among both ever-married women and never-married women, even in the HIV-prevalent setting. Associated factors with dual protection included self-efficacy in using condoms, partner’s HIV-positive status, and risky sexual behaviors in the past 90 days.

The comprehensive result of this research will be published as a Master’s thesis in March 2018.
【方法】本調査ではケニア西部に位置するシアヤカウンティ内の6つの医療施設にて、生殖可能年齢の女性834名に質問紙を用いた構造化面接を実施した。シアヤカウンティはケニア国内で特にHIVの感染が深刻な地域である（HIV成人感染率：23.7%）。多重ロジスティック回帰分析を用いて、ホルモン投与避妊法とHIV感染リスク行動の関連、コンドームとの併用との関連要因について分析を実施した。

【結果】HIV感染が深刻な地域において、既婚女性、未婚女性共にホルモン投与避妊法と過去90日間のコンドームの利用頻度は統計的に有意に関連していた。また、ホルモン投与避妊法とコンドームの併用は、コンドームの利用に関する自己効力感の他、パートナーのHIVステータスや不特定多数との性交渉経験等のHIVリスク行動が有意に関連していた。

なお、本研究は筆者の修士論文として発表されるため、最終的な調査結果の発表は2018年3月になる見込みである。

II. Research Activity

1. Introduction

HIV infection is a global health problem with 36.7 million people living with HIV worldwide. Sub-Saharan Africa bears the greatest burden of the HIV epidemic, and about three-quarters of people living with HIV reside in this region (1). Women of reproductive age are at considerable risk of HIV infection in Sub-Saharan Africa, where the main route of HIV transmission is via heterosexual sex (2). Such women are also at risk of unwanted pregnancy. Appropriate contraceptive methods can prevent unwanted pregnancies, improve maternal and child health, and enable women to pursue other life goals (3). Hormonal contraceptive methods, such as oral contraceptive pills, injectable contraceptives, and implants are highly effective at preventing pregnancy but offer no HIV protection (4). Hormonal contraceptives can put women at higher risk of HIV acquisition, especially in high HIV-prevalence areas. The rates of HIV acquisition were almost twice as high among women in HIV-serodiscordant partnerships using injectables in seven African countries (5). Possible biological risk factors include changes in the immune system, genital tract flora, and HIV receptors (6-8). However, little has been studied about behavioral risk factors—the association between hormonal contraceptive use and risky sexual behaviors such as inconsistent condom use in Sub-Saharan Africa, where HIV infection is prevalent.

This study, therefore, aims to examine the association between hormonal contraceptive use and HIV-risky sexual behaviors, such as inconsistent condom use, and factors associated with dual protection among hormonal contraceptive users in areas with high HIV prevalence.

2. Study Area

We conducted this study in Siaya County, Kenya (Figure 1). Kenya has one of the highest levels of hormonal contraceptive prevalence in sub-Saharan Africa while being one of the most HIV-affected countries with HIV epidemic rates with an overall adult prevalence of 6.0% in 2013 (9,10).
Siaya County is one of 47 counties and is located along the shores of Lake Victoria in southwest Kenya. It covers 2,530.5 square km and is home to 842,304 people (male–47%, female–53%). The majority of the population (89%) is living in rural areas (11). It has a higher fertility rate of 5.5 children per woman compared with the national average of 4.6 children per woman (12). Siaya has the second highest HIV prevalence rate of 23.7% among all 47 counties after Homa Bay County of 25.7%; the rate among women is higher (25.3%) than that among men (21.8%). In 2013, almost 10,000 people were newly infected with HIV in Siaya County alone (10).

3. Methods

This study was a cross-sectional study in public health facilities that provide family planning and other health services. I randomly selected six facilities from each administrative sub-County (Ugenya, Ugunja, Alego-Usonga, Gem, Bondo and Rarieda) in Siaya County, Kenya (Figure 1). I chose the number of participants from each target facility using probability proportional to size sampling, based on the number of women of reproductive age living in each sub-County.

Kenyan female research assistants conducted interviews with 834 women of reproductive age (18-49 years old) who were sexually active (Figure 2). The interview was based on a structured questionnaire. It included questions about demographic characteristics, contraceptive use, and sexual behaviors in the past 90 days, condom use self-efficacy scale and other social and behavioral characteristics. Each interview was taken in a confidential environment after obtaining written informed consent in the selected facilities. Each interview took approximately 30 minutes.
Inclusion criteria
• Sexually active women aged 18 to 49 who reported to have had sexual intercourse at least once within 30 days before the time of interview

Exclusion criteria
• Women who started using hormonal contraceptives for the first time within 90 days before the time of interview
• Women who had previously used hormonal contraceptives but stopped using them within 90 days before the time of interview

Multiple logistic regression analysis was conducted to identify associations between hormonal contraceptive use and HIV-risky sexual behaviors and factors associated with dual protection.

Observational study
I also observed family planning (FP) services and conducted informal interviews with staff and FP clients at several public health facilities and communities. Insights obtained from observation are supposed to be reflected on the final result.

4. Research Findings

Socio-demographic characteristics
Of the 1096 women who were approached in the clinics, 834 met the inclusion criteria. One did not complete the interview. I excluded from the analysis 260 who were previously diagnosed as HIV positive and 60 who were pregnant at the time of the interview (Figure 2). Four-fifths (80.9%) were Luo and 16.4% were Luhya. Most of them were Protestant or other Christian (76.6%) and 23.2% were Catholic. The mean
The majority (86.0%) were or had been married. Almost all (94.4%) had delivered at least one child.

**Contraceptive use**

Among 513 participants, 407 (79.3%) used some kinds of contraceptive methods including condoms at least once in the past 90 days (Figure 3). Among ever-married women, 339 (76.9%) reported contraceptive use and 289 (65.5%) used non-barrier modern contraceptives including hormonal contraceptives and female sterilization in the past 90 days. Among the 72 never-married women, on the other hand, nearly all (94.4%) reported contraceptive use but less than half (43.1%) reported having used non-barrier modern contraceptives in the past 90 days.

Dual protection was practiced by 10.2% of ever-married women and by 26.4% of never-married women at least once in the past 90 days. Figure 4 represents methods used for dual protection. However, only 3.4% and 8.3% used condoms consistently in the past 90 days among ever-married women and never-married women respectively (Figure 5, 6). Also, 26 of the married women had non-regular partners, and dual method use among them was relatively high at 30.8%, but also only 11.5% used condoms consistently.
Association between non-barrier modern contraceptive use and inconsistent condom use

In multivariate analysis, non-barrier modern contraceptive use was significantly associated with inconsistent condom use among both ever-married women (the adjusted odds ratios [AOR], 0.25; 95% confidence interval [CI] 0.09-0.52; P<0.001) and never-married women (AOR 0.15; CI 0.05-0.46; P=0.001) after adjusting for socio-demographic factors and partner’s HIV status. However, it was not significantly associated with inconsistent condom use with non-regular partners among married women (AOR 0.67; CI 0.11-4.17; P=0.665).

Factors associating with dual protection

Associated factors with dual protection included self-efficacy in using condoms, partner’s HIV-positive status and risky sexual behaviors (exchanging sex for money and multiple sex partnership) in the past 90 days after adjusting for socio-demographic factors and partner’s HIV status.

5. Discussion

Inconsistent condom use was significantly associated with non-barrier modern contraceptive use among both ever-married and never-married women. However, it was not significantly associated with inconsistent condom use with their casual partners among married women. As a result, dual protection was practiced by only 3.4% of ever-married women and 9.4% of never-married women consistently over the 90 days. Especially among ever-married women, condom use was limited, and more than 9 out of 10 had unprotected sex in the past 90 days. In Kenya, more than 90% of new HIV infections occur through sex, and 44.1% of new cases happen among married couples (10). Therefore, consistent condom use among hormonal contraceptive users must be promoted in HIV-prevalent settings such as Kenya.

Associated factors with dual protection included self-efficacy in using condoms, partner’s HIV-positive status, never-married marital status. Dual protection was also significantly associated with risky sexual behaviors such as multiple sex partnership and exchange of sex for money. It suggests that dual protection was probably adopted as a protection against HIV infection or unwanted pregnancy, although HIV risk perception and HIV knowledge were not significantly associated with dual protection practice.

6. Conclusion

This study found that hormonal contraceptives can be associated with inconsistent condom use with partners in HIV-prevalent settings. Dual protection was practiced by 10.2% of ever-married women and by 26.4% of never-married women at least once, but only one-third of them used condoms consistently with their partners in the previous 90 days. As a result, only 10.3% of married women used dual protection or condoms consistently. In sub-Saharan Africa, new HIV infections dominantly occur through unprotected sex and new infections among married couples are high. To avoid HIV infection, condoms must be used during every sexual intercourse. Therefore, promoting condom use among hormonal contraceptive users must be a very urgent agenda in HIV-prevalent settings such as Kenya.

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III. Reflection to the GLTP in Africa

1. My motivation to participate in the GLTP

I applied for the GLTP because I was interested in health and well-being of people living in Africa and believed fieldwork would be the best way to deepen my insight into my study topic for my Master’s research and get firsthand experience of conducting research in Africa. I also believed I could improve my research skills as well as other competencies through participating in this kind of training programme.

2. Field experiences

The study site was where I had worked as a JICA volunteer from 2014 to 2016, and my ex-colleagues of the public health office gave me support for conducting my research.

I spent the first week in Nairobi discussing the study proposal and receiving feedback from my local supervisor, Dr. Sam Wafula, at the University of Nairobi and applying for ethical clearance from the government of Kenya. After the first week, I spent most of my time in the study site, Siaya County, while I visited my supervisor monthly and communicated with him through email and over the phone.

As I collected data in six different locations, I traveled frequently and stayed in several towns for the first time. It enabled me to interact with local people without time constraints. I was sometimes invited to dinner and to events such as weddings and funerals, which enabled me to observe local culture in diverse ways. During data collection at hospitals, research assistants interviewed women visiting the hospitals. I was normally at the study site with them, and I enjoyed chatting with many local people and interacting with rural communities.

Unfortunately, there were not many opportunities to interact with students of the host university, as all public universities in Kenya were on strike most of the time; however, I could present my initial research findings to faculty staff and receive feedback. Also, I could present it to public health officers in the study. Through my four-month stay in Kenya, I really enriched my network with health professionals and researchers in Kenya.
3. Challenges

It was my first field work outside of Japan; thus, I faced several challenges. However, they were also opportunities for me to develop the capability to manage difficulties and carry out research in difficult situations. One was an unexpected delay in getting a research permit from the government of Kenya. I waited for two months. I should not have believed what officers told me on the phone, and I should have visited the office to confirm the progress earlier, which was what I learnt from this experience. My local supervisor helped me a lot to solve this issue.

Also, I was responsible for my research; thus, many things were different from when I worked as a JICA volunteer. Sometimes, I felt pressured to finish data collection by the end of term. I sometimes quarreled with research assistants who did not show up on time. I think this problem would not have happened if I had controlled myself and communicated with them well. I built good relationships with them and quarrels turned out to be a good opportunity to understand each other. I learned to control myself even when I am under pressure.

4. How to make use of this experience to your future career development

Thanks to participating in the GLTP, I can confirm that I am truly interested in public health issues, especially in Africa. I believe that the experience in Kenya as a researcher will contribute to improving my academic and professional skills in my future career. I am currently seeking opportunities to work in Africa as a public health specialist after finishing my master’s programme next year. I want to contribute to the health and well-being of people in African countries using this experience.

5. Encouragement to other students

I found the GLTP was a unique program, and I can recommend it to other students for the following reasons. First, it not only supports their research financially but also from many aspects. For instance, they can receive support and insightful feedback from the local supervisor and build connections with researchers from the recipient university. Without support from the GLTP, I would have had to spend a lot of time and effort to find a local collaborator by myself. They might be required to conduct research with a local collaborator in many African countries. They can also present their research to the public and get valuable feedback from researchers of the United Nations University and other participants. Finally, the GLTP will enable them to communicate with other students with different
They can communicate and exchange information about fieldwork with students from other universities who are going to conduct research in the same country, which might be very helpful.

I hope GLTP trainees in subsequent years will also have valuable experiences in their fieldwork in Africa and improve their skills in their research fields.

• References


