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TEACHING MENSTRUAL HEALTH AND HYGIENE TO YOUNG WOMEN IN EASTERN UGANDA WITH REUSABLE MENSTRUAL PADS

Stacey L. Frankenstein-Markon
Michigan Technological University

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TEACHING MENSTRUAL HEALTH AND HYGIENE TO YOUNG WOMEN IN
EASTERN UGANDA WITH REUSABLE MENSTRUAL PADS

By

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A REPORT

Submitted in partial fulfillment of the requirements for the degree of

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In Applied Science Education

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This report has been approved in partial fulfillment of the requirements for the Degree
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To Betty Adio
and Linda Baum

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Definitions

ABC:	The Abstinence, Be Faithful, and Condom Use campaign acronym
BODA BODA:	Local term used to describe motorcycle taxi drivers
CEREDO:	The Catholic Education Research and Development Organization of Soroti, Uganda
DETOOTHING:	Local term used to describe when a girl continually denies sex to a man who is giving her gifts
GIRL CHILD:	The name of the campaign focusing on girl empowerment and education
HIV/AIDS:	Human Immunodeficiency Virus infection / Acquired Immunodeficiency Syndrome acronym
MP:	Local acronym used to describe menstrual period
NGO:	Non-government organization acronym
PIASCY:	The Presidential Initiative on AIDS Strategy for Communication to Youth campaign acronym
PTA:	Parent-Teacher Association acronym
RUMPS:	Referring to the Reusable Menstrual Pads Project or the pads themselves
SPA:	Peace Corps Small Projects Assistance grant acronym
STI:	Sexually Transmitted Infection acronym

UNICEF: United Nations International Children's Emergency Fund
acronym

UPE: Universal Primary Education acronym

USE: Universal Secondary Education acronym

χ^2 : The symbol for the Chi-Square statistical analysis value

Abstract

In order to identify the impact of teaching menstrual health and hygiene with reusable menstrual pads on knowledge retention and school attendance, qualitative and quantitative data was collected from three rural schools in three districts of eastern Uganda: Amuria, Bukedea, and Ngora. Research techniques employed were preliminary and post surveys of 85 young women; average age 16.9 years. Findings include positive and negative results. Participants' feelings of normalcy and comfort increased and participants had improved understanding of sexual climax and appropriate menstrual management strategies. There was no statistically significant impact of teaching on topics of sexual intercourse or pregnancy. The impact of reusable menstrual pad sanitary technology on school attendance was negative as more young women reported missing up to a full day of school during their menstrual period ($\chi^2 (3, 73) = 7.81, p = 0.05$). Study limitations are discussed and future work is suggested.

Chapter 1 – Introduction

Adolescent girls in Uganda face many challenges that impact their academic and lifetime success. Cultural and societal norms push girls to be submissive to men who can expose them to sexual risks (Burns, 2002; Koenig et al., 2004; Wagman et al., 2009). Schools' inadequate health education programs make it difficult for girls to make informed health decisions about personal hygiene, menstrual management, entering into sexual relationships and pregnancy (Bankole, Biddlecom, Guiella, Singh, & Zulu, 2007; Burns, 2002; Cohen & Tate, 2006; De Walque, 2007; Ndyabangi, Kipp, & Diesfeld, 2004).

These factors along with poverty, poor sanitation, and embarrassment seem to influence school attendance (Bharadwaj & Patkar, 2004; Crofts & Fisher, 2012; Kirk & Sommer, 2006; Scott, Dopson, Montgomery, Dolan, & Ryus, 2009; Sommer, 2010). Researchers from Ghana and Tanzania have discovered that when girls have their menstrual period they are likely to stay home from school (Scott et al., 2009; Sommer, 2010). Absence can lead to girls falling behind their classmates and many risk dropping out of school (Kirk & Sommer, 2006).

While education is a key to success for boys and girls, this paper investigates the potential opportunities present in health education workshops to help keep girls in school. By addressing health education and taboo topics with sensitivity, it was hoped that girls would be better able to understand and integrate their science knowledge into their daily lives. Additionally, with the introduction of reusable menstrual pads, it was hoped that girls would be better able to manage their personal hygiene with confidence.

Social Norms and Sexual Risk

Sexual relationships in Uganda are complex, with men and women likely having multiple, concurrent partners (Koenig et al., 2004; Nyanzi, Nyanzi, Kalina, & Pool, 2004; Stephenson, 2010). A man could have a wife raising children in the village and a second wife in town; some men could even have additional lovers and one-night-stands (Nyanzi et al., 2004). The number of partners and frequency of sexual interactions vary. In a study by Koenig et al. (2004), it was found that approximately one in three women reside in polygamous unions and almost 50% of women do not know about their male partner's other sexual partners. A study by Biraro et al. (2009) found that the proportion of married men with two or more partners in the past year increased between 1996 and 2002 while simultaneously there was an increased prevalence and incidence of Human Immunodeficiency Virus infection / Acquired Immunodeficiency Syndrome (HIV/AIDS). Although risks of HIV/AIDS, sexually transmitted infections (STIs), and pregnancy are present today, it is culturally acceptable and encouraged for men to have extramarital intercourse as a sign of masculinity and to fulfill 'uncontrollable' sexual needs (Burns, 2002; Koenig et al., 2004; Rujumba & Kwiringira, 2010; Stephenson, 2010; Wagman et al., 2009).

These cultural and societal norms greatly impact adolescent girls. The median age for sexual debut of young men and women is 18.1 and 16.4 years old, respectively, with 49% of men and 74% of women becoming sexually active by age 18 (Koenig et al., 2004; Uganda Bureau of Statistics & Macro International Incorporated, 2007;

Wagman et al., 2009). In a study by Wagman et al. (2009), half of their participants experienced sexual coercion during their sexual debut, including physical force, threats of abuse, and inducement in the form of promises of money, gifts, or marriage. Overall, 87.5% reported experiencing sexual coercion during adolescence. Sexual partners of adolescent girls vary and consist of lovers, boyfriends, husbands, authority figures (including teachers), older male friends of the family, or relatives (Kinsman, Nyanzi, & Pool, 2000; Nyanzi et al., 2004; Wagman et al., 2009).

These potentially polygamous partners put young women at risk of HIV infection and pregnancy. A Demographic Health Survey found that women who had their sexual debut before age 16 have the highest HIV prevalence (Burns, 2002; Madise, Zulu, & Ciera, 2007). New HIV infections for boys versus girls is a ratio of one to six in the 15-19 year old age bracket (Burns, 2002; Madise et al., 2007). In Uganda the median age for women having their first child is 18.6 years old; by age 20, 74% of women are married, compared to only 26% of men (Uganda Bureau of Statistics & Macro International Incorporated, 2007).

The reasons that adolescents enter into sexual relationships vary: curiosity, unwarranted trust in the relationship, desire for respect and proof of maturity, peer pressure, and the expectation of gifts and money (Burns, 2002; Madise et al., 2007; Wagman et al., 2009). In Uganda, “(a) continuity from traditional society lies in the man’s role of giving [a] gift, and the woman’s role of receiving [it] and in turn offering sexual service to the man” (Nyanzi et al., 2004, p. 251). These gifts include cash, food, school books, household items, clothing, toiletries and services such as rides into town

(Nyanzi et al., 2004; Wagman et al., 2009). Culturally, gifts are not considered payment for sexual services but are viewed as providing household necessities (Nyanzi et al., 2004). Nevertheless, there is a blatant power exchange with gift giving that makes women practically unable to negotiate for condom use or frequency of sex (Koenig et al., 2004; Madise et al., 2007; Nyanzi et al., 2004; Wagman et al., 2009).

Uganda's contraception use is 18% and depends on age, school enrollment, and marital status (Ndyanabangi et al., 2004; Stanback, Otterness, Bekiita, Nakayiza, & Mbonye, 2011; Uganda Bureau of Statistics & Macro International Incorporated, 2007). Studies have found that unmarried youth use modern contraception (i.e. pharmaceuticals and condoms) to a greater degree than married adults, but condom use steadily declines with increasing age (Biraro et al., 2009; De Walque, 2007; Madise et al., 2007; Singh, Prada, Mirembe, & Kiggundu, 2005).

It has been found that 75% of men and women believe that "a woman needs her husband's permission before using a contraceptive" (Stanback et al., 2011, p. 27). Also people believe that it is "unacceptable for a married [woman] to ask her partner to use a condom" (Koenig et al., 2004, p. 789). This would suggest a woman is promiscuous even if her husband has an STI or HIV/AIDS (Koenig et al., 2004; Stanback et al., 2011; Uganda Bureau of Statistics & Macro International Incorporated, 2007). Regardless of age, women who reported a forced sexual debut were less likely to be currently using contraception (Wagman et al., 2009).

The low use of contraception in Uganda may be explained in part by personal values. It is commonly believed that childbearing is synonymous with marriage and

men often state that God decides whether a couple has children (King et al., 2011; Wagman et al., 2009). Even outside of marriage, childbearing plays a role in new relationships (King et al., 2011). A widow with five children who was pregnant with her boyfriend's child said, "a man cannot simply give you... help when...you do not [want to] have his kid"(King et al., 2011, p. 5). Nationally, this has led to approximately half of pregnancies being unintended or mistimed and women having two more children than desired (Singh et al., 2005; Uganda Bureau of Statistics & Macro International Incorporated, 2007).

Researchers have found that socioeconomic status in Uganda influences sexual behavior in a variety of ways. Uganda is a low income country with an annual per capita income of US\$270 (Singh et al., 2005). While socioeconomic status cannot predict of the risk of coercive sex, there is evidence that low socioeconomic status has a strong association with multiple sexual partnerships, vulnerability to HIV infection, and low use of condoms (Koenig et al., 2004; Madise et al., 2007). Girls with low socioeconomic status have a higher likelihood of initiating sex despite having knowledge of HIV/AIDS in order to have access to gifts (Adamczyk & Greif, 2011; Madise et al., 2007). In a study by Wagman et al. (2009, p. 2086), participants honestly explained their beliefs about the influence of money on sexual relationships: "Girls in peer groups talk about having sex and how their boyfriends give them money (for sex) which makes the other girls want to start having sex for money." "Yes, if a girl has friends who have good things like nice shoes she also wants to try her best to fit in the society."

One possible scenario of a sexual exchange relationship is between school girls and motorcycle taxi drivers, known locally as boda boda men (Nyanzi et al., 2004). Compared to other potential sexual partners, boda boda men have cash on hand due to the nature of their work (Nyanzi et al., 2004). This relationship can develop when a driver is taking a girl to school and sex is exchanged for fare payment or cash gifts are given (Nyanzi et al., 2004). In Uganda, girls attend all types of schools; often girls attend boarding schools in neighboring towns because parents believe that schools can isolate and protect their daughters from sexual predators (Burns, 2002).

Known locally as lovers, boda boda men claim to have sexual access to these girls whenever they wanted without having any moral or social obligation toward them (Nyanzi et al., 2004). Boda boda men said that their lovers consisted mostly of school girls despite the legal consequences of such relationships (Nyanzi et al., 2004).

Additionally, girls may take on sexual risk in relationships if they participate in a practice known as “detothing” (Nyanzi et al., 2004, p. 250). As long as a man hopes to get sex from a girl he will continue to give her gifts while she will avoid him until the demand for sex becomes unbearable (Nyanzi et al., 2004). Over time, girls can experience sexual coercion in the form of verbal insistence, deception, and threats (Wagman et al., 2009).

These types of sexual exchange relationships are risky with regards to a young woman’s future. Boda boda men often have multiple and concurrent sexual partners but they are not bound to marriage conventions with their lovers (Nyanzi et al., 2004). If a girl becomes pregnant she can be abandoned by her lover and expelled from school

because she is seen as a bad influence on the other girls (Burns, 2002; Ndyabangi et al., 2004; Nyanzi et al., 2004). Often the families involved will make a collective decision to keep the pregnancy (or other sexual experience) secret from the community in order to protect her future marriage prospects (Wagman et al., 2009).

Teaching Children – Barriers and Beliefs

Even with the risks of HIV/AIDS within sexual relationships in Uganda today, parents, teachers, and schools are uncomfortable and unable to adequately address the needs of their children. Sexual health education traditionally has been considered a private matter that takes place between a girl and her aunt on her wedding night (Burns, 2002; Muyinda, Kengeya, Pool, & Whitworth, 2001; Sommer, 2010). It is considered taboo for parents to educate their children about sex (Mutonyi, Nashon, & Nielsen, 2010; Rujumba & Kwiringira, 2010). Likewise, it is prohibited for individuals to teach with explicit sexual messages, so teachers are often compelled to over-simplify language and encourage children to simply stop thinking about sex and stay away from the opposite gender (Burns, 2002; Mutonyi et al., 2010; Muyinda et al., 2001). Since adolescents have a great interest in their own sexuality, they feel embarrassed to talk to adults and instead turn to their peers for knowledge (Bankole et al., 2007; Burns, 2002; Kinsman et al., 2000; Muyinda et al., 2001).

The Ugandan government has tried to address the need for adolescent health education in several ways. In 2001 they launched the Presidential Initiative on AIDS Strategy for Communication to Youth (PIASCY) as well as the ‘ABC’ campaign

promoting abstinence, being faithful (monogamous), and condom use in an effort to decrease new HIV infections in young people (Altman, 2006; Cohen & Tate, 2006).

These strategies proved to be difficult to institute.

Uganda does not have separation between church and state and religious education curriculum discourages sexual activity and contraception (Burns, 2002; National Curriculum Development Centre Uganda, 1999, 2010). In fact, parents and teachers often indicate that they feel contraception encourages immorality and they tend to avoid the topic altogether (Burns, 2002; De Walque, 2007; Stanback et al., 2011). From the beginning, introducing contraception and condoms into the Ugandan curriculum was commonly rejected. While monogamy was easy to encourage, realistically it seemed challenging to establish based on cultural and social norms.

Subsequently, primary and secondary school curricula focused on encouraging abstinence (Burns, 2002; Cohen & Tate, 2006; De Walque, 2007; Muyinda et al., 2001; National Curriculum Development Centre Uganda, 1999, 2010). In the science curriculum, basic biological aspects of maturation and diseases are addressed without a focus on reproduction or issues of sexuality (Burns, 2002; National Curriculum Development Centre Uganda, 1999, 2010). In 2006, only 22% of boys and 34% of girls between the ages of 12-14 received sexual education in school (Bankole et al., 2007).

This impacts all students, as many have a high awareness of components of sexual health education but they often cannot explain a particular component in depth or how it relates to other concepts (Bankole et al., 2007; Burns, 2002). For example, there is a large gap between students who know about condoms versus students who have

seen a condom demonstration which suggests the possibility of misuse (Ndyabangi et al., 2004). Additionally, Bankole et al. (2007) found that only 20% of boys and 11% of girls have adequate knowledge about pregnancy prevention. This has led to adolescents often misinterpreting the ‘ABC’ campaign, believing that ‘being faithful’ and ‘condom use’ are two mutually exclusive options for safer sex and preventing HIV transmission: overlooking the possibility of a partner being born with HIV (Altman, 2006).

Even though abstinence is encouraged, adolescents are having sex (Bankole et al., 2007). In addition to entering sexual relationships for benefits and gifts, many young people feel that sex benefits them in terms of pleasure, status, and authority amongst their peers and are not likely to abstain (Altman, 2006; Burns, 2002; Kinsman et al., 2000; Madise et al., 2007; Wagman et al., 2009). If adolescents do engage in sexual intercourse, it is unlikely they will use condoms or have sufficient knowledge of their partner’s history to decide whether or not to use condoms (Altman, 2006). If adolescents do retain their virginity it comes from reasons of health and HIV/AIDS prevention, not from lack of interest (Kinsman et al., 2000).

“Perhaps more indicative of the actual levels of sexual activity and the social context in which... adolescents live, is the proportion who think their close friends have had sexual intercourse” (Bankole et al., 2007, p. 34). Forty-two percent of 12-14 year old adolescents report close friends being sexually-experienced (Bankole et al., 2007).

In recent years, the Ugandan government has changed its focus on sexual health education, placing less emphasis on safer sex through condom use, and more stress on traditional marriage values, despite current cultural and social practices (Altman, 2006).

What was once an attempt at open communication has changed into what some consider to be a judgmental environment, with premarital sex being emphasized as “against religion and... all cultures in Uganda” and “a [form] of deviance” (Cohen & Tate, 2006, p. 175). The President and First Lady of Uganda, who once championed sexual health education, have condemned condom use as being inappropriate for Ugandans and pushing youth into sex (Cohen & Tate, 2006; Ssejoba, 2004). Together with other national leaders, they have blamed recent increases in the rate of new HIV infections on foreign influence and have propagated myths about condoms:

- ““The condom does not protect HIV,” (President) Museveni said, adding: “I am so worried and it is NGOs who have led to this. Because they want to sell condoms, they have turned [Ugandans] into a market yet [Ugandans] are dying.””(Araali, 2012, p. 1)
- “Health minister Dr. Stephen Malinga said foreign companies were here to make money by marketing their condoms. “Be careful about being encouraged to use condoms, those are selling gimmicks... Condoms have quite a significant failure rate, they are not completely effective. Let nobody tell you young people about condoms and AIDS. Don’t be victims of marketing.””(Olupot, 2006, p. 1)
- “We can adopt our own indigenous solutions, which (are) less expensive and are 100% sure of preventing the spread of [HIV/AIDS].” – First Lady Janet Museveni (Baguma, 2008, p. 1)

These conflicting statements have led to public uncertainty about health education; as noted by the chairperson of the Uganda AIDS Commission, “(we) have inaccurate, contradictory messages on all [radio] stations and where there is contradiction, the public gets confused” (Lanyero, 2012, p. 1).

The inability of adults to accept and work with adolescent sexuality can be seen through a personal experience. While visiting colleagues in the evening at a neighboring Catholic school with optional girl’s boarding, approximately once a month the ‘teacher on duty’ would call upon others to assist in catching students who had snuck out to be with their boyfriends. Perhaps twice a year adults would catch students having sex on the school grounds. When asked what type of sexual health education they conducted at the school, the response was ‘abstinence.’ Even though my colleagues were experiencing adolescent sexuality first hand they were unable to address the school’s reality.

It’s interesting to note that not all students trust teachers’ instruction on HIV/AIDS and sexual intercourse. In a study by Mutonyi et al. (2010), approximately 20% of students felt that HIV/AIDS and related messages were exaggerated to discourage young people from sexual activity. While their views were justified with respect to teachers being unable and possibly unwilling to teach sexual health education, this distrust creates an unreliable learning environment where students can choose to ignore their health education lessons and put themselves at risk (Burns, 2002; De Walque, 2007; Mutonyi et al., 2010; Stanback et al., 2011).

The Girl Child

In 1997 and 2001 Uganda made incredible strides in education policy. These were the years when universal primary and secondary education (UPE and USE) were introduced and free education was guaranteed to everyone in the country (Cohen & Tate, 2006). This was of particular benefit to girls. Approximately 50% of 15-19 year olds were out of school when UPE and USE were introduced; the majority of those adolescents were girls (Ndyabangi et al., 2004). During this time a “Girl Child” campaign encouraged families to educate their daughters as well as their sons. In the past, a girl was viewed as less worthy of education since her husband would benefit from her schooling, not her parents (Witter & Bukokhe, 2004). Today a motto in Uganda is “educate a girl - educate a nation” whereby a girl’s education is viewed as a benefit to herself, her family, and her future children. As of 2006, only 34% of girls in Uganda were still in school at age 18 compared to 52% of boys (Uganda Bureau of Statistics & Macro International Incorporated, 2007). In all of sub-Saharan Africa in 2010, only 17% of adolescent girls were enrolled in secondary school (Sommer, 2010).

Beyond educating girls for greater knowledge, studies have shown that a woman’s educational level is “strongly associated with health status, contraceptive use, fertility rates, and health of her children” (Uganda Bureau of Statistics & Macro International Incorporated, 2007, p. 16). A study in Kenya found that women with more education are “better able to enact their attitudes about gender equality to negotiate a later age of first sex” (Adamczyk & Greif, 2011, p. 664). Additionally they have “fewer sex partners, are more likely to know their sex partner, and are more likely

to use condoms within and outside of a marital relationship” (Adamczyk & Greif, 2011, p. 664). In Uganda, women with at least some secondary education start having sex almost two years later than women without and they are less at risk of being infected by the HIV (De Walque, 2007).

School Attendance during Menstruation

Attending school can be a challenge for girls and studies around the world have investigated the causes. One challenge could be menstruation. Studies have found a link between poor sanitation, menstruation, and school attendance, however these results may not be universal (Bharadwaj & Patkar, 2004; Crofts & Fisher, 2012; Roma et al.; Scott et al., 2009; Sommer, 2010).

Menstruation management is a multilayer issue that begins with money. As the majority of men and women in Uganda are employed in agriculture, 68% and 75%, respectively, personal income fluctuates with the planting and harvesting seasons, making disposable income inconsistent (Nyanzi et al., 2004; Uganda Bureau of Statistics & Macro International Incorporated, 2007). On average, rural women in Uganda have 7.1 children, stretching the family’s disposable income for expenditures like menstrual pads (Uganda Bureau of Statistics & Macro International Incorporated, 2007). A packet of ten disposable pads costs an average of US\$1.35; to cover their sanitary protection needs girls must have justification for recurrent expenditures of at least USD \$1 every month” (Crofts & Fisher, 2012; Kirk & Sommer, 2006). Often parents are unable to allocate money for menstrual pads and these expenditures can be

difficult to manage when a family has more than one daughter (Bharadwaj & Patkar, 2004).

Men traditionally do not learn about women's health and menstrual issues although they play a significant role in its management through household decision-making (Kirk & Sommer, 2006; Uganda Bureau of Statistics & Macro International Incorporated, 2007). Overall, men view menstruation as a mysterious weakness of women and have very little factual information about it (Kirk & Sommer, 2006). This is highlighted in a personal experience where a male teacher expressed that he had no idea girls experienced problems with managing their menstruation. If he had known, he would have been helping his daughters but no one told him about it. This man and his wife were both well-educated but a tradition of silence was impacting their children. Unfortunately, menstruation makes girls feel shy and ashamed so they often cannot request money from their parents (Kirk & Sommer, 2006).

To manage menstruation, most Ugandan girls have reported using “a combination of reusable/disposable, cheap/expensive protection materials... (depending) on flow rates, activity levels, the need for discretion, available money and time of day” (Crofts & Fisher, 2012, p. 12). If a young woman cannot buy disposable sanitary protection she uses other means available to her: cloth rags, newspaper, toilet paper, cotton wool, frequent baths and washing clothes (Crofts & Fisher, 2012; Kirk & Sommer, 2006). These things may be difficult to find and use if a family has low income and parents are allocating soap and household items for a large number of people (Kirk & Sommer, 2006). Consequently a girl may use the same piece of sanitary

protection for too long, develop personal odors, and risk infections (Crofts & Fisher, 2012; Kirk & Sommer, 2006; Oster & Thornton, 2011).

Inadequate protection and personal odor could lead to 'leaks' and unwanted attention, eliciting ridicule from peers at school and making it embarrassing and difficult to concentrate on learning (Crofts & Fisher, 2012; Kirk & Sommer, 2006; Sommer, 2010). Unfortunately, girls may not be able to depend on teachers for help. Uganda has a shortage of female secondary school teachers and men can have difficulty identifying when a young woman needs to excuse herself from the classroom to manage her menstruation (Kirk & Sommer, 2006). Additionally, a girl could fall victim to harassment from a teacher if she does not want to participate in class due to her period.

If a girl is determined to attend school she is likely to run into another barrier-- school sanitation. Access to clean water and toilet facilities can be limited. Studies funded by the Rockefeller Foundation in Uganda found that while official guidelines state one toilet for every 30 students, this figure was exceeded many times over, with some schools having a ratio of one toilet for every 200 students (Kirk & Sommer, 2006). Rarely did researchers find separate cubicles for boys and girls (Kirk & Sommer, 2006). Toilets often do not have toilet paper so boys and girls would employ old pieces of paper or their hands for personal cleaning (Crofts & Fisher, 2012).

It has been found that 54% of young women change their sanitary materials in toilets because they offer the most privacy on school grounds (Crofts & Fisher, 2012). This is due to girls' belief that people will know they are menstruating if they walk to bathing areas, carry water, or bring small bundles to the trash (Crofts & Fisher, 2012).

While school toilets are often the best option for girls, they can still be embarrassing. Most school toilet facilities are pit latrines and many lack water inside or near the latrines, so girls are unable to clean themselves or bloodstains from their skirts (Crofts & Fisher, 2012).

These barriers to self-cleaning during menstruation could have an impact on school attendance. It has been found that “poor sanitation is correlated with absenteeism and drop-out of girls in developing countries” (Bharadwaj & Patkar, 2004, p. 4). Determining if there is a direct link between absenteeism and menstruation has been studied by researchers.

In 2005, United Nations International Children’s Emergency Fund (UNICEF) estimated that 1 in 10 school-age African girls do not attend school during menstruation or they drop out at the onset of puberty (Kirk & Sommer, 2006). Another study found that girls were absent from school three to four days per month rather than manage menstruation at school (Sommer, 2010). Crofts and Fisher (2012) found that for 33% of their participants in a Ugandan study, the main reason young women were absent from school was due to lack of menstrual pads. In Ghana, researchers found that providing sanitary pads to young women significantly decreased absenteeism (Scott et al., 2009). These findings suggest that if young women were able to adequately manage their menstruation, school attendance may improve.

Chapter 2 – Research Questions

In February 2010, I moved to Uganda to begin 27 months of service as a United States Peace Corps volunteer. My post was Okunguro village near the town of Bukedea in the eastern region of the country.

Early in my service I learned that young women were missing school and it was suggested that poor menstrual management was a component of the problem. At schools near my home it was not uncommon for girls to miss several days of school a month. Due to inadequate health education at school, menstrual management was not addressed and many young women were unable to properly care for their bodies. Additionally, many adolescents were not taught sexual intercourse, pregnancy, or family planning options which put them in a position of sexual risk. Several young women became pregnant in Okunguro and some left school permanently. Teen mothers were lucky in Okunguro because they were allowed to come back to school after one year; more often if a young woman got pregnant she was expelled from school permanently.

After learning about the challenges young women face, I became involved in the Reusable Menstrual Pads (RUMPS) Project. This project began in 2009 by a Peace Corps Volunteer and focused on teaching menstrual health and hygiene, keeping young women in school, and helping to ease the financial burden of sanitary protection by providing RUMPS training and kits (Appendix 1).

Overtime, a partnership was formed between me and the Catholic Education Research and Development Organization (CEREDO) in Soroti, Uganda to bring the

RUMPS project to schools in eastern Uganda. Questions arose while working on this project and these questions became the subject of this research report:

- What is the impact of an explicit menstrual health and hygiene workshop on knowledge retention and articulation?
- What is the impact of reusable menstrual pad sanitary technology on school attendance?

The questions are designed to identify the effects of the RUMPS Project on participants. It is important to determine if the project achieved its goals of increasing menstrual health and hygiene knowledge and retention. If the project is to be deemed successful, it should also have a measurable impact on school attendance. To answer these questions students were questioned about their knowledge, given instruction, and visited over time.

Chapter 3 – Methods

This study was conducted at three rural schools in eastern Uganda. Each school was in a different district-- Amuria, Bukedea, and Ngora. Research was carried out in conjunction with the Catholic Education Research and Development Organization (CEREDO) of Soroti, Uganda, and was funded in part by a Peace Corps Small Projects Assistance (SPA) grant.

In September through October 2011 and February through March 2012, qualitative data was collected to understand the effectiveness of teaching menstrual health and hygiene with reusable menstrual pads by evaluating knowledge retention and school attendance. Data for this report comes from surveys of 85 female student volunteers. All volunteers were drawn from a pool of participants already involved with the RUMPS Project who provided consent.

In April 2011, a member of CEREDO identified seven schools in low income, rural areas to participate in the RUMPS Project. A Peace Corps SPA grant was used to purchase materials for 1,300 participants. By September 2011, the effectiveness of these workshops became the focus of this study. At the beginning of the study, introductory letters were sent to each identified school with an invitation to participate in the research study. Upon arrival at the schools, researchers obtained consent from school officials and student volunteers. Between September 2011 and March 2012, parental consent was gained.

Participant surveys were comprised of questions relating to knowledge of the menstrual cycle, pregnancy, and hygiene, as well as emotional feelings during

menstruation (Appendix 2). Information on participant demographics and school attendance during menstruation were also self-reported by participants. Post surveys had additional questions with regard to the proper care and use of RUMPS and a project evaluation (Appendix 2). Surveys were conducted in classroom environments with female facilitators, one of whom was a local language speaker to translate as necessary. Participants were given anonymous survey numbers to increase confidentiality and encouraged to cover their answers as classroom space was limited. The participants were not required to answer all questions.

After the surveys were conducted all female students and school staff members were invited to take part in the RUMPS workshop. I conducted the workshop and began with an educational component focusing on reproductive organs, the menstrual cycle, how a woman becomes pregnant, and the prevention and care of infections. The second component was an anonymous question and answer forum for the whole group. Students were invited to write down their questions and submit them confidentially or to ask their questions openly. Answers were given by facilitators and clarification was provided in local language as necessary.

The final component was training the participants in the design, assembly, and use of reusable menstrual pads (Appendix 1). Each participant then had the opportunity to purchase a two pad RUMPS kit for 200 Ugandan Shillings, approximately US\$0.07, which was calculated by the researchers as an achievable contribution in order to fulfill SPA grant requirements. Poor record keeping made it difficult to determine if all study participants purchased a RUMPS kit; however, everyone was trained on how to make

them. Four months later, researchers returned to the schools to conduct post surveys with student volunteers.

During the study, approximately 25 school officials and 1,275 female students participated in the RUMPS workshops. Of those individuals, 806 students provided personal consent to take part in the research-- 206 adults and 600 minors. Parental consent was obtained for 107 minors. Of this sample of 313 student participants with appropriate consent, 105 provided both preliminary and post surveys. Three of the seven schools had 85 of the student participants with appropriate consent-- Amuria, Bukedea, and Ngora. These schools became the focus of the study, with the final data sample consisting of 85 student participants.

The majority of participants came from the school in Amuria (54), followed by Bukedea (18), and Ngora (13). The average age of the participants was 16.9 years old, with Bukedea students being the youngest with an average age of 15.8 years. Sixty-nine participants came from families with both parents. Thirteen came from single parent homes, while three were orphans; 12 of the students without both parents came from the school in Amuria. Average family size was 9.7 individuals. The main occupation of parents was agriculture (62.4% of fathers and 48.2% of mothers). Other parental occupations included government positions (i.e. teachers, police officers), homemakers and market venders (Table 3.1).

Table 3.1

Results of participant demographic information.

	Overall	Amuria	Bukedea	Ngora
Number of participants				
Overall	85	54	18	13
Average Age of Participants (Years Old)				
	16.9	17.1	15.8	17.5
Average Family Size (Individuals)				
	9.7	9.9	9.6	9.2
Family Providers				
2 Parents	69	42	15	12
1 Parent	13	10	3	0
Orphan	3	2	0	1
Occupation of Fathers				
Agriculture	53	36	11	6
Government Position	11	5	2	4
Occupation of Mothers				
Agriculture	41	22	13	6
Homemaker	16	16	0	0
Market Vender	11	7	2	2

Preliminary and post surveys were analyzed, coded, and entered into a database for quantitative analysis (Appendix 3). Coding of an answer reflected the completeness of an answer as well as general information categories. For example, question eight asked “what is sex?” (Table 3.2).

Table 3.2

An example of answer codes for participants' survey responses to the question "what is sex?"

8) What is sex?	
Code	Description
A	Unanswered
B	Sexual orgasm
C	Sexual intercourse
D	Other

A response was coded as “C” when the answer was similar to “when a man and a woman join their private parts” because the participant identified who, what, and how (or the action). An answer was coded as “D” when the answer was similar to “sex is when a man and a woman meet” because the participant has identified who but the answer is too broad to connect it with the object of the question.

The preliminary and post survey answer codes were counted and then analyzed using the IBM SPSS 2.0 Statistics computer program. Pearson’s Chi-Squared, χ^2 , Test of Independence was used to determine if the preliminary and post survey answers of participants were independent (probability value of 0.05 or less). If the surveys were independent, then it would demonstrate that there was no significant difference in knowledge retention and articulation or school attendance after the introduction of the RUMPS Project.

Chapter 4 – Results

Knowledge Retention and Articulation

Participants' knowledge of menstruation increased through the course of the study (Appendix 4). Overall, the vast majority of participants indicated that menstruation was normal. When asked “is it was normal to have menstruation, miss, and then menstruate again?” the increase in “yes” responses from 23 in the preliminary survey to 55 in the post survey was statistically significant ($\chi^2(2, 84) = 24.508, p = 0.01$). Not every participant answered the survey questions resulting in an N value of 84 participants.

Knowledge of sexual intercourse and pregnancy varied during the course of the study. Participants' ability to describe sexual orgasm increased from 13 in the preliminary survey to 34 in the post survey ($\chi^2(3, 68) = 17.015, p = 0.01$). However, the ability of participants to describe sexual intercourse completely decreased. When asked “can a girl could get pregnant the first time she has sex?” both “yes” and “no” responses from participants increased in the post survey. There was practically no change in the number of participants who were able to link pregnancy and ovulation; instead most participants linked pregnancy with a time period. For example, a woman was “safe” from pregnancy after a menstrual period and she was in “danger” of pregnancy before or during a menstrual period.

With regard to personal hygiene, there was an increase in the number of participants who mentioned professional treatment as an option for vaginal infections and self-treatment as an option for menstrual cramps (i.e. over-the-counter pain killer

tablets). The number of participants who felt that a girl should use soap to clean her private parts decreased. In regards to menstrual management, there was an increase from 13 participants in the preliminary survey to 52 participants in the post survey who said that a menstrual pad could be worn for half a day or less ($\chi^2(3, 83) = 50.413, p = 0.01$). In the preliminary survey a number of participants indicated that a menstrual pad could be worn “once,” which categorized the answer as “other.” In the post survey more participants indicated a time period which allowed for more correct answer coding.

Considering sanitary protection options for girls who couldn’t afford disposable pads, participants disclosed that a person could use cloth; underwear (or multiple pairs of underwear); cotton or gauze; or a combination of these. There was an increase in the number of participants who indicated that washable pads were an option for menstrual management ($\chi^2(5, 82) = 16.864, p = 0.01$).

Feelings during Menstruation

Between the preliminary survey and post survey participants’ feelings of normalcy and comfort during their menstrual period increased. Participants who indicated feeling normal during their menstrual period rose from five in the preliminary survey to 47 in the post survey and was statistically significant ($\chi^2(3, 75) = 58.042, p = 0.01$). Also, the number of participants who felt sick and emotional/nervous during their menstrual period decreased. Additionally, all “yes” responses to the questions about being nervous around boys, teachers, their clothes, and around their families

during participants' menstrual periods decreased and were statistically significant as can be seen in Table 4.1.

Table 4.1

Overall preliminary (pr) and post (po) survey counts and Chi-Square statistical analysis results for questions about being nervous around others during a menstrual period.

	"Yes" Counts		Statistical Analysis		
	Pr	Po	df	χ^2	p
Nervous around boys	71	27	2	45.42	0.01
Nervous around teachers	73	27	2	51.43	0.01
Nervous about clothing	65	39	1	16.07	0.01
Nervous around family	60	34	2	20.15	0.01

School Attendance during Menstruation

School attendance decreased when participants were having their menstrual period. The number of participants indicating they missed up to a full day of school (30 minutes to 24 hours) increased from 19 to 32 ($\chi^2 (3, 73) = 7.81, p = 0.05$). In the preliminary survey eight participants answered "yes" to the question, "how much school did you miss during your last menstrual period?" which would have been categorized as "other." During the post survey, these participants could have responded with a measurement of time. If and when participants did miss school the majority of participants indicated that they stayed at home or in school dormitories.

Reusable Menstrual Pads

Forty eight participants reported using a reusable menstrual pad during their last menstrual period. While it is unknown which participants purchased RUMPS kits, all participants seem knowledgeable about the use and maintenance of the pads. Sixty-three participants were able to describe how to wash and dry the pads before reuse. Sixty-eight participants stated that a person could use a pad up for up to 11.5 hours. Relating to the possibility of infections, 76 participants correctly stated that a person could not use a reusable pad that was still wet. With regard to the project evaluation, 58 participants stated that RUMPS were comfortable but it was suggested that additional sizes of RUMPS be made available.

Chapter 5 – Discussion

This study examined the impact of the Reusable Menstrual Pads (RUMPS) Project on young women in eastern Uganda to determine whether participants' health and hygiene knowledge and articulation improved over time and if reusable menstrual pad sanitary technology improved school attendance. The results of this research study are both positive and negative. In order to understand the implications and limitations of this study and future work options, the results will be discussed with other research findings related to menstrual management in order to draw conclusions.

One of the main improvements of the RUMPS Project was increasing participants' feelings of normalcy and comfort around others during their menstrual period. Although participants were asked to explain why they felt nervous around boys, teachers, about their clothes, and around their families, very few choose to explain themselves. Of those participants who did explain themselves, 'fear of discovery' was a common response. This fear could be similar to other young women in Uganda and Tanzania who felt uncomfortable in the classroom during their menstrual periods (Crofts & Fisher, 2012; Kirk & Sommer, 2006; Sommer, 2010). Reducing these uncomfortable and nervous feelings could be the first step for young women to gain confidence and not feel isolated during their menstrual period. Additionally, participants had a greater understanding that their menstrual cycle could fluctuate (e.g. skip one month) which is important because participants are more aware that their bodies are changing and fluctuations can occur.

Another area of improvement in this study was sanitary protection options and use. Participants in this study mentioned similar menstrual management strategies for underprivileged girls that were identified in other studies; cloth, cotton wool or gauze, or a combination of items (Crofts & Fisher, 2012; Kirk & Sommer, 2006). Additionally, participants in this study cited the use of underwear or multiple pairs of underwear when sanitary pads were not available. Participants were able to articulate that a sanitary pad should not be worn for more than 12 hours and that if a RUMPS pad is used it cannot be worn when the pad is wet. While 48 participants reported using a reusable menstrual pad during their last period, 63 had an understanding of use and cleaning. This indicates that if and when these participants use washable pads they will use them correctly.

When looking at participants' knowledge of sexual intercourse and pregnancy it is likely that the RUMPS workshop was the first opportunity participants had to learn about sexual intercourse and pregnancy in detail. Overall, participants had a low level of knowledge about sexual intercourse and pregnancy prior to the introduction of the RUMPS Project which was similar to the findings of Burns (2002) and Bankole et al. (2007). During the preliminary survey, the question that got the highest reaction from participants was "what is climax?" The majority of participants laughed, shrieked, and made exclamations. It may not be surprising then that only the "what is climax" question had statistically significant improvement because the participants were probably paying more attention during that part of the workshop in order to learn the answer.

However, it is a major concern that participants did not learn more about sexual intercourse and pregnancy because those topics were pillars of the RUMPS workshop. It is important for participants to be able to identify ovulation as a component of pregnancy. If participants continue to believe a woman is “safe” from pregnancy after her menstrual period then participants could put themselves at risk for unwanted pregnancy. In the future it is important that these time periods become distinctive and clear to participants. These results stress the importance of having a continuous and comprehensive health education program in the Ugandan education system.

On a related note, the fact that more participants (18 to 22) answered “no” to the question “can a girl get pregnant the first time she has sexual intercourse” raises important questions. If the participants explained their answers further what would researchers discover? It is possible that participants may have been unwilling or unable to express their knowledge because of cultural tendencies to over-simplify private and intimate information (Mutonyi et al., 2010; Muyinda et al., 2001). For several survey questions participants were asked to explain their answers but few ever did. Was knowledge lost in translation? Even though a local language translator was available it is probable that participants didn’t ask her for clarification because they didn’t want to draw attention to themselves in the crowd.

The fact that participants who reported missing up to a full day of school during their menstrual period rose from 19 to 32 is concerning and interesting since the increase could have occurred for several reasons. Participants could have been keeping better track of how much school they are missing during their menstrual period because

absenteeism was a point of emphasis in the RUMPS workshop. Maybe participants were now using their menstrual period as a reason to miss school because they learned others were using it as an excuse. Although missing any school time due to menstruation is important to eliminate, up to one full day of school absence found in this study is less than the 3-4 days of absences found by Sommer (2010) in Tanzania.

The increase in absenteeism occurred after RUMPS were introduced, but the impact of the introduction of RUMPS is difficult to determine because not every participant purchased a RUMPS kit. Four months passed between the first and second school visits and 48 participants indicated they used RUMPS during their last menstrual period. It would have been beneficial to investigate how many participants used RUMPS two, three, and four months after the first school visit to determine if RUMPS usage changed over time.

Limitations, Discrepancies, and Error

The results from this study are limited. Participants were representative of rural, low-income students at Catholic schools in eastern Uganda. The sample size of this study was small (85) compared to the initial number of students who provided personal consent (806); this was mainly due to difficulties of gaining parental consent. It would be beneficial to investigate menstrual health and hygiene knowledge retention and articulation as well as the impact of reusable menstrual pad sanitary technology across all regions of Uganda as well as urban versus rural environments with a larger sample size.

While care was taken to ask survey questions specifically in hopes of limiting confusion; participants' answers were difficult to quantify. As mentioned, participants could have been shy or embarrassed to explain their answers or responses could have been "lost" in translation. In several cases participants' responses showed a level of comprehension but it was difficult to quantify appropriately, such as "how much school did you miss during your last menstrual period" and participants responded "yes." Although the facilitators used the same questions in the post survey there is a possibility that participants had new interpretations of the questions and terminology.

Another possible source of error in this study comes from the IBM SPSS Chi-Square analyzes. When all the participant responses were counted in the answer categories there were three instances where counts of zero were found in the data. There were 29 instances where counts of five or less was found in data. As noted in the SPSS program, zeros are "invisible to statistical procedures... which need positively weighted cases" and counts of five or less can also cause errors. Overall, these could have caused error in the statistical analysis.

Future Work

There is more that could be done to investigate the impact of menstrual health and hygiene education and reusable menstrual pad sanitary technology for young women in Uganda and around the world. If researchers choose to conduct similar surveys than several improvements could be made in order to gain more accurate and

detailed information. Additional topics could also be investigated for a more complete idea of the challenges young women face to attend school.

A challenge for this study was gaining parental consent. Unfortunately, the school visits took place during a harvesting and planting season so parents were unable to visit schools and participate in a PTA meeting to provide consent for participants. Also, the majority of young women from Bukedea and Ngora were boarding students making it very difficult to gain parental consent until school vacations. If parental consent was gained there were several instances where parents provided a student's full name while the student provided a nickname. Several students had identical names and since parental consent forms did not ask parents to specify which grade a student was in, matching the consent forms with students was difficult or impossible. Lastly, many people in Uganda know the year they were born but not their actual birthday which made it difficult to determine the age of participants. This was particularly challenging when looking at participants who were turning 18 in 2011 and who would be adults who did not require parental consent. Future researchers should develop a more efficient and effective way of gaining parental consent.

The original intent of obtaining demographic information from participants was to gain insight into family resources. It was found that the demographic data in this study could not be taken beyond face value. A neighbor of mine took part in the study. She was the youngest of three children and when she was a child her father passed away. Her mother remarried a man with five children. Through our time together I learned that her stepfather, mother, and oldest brother were paying for her education.

When entering her information into the database I noticed she wrote her father was deceased and she had two brothers. In the future, researchers should be very specific with demographic questions because participants may interpret the questions differently.

Future studies could investigate toilet facilities at schools. Unfortunately, toilet investigation was an afterthought after arriving back in the United States. A study including menstrual management and toilet facilities could allow for greater information to be obtained about the challenges of changing sanitary protection at day and boarding schools.

School administrators and teachers could also become a research focus in order to determine what they know about menstruation and the impact menstrual management on students. Many adults, particularly men, did not take part in this study because they believed that their presence would influence participants. Education could be done with administrators and teachers separately from students in order to empower school leaders with menstrual health and hygiene knowledge and provide RUMPS training.

Investigating participants' knowledge, usage, and beliefs about of family planning could prove beneficial to comprehension and understanding. While student questions about family planning were welcomed during the question and answer forum of the workshop, facilitators were unable to give participants a thorough background on family planning. A discussion of this nature may have a positive impact on pregnancy knowledge.

Conclusions

Through this study, several conclusions can be made about teaching menstrual health and hygiene knowledge to young women in eastern Uganda with reusable menstrual pads. First, there is a positive impact of teaching an explicit menstrual health and hygiene workshop on participants' feelings of normalcy and comfort during their menstrual period. There is also increased understanding of sexual climax and appropriate menstrual management strategies. At the same time there was no statistically significant impact on knowledge retention and articulation with topics of sexual intercourse or pregnancy suggesting the need for further education and clarification of ideas. The impact of reusable menstrual pad sanitary technology on school attendance is negative as more young women reported missing up to a full day of school during their menstrual period. More research could be done on the impact of introducing new sanitary technology to determine RUMPS use over a greater amount of time.

Appendix 1 – The Reusable Menstrual Pads Project

Project Overview

The Reusable Menstrual Pads (RUMPS) Project began in Uganda with Lizzie Kazan, a Peace Corps Volunteer from 2009-2011. The overall goals of the project were to teach menstrual health and hygiene, keep young women in school, and help ease the financial burden of sanitary protect with RUMPS. Originally the project reached out to primary and secondary school students, but it rapidly expanded to include tertiary institutions, women's groups, community groups, and health professionals. For each audience, facilitators modified the workshop to target particular areas of interest. A typical RUMPS workshop consists of three components: education on menstrual health and hygiene, a question and answer period, and RUMPS training and construction.

The education component typically addressed reproductive organs, how a woman becomes pregnant, signs and symptoms of vaginal infections, prevention and care for vaginal infections, and why women menstruate. Other topics include but were not limited to HIV/AIDS transmission, body changes, family planning options and child rights. All instruction was supported by visual aids and local language translators.

The question and answer period was often conducted as an open forum where participants could ask questions about any topic. Usually participants wrote their questions down on slips of paper to maintain confidentiality. Common topics included pregnancy, sexual feelings, myths, and clarification of topics covered in the education component.

The RUMPS training component addressed the pads. First, participants were shown the RUMPS kit which contained enough materials to create two pads. Then participants were given instructions on how to sew and care for the pads using learning aids. Finally, a discussion took place about replacing pad materials after six to nine months because pieces would wear down (e.g. towel inserts would fray). If men were present at the workshops additional time would be taken to emphasis pad design and sewing techniques to ensure clarity.

RUMPS Kits

The RUMPS kit that were created for this research study had enough materials to make two reusable menstrual pads; two liners and three cotton towel inserts. Included in each kit were cloth material, cotton towel rectangles, a needle, thread, and two buttons. At the time research was conducted the average cost of one RUMPS pad, using brand new materials, was 750 Ugandan Shillings or US\$0.26.

Kit materials were used because they were believed to be available within all remote markets. The liners were made with cotton or cotton/polyester blended materials which was the same type of material used to make school uniforms. Needles, thread, and buttons were widely available as many women mended clothing. New cotton towels were not widely available however second-hand cotton towels were available in all clothing markets. Participants were encouraged to find the best quality second-hand towels and wash them thoroughly before use.

Preparing the Kit Materials

Instructions for cutting the cloth material for the pad:

1. Cut one fabric strip that is 4 inches wide by fabric length. (This is approximately 4 x 45 inches.)
2. Fold the strip in half and cut at the seam. Cut each strip in half making two 4 x 22.5 inch strips.
3. Take one of your strips and cut a 4 x 1 inch piece off the short edge.
4. Cut this piece in half making two 2 x 1 inch pieces. These cloth material pieces are enough for two pads.

Instructions for cutting the towel inserts for the pad:

1. Cut one strip of toweling that is 6.5 inches by fabric width. (This is approximately 6.5 x 33 inches.)
2. Cut each strip in half making two 6.5 x 16.5 inch strips.
3. Cut each strip in half again making two 6.5 x 8.25 inch pieces. These cotton towel pieces are enough for four inserts.

Sewing, Assembling, and Use

Sewing Instructions:

1. Take one 4 x 21.5 inch strip of cloth material. Fold the material in half. Sew the two long edges together. Be sure not to sew the short edge together, otherwise the cotton towel cannot be inserted into the pad.

2. Turn the sewn cloth material piece inside-out.
3. Take two 2 x 1 inch pieces. Sew the short edge of one 2 x 1 inch piece to the middle of the long edge of the cloth material piece from step two. Repeat on the other side. These are the pad's "wings".
4. Sew a button onto one of the 2 x 1 inch pieces.
5. Cut a small opening into the other 2 x 1 inch piece for the button hole.
6. Take one towel piece. Fold the towel and insert it into the pad's opening.

Instructions for Use:

1. Place the pad on the inside of a piece of underwear, centering it between the leg openings.
2. Take the "wings," wrap them around the underwear, and button the wings together to secure the pad in the underwear.
3. After 4 to 6 hours, depending on menstrual flow, unbutton the pad, remove, and replace the pad with an additional clean pad.
4. Wash immediately.

Washing and Drying Instructions:

1. Prepare a bucket of water with washing detergent.
2. Remove the towel insert from the pad and place both pieces into the washing water. Let soak for 30 minutes.

3. Remove the pieces from the water and pour out the dirty water. Prepare new washing water.
4. Wash the pad pieces thoroughly until clean. (Note that over time blood stains may occur.)
5. Rinse thoroughly.
6. Dry pad pieces outside. If privacy is a concern, place the pad pieces inside another piece of washed clothing. Pin the pad pieces and washed clothing to a clothesline and wait until they are dry.
7. Reuse a pad only when the pad pieces are completely dry.

Appendix 2 – Preliminary and Post Surveys

Background Information

- i. What is your name?
- ii. What year were you born? What is your birthday?
- iii. What class are you in?
- iv. Is your father alive? What work does your father do?
- v. Is your mother alive? What work does your mother do?
- vi. How many brothers do you have at home?
- vii. How many sisters do you have at home?
- viii. Are you an orphan?

Knowledge about Menstruation

1. Is it normal to have menstruation?
2. Is it normal to have menstruation, miss for a long time, and then menstruate again?

Knowledge about Pregnancy and Sex

3. What is a safe day?
4. What is a danger day?
5. What happens to a girl if she abstains from sex?
6. Can a girl get pregnant the first time she has sex?
7. What is climax?

8. What is sex?

Knowledge about Hygiene

9. If a girl's private parts have a rash or smell bad what can she do?

10. If a girl is having stomach pains what can she do?

11. How long can a girl use one (1) sanitary towel?

12. If a girl cannot afford to buy sanitary towels (disposable sanitary towels) what can she use?

13. Should a girl use soap to clean her private parts?

Feelings (MP = Menstrual Period)

14. When you have your MP how do you feel?

15. When you have your MP are you nervous around boys? Why?

16. When you have your MP are you nervous around teachers? Why?

17. When you have your MP are you nervous about your clothes? Why?

18. When you have your MP are you nervous around your family? Why?

19. When you have these feelings what do you do to feel better?

School Attendance (Menstrual Period = MP)

20. Do you miss school when you have your MP?

21. How much school do you miss?

22. How much school did you miss during your last MP (e.g. 2 Days)?

23. Where did you go if not at school or at home?

Reusable Menstrual Pads (Additional Questions for the Post Survey)

24. Did you use a reusable menstrual pad during your last MP?

25. How do you use a reusable menstrual pad?

26. How long can you use one (1) reusable menstrual pad before changing it?

27. How do you clean a reusable menstrual pad?

28. Can you use a reusable menstrual pad that is wet?

29. Is a reusable menstrual pad comfortable?

30. Is a reusable menstrual pad a good size?

Appendix 3 – Answer Coding of Survey Responses

1) Is menstruation normal?	
A	Unanswered
B	Yes
C	No

2) Is it normal to have menstruation, miss, and then menstruate again?	
A	Unanswered
B	Yes
C	No
D	Other

3) What is a safe day?	
A	Unanswered
B	The egg cannot get fertilized
C	The egg can get fertilized
D	Just before/during a period
E	Just after a period
F	Other

4) What is a danger day?	
A	Unanswered
B	The egg cannot get fertilized
C	The egg can get fertilized
D	Just before/during a period
E	Just after a period
F	Other

5) What happens to a girl if she abstains from having sex?	
A	Unanswered
B	Nothing
C	Other

6) Can a girl get pregnant the first time she has sex?

- A Unanswered
- B Yes
- C No
- D Other

7) What is climax?

- A Unanswered
- B Sexual orgasm
- C Sexual intercourse
- D Feelings
- E Other

8) What is sex?

- A Unanswered
- B Sexual orgasm
- C Sexual intercourse
- D Other

9) If a girl's private parts have a rash or smell bad what can she do?

- A Unanswered
- B Professional / Self treatment
- C Change hygienic practices
- D Other

10) If a girl has stomach pains what can she do?

- A Unanswered
- B Professional / Self treatment
- C Change personal practices
- D Other

11) How long can a girl use one sanitary towel?

- A Unanswered
- B 0 to 11.5 Hours / Half a day
- C 12 to 24 Hours / A full day
- D Multiple days / periods
- E Other

12) If a girl cannot afford to buy disposable sanitary towels what can she use?	
A	Unanswered
B	Clean Cloth
C	Cotton / Cotton Wool
D	Underwear / Multiple Pairs
E	Washable pad or local pad
F	2+ of above
G	Other

13) Should a girl use soap to clean her private parts?	
A	Unanswered
B	Yes
C	No
D	Other

14) When you have your menstrual period how do you feel?	
A	Unanswered
B	Normal
C	Sickly
D	Emotional, nervous, sexual
E	Other

15) When you have your menstrual period are you nervous around boys?	
A	Unanswered
B	Yes
C	No
D	Other

16) When you have your menstrual period are you nervous around teachers?	
A	Unanswered
B	Yes
C	No
D	Other

17) When you have your menstrual period are you nervous about your clothes?	
A	Unanswered
B	Yes
C	No

18) When you have your menstrual period are you nervous around your family?	
A	Unanswered
B	Yes
C	No
D	Other

19) When you have these feelings what do you do to feel better?	
A	Unanswered
B	Professional / Self treatment
C	Change personal practices
D	Other

20) Do you miss school when you have your menstrual period?	
A	Unanswered
B	Yes
C	No
D	Other

21) How much school do you miss?	
A	Unanswered
B	Nothing
C	Full day or less
D	1+ day
E	Other

22) How much school did you miss during your last menstrual period?	
A	Unanswered
B	Nothing
C	Full day or less
D	1+ day
E	Other

23) Where did you go if not at school or at home?	
A	Unanswered
B	Stay at school or home
C	Community / Clinic
D	Other

24) Did you use a reusable menstrual pad during your last menstrual period?	
A	Unanswered
B	Yes
C	No

25) How do you use it?	
A	Unanswered
B	Complete description
C	Incomplete description
D	Other

26) How long can you use a reusable menstrual pad before changing it?	
A	Unanswered
B	0.5 to 11.5 Hours
C	12 to 24 Hours
D	Other

27) How do you clean it?	
A	Unanswered
B	Complete description
C	Incomplete description
D	Other

28) Can you use a reusable menstrual pad that is wet?	
A	Unanswered
B	Yes
C	No

29) Is it comfortable?	
A	Unanswered
B	Yes
C	No
D	Other

30) Is it a good size?	
A	Unanswered
B	Yes
C	No
D	Other

Appendix 4 – Data

The following data is from the preliminary and post surveys of this research study. Each question has letter answer codes, such as “B”, and descriptions indicating response options for questions, such as “yes.” Participants’ responses were coded and counted. The counts occurred both for the preliminary (pr) and post surveys (po). These counts were for participants overall (O) and for each school-- Amuria (A), Bukedea (B), and Ngora (N).

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
1	Is menstruation normal?								
A	Unanswered	2	0	2	0	0	0	0	0
B	Yes	81	84	52	54	16	17	13	13
C	No	2	1	0	0	2	1	0	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
2	Is it normal to have menstruation, miss, and then menstruate again?								
A	Unanswered	1	1	1	0	0	1	0	0
B	Yes	23	55	13	35	6	10	4	10
C	No	59	28	40	19	11	7	8	2
D	Other	2	1	0	0	1	0	1	1

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
3	What is a safe day?								
A	Unanswered	9	9	7	3	0	5	2	1
B	The egg cannot get fertilized	21	20	18	14	2	3	1	3
C	The egg can get fertilized	1	3	1	3	0	0	0	0
D	Just before/during a period	5	3	1	1	3	2	1	0
E	Just after a period	33	44	19	28	7	7	7	9
F	Other	16	6	8	5	6	1	2	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
4	What is a danger day?								
A	Unanswered	17	14	13	5	0	7	4	2
B	The egg cannot get fertilized	1	2	1	2	0	0	0	0
C	The egg can get fertilized	20	21	15	15	4	3	1	3
D	Just before/during a period	33	39	19	28	7	5	7	6
E	Just after a period	6	5	2	1	3	3	1	1
F	Other	8	4	4	3	4	0	0	1

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
5	What happens to a girl if she abstains from having sex?								
A	Unanswered	2	1	0	1	1	0	1	0
B	Nothing	71	81	48	51	13	18	10	12
C	Other	12	3	6	2	4	0	2	1

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
6	Can a girl get pregnant the first time she has sex?								
A	Unanswered	1	0	0	0	1	0	0	0
B	Yes	47	49	19	28	13	13	5	8
C	No	18	22	11	21	2	1	5	0
D	Other	19	13	14	5	2	3	3	5

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
7	What is climax?								
A	Unanswered	19	17	11	12	3	3	5	2
B	Sexual orgasm	13	34	6	20	5	6	2	8
C	Sexual intercourse	15	16	10	10	3	4	2	2
D	Feelings	11	7	9	5	2	2	0	0
E	Other - Puberty, menstruation	27	11	18	7	5	3	4	1

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
8	What is sex?								
A	Unanswered	4	9	3	3	0	6	1	0
B	Sexual orgasm	22	16	13	11	7	3	2	2
C	Sexual intercourse	33	27	23	18	5	4	5	5
D	Other	26	33	15	22	6	5	5	6

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
9	If a girl's private parts have a rash or smell bad what can she do?								
A	Unanswered	5	0	3	0	2	0	0	0
B	Professional / Self treatment	48	59	27	34	13	12	8	13
C	Change hygienic practices	28	26	21	20	3	6	4	0
D	Other	4	0	3	0	0	0	1	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
10	If a girl has stomach pains what can she do?								
A	Unanswered	6	4	5	2	0	1	1	1
B	Professional / Self treatment	68	70	43	43	15	17	10	10
C	Change personal practices	10	9	5	7	3	0	2	2
D	Other	1	2	1	2	0	0	0	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
11	How long can a girl use one sanitary towel?								
A	Unanswered	1	2	0	2	0	0	1	0
B	0 to 11.5 Hours / Half a day	13	52	2	30	8	14	3	8
C	12 to 24 Hours / A full day	17	19	3	12	6	3	8	4
D	Multiple days / periods	18	5	15	3	3	1	0	1
E	Other	36	7	34	7	1	0	1	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
12	If a girl cannot afford to buy sanitary towels (disposable sanitary towels) what can she use?								
A	Unanswered	4	3	1	1	1	2	2	0
B	Clean Cloth	26	22	18	9	6	9	2	4
C	Cotton / Cotton Wool	12	8	9	6	3	1	0	1
D	Underwear / Multiple Pairs	17	7	7	3	5	2	5	2
E	Washable pad or local pad	8	28	4	21	2	3	2	4
F	2+ of above	17	15	15	12	0	1	2	2
G	Other	1	2	0	2	1	0	0	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
13	Should a girl use soap to clean her private parts?								
A	Unanswered	0	1	0	0	0	0	0	1
B	Yes	34	27	26	22	4	3	4	2
C	No	47	55	26	30	14	15	7	10
D	Other	4	2	2	2	0	0	2	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
14	When you have your menstrual period how do you feel?								
A	Unanswered	6	10	5	7	1	3	0	0
B	Normal	5	47	1	38	4	3	0	6
C	Sickly	34	8	16	3	10	3	8	2
D	Emotional, nervous, sexual	32	13	27	6	0	2	5	5
E	Other	8	7	5	0	3	7	0	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
15	When you have your menstrual period are you nervous around boys?								
A	Unanswered	3	8	3	3	0	5	0	0
B	Yes	71	27	45	12	15	7	11	8
C	No	10	49	6	38	2	6	2	5
D	Other	1	1	0	1	1	0	0	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
16	When you have your menstrual period are you nervous around teachers?								
A	Unanswered	2	5	0	2	1	3	1	0
B	Yes	73	27	49	16	15	6	9	5
C	No	9	52	4	36	2	8	3	8
D	Other	1	1	1	0	0	1	0	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
17	When you have your menstrual period are you nervous about your clothes?								
A	Unanswered	4	7	3	4	1	3	0	0
B	Yes	65	39	44	24	12	7	9	8
C	No	16	39	7	26	5	8	4	5

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
18	When you have your menstrual period are you nervous around your family?								
A	Unanswered	9	8	7	5	1	2	1	1
B	Yes	60	34	44	24	13	6	3	4
C	No	16	38	3	23	4	10	9	5
D	Other	0	4	0	2	0	0	0	2

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
19	When you have these feelings what do you do to feel better?								
A	Unanswered	3	9	0	7	2	2	1	0
B	Professional / Self treatment	3	13	0	5	3	5	0	3
C	Change personal practices	68	47	49	38	9	9	10	8
D	Other	11	8	5	4	4	2	2	2

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
20	Do you miss school when you have your menstrual period?								
A	Unanswered	3	2	2	1	0	1	1	0
B	Yes	31	20	20	10	7	4	4	6
C	No	50	59	32	40	11	12	7	7
D	Other	1	3	0	2	0	1	1	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
21	How much school do you miss?								
A	Unanswered	3	2	0	2	3	0	0	0
B	Nothing	59	64	34	45	14	11	11	8
C	Full day or less	2	11	1	2	1	7	0	2
D	1+ day	0	2	0	1	0	0	0	1
E	Other	21	6	19	4	0	0	2	2

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
22	How much school did you miss during your last menstrual period?								
A	Unanswered	7	12	1	3	2	8	4	1
B	Nothing	42	29	34	16	2	5	6	8
C	Full day or less	19	32	10	24	6	5	3	3
D	1+ day	9	9	1	8	8	0	0	1
E	Other	8	3	8	3	0	0	0	0

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Pr	Po	Pr	Po	Pr	Po	Pr	Po
23	Where did you go if not at school or at home?								
A	Unanswered	36	26	26	16	4	8	6	2
B	Stay at school or home	38	38	25	26	9	2	4	10
C	Community / Clinic	7	10	0	4	4	6	3	0
D	Other	4	11	3	8	1	2	0	1

		O		A		B		N	
		Counts		Counts		Counts		Counts	
		Po		Po		Po		Po	
24	Did you use a reusable menstrual pad during your last menstrual period?								
A	Unanswered	12		11		0		1	
B	Yes	48		37		7		4	
C	No	25		6		11		8	

		O	A	B	N
		Counts	Counts	Counts	Counts
		Po	Po	Po	Po
25	How do you use it?				
A	Unanswered	18	10	7	1
B	Complete description	3	3	0	0
C	Incomplete description	55	34	10	11
D	Other	9	7	1	1

		O	A	B	N
		Counts	Counts	Counts	Counts
		Po	Po	Po	Po
26	How long can you use a reusable menstrual pad before changing it?				
A	Unanswered	2	1	1	0
B	0.5 to 11.5 Hours	68	42	16	10
C	12 to 24 Hours	12	10	1	1
D	Other	3	1	0	2

		O	A	B	N
		Counts	Counts	Counts	Counts
		Po	Po	Po	Po
27	How do you clean it?				
A	Unanswered	4	2	2	0
B	Complete description	63	44	8	11
C	Incomplete description	16	6	8	2
D	Other	1	1	0	0

		O	A	B	N
		Counts	Counts	Counts	Counts
		Po	Po	Po	Po
28	Can you use a reusable menstrual pad that is wet?				
A	Unanswered	5	3	1	1
B	Yes	4	0	1	3
C	No	76	51	16	9

		O	A	B	N
		Counts	Counts	Counts	Counts
		Po	Po	Po	Po
29	Is it comfortable?				
A	Unanswered	4	2	1	1
B	Yes	58	39	10	9
C	No	17	9	5	3
D	Other	6	4	2	0

		O	A	B	N
		Counts	Counts	Counts	Counts
		Po	Po	Po	Po
30	Is it a good size?				
A	Unanswered	5	4	1	0
B	Yes	59	44	6	9
C	No	16	5	7	4
D	Other	5	1	4	0

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