Distribution Agreement

In presenting this thesis or dissertation as a partial fulfillment of the requirements for an advanced degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis or dissertation in whole or in part in all forms of media, now or hereafter known, including display on the world wide web. I understand that I may select some access restrictions as part of the online submission of this thesis or dissertation. I retain all ownership rights to the copyright of the thesis or dissertation. I also retain the right to use in future works (such as articles or books) all or part of this thesis or dissertation.

Signature:

_____ _____

Samantha Chao Date

Predictors of Health Services Utilization in Child and Adolescent Ethiopian Male Sexual Assault Survivors

By

Samantha Chao
MPH

Behavioral Sciences and Health Education

_____

Dawn Comeau, PhD, MPH
Committee Chair

_____

Jennifer Goedken, MD
Committee Member

_____

Kathleen Krause, MSc
Committee Member

_____

Colleen McBride, PhD
Department Chair

Predictors of Health Services Utilization in Child and Adolescent Ethiopian Male Sexual Assault Survivors

By

Samantha Chao

Bachelor of Arts
University of Virginia
2012

Thesis Committee Chair: Dawn Comeau, PhD, MPH

An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Behavioral Sciences and Health Education
2016

Abstract

Predictors of Health Services Utilization in Child and Adolescent Ethiopian Male Sexual Assault Survivors

By Samantha Chao

Background: Sexual violence against children is a global problem that impacts over 150 million children in the world. While rates of sexual violence against children are particularly high in sub-Saharan Africa, there is a dearth of research on the subject. In Ethiopia, sexual violence against male children is particularly understudied due to issues of underreporting, stigmatization, and legal consequences.

Objectives: This study examined descriptive characteristics of pediatric male patients of sexual assault one-stop centers in Hawassa and Adama, Ethiopia. It also explored the differences between child and adolescent male patients. In addition, it explored the predictors of health services utilization of this population by using the Behavioral Theory for Vulnerable Populations.

Methods: A quantitative codebook was created based on national Ethiopian standards of care for sexual assault survivors. Data were collected through a medical chart review, and 83 male patients between the ages of 2 and 19 were identified. Demographics were examined using univariate analyses (mean, standard deviation), and correlations of categorical variables were examined using chi-squared analysis.

Results: The average patient age was 9.58 years, with a standard deviation of 4.06. The only statistically different finding between the child and adolescent groups was in the reporting of extra-genital injury: three children reported extra-genital injury, while no adolescents did ($\chi^2 = 6.60$, $p = 0.04$). None of the population characteristics significantly predicted whether patients would present to clinic within one week of assault; however, the highest correlation for presenting to clinic within a week was the presence of genital or anal injury ($\chi^2 = 5.79$, $p = 0.06$).

Conclusions: The medical charts were missing significant amounts of documentation, which may have contributed to the lack of statistical significance between groups on most variables. The best predictor for whether a male patient would go to a one-stop center clinic and seek care within one week was presence of genital or anal injury. Recommendations for Ethiopian practitioners include providing a medical chart template specific to male patients, utilizing standardized chart templates on every patient, and adding in other demographic and assault characteristic variables that could help predict health services utilization.

.

Predictors of Health Services Utilization in Child and Adolescent Ethiopian Male Sexual Assault Survivors

By

Samantha Chao

Bachelor of Arts
University of Virginia
2012

Thesis Committee Chair: Dawn Comeau, PhD, MPH

A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
in Behavioral Sciences and Health Education
2016

Acknowledgements

First, to my thesis chair, Dr. Dawn Comeau: thank you so much for all of the mentorship you have given me over the past year and a half. I owe you the sincerest debt of gratitude for giving me the opportunity to travel to Ethiopia and have this entire research experience. Thank you for teaching me how to be both relentlessly flexible and endlessly positive. I feel honored to have had the opportunity to work so closely with you.

To Dr. Jennifer Goedken and Katie Krause, thank you for your invaluable guidance throughout this thesis-writing process. Dr. Goedken, thank you for all of the expertise you added to this project, and for forging the connections that allowed us to conduct this research. To Katie, thank you for helping to shape the entire direction of my thesis, from the population to the theory to the analysis.

To my fellow research team, Beryl, Amelia, and Brett: thank you for the countless hours of stressful work you put into collecting data with me, and making my time in Ethiopia unforgettable. You three are some of the most *gobez* and *konjo* people I have ever had the pleasure of working with.

I would like to thank Dr. Dawit Desalegn, Mr. Mekonen, Sister Meskerem, and the rest of our colleagues working with ESOG and the model clinics. I truly appreciate your hospitality and assistance to our team when we were collecting data, and I would also like to thank you for the tremendous work you are doing to help sexual assault survivors.

To the 2014 research team who created the first iteration of the quantitative codebook and conducted the first chart review of the ESOG model clinics, thank you for giving us a strong foundation to build upon. I would also like to thank the Emory Global Health Institute for providing my funding to conduct this research.

Lastly, I would like to thank all of my friends and family for their endless support over the past two years.

Table of Contents

List of Figures

List of Tables

Introduction

Problem Description and Justification

Sexual violence can be defined as "a sexual act committed against someone without that person's freely given consent" (Centers for Disease Control and Prevention, 2015). Sexual violence against children is a global problem that impacts over 150 million children in the world (Veenema et al., 2015). Adverse health outcomes associated with sexual violence in children include sexually transmitted infections (STIs), injuries, mental health issues, and sexual dysfunction (Wang et al., 2015; Haile et al., 2013; Jemal, 2012; Beitchman, 1992). Recently in sub-Saharan Africa, legislative and health care interventions have been promoted to curb this problem (Kilonzo et al., 2009). These medico-legal partnerships are used to enable obtaining justice for survivors of sexual violence, as well as provide health services for them. There is a dearth of research on sexual violence in low-income countries, particularly sub-Saharan African countries, despite evidence of its pervasiveness (Kilonzo et al., 2009). Sexual violence in Ethiopia has been reported by the World Health Organization (WHO) to have a 5% prevalence, but other studies have found sexual violence rates ranging from 8.0%-19.2%, making this issue a current priority (WHO, 2005; Bogale et al., 2004; Worku & Addisie, 2002; Mulu et al., 2015; Bekele et al., 2011; Yigzaw et al., 2004).

Development of ESOG Clinics

In 1992, the Ethiopian Society of Obstetricians and Gynecologists (ESOG) was established to address the issues of maternal mortality and sexual violence. ESOG has worked with the Federal Ministry of Health and other partners to create national standards of care, to expand access to comprehensive emergency obstetric care, and to

improve care for survivors of sexual assault (ESOG, 2015). One of their projects, the Sexual Violence Against Women Project, was funded by the United Nations Population Fund (UNFPA) in 2009 with the objective to "improve the delivery of integrated and quality care for survivors of sexual violence" (ESOG, 2015). The funding for this project covered the development and nationalization of an ESOG training manual on care for all sexual assault survivors, inclusion of gender-based violence in medical school curricula, and training for health care providers on care for survivors of sexual assault (ESOG, 2015). The ESOG training manual was developed based on guidelines from the WHO and the United Nations Children's Fund (UNICEF), and was published in 2009 as the *National Guidelines for the Management of Sexual Assault Survivors*. These guidelines include clinical care, follow-up care, sexually transmitted infection treatment, and legal obligations of the provider (Federal Ministry of Health, 2009). While these guidelines focus on women, care of men and children are also included.

With the UNFPA funding and support from the Royal Dutch Embassy, two model clinics were created at major hospitals based on these ESOG guidelines in 2009. One was created at Hawassa Referral Hospital and the other at Adama Hospital. These two clinics, known herein as the Hawassa Model Clinic and the Adama Model Clinic, were fashioned after the one-stop center model (described below). In 2013, ownership of the Hawassa Model Clinic and Adama Model Clinic was transferred from ESOG to the respective hospitals in order to improve sustainability (Conrad et al., 2015).

One-Stop Center Model

One-stop centers (OSCs) have been growing in popularity around the world, particularly in sub-Saharan Africa, in order to treat survivors and persecute perpetrators

of sexual violence. The comprehensive OSC model includes multi-sectoral case management for survivors, integrating the medical, legal, and psychosocial care of patients into one physical location or referral network (UN Women, 2012). OSCs have been opened in countries such as Kenya, Zambia, and South Africa, and have been shown to increase reporting of incidents of sexual violence. Despite that, underreporting has continued to be a major concern regarding sexual violence, and it has been difficult to calculate an exact prevalence due to this issue (UN Women, 2012). Examples of services that can be provided in OSCs are found in Table 1.

Sector	Service
Medical	Physical examination
	Testing (STI, HIV, pregnancy)
	Prophylaxis
	Treatment
Legal	Forensic documentation
	Statement-taking
	Legal counsel
Psychosocial	Relocation services
	Safe housing
	Counseling
	Community awareness raising

Table 1: OSC Services Provided

The Hawassa Model Clinic and Adama Model Clinic were pilot models, and in 2014, three more Ethiopian model clinics in the OSC format were opened in Jimma, Mekele, and Gondar (Conrad et al., 2015).

Study Purpose

The primary aim of this study was to present the overall descriptive characteristics of pediatric male patients treated at Ethiopian sexual assault one-stop centers in Hawassa and Adama. A secondary aim was to explore the differences in patient care provided at these

clinics, comparing pediatric male survivors who were assaulted during childhood to those who were assaulted during adolescence. A third aim was to explore the predictors of health services utilization of this population by using the Behavioral Theory for Vulnerable Populations.

This study was set within a larger evaluation of the Hawassa Model Clinic and the Adama Model Clinic, which was designed to measure knowledge, attitudes, and practices of medical, legal, and psychosocial staff of the clinics, as well as offer basic descriptors of the overall patient population (Conrad et al., 2015). Descriptive characteristics of the entire patient cohort (male and female) as well as predictors of medical outcome have been extensively studied in this population (Manning-Geist et al., 2016).

Definitions of Terms

"Sexual violence" is defined as occurring "when a perpetrator commits sexual acts without a victim's consent, or when a victim is unable to consent (e.g. due to age, illness) or refuse (e.g. due to physical violence or threats)" (CDC, 2014). In this study, acts of sexual violence will include any unwanted acts such as genital contact or penetration of the survivor's mouth, anus, or vagina. "Sexual violence" and "sexual abuse" will be used interchangeably to describe the overall phenomenon, while "sexual assault" will be used to describe the actual incident a patient has faced. "Rape" will be used to describe specifically sexual assault including penetration.

In this document, "survivor" and "victim" will be used synonymously to mean the person on whom the sexual violence is inflicted, in accordance with the studies in which they are being referenced. Similarly, "perpetrator" and "assailant" will be used interchangeably to refer to the person inflicting the sexual violence on the victim.

"Adolescence" is defined by the WHO and the United Nations (UN) as the period in human growth between childhood and adulthood, spanning from ages 10 to 19 (World Health Organization, 2015; UNICEF, 2011). Participants in this study will be classified as "children" under the age of 10 and "adolescents" between the ages of 10 and 19.

Literature Review

Sexual Abuse and Adverse Health Outcomes

Sexual abuse has a significant impact on global public health due to the physical, mental, and social consequences of the assault on survivors, both male and female (Wang et al., 2015). Negative physical outcomes can happen in both the short and long term, and include physical injuries and STIs such as HIV (Wang et al., 2015). Mental consequences can include depression, post-traumatic stress disorder (PTSD), anxiety, poor self-esteem, behavioral disorders, substance abuse, and suicidal ideation (Haile et al., 2013; Jemal, 2012). For suicidal ideation, there has been shown to be a correlation between levels of suicidality, the number of perpetrators, and presence of physical abuse during the incident of childhood sexual abuse. There is also a heightened risk of sexual dysfunctions emerging in adulthood such as decreased sexual satisfaction as a result of childhood sexual abuse (Beitchman et al., 1992). Being sexually victimized as a child can create a lifelong mental health burden (Veenema et al., 2015).

Socially, survivors have been shown to be at increased risk of isolation, stigmatization, poor work performance, and disturbed interpersonal relationships (Jemal, 2012). Sexual victimization during childhood is also strongly associated with engaging in future high risk behaviors for HIV transmissions, such as substance abuse or having multiple sex partners (Braitstein et al., 2006). Revictimization later in life has been shown to be associated with childhood sexual violence; this may be due to the depressive effect sexual victimization has on the self-esteem of the survivor, leading to a sense of worthlessness or self-blame that contributes to high-risk behaviors associated with revictimization (Beitchman et al., 1992).

The health-related consequences of sexual violence have been shown to be similar across different geographies and cultures. However, there is a dearth of research on the specific subject of child sexual abuse in low and middle-income countries. In a systematic review by Veenema et al. in 2015, it was shown that there was an inadequate representation research on this subject in low and middle-income countries, despite the growing threat of the health problem.

Effects by Abuse-Specific Variables

There are many similarities in health outcomes between male and female survivors of sexual violence. This study will focus particularly on male child and adolescent survivors; however, the effects by abuse-specific variables are referring to findings from both male and female survivors. The unique context of male sexual violence will be addressed below.

Age. Studies on the association between age of onset and severity of outcome have been inconclusive. For example, in 1982, Adams-Tucker found that children who were sexually abused in adolescence received more severe psychiatric diagnoses than children who were abused prior to age 10 (in Beitchman et al., 1991). Similarly, a study by Peters found that adolescent survivors reported more negative changes in behavior than child survivors, and children who experienced abuse prior to puberty had higher rates of abusive behaviors than those who had experience abuse after puberty (1976; de Paul & Domenech, 2000). However, several studies have shown the opposite trend, with those abused in childhood reporting higher frequencies of serious disturbances than those abused in adolescence or adulthood (Beitchman et al., 1991). A contributing factor to this

possible difference in age related outcomes may be related to the type of sexual abuse and the duration of abuse (Beitchman et al., 1991).

Relationship to Offender. There have been conflicting results on the effect of perpetrator relationship on the extent of trauma. In several studies, sexual abuse perpetrated by a family member, particularly by a father figure, has been associated with greater trauma in the survivor (Sirles et al., 1989; Peters, 1976; Beitchman et al., 1991). However, in a study of 2,133 youth who had been sexually or physically abused, victimization by a non-caregiver was associated with higher posttraumatic stress, depression, and dissociation than the levels in those who were abused by a caregiver (Kiser et al., 2014). This finding is possibly explained by underreporting symptoms due to the existing relationship with the caregiver, or developmental factors associated with children not understanding the inappropriateness of a caregiver's behavior (Kiser et al., 2014).

Type of Abuse. In the literature, risk factors associated with more severe outcomes include a longer duration and increased frequency of sexual abuse, and more severe sexual abuse, such as penetration rather than fondling (Russell, 1984 in Conte, 1987). Familial factors can also contribute to more severe traumatic effects, and survivors with family history of unemployment, substance abuse, lack of social support, and negative sibling relationships were shown to have more negative behavioral outcomes (Conte & Schuerman, 1987).

Male Sexual Abuse

In studies comparing adult male and female survivors of sexual violence, the use of force and threats occurred significantly more often in the male population than female

(Pierce & Pierce, 1985 in Beitchman, 1991). Sexually abused boys were also more likely to be physically abused than sexually abused girls (Sansonnet-Hayden et al., 1987 in Beitchman 1991).

Underreporting of Sexual Abuse Among Males

Despite these known risks and consequences, there have been few studies on sexual violence among men and boys. Global studies of male sexual abuse have shown prevalence ranging from 0% to 76%, with North American estimates varying from 4% to 76% (Pereda Beltran et al., 2009; Haile et al., 2013). Comparative studies have found difficulties in calculating international prevalence (Frias & Erviti, 2014). It is possible that male sexual abuse is more underreported than female sexual abuse due to social factors, lower rates of treatment-seeking among males, and lack of treatment options for males. For male survivors who were abused by same-sex assailants, it has been shown that they are less likely to report for fear of being labeled as homosexual (Frias & Erviti, 2014). Sexual abuse may also contribute to a boy's confusion about sexual and gender identity, or to fear that he is more feminine than other boys because of this experience (Diamanduros et al., 2012). Another deterrent to reporting is the fear of boys being blamed for their abuse (Watkins & Bentovim, 1992).

While men were more often the perpetrators of sexual violence, for boys who were abused by women, reporting rates were higher among younger survivors. As males aged, their interpretation of the abuse changed over time, and older males tended to perceive the abuse as a form of culturally accepted sexual initiation rather than a reportable victimization (Frias & Erviti, 2014).

Male Sexual Abuse in Ethiopia

In 1999, there was an African regional office consultative meeting where representatives from 28 African countries came to a consensus that sexual abuse was a serious concern and both boys and girls were experiencing some form of sexual abuse (Garcia Moreno et al., 2006). In Ethiopia, research on male sexual abuse and associated factors has been difficult due to the fear of legal consequences and resulting social stigmatization of reporting. As of 2004, there are laws in place against "crimes against morals and the family" which can result in various fines and imprisonment, depending on the severity of the crimes (Criminal Code of the Federal Democratic Republic of Ethiopia). Punishments for sexual violence by women against men are significantly shorter than those for sexual violence by men against women. For example, rape of a female is punishable with imprisonment from five to ten years, with the possibility of a lengthened stay up to life imprisonment based on injury level, age of the victim, disease transmission, or abduction (Criminal Code, 2004). A woman who compelled a man to have sexual intercourse, however, is punishable with imprisonment not exceeding five years (Criminal Code, 2004).

Stigmatization is also a problem for Ethiopian male survivors of sexual abuse by a male perpetrator, because homosexual acts are illegal in the country (Criminal Code, 2004). While homosexual acts are not the same as sexual abuse or sexual violence, many Ethiopians conflate these two terms culturally. For example, in a 2007 study by the Pew Global Attitudes Project, 97% of Ethiopians surveyed stated that homosexuality should be rejected by society. The 2004 criminal code shows a similar mindset: homosexual acts, regardless of gender, are illegal and punishable with imprisonment.

While Ethiopia's federal constitution has formally granted equal rights to women in the spheres of marriage, property rights, and inheritance, it is still a male-dominated society in practice (Mabsout & van Staveren, 2009). Traditional customs dominate marriage practices, despite the new legal reforms stating otherwise (Fafchamps & Quisumbing, 2010). Men also make up the majority of political representatives and are seen as the authority figures in Ethiopian culture (Bisewar, 2008). Sex is not discussed openly in most Ethiopian cultures; the combination of this with the hegemonic masculinity present in the country leads to decreased public knowledge about the issue of male sexual abuse.

In one study of the prevalence of sexual abuse in male high school students in Addis Ababa, Ethiopia's capital, 4.3% of participants had reported an incident of rape in their lifetime; 68.2% of participants reported being sexually harassed in their lifetime (harassment including unwanted sexual advances, physical acts of assault, and verbal harassment of a sexual nature). However, this study was a cross-sectional survey and the study population was made up of Ethiopian high schoolers who were legal adults of 18 years or older; it was unknown if their reported sexual harassment had happened during childhood, adolescence, or adulthood. A different study in Addis Ababa showed a lifetime prevalence of sexual assault in male "street children" of 28.6% (Tadele, 2009). Tadele's study also reported that physical and mental immaturity of the children, lack of awareness of the existence of sexual abuse, abuse of drugs, and limited legal enforcement were major risk factors that predisposed male street children to becoming victims of sexual abuse (2009). The limited research on male childhood sexual assault in Ethiopia is

focused in Addis Ababa. This study that focuses on male childhood sexual abuse in Adama and Hawassa adds an important perspective to the field.

Theoretical Framework

Pynoos, Steinberg, and Goenjian have developed a developmental conceptual model of traumatic stress in childhood that is characterized by the interrelationship between trauma and childhood development (1996). They proposed that "the critical link between traumatic stress and personality is the formation of trauma-related experiences as they are expressed in the thoughts, emotions, behaviors, and biology of the developing child" (p. 332). In this framework, the experience of traumatic threats is influenced by "subjective appraisals" that vary with the development and maturity level of the child. As a child matures, their degree of reliance on parents and caretakers changes, which can significantly affect the coping mechanisms that a child would use after a traumatic incident.

Adolescence has been shown to be a developmental turning point when gender-role identity and masculinity are formed (Tremblay & Turcotte, 2005). According to Erikson, adolescence is the point at which young people establish their gender role, sexual orientation, body image, and coping style (1972 in Tremblay & Turcotte, 2005). This developmental milestone and the model by Pynoos et al. have structured this study as a comparison between child and adolescent survivors of sexual violence, based on the theoretical differences of trauma and effects of sexual abuse experienced at different ages.

In order to explore the relationship between the characteristics of the patients and their willingness to seek help by utilizing health services, a theoretical framework was

utilized to identify constructs that could help promote understanding of these variables. The Behavioral Model for Vulnerable Populations was presented by Gelberg et al. in 2000, and it is a revised version of the original Behavioral Model, a model used to explain health services. The Behavioral Model for Vulnerable Populations has extra constructs in it to help understand vulnerable populations more fully. This model can be used to identify the challenges faced by vulnerable populations (such as underage male sexual assault survivors) when obtaining necessary health services, which can then be addressed to improve the health status of these populations (Gelberg et al., 2000).

The constructs of the Behavioral Model for Vulnerable Populations are *predisposing*, *enabling*, and *need* components that predict health services utilization, *health utilization* as the behavior being affected, and then *health outcome*. *Predisposing* factors consist of demographic characteristics, social structure, and health beliefs that can incline people to seek health services; *enabling* factors consist of personal/family resources and community resources that can either impede or enable the use of health services; *need* components include both self-perceptions of health conditions and objective evaluated need. These factors can be used in conjunction to predict *health services utilization*, which in this study would be accessing the ESOG model clinics following an incident of sexual violence.

Methods

Study Design

This study was a retrospective chart review of the ESOG model clinics at Hawassa Referral Hospital and Adama Hospital. Patient charts were included from 2010, when the clinics first started seeing patients, until June 2015, when the chart review was conducted. These charts were paper medical records, organized through a physical filing system using shelves housed in the clinics. Some charts included a sexual violence medical chart template created by ESOG for use in these model clinics (Appendix C). These charts were supposed to be used for each patient, but in recent years, a lack of funding has prevented the utilization of these standardized sexual violence medical chart templates in Adama (Conrad et al., 2015). The Emory Institutional Review Board gave expedited approval for this study and granted a complete waiver of HIPAA authorization, as well as a waiver of all elements of informed consent (Appendix D).

2014 Codebook Creation

One team of researchers visited the Hawassa and Adama model clinics in 2014 and conducted exploratory research consisting of a chart review of the charts from 2010 until May 2014 into a Microsoft Excel spreadsheet. The 2014 research team created a quantitative codebook (Appendix A), which had been based on a standardized sexual violence medical chart template created by ESOG for use in these model clinics (Appendix C). The overarching domains included in the ESOG standardized chart and 2014 codebook were: patient demographics; characteristics of patient presentation to clinic; characteristics of

assault; physical findings from physician examination; testing and test results; and treatments and referral provided.

2015 Codebook Update

In 2015, prior to arrival at the Ethiopian model clinics, the current research team clarified the quantitative codebook by ensuring all categories were mutually exclusive and changing all data collected to a numerical format for ease of analysis. Upon arrival at the clinics in June, the 2015 research team further updated the quantitative codebook and added in variables that were not required in the ESOG standardized chart, but were topics that had emerged from the patient chart narratives in several cases, such as kidnapping, penetration location, or number of penetrative assailants (see Appendix B for full updated codebook). Table 2 shows the full list of variables present in each version of the codebook, as well as whether the variables were required per ESOG recommendation.

Table 2: Variables Present in 2014 and 2015 Codebooks

2014 codebook variables	2015 codebook variables	Variable present on ESOG Standardized Template	New variable in 2015 codebook
Demographics			
Chart Number	Chart Number	X	
Medical Record Number	Medical Record Number	X	
Site	Site	X	
Chart Year	Chart Year	X	
ESOG Standardized Chart Template Present	ESOG Standardized Chart Template Present		
Patient Age	Patient Age	X	
Gender	Gender	X	
Region	Region	X	
City	City	X	
Subcity/Kebele	Subcity/Kebele	X	
Occupation	Occupation	X	
Marital status	Marital status	X	
Gravidity (pregnancy)*	Gravidity (pregnancy)*		
Parity*		X	
Abortion*			
Last menstrual period*	Last menstrual period*	X	
Education level	Education level	X	
Previous consensual sexual experience**	Previous consensual sexual experience**	X	
Previous nonconsensual sexual experience	Previous nonconsensual sexual experience	X	
Presentation to clinic			
Caretaker's relationship	Caretaker's relationship	X	
	Secondary caretaker's relationship		X
Time between assault and medical visit	Time between assault and medical visit	X	
Characteristics of assault			
Assailant's relationship	Assailant's relationship	X	
Location of incident	Location of incident	X	
Number of assailants	Number of assailants		
	Number of penetrative assailants		X
Did assailant use condom	Did assailant use condom		
	Penetration type (penile/digital/inanimate)		X
	Location of penetration (on victim's body)		X
	Kidnapped		X
	Kidnapping duration		X
	Means of escape from kidnapping		X
Physical findings from examination			
Labia majora findings*	Labia majora findings*	X	
Labia minora findings*	Labia minora findings*	X	
Clitoral findings*	Clitoral findings*	X	

Labia minora findings*	Labia minora findings*	X
Vestibular findings*	Vestibular findings*	X
Hymen findings*	Hymen findings*	X
Perineal findings	Perineal findings	X
Anal findings	Anal findings	X
Extra-genital findings	Extra-genital findings	X
Location of extra-genital findings	Location of extra-genital findings	X
Testing and test results		
Wet mount testing*	Wet mount testing*	X
Wet mount result*	Wet mount result*	X
Chlamydia testing	Chlamydia testing	X
Chlamydia result	Chlamydia result	X
Cervical culture testing*	Cervical culture testing*	X
Cervical culture result*	Cervical culture result*	X
Gram stain testing	Gram stain testing	X
Gram stain result	Gram stain result	X
VDRL testing	VDRL testing	X
VDRL result	VDRL result	X
HIV testing	HIV testing	X
HIV result	HIV result	X
Hepatitis B testing	Hepatitis B testing	X
Hepatitis B result	Hepatitis B result	X
Pregnancy testing*	Pregnancy testing*	X
Pregnancy test result*	Pregnancy test result*	X
Treatments given		
Wounds treated	Wounds treated	X
Emergency contraceptive given*	Emergency contraceptive given*	X
STI PEP given	STI PEP given	X
Hepatitis B vaccine administered	Hepatitis B vaccine administered	X
Tetanus vaccine administered	Tetanus vaccine administered	X
Psychosocial support given	Psychosocial support given	X
Abortion services provided*	Abortion services provided*	X
Other care given	Other care given	X
Patient disease/pregnancy status		
STI transmission	STI transmission	X
Pregnancy*	Pregnancy*	X
HIV status	HIV status	X
Referrals		
Referral for psychotherapy provided	Referral for psychotherapy provided	X
Other referral provided	Other referral provided	X
Follow up appointment given	Follow up appointment given	X
Returned for follow up care	Returned for follow up care	X
Number of return visits	Number of return visits	X
Legal action referral given	Legal action referral given	X

*Not applicable to male children
**Based on age of consent, most patients would not have been able to legally consent to previous sexual acts.

In addition to introducing more variables, the 2015 team also clarified codes and definitions for certain existing variables: for example, in the variable measuring type of STI post-exposure prophylaxis, the category of "antibiotics" was clarified to include only doxycycline, metronidazole, erythromycin, and ceftriaxone; in other words, antibiotic that are used to treat STIs at that site. This was done to avoid including antibiotic treatment that was for non-STI related conditions of that survivor.

Data Extraction and Coding

Data extraction and coding happened simultaneously. When an ESOG standardized chart was present, each ESOG-recommended variable was clearly delineated in the chart. The researchers would extract data by reading the paper medical chart, refer to a copy of the quantitative codebook to find the appropriate code for each observation, and record the appropriate code in a Microsoft Excel spreadsheet. When an ESOG standardized chart was not present, the patient chart consisted of a lined sheet of paper with a narrative of the history, physical exam, and/or treatment; in these cases, the researcher would read the chart and interpret from the narrative which variables had been recorded, but the same coding process was used for patient charts that did not have an ESOG standardized chart.

Upon arrival at the model clinics, the 2015 research team extracted and coded data from all of the charts from June 2014 to June 2015, which had never been coded by any previous team. It was during this time that the 2015 quantitative codebook was updated and clarified. After clarification of the codebook and addition of new variables, the 2015 research team reviewed the previously coded charts from 2009 to 2014 and recoded them to include the newly added variables. Each researcher had another researcher double-code the same chart during the first week of chart review, and any discrepancies in codes were

discussed until a consensus was reached and then added to the codebook to reduce future ambiguity.

Study Population

For this study, inclusion criteria included patient gender being documented as male and patient age being documented as 2 to 19 years old. There were 3,035 total charts identified, with 2,947 of them being female or unknown gender, leaving 88 male patient charts. Clinic protocol dictated that patients under 2 years old should be seen at the hospital's overall outpatient department rather than at the model clinic, making the under-2 patient charts ineligible for analysis, which eliminated two more patient charts, leaving 86 male charts over the age of 2. Patients who were 20 years and older were no longer categorized as "adolescents" according to the United Nations, (defined as individuals 10 to 19 years old) and were therefore excluded in this study (UNICEF, 2011). Patient charts missing either gender or age were also excluded from this study. After exclusion criteria were applied, 83 patient charts remained for analysis. These charts were split into children 2 to 9 years old (n = 37) and adolescents 10 to 19 years old (n= 46).

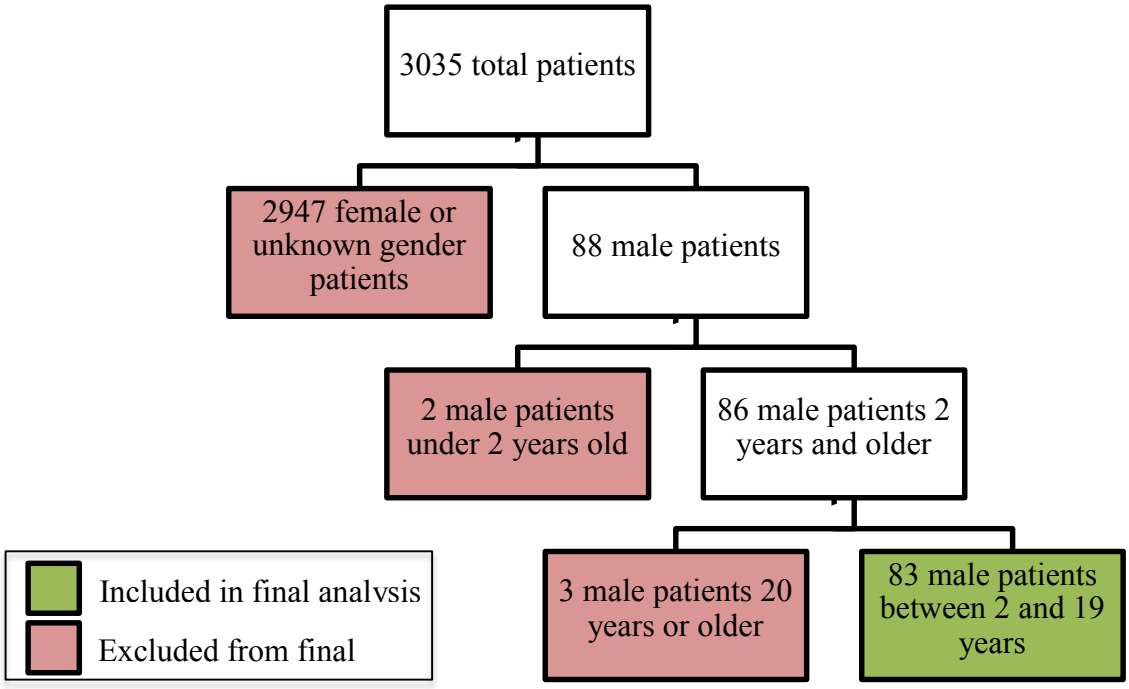


Figure 1: Study Participants Flow Chart

Measures

Certain variables collected by the model clinics were only relevant for female clinic patients and were eliminated for the analysis of this study: gravidity, parity, abortion, last menstrual period, labia majora findings, labia minora findings, clitoral findings, vestibular findings, hymen findings, wet mount testing, cervical culture testing, pregnancy testing, and emergency contraceptive administration.

The demographic variables that were collected and later included in the analysis were: the year the patient visited the clinic (dates had to be translated from Ethiopian calendar to Gregorian calendar), age, gender, educational status, and caretaker relationship (defined as the person accompanying the patient to the clinic). Variables such as previous

sexual experience, occupation, and marital status were excluded because all data points were missing because those variables were not applicable to the study population.

The assault descriptive variables included in analysis were: relationship of the assailant to the survivor, location of incident, time between incident and presentation at clinic, number of assailants (which included both penetrating assailants and those who participated in non-penetrative sexual violence), and the type of penetration (penile, digital, or inanimate object).

Variables related to physical findings for male patients consisted of documented injuries in the perineal, anal, or extra-genital areas (outside of genital area). Documentation was also evaluated by calculating the number of patients who had any evidence of a physical examination being completed in their chart, which included both positive and negative injury result findings.

Medical testing and patient care are measures of the treatment patients received, which could impact the outcomes that patients showed. Medical test variables for male patients included whether a test was completed and whether the test result was positive or negative for the following tests: venereal disease research laboratory (VDRL) test as a screen for syphilis, rapid HIV test, and hepatitis B test. Patient care variables included whether wounds were treated, whether STI/HIV post-exposure prophylaxis was given, whether hepatitis or tetanus vaccines were administered, whether psychological support was given, and whether referrals for psychotherapy or other care were given. No patient names or specific identifying information were collected during this process.

In order to predict clinic utilization, the Behavioral Model for Vulnerable Populations was applied. Population characteristics, which consist of the *predisposing*, *enabling*, and *need* domains, "predict personal health practices, including the use of health services" (Gelberg et al., 2000). Table 3 shows the variables from this current data set organized by the components of this model.

Table 3: Variables Organized by Constructs of the Behavioral Model for Vulnerable Populations

Population Characteristics "The *Predisposing*, *Enabling*, and *Need* components of this model predict personal health practices, including the use of health services."				
Predisposing	**Enabling**	**Need**	**Health Behavior**	**Outcomes**
"The *Predisposing Traditiona*l domain includes demographic characteristics, such as age, gender, and marital status; health beliefs; and social structure. The latter includes social structure characteristics such as ethnicity, education, employment, and family size. The *Predisposing Vulnerable domain* includes social structure characteristics, such as acculturation, immigration status, and literacy; childhood characteristics (e.g. foster care, group home placement, abuse and neglect history, and parental illness); residential history (dwelling or lack thereof); living conditions (e.g. running water, sewers, heat and air conditioning, electricity, lead paint, and unsafe structures); mobility (moves between communities and dwellings); criminal behavior and prison history; victimization; mental illness; psychological resources (e.g. mastery, coping, self-esteem, cognitive ability, developmental delay); and substance abuse."	"The *Enabling Traditional domain* includes personal/family resources, such as regular source of care, insurance status, and income. Community resources include residence; region; and health services resources, such as volume (physician-population ratio, hospital-bed-population ratio), distribution, financing, price, entry, structure, and process of care. The *Enabling Vulnerable domain* includes personal/family resources, such as receipt of public benefits, competing needs, and availability and use of information sources. The community resources construct includes community crime rates and the availability of social services."	"The *Need Traditional domain* includes self-perceptions (perceived need) and objective evaluations (evaluated need) of general population health conditions. The *Need vulnerable domain* includes perceptions and evaluated need regarding conditions of special relevance to vulnerable populations, such as tuberculosis, sexually transmitted diseases, premature and low-birthweight infants, and acquired immunodeficiency syndrome (AIDS). When predicting the use of mental health or substance abuse services and related outcomes, mental illness and substance abuse would also be in this domain, rather than in the predisposing domain. Further, a clinician's evaluation of patients may be affected by the patients' vulnerable status. Similarly, patients' perceptions of their health may be related to their vulnerable status."	"The *Personal Health Practices Traditional domain* includes diet, exercise, self-care, tobacco use, and adherence to care. This domain also includes the use of health services. The *Personal Health Practices Vulnerable domain* includes food sources and hygiene and unsafe sexual behaviors."	"The *Outcomes domain* transcends the traditional and vulnerable domains and includes perceived and evaluated health status and satisfaction with care."
Variables from current data set in each domain				
Predisposing	**Enabling**	**Need**	**Health Behavior**	**Outcomes**
Age Chart year Education level	Caretaker relationship Location of assault Relationship of assailant	Type of penetration Number of assailants Injury results	Time to present to clinic	Follow-up care

Age, chart year, and education level were chosen as Predisposing factors because they can be classified as the demographic characteristics defined by Gelberg et al. (2000).There was reason to believe that the number of patients may have changed over time due to advertising of services at the Adama clinic in the later years. In the Enabling factors, caretaker relationship falls under the category of personal/family resources, and the location of assault and relationship of assailant fit into this construct because these characteristics can determine whether a patient is able to seek care in a timely manner. For example, the relationship of the assailant may determine the relationship of the caretaker if the assailant was a parent or guardian. In the Need construct, type of penetration, number of assailants, and injury results can all lead to a change in the patient's perception of whether health services are necessary. These combined variables make up the predictors of health service utilization.

The health behavior being examined in this study was presentation to clinic within one week of assault. All of the charts reviewed were from patients who had gone to a model clinic and thus utilized health services, so the timeliness of their visit was used as a proxy for the health behavior. This may also reflect the behavior or decision making of the parents/caretakers rather than the patients. There are certain treatments that are recommended by ESOG to be given within a certain time period of the assault, such as HIV post-exposure prophylaxis (PEP), which should ideally be given in the first few days following the assault (Federal Ministry of Health, 2009). Data for this variable had been collected using categorical variables (within 24 hours, 1 day – 3 days, 4 days – 1 week, 8 days – 30 days, 1 – 3 months, or greater than 3 months), and data were distributed equally around the one week time point, which is why that time point was chosen.

Long-term outcome data was not available for this population. Follow-up care, which was collected by the number of return visits to the clinic, would have been a proxy for patient outcome. However, the data set was missing follow up information for all of the male patients, so the outcome component of the Behavioral Model for Vulnerable Populations was not predicted using the current data.

Data Analysis

Preliminary data cleaning was conducted in Microsoft Excel to merge data sets between clinics and to exclude patients who were ineligible for analysis. All subsequent analysis was conducted in SAS software (Version 9.2; SAS Institute; Cary, NC). Statistical significance was assessed at the $\alpha = 0.05$ level. Mean and standard deviation were calculated for age, the only continuous demographic variables. Frequencies for categorical variables about the assault, physical findings, testing, and treatment were calculated, and Pearson chi-squared tests were run to determine differences between various groups (child patients versus adolescent patients, patients presenting within one week versus presenting after one week).

Missing data were not assumed to be randomly distributed, so they were reported in their own category for each analysis. This was also done to display the large percentage of missing data points for each variable. Missing data categories were not included in the results of the chi-square testing; however, chi-squared analyses including the missing data were run to see if it would have caused a change in statistical significance, and there were no changes in significance.

Results

There were 83 participants in the present study. The mean age was 9.58 years old, with a standard deviation of 4.06 years. The majority of patients were seen at the Adama model clinic (86.7%). About a quarter of patients had attended some elementary school (25.3%), with 3.61% reporting illiteracy and 71.1% missing education level from their charts (see Table 4 for more demographic information).

There was a significant level of missing data from these patient charts. There were no charts that were missing gender or age, because these were criteria to determine eligibility in the study, and there were no charts that were missing clinic location or year. However, every other variable had missing data points. Under the domain of *patient presentation to clinic*, caretaker relationship was missing from 71.1% of charts, and the time to present to clinic was missing from 22.9% of charts (see Table 5). In the domain of *assault characteristics*, assault location was missing from 74.4% of charts, assailant relationship was missing from 51.8% of charts, and penetration type was missing from 72.3% of charts (see Table 6). *Injury findings* were missing from 42.2% of charts and disease testing was missing from 6.02% of charts (see Table 7). Record of *patient treatments* including administration of Hepatitis B vaccine, administration of tetanus vaccine, provision of psychosocial support, and referral to psychotherapy were all missing from over 75% of the charts (Table 8).

The overall characteristics of the patients and their assaults were calculated and then stratified by age group (see Tables 4-8). The primary caretaker who accompanied the patient to the clinic was usually a parent (father = 50%, mother = 37.5%), and the

majority of patients presented to the clinic within one week of their assault (54.9%), though none of them presented to the clinic within 24 hours of their assault. The most common assailant relationship was neighbor (35%), and the most common location was the assailant's home (42.9%). All charts with data on penetration type showed penile penetration (no digital or inanimate object penetration reported). Four patients (4.8%) reported multiple assailants, all of whom were in the adolescent age group (see Table 6).

Evidence of physical examination by a physician was present in slightly over half (57.8%) of the charts. About one third (31.3%) of all patients suffered from genital or anal injuries. Injuries to other parts of the body were less common, with only 3 patient charts recording extra-genital injury, and location of extra-genital injury was not recorded. Sexually transmitted disease test results were the best-documented variable on the patient charts, with 94% of charts including at least one STD test recorded (tests included gram stain, hepatitis B, syphilis, HIV, and chlamydia). Two patients (2.8%) were positive for HIV and 1 patient (1.7%) was positive for Hepatitis B, while none were positive for syphilis, gonorrhea, or chlamydia (see Table 7).

While patient treatments were poorly recorded, 44.6% of patients were documented as being provided with HIV or STI post-exposure prophylaxis such as antibiotics, Atripla (Efavirenz, Emtricitabine, and Tenofovir), or other antiretroviral drugs. Eighteen patients (21.7%) were provided with psychological support, and four patients (4.8%) were given referrals for psychotherapy elsewhere; however, none of the other ESOG-recommended treatments were recorded as being given to any patient (wound treatment, hepatitis B vaccine, or tetanus vaccine) (Table 8).

There was not a statistically significant difference between the children and adolescents in terms of patient demographics, characteristics of presentation to clinic, characteristics of assault, or patient treatments given. The only statistically significant difference was in the reporting of extra-genital injury: three patients had extra-genital injuries during their physical examination, and all of them were children. Extra-genital injury finding data was missing for all adolescent patients, which could mean either lack of injury or lack of documentation ($\chi^2 = 6.60$, $p = 0.04$) (Table 7).

While not statistically significant at the $\alpha = 0.05$ level, there were some findings that showed differences between children and adolescents. For the documented caretaker accompanying the patient to the clinic, the children were exclusively accompanied by parents, while adolescents were accompanied by a mix of parents, police, or "other" caretakers (Table 5). Two adolescents (4.4% out of all adolescents) reported being assaulted by someone they considered a friend, while no children reported friend as an assailant relationship. However, three children (7.9% out of all children) reported being assaulted by authority figures such as police or teachers, while no adolescent reported those assailant relationships ($\chi^2 = 11.28$, $p = 0.13$ for assailant relationship between age groups). The only patients to report being assaulted by multiple assailants were adolescents ($n = 4$, 8.89% out of all adolescents, $\chi^2 = 4.15$, $p = 0.13$).

To predict prompt health services utilization (defined as patient presentation to model clinic within one week of sexual assault), data was stratified by time to presentation to clinic, and analyzed according to the variables classified in the Predisposing, Enabling, and Need domains of the Behavioral Model for Vulnerable Populations (see Table 9). None of the Predisposing, Enabling, or Need population

characteristics significantly predicted whether patients would present to the clinic within one week of their assault. The largest difference between groups was found in the Need domain: 16 (41.0%) of those who presented within one week had genital or anal injuries, whereas only 5 (20.0%) of those who presented after one week had genital or anal injuries ($\chi^2 = 5.79$, $p = 0.06$). None of the other variables (age, year of patient chart, education level, caretaker relationship, assault location, assailant relationship, penetration type, number of assailants, injury findings, extra-genital injuries) were statistically significant predictors of health services utilization.

Table 4: Patient Demographics

	Children (2-9 years) (N = 38)	**Adolescents (10-19 years)** (N = 45)	**Overall (2-19 years)** (N = 83)	**χ^{2}***	**p-value**
Age in years, *M (SD)*	5.8 (2.1)	12.8 (2.1)	9.6 (4.1)		
Location, *n (%)*				0.0	0.98
Hawassa	5 (13.2)	6 (13.3)	11 (13.3)		
Adama	33 (86.8)	39 (86.7)	72 (86.7)		
Year of patient chart, *n (%)*				3.44	0.63
2010	1 (2.6)	3 (6.7)	4 (4.8)		
2011	6 (15.8)	4 (8.9)	10(12.1)		
2012	9 (23.7)	7 (15.6)	16 (19.3		
2013	4 (10.5)	3 (6.7)	7 (8.4)		
2014	13 (34.2)	21 (46.7)	34 (41.0)		
2015	5 (13.2)	7 (15.6)	12 (14.5)		
Education, *n (%)*				1.55	0.46
Illiterate/no school	1 (2.6)	2 (4.4)	3 (3.6)		
Attended any elementary school (up to 8th grade)	12 (31.6)	9 (20.0)	21 (25.3)		
Education missing	25 (65.8)	34 (75.6)	59 (71.1)		

*Comparing data between children and adolescents

Table 5: Characteristics of Patient Presentation to Clinic

	Children (2-9 years) (N = 38)	**Adolescents (10-19 years)** (N = 45)	**Overall (2-19 years)** (N = 83)	**χ^{2*}**	**p-value**
Caretaker relationship, *n (%)*				5.60	0.13
Father	7 (18.4)	5 (11.1)	12 (14.5)		
Mother	7 (18.4)	2 (4.4)	9 (10.8)		
Police	0 (0.0)	1 (2.2)	1 (1.2)		
Other	0 (0.0)	2 (4.4)	2 (2.4)		
Missing	24 (63.2)	35 (77.8)	59 (71.1)		
Time to present to clinic, *n (%)*				2.73	0.60
< 24 hours	0 (0.0)	0 (0.0)	0 (0.0)		
1 day – 3 days	5 (13.2)	9 (20.0)	14 (16.9)		
4 days – 7 days	14 (36.8)	11 (24.4)	25 (30.1)		
8 days - 30 days	9 (23.7)	12 (26.7)	21 (25.3)		
30 days - 90 days	0 (0.0)	1 (2.2)	1 (1.2)		
≥ 91 days	1 (2.6)	2 (4.4)	3 (3.6)		
Missing	9 (23.7)	10 (22.2)	19 (22.9)		

*Comparing data between children and adolescents

Table 6: Characteristics of Assault

	Children (2-9 years) (N = 38)	**Adolescents (10-19 years)** (N = 45)	**Overall (2-19 years)** (N = 83)	χ^{2}*	**p-value**
Assault location, *n (%)*				3.76	0.58
Survivor's home	2 (5.3)	2 (4.4)	4 (4.8)		
Assailant's home	5 (13.2)	4 (8.9)	9 (10.8)		
Outdoor location	2 (5.3)	2 (4.4)	4 (4.8)		
Hotel	0 (0.0)	2 (4.4)	2 (2.4)		
Other	0 (0.0)	2 (4.4)	2 (2.4)		
Missing	29 (76.3)	33 (73.3)	62 (74.4)		
Assailant relationship, *n (%)*				11.28	0.13
Neighbor	10 (26.3)	4 (8.9)	14 (16.9)		
Stranger	3 (7.9)	5 (11.1)	8 (9.6)		
Friend	0 (0.0)	2 (4.4)	2 (2.4)		
Teacher	2 (5.3)	0 (0.0)	2 (2.4)		
Police	1 (2.6)	0 (0.0)	1 (1.2)		
Other	6 (15.8)	7 (15.6)	13 (1.71)		
Missing	16 (42.1)	27 (60)	43 (51.8)		
Penetration type, *n (%)***				1.14	0.29
No penetration	1 (2.6)	0 (0.0)	1 (1.2)		
Penile	10 (26.3)	12 (26.7)	22 (26.5)		
Missing	27 (71.1)	33 (73.3)	60 (72.3)		
Multiple assailants, *n (%)***				4.15	0.13
Single assailant	29 (76.3)	26 (57.8)	55 (66.3)		
Multiple assailants	0 (0.0)	4 (8.9)	4 (4.8)		
Missing	9 (23.4)	15 (33.3)	24 (28.9)		

*Comparing data between children and adolescents
**Variable not required for collection by ESOG standardized template

Table 7: Physical Findings and Test Results from Physician Examination

	Children (2-9 years) (N = 38)	**Adolescents (10-19 years)** (N = 45)	**Overall (2-19 years)** (N = 83)	χ^{2*}	**p-value**
Evidence of physical exam recorded in chart, *n (%)*				0.00	0.99
Present	22 (57.9)	26 (57.8)	48 (57.8)		
Missing	16 (42.1)	19 (42.2)	35 (42.2)		
Genital/anal injury results, *n (%)*				0.13	0.72
Positive	11 (52.4)	15 (57.7)	26 (31.3)		
Negative	10 (26.3)	11 (24.4)	21 (25.3)		
Missing	17 (44.7)	19 (42.2)	36 (43.4)		
Other areas of body injury results, *n (%)*				6.60	0.04
Positive	3 (13.6)	0 (0.0)	3 (6.3)		
Negative	2 (5.26)	0 (0.0)	2 (4.2)		
Missing	33 (86.8)	45 (100)	43 (89.6)		
Gram stain (gonorrhea) test results, *n (%)*				N/A	N/A
Positive	0 (0.0)	0 (0.0)	0 (0.0)		
Negative	0 (0.0)	0 (0.0)	0 (0.0)		
Missing	38 (100)	45 (100)	83 (100)		
Hepatitis B test results, *n (%)*				1.16	0.28
Positive	1 (2.6)	0 (0.0)	1 (1.2)		
Negative	27 (71.1)	32 (71.1)	59 (71.1)		
Missing	10 (26.3)	13 (28.9)	23 (27.7)		
Syphilis test results, *n (%)*				N/A	N/A
Positive	0 (0.0)	0 (0.0)	0 (0.0)		
Negative	30 (79.0)	32 (71.1)	62 (74.7)		
Missing	8 (21.1)	13 (28.9)	21 (25.3)		
HIV test results, *n (%)*				2.92	0.23
Positive	2 (5.3)	0 (0.0)	2 (2.4)		
Negative	22 (57.9)	24 (53.3)	46 (55.4)		
Missing	14 (36.8)	21 (46.7)	35 (42.2)		
Chlamydia test results, *n (%)*				N/A	N/A
Positive	0 (0.0)	0 (0.0)	0 (0.0)		
Negative	0 (0.0)	0 (0.0)	0 (0.0)		
Missing	38 (100)	45 (100)	83 (100)		
Any STI testing recorded in chart, *n (%)*				0.07	0.79
Present	36 (94.7)	42 (93.3)	78 (94.0)		
Missing	2 (5.3)	3 (6.7)	5 (6.0)		

*Comparing data between children and adolescents

Table 8: Record of Patient Treatments Given Per ESOG Guidelines

	Children (2-9 years) (N = 38)	**Adolescents (10-19 years)** (N = 45)	**Overall (2-19 years)** (N = 83)	**χ^{2}***	**p-value**
Wounds treated				0.87	0.35
Yes	0 (0.0)	0 (0.0)	0 (0.0)		
No	9 (23.7)	7 (15.6)	16 (19.3)		
Missing	29 (76.3)	38 (84.4)	67 (80.7)		
HIV/STI PEP given				0.75	0.39
Yes	16 (42.1)	21 (46.7)	37 (44.6)		
No	0 (0.0)	1 (2.2)	1 (1.2)		
Missing	22 (57.9)	23 (51.1)	45 (54.2)		
Hepatitis B vaccine administered				0.87	0.35
Yes	0 (0.0)	0 (0.0)	0 (0.0)		
No	9 (23.7)	7 (15.6)	16 (19.3)		
Missing	29 (76.3)	38 (84.4)	67 (80.7)		
Tetanus vaccine administered				0.87	0.35
Yes	0 (0.0)	0 (0.0)	0 (0.0)		
No	9 (23.7)	7 (15.6)	16 (19.3)		
Missing	29 (76.3)	38 (84.4)	67 (80.7)		
Psychological support provided				0.16	0.68
Yes	9 (23.7)	9 (20.0)	18 (21.7)		
No	0 (0.0)	0 (0.0)	0 (0.0)		
Missing	29 (76.3)	36 (80.0)	65 (78.3)		
Referral for psychotherapy given				1.48	0.48
Yes	1 (2.6)	3 (6.7)	4 (4.8)		
No	7 (18.4)	5 (11.1)	12 (14.5)		
Missing	30 (79.0)	3 (6.7)	67 (80.7)		

*Chi-square conducted between children and adolescents

Table 9: Time to Presentation to Clinic Based on Behavioral Model for Vulnerable Population Constructs

	≤ 7 days (N = 39)	**> 7 days** (N = 25)	**χ^2***	**p-value**
Age, *n (%)*			0.47	0.49
Child	19 (48.7)	10 (40.0)		
Adolescent	20 (51.3)	15 (60.0)		
Year of patient chart, *n (%)*			3.52	0.62
2010	3 (7.7)	0 (0.0)		
2011	7 (18.0)	3 (12.0)		
2012	7 (18.0)	5 (20.0)		
2013	4 (10.3)	2 (8.0)		
2014	13 (33.3)	9 (36.0)		
2015	5 (12.8)	6 (24.0)		
Education, *n (%)*			2.51	0.28
Illiterate/no school	1 (2.6)	2 (8.0)		
Attended any elementary school	14 (35.9)	5 (20.0)		
Missing	24 (61.5)	18 (72.0)		
Caretaker relationship, *n (%)*			0.53	0.77
Parent	14 (35.9)	7 (28.0)		
Non-parent	2 (5.1)	1 (4.0)		
Missing	23 (59.0)	17 (68.0)		
Assault location, *n (%)*			4.9	0.56
Survivor's home	2 (5.1)	1 (4.0)		
Assailant's home	6 (15.4)	2 (8.0)		
Outdoor location	1 (2.6)	3 (12.0)		
Hotel	1 (2.6)	0 (0.0)		
Other	1 (2.6)	0 (0.0)		
Missing	27 (69.2)	19 (76.0)		
Assailant relationship, *n (%)*			2.56	0.46
Known assailant	5 (12.8)	5 (20.0)		
Unknown assailant	10 (25.6)	1 (4.0)		
Other	4 (10.3)	5 (20.0)		
Missing	20 (51.3)	14 (56.0)		
Penetration type, *n (%)*			1.61	0.45
No penetration	1 (2.6)	0 (0.0)		
Penile	8 (20.5)	8 (32.0)		
Missing	30 (76.9)	17 (68.0)		
Multiple assailants, *n (%)*			1.07	0.59
Single assailant	27 (69.2)	17 (68.0)		
Multiple assailants	1 (2.6)	2 (8.0)		
Missing	11 (28.2)	6 (24.0)		
Evidence of physical exam recorded in chart, *n (%)*			0.01	0.94
Present	23 (59.0)	15 (60.0)		
Missing	16 (41.0)	10 (40.0)		
Genital/anal injury results, *n (%)*			5.79	0.06
Positive	16 (41.0)	5 (20.0)		
Negative	6 (15.4)	10 (40.0)		
Missing	17 (43.6)	10 (40.0)		
Other areas of body injury results, *n (%)*			0.70	0.70
Positive	2 (5.1)	1 (4.0)		
Negative	1 (2.6)	0 (0.0)		
Missing	36 (92.3)	24 (96.0)		

*Chi-square conducted between patients who presented to clinic within 7 days of assault and those who presented after 7 days

Discussion

Findings

This study examined the characteristics of a population of male patients under the age of 19 who visited two ESOG model clinics for sexual assault. Overall, the majority of patients were from Adama, which could be attributed to the fact that the Adama model clinic had more staff members dedicated exclusively to the model clinic without having to spend time at other departments of the hospital. An Adama model clinic staff member had also reported that they had been advertising services for male patients, while the Hawassa clinic did not report any comparable advertising. The majority of patients came to the clinics in 2014 or later, which could be attributed to clinic growth and the increased publicity. All of the patients who had their education listed in the charts were either illiterate or had attended some form of elementary school (up to eighth grade). There were no patients who had gone through high school or above, which makes sense with the young population and the fact that 77% of Ethiopian youth ages 15-24 are illiterate or have not finished primary school (Education Policy and Data Center, 2014).

A secondary aim of this study was to examine differences in patient presentation and patient care between children and adolescents. The only statistically significant difference between child and adolescent patients was the reporting of extra-genital injuries. However, the large proportion of missing data may have contributed to the lack of statistical significance between groups on most variables: more than half of the variables analyzed were missing over 50% of data points, making it difficult to draw conclusions about actual differences.

By using the Behavioral Model for Vulnerable Populations to predict health services utilization, the best predictor for whether a male patient would go to a model clinic and seek health care (or be taken to the clinic by a caretaker) within one week was presence of genital or anal injury. While there is a dearth of research on predictors of health services utilization post-assault in this male population, this finding correlates with studies stating victims are more likely to seek medical care if their rape involved threats or injury (Zinzow et al., 2012). According to Resnick et al., another predictor of seeking medical care is experiencing a rape consistent with "stereotypic rape scenarios" such as having the sexual assault be perpetrated by a stranger (2012). However, the findings from the current study did not show any statistical significance between the time to presentation to clinic and whether the assailant was known or unknown.

Limitations

This study has several limitations. First, there was a significant amount of missing data in every medical chart, and the missing data could not be assumed to be at random, which could skew the results of the statistical analyses. The statistical findings about differences in the two populations would likely change if the amount of missing data were lowered, and more data would give a more accurate depiction of factors associated with service utilization. The only way to ameliorate this issue of missing data in a future analysis would be to collect a more complete data set by improving the documentation in the ESOG model clinic medical charts.

Also, due to the small sample size of the study, it is difficult to distinguish true differences from random variation. Increasing the sample size would allow for greater

power to detect differences in the various groups, although a larger sample size would mean a higher number of assaults or higher reporting of sexual assaults. This problem of sample size is compounded by the high level of missing data, which further detracts from the sample used in analysis.

During the data cleaning process, it was shown that there were implausible values for several variables, and it was unknown whether those values were due to a coding error by the researchers, a charting error by the physician, or another reason. For example, several male patients were shown as having negative results after a hymen exam, which should have been an inapplicable category due to the patient gender. These implausible values were in female-specific variables that were excluded from analysis, but they still demonstrate the errors intrinsic to this data set. In order to change this, providers should be trained on proper documentation, including the importance of recording of when recommended treatments and testing were not provided, rather than just documenting what deviates from the norm. For example, explicit categories such as "yes," "no," and "not applicable" could be given instead of open-ended questions, which would take away the ambiguity of whether missing data related to a negative result or lack of documentation.

The process of extracting the data from the patient charts depended heavily on the handwriting of the physicians. There is also the possibility of misinterpretation from the medical charts: documentation was required to be done in English, which was not the first language of the practitioners, leading to confusion with phrases such as "beaten" and "bitten" being used interchangeably. Specific details about the sexual assault or rape were missing – some handwritten charts used the word "raped" to describe what happened to a

male patient without clarifying the gender of the perpetrator, making it difficult or impossible to distinguish between male-on-male rape from female-on-male rape, which can lead to differences in the care necessary. This could explain some of the missing data, with the providers being deterred from proper documentation due to the language barrier of English documentation.

Some of the variables had been operationalized by the previous 2014 research team, and thus were not coded in the most precise manner. For example, the variable measuring time between assault and presentation to clinic had been operationalized into six discrete categories rather than being coded as a continuous variable (number of days). This may have been because the medical charts sometimes gave an approximate date or a range of time, making it difficult to quantify into a continuous variable. However, this limited the types of analyses that could be conducted using this data. Another problem with data operationalization was that the location of the incident was selected on ESOG standardized patient charts as being in the survivor's home, the perpetrator's home, school, "bush" (later reclassified as "rural outdoor location"), or other. For the incidents when the survivor's home was the same as the perpetrator's home, there was no distinction, and there was no stated protocol about which location to choose in that case, which could have confounded analyses about location.

Ethiopia is a culturally diverse country, consisting of nine regions (Afar, Amhara, Benishangul-Gumuz, Gambela, Harari, Oromia, Somali, SNNPR, and Tigray) and two administrative cities (Addis Ababa and Dire Dawa). These regions feature different cultural practices and religious beliefs. This study was restricted to patients in Adama,

located in the Oromia region, and Hawassa, located in SNNPR, which may limit the generalizability of the results to those regions.

Implications and Recommendations

Due to the dearth of existing literature on this population of male Ethiopian children and adolescents, much of the sexual assault literature was based on different international settings, female patients, or adults. There is also a paucity of research on how to conduct medical chart reviews in low-resource settings. Therefore, this study contributes valuable information about both the methodology used for chart review and the resulting characteristics of this little-studied child and adolescent male sexual assault survivor population.

Practitioner fidelity to ESOG guidelines in model clinics was previously examined in the comprehensive process evaluation conducted by Conrad et al. (2015). It was shown that medical documentation was inadequate in both the Hawassa and Adama model clinics, but that documentation completeness improved with the presence of the ESOG standardized template. One recommendation from this study is that ESOG could provide a specific section of the standardized template for male injuries, in order to address the gender-specific needs of this population subset. Even though the number of male patients is significantly lower than the number of female patients being seen at the clinics currently, they still deserve a high standard of care for their medical, psychological, and legal needs. This is particularly evident because the highest predictor of early health-seeking behavior was genital/anal injury, which differs between male and female patients, yet the standardized charts only have graphics of female genitalia.

There were also several variables under the domain of Characteristics of Assault that were seen in a number of charts and were thus added into the quantitative codebook, even though ESOG did not require the reporting of these variables. These variables were type of penetration (object used for penetration), number of assailants, number of penetrators, location of penetration on victim (body part), and kidnapping information. These types of information should be considered to be added to the ESOG chart because it has been shown in the literature that these characteristics of assault can lead to more or less severe outcomes in patient, as well as a correlation in health services utilization. While there was not enough data in any of these variables to show a significance difference between children and adolescents, or between those who presented to clinic within one week versus after one week, literature on female sexual assault survivors show a correlation between multiple perpetrators and genital injuries (Jina et al., 2015). More extensive detail in documentation can also benefit patients because the clinics provide the medical chart as evidence to be used in court cases; medical forensic evidence or photographs of injuries are not collected at either model clinic, so the medical documentation of the physician examination is one of the only forms of evidence that can affect Ethiopian court decisions if the survivor chooses to pursue legal action (Conrad et al., 2015). In order to have consistent documentation, it is necessary for the clinics to have adequate funding to have these standardized chart templates on which to collect patient data.

The Behavioral Model for Vulnerable Populations was chosen as a framework for this study to assist in understanding what factors are correlated with male sexual assault survivors utilizing the model clinic. This model was particularly relevant because of the

vulnerable features of the population: namely, that the patients were all either children or adolescents, and that they have a history of sexual assault. Ideally, this framework would be used to study both the use of health services and the health outcomes of the vulnerable population, such as patient satisfaction and compliance. With the data available, health outcomes were not able to be examined in the current study. If this study were to be re-created effectively using this model, several other factors should be measured. In the Predisposing domain, demographic information was already collected in patient charts, but some vulnerable factors such as history of mental illness, sexual orientation, or religion could have been helpful to collect. Enabling factors to collect in the future include income (to examine personal or family resources), transportation, crime rates, or social services resources. A Need factor to collect in the future would be the general health conditions of the population (Gelberg et al., 2000). Another way to improve this study would be to use a longitudinal design rather than a cross-sectional design in order to track how patients progressed over time, which would allow data analysis of both behavior and long-term outcomes.

As a framework for predicting health services utilization, it would also have better predictive value if the population studied were to be extended to male sexual assault survivors who had chosen not to go to the model clinics in addition to the patients who decided to use the clinics. This study only examined patients who actually went to the clinic, which is why time between assault and presentation to clinic was used as a proxy for the health behavior but future studies could look at the differences between male patients who went to one of the ESOG model clinics, male patients who chose to not seek medical attention, or male patients who sought another type of care (e.g. medical care

independent of the psychological or legal aspects included in the model clinic). However, due to the existing limitations of male underreporting and high stigmatization, recruitment may be difficult and there would be many ethical implications to consider when designing a study of that type,

Conclusions

In this study, Ethiopian male child and adolescent survivors of sexual assault were examined to learn more about this little-studied population. It was shown that there was not a statistically significant difference between children and adolescents for most measures, and there were no statistically significant predictors of timely health services utilization based on information from the patients' medical charts. Long-term outcomes were unable to be operationalized due to the lack of data. However, despite these shortcomings, this study still uncovered valuable knowledge about these child and adolescent male patients. There is little research on the prevalence of injury findings and STI test results among male sexual assault patients, and the number of patients who were shown to have HIV, STIs, or physical injuries in this study shows some of the long-lasting health outcomes that result from sexual assault.

While these findings are contributing to the small existing body of literature on this population, it is clear that more research is needed to study childhood and adolescent male survivors of sexual assault in Ethiopia, as well as in other low-income nations. By exploring the characteristics of these patients and finding correlates to the utilization of these model clinics, hopefully interventions can be implemented that will improve the health and legal outcomes of these male patients.

References

Beitchman, J. H., Zucker, K. J., Hood, J. E., daCosta, G. A., & Akman, D. (1991). A review of the short-term effects of child sexual abuse. *Child Abuse & Neglect*, *15*(4), 537–556. http://doi.org/10.1016/0145-2134(91)90038-F

Beitchman, J. H., Zucker, K. J., Hood, J. E., DaCosta, G. A., Akman, D., & Cassavia, E. (1992). A review of the long-term effects of child sexual abuse. *Child Abuse & Neglect*, *16*(1), 101–118. http://doi.org/10.1016/0145-2134(92)90011-F

Bekele, A. B., van Aken, M. A. G., & Dubas, J. S. (2011). Sexual violence victimization among female secondary school students in eastern Ethiopia. *Violence and Victims*, *26*(5), 608–630.

Biseswar, I. (2008). Problems of Feminist Leadership among Educated Women in Ethiopia Taking Stock in the Third Millennium. *Journal of Developing Societies*, *24*(2), 125–158. http://doi.org/10.1177/0169796X0802400203

Bogale, A., Tessema, F., & Haile, A. (2004). Assessment of Sexual Assualt Among Women in Assendabo Town, Oromia Region, South West Ethiopia. *Ethiop J Health Sci*, *14*, 23–30.

Braitstein, P., Asselin, J. J., Schilder, A., Miller, M.-L., Laliberté, N., Schechter, M. T., & Hogg, R. S. (2006). Sexual violence among two populations of men at high risk of HIV infection. *AIDS Care*, *18*(7), 681–689. http://doi.org/10.1080/13548500500294385

CARE. (2013). *One-stop model of support for survivors of gender-based violence: Lessons from CARE Zambia*. Retrieved from

http://www.care.org/sites/default/files/documents/GBV-2013-ZMB-CARE-ASAZA-OSC-Case-Study.pdf

Centers for Disease Control and Prevention. (2015). *Sexual Violence: Definitions*. Retrieved from http://www.cdc.gov/violenceprevention/sexualviolence/definitions.html

Christian, M., Safari, O., Ramazani, P., Burnham, G., & Glass, N. (2011). Sexual and gender based violence against men in the Democratic Republic of Congo: effects on survivors, their families and the community. *Medicine, Conflict, and Survival*, *27*(4), 227–246. http://doi.org/10.1080/13623699.2011.645144

Coles, J., Astbury, J., Dartnall, E., & Limjerwala, S. (2014). A Qualitative Exploration of Researcher Trauma and Researchers' Responses to Investigating Sexual Violence. *Violence Against Women*, *20*(1), 95–117. http://doi.org/10.1177/1077801213520578

Conrad, A., Chao, S., Manning-Geist, B., Murphy, B., Comeau, D., Goedken, J., & Desalegn, D. (2015). An Evaluation of One-Stop Centers for Sexual Assault in Adama and Hawassa. *Unpublished Manuscript*.

Conroy, A. A., & Chilungo, A. (2014). Male victims of sexual violence in rural Malawi: the overlooked association with HIV infection. *AIDS Care*, *26*(12), 1576–1580. http://doi.org/10.1080/09540121.2014.931562

Conte, J. R., & Schuerman, J. R. (1987). Factors associated with an increased impact of child sexual abuse. *Child Abuse & Neglect*, *11*(2), 201–211. http://doi.org/10.1016/0145-2134(87)90059-7

Diamanduros, T., Cosentino, C. E., Tysinger, P. D., & Tysinger, J. A. (2012). Theoretical perspectives of male sexual abuse: conceptualization of a case study. *Journal of Child Sexual Abuse*, *21*(2), 131–154. http://doi.org/10.1080/10538712.2012.659804

Education Policy and Data Center. (2014). Ethiopia National Education Profile. Retrieved March 17, 2016, from http://www.epdc.org/sites/default/files/documents/EPDC%20NEP_Ethiopia.pdf

Ethiopian Society of Obstetricians & Gynecologists. (2015). About ESOG. Retrieved November 15, 2015, from http://www.esog-eth.org/index.php/facts/about-esog

Fafchamps, M., & Quisumbing, A. R. (2002). Control and Ownership of Assets Within Rural Ethiopian Households. *The Journal of Development Studies*, *38*(6), 47–82. http://doi.org/10.1080/00220380412331322581

Federal Democratic Republic of Ethiopia. (2004). The Criminal Code of the Federal Democratic Republic of Ethiopia. Retrieved November 15, 2015, from http://www.ilo.org/dyn/natlex/docs/ELECTRONIC/70993/75092/F1429731028/ETH70993.pdf

Federal Ministry of Health, Ethiopia. (2009). *National Guidelines for the Management of Survivors of Sexual Assault in Ethiopia*.

Fergusson, D. M., Horwood, L. J., & Lynskey, M. T. (1996). Childhood Sexual Abuse and Psychiatric Disorder in Young Adulthood: II. Psychiatric Outcomes of Childhood Sexual Abuse. *Journal of the American Academy of Child & Adolescent Psychiatry*, *35*(10), 1365–1374. http://doi.org/10.1097/00004583-199610000-00024

Frías, S. M., & Erviti, J. (2014). Gendered experiences of sexual abuse of teenagers and children in Mexico. *Child Abuse & Neglect*, *38*(4), 776–787. http://doi.org/10.1016/j.chiabu.2013.12.001

Garcia-Moreno, C., Jansen, H. A., Ellsberg, M., Heise, L., & Watts, C. H. (2006). Prevalence of intimate partner violence: findings from the WHO multi-country study on women's health and domestic violence. *The Lancet*, *368*(9543), 1260–1269. http://doi.org/10.1016/S0140-6736(06)69523-8

Gelberg, L., Andersen, R. M., & Leake, B. D. (2000). The Behavioral Model for Vulnerable Populations: application to medical care use and outcomes for homeless people. *Health Services Research*, *34*(6), 1273–1302.

Haile, R. T., Kebeta, N. D., & Kassie, G. M. (2013). Prevalence of sexual abuse of male high school students in Addis Ababa, Ethiopia. *BMC International Health and Human Rights*, *13*, 24. http://doi.org/10.1186/1472-698X-13-24

Jemal, J. (2012). The Child Sexual Abuse Epidemic in Addis Ababa: Some Reflections on Reported Incidents, Psychosocial Consequences and Implications. *Ethiopian Journal of Health Sciences*, *22*(1), 59–66.

Jina, R., Jewkes, R., Vetten, L., Christofides, N., Sigsworth, R., & Loots, L. (2015). Genito-anal injury patterns and associated factors in rape survivors in an urban province of South Africa: a cross-sectional study. *BMC Women's Health*, *15*. http://doi.org/10.1186/s12905-015-0187-0

Kilonzo, N., Ndung'u, N., Nthamburi, N., Ajema, C., Taegtmeyer, M., Theobald, S., & Tolhurst, R. (2009). Sexual violence legislation in sub-Saharan Africa: the need for

strengthened medico-legal linkages. *Reproductive Health Matters*, *17*(34), 10–19. http://doi.org/10.1016/S0968-8080(09)34485-7

Kiser, L. J., Stover, C. S., Navalta, C. P., Dorado, J., Vogel, J. M., Abdul-Adil, J. K., … Briggs, E. C. (2014). Effects of the child–perpetrator relationship on mental health outcomes of child abuse: It's (not) all relative. *Child Abuse & Neglect*, *38*(6), 1083–1093. http://doi.org/10.1016/j.chiabu.2014.02.017

Krug, E. G., Dahlberg, L. L., Mercy, J.A., Zwi, A.B., & Lozano, R. (2002). *World report on violence and health*. Geneva: World Health Organization.

Mabsout, R., & van Staveren, I. (2010). Disentangling Bargaining Power from Individual and Household Level to Institutions: Evidence on Women's Position in Ethiopia. *World Development*, *38*(5), 783–796. http://doi.org/10.1016/j.worlddev.2009.11.011

Manning-Geist, B., Murphy, B., Conrad, A., Chao, S., Comeau, D., Desalegn, D., & Goedken, J. (2016). Predictors of medical outcome in 1,712 Ethiopian rape survivors: a retrospective cohort study. *Manuscript submitted for publication*.

Mullu, G., Gizachew, A., Amare, D., Alebel, A., Wagnew, F., Tiruneh, C., … Demsie, T. (2015). Prevalence of Gender Based Violence and Associated Factors among Female Students of Menkorer High School in Debre Markos Town, Northwest Ethiopia. *Science Journal of Public Health*, *3*(1), 67. http://doi.org/10.11648/j.sjph.20150301.22

Pereda Beltran, N., Guilera Ferré, G., Forns, M., & Gómez Benito, J. (2009). The international epidemiology of child sexual abuse: a continuation of Finkelhor. *Child Abuse & Neglect, 2009, Vol. 33, P. 331-342*. Retrieved from http://diposit.ub.edu/dspace/handle/2445/28067

Pew Global Attitudes Project. (2007, October 4). 47-Nation Pew Global Attitudes Survey. Retrieved November 15, 2015, from http://www.pewglobal.org/files/pdf/258.pdf

Peters, J. J. (1976). Children who are victims of sexual assault and the psychology of offenders. *American Journal of Psychotherapy, 30*, 398-421.

Resnick, H. S., Holmes, M. M., Kilpatrick, D. G., Clum, G., Acierno, R., Best, C. L., & Saunders, B. E. (2000). Predictors of post-rape medical care in a national sample of women1. *American Journal of Preventive Medicine*, *19*(4), 214–219. http://doi.org/10.1016/S0749-3797(00)00226-9

Romero-Martínez, A., Figueiredo, B., & Moya-Albiol, L. (2014). Childhood history of abuse and child abuse potential: The role of parent's gender and timing of childhood abuse. *Child Abuse & Neglect*, *38*(3), 510–516. http://doi.org/10.1016/j.chiabu.2013.09.010

Tadele, G. (2010). Unrecognized victims: Sexual abuse against male street children in Merkato area, Addis Ababa. *Ethiopian Journal of Health Development*, *23*(3). Retrieved from http://ejhd.uib.no/ejhd-v23-n3/174%20Unrecognized%20victims%20Sexual%20abuse%20against%20male%20street%20.pdf

UNICEF. (2011). Adolescence: An Age of Opportunity. Retrieved November 15, 2015, from http://www.unicef.org/adolescence/files/SOWC_2011_Main_Report_EN_02092011.pdf

UN Women. (2012). Intimate Partner Violence and/or Sexual Assault (one-stop) Centres. Retrieved November 16, 2015, from http://www.endvawnow.org/en/articles/683-intimate-partner-violence-andor-sexual-assault-one-stop-centres.html

Veenema, T. G., Thornton, C. P., & Corley, A. (2015). The public health crisis of child sexual abuse in low and middle income countries: An integrative review of the literature. *International Journal of Nursing Studies*, *52*(4), 864–881. http://doi.org/10.1016/j.ijnurstu.2014.10.017

Wang, C., Dong, X., Yang, J., Ramirez, M., Chi, G., Peek-Asa, C., & Wang, S. (2015). Sexual violence experienced by male and female Chinese college students in Guangzhou. *Injury Prevention*, *21*(e1), e99–e104. http://doi.org/10.1136/injuryprev-2013-040893

Worku, A., & Addisie, M. (2002). Sexual violence among female high school students in Debark, northwest Ethiopia. *East African Medical Journal*, *79*(2), 96–99.

World Health Organization. (2015). Adolescent Development. Retrieved November 15, 2015, from http://www.who.int/maternal_child_adolescent/topics/adolescence/dev/en/

World Health Organization. (2005). WHO multi-country study on women's health and domestic violence against women.

Yigzaw, T., Yibrie, A., & Kebede, Y. (2004). Domestic violence around Gondar in northwest Ethiopia. *Ethiopian Journal of Health Development*, *18*(3). Retrieved from http://www.popline.org/node/261665

Zinzow, H. M., Resnick, H. S., Barr, S. C., Danielson, C. K., & Kilpatrick, D. G. (2012). Receipt of Post-Rape Medical Care in a National Sample of Female Victims.

American Journal of Preventive Medicine, *43*(2), 183–187.

http://doi.org/10.1016/j.amepre.2012.02.025

Appendix A: Quantitative Codebook Developed by 2014 Team

Variable Number	Variable	Codes
1	Chart Number	Numerical
2	Chart Year	Year Blank = missing
3	ESOG chart present	1. Yes 2. No Blank = Missing
4	Patient Age	Numerical
5	Gender	F = Female M = Male
6	Region	Place name Blank = missing 999 = error
7	City	City name Blank = missing 999 = error
8	Subcity/Kebele	Subcity/kebele name Blank = missing 999 = error
9	Occupation	1. Unemployed 2. Student 3. Housewife 4. Government employee 5. Private employee 6. Merchant 7. Daily laborer 8. Other Blank = missing 999 = error
10	Marital Status	1. Married 2. Divorced 3. Single Blank = missing 999 = error

11	Gravidity	1. Nulligravid 2. Primigravid 3. Multipara 888. Male Blank = missing 999 = error
12	Parity	1. Nulliparous 2. Primiparous 3. Multiparous 888. Male Blank = missing 999 = error
13	Abortion	1. None 2. One 3. >2 abortions 888. Male Blank = missing 999 = error
14	Education level	1. Illiterate 2. Read and write 3. Elementary 4. High School 5. College 6. Degree & Above Blank = missing 999 = error
15	Previous Consensual Sexual Experience	1. Yes 2. No Blank = missing 999 = error
16	Previous nonconsensual sexual experience	1. Yes 2. No Blank = missing 999 = error

17	Caretakers relationship	1. Mother 2. Father 3. Grandmother 4. Grandfather 5. Friend 6. Neighbor 7. Known Other 8. Police 9. Sibling 10. Spouse 11. Alone 12. Aunt 13. Uncle 14. Teacher 15. Step-parent 16. Relative NOS Blank = missing 999 = error
18	Assailant Relationship	1. Parents 2. Relative 3. Neighbor 4. Teacher 5. Friend 6. Other 7. Stranger 8. No assailant 9. Boss 10. Classmate 11. Colleague 12. Aquaintance 13. Bajaj driver 14. Guard 15. Known NOS 16. Police 17. Employee 18. Traditional Healer 19. Partner Blank = missing 999 = error

19	Location of incident	1. Survivors home 2. Assailants home 3. In the bush 4. In an institution 5. Other 6. Hotel 7. Marketplace 8. Bajaj 9. Field 10. Friend's house 11. Farm 12. Road 13. Mosque 14. Neighbor's house 15. Workplace Blank = missing 999 = error
20	Timeof incident	1. < 24 hrs 2. 24 hrs – 1 week 3. 1 week – 1 month 4. 1 month – 3 months 5. > 3 months Blank = missing 999 = error
21	Number of assailants	1. One 2. Two 3. >Two Blank = missing 999 = error
22	Didassailant use a condom	1. Yes 2. No Blank = Missing
23	LMP	Number of days Blank = missing 999 = error
24	Labia Majora Findings	1. Yes 2. No Blank = Missing

25	Labia Majora	1. Abrasion 2. Bruises 3. Laceration 4. Hemorrhage 5. Discharge 6. Other 7. Old injury Blank = missing 999 = error
26	Clitoral Findings	1. Yes 2. No Blank = Missing
27	Clitoris	1. Abrasion 2. Bruises 3. Laceration 4. Hemorrhage 5. Discharge 6. Other 7. Old injury Blank = missing 999 = error
28	Labia Minoral Findings	1. Yes 2. No Blank = Missing
29	Labia Minora	1. Abrasion 2. Bruises 3. Laceration 4. Hemorrhage 5. Discharge 6. Other 7. Old injury Blank = missing 999 = error
30	Vestibular Findings	1. Yes 2. No Blank = Missing

31	Vestibule	1. Abrasion 2. Bruises 3. Laceration 4. Hemorrhage 5. Discharge 6. Other 7. Old injury Blank = missing 999 = error
32	Hymenal Findings	1. Yes 2. No Blank = Missing
33	Hymen	1. Abrasion 2. Bruises 3. Laceration 4. Hemorrhage 5. Discharge 6. Other 7. Old injury Blank = missing 999 = error
34	Perineal Findings	1. Yes 2. No Blank = Missing
35	Perineum	1. Abrasion 2. Bruises 3. Laceration 4. Hemorrhage 5. Discharge 6. Other 7. Old injury Blank = missing 999 = error
36	Anal Findings	1. Yes 2. No Blank = Missing

37	Anus	1. Abrasion 2. Bruises 3. Laceration 4. Hemorrhage 5. Discharge 6. Other 7. Old injury Blank = missing 999 = error
38	ExtraGential Findings	1. Yes 2. No Blank = Missing
39	ExtraGenital Injury	1. Abrasion 2. Bruises 3. Laceration 4. Hemorrhage 5. Discharge 6. Other 7. Old injury Blank = missing 999 = error Descriptive
40	Location of injury and specify	Descriptive
41	Wet mount	1. Yes 2. No Blank = Missing
42	Wet mount result	1. Positive 2. Negative Blank = missing 999 = error
43	Chlamydia testing	1. Yes 2. No Blank = Missing
44	Chlamydia testing result	1. Positive 2. Negative Blank = missing 999 = error

45	Cervical culture	1. Yes 2. No Blank = Missing
46	Cervical culture result	1. Positive 2. Negative Blank = missing 999 = error
47	Gram stain	1. Yes 2. No Blank = Missing
48	Gram stain result	1. Positive 2. Negative Blank = missing 999 = error
49	VDRL testing	1. Yes 2. No Blank = Missing
50	VDRL testing result	1. Nonreactive 2. Reactive Blank = missing 999 = error
51	HIV testing	1. Yes 2. No Blank = Missing
52	HIV testing result	1. Positive 2. Negative Blank = missing 999 = error
53	Hepatitis B testing	1. Yes 2. No Blank = Missing
54	Hepatitis B testing result	1. Positive 2. Negative Blank = missing 999 = error
55	Pregnancy testing	1. Yes 2. No Blank = Missing

56	Pregnancy testing result	1. Positive 2. Negative Blank = missing 999 = error
57	Wounds treated	1. Yes 2. No Blank = Missing
58	EC given	1. Yes 2. No Blank = Missing
59	STI PEP given	1. Yes 2. No Blank = Missing
60	HB vaccine	1. Yes 2. No Blank = Missing
61	Tetanus vaccine	1. Yes 2. No Blank = Missing
62	Psych support	1. Yes 2. No Blank = Missing
63	Abortion services	1. Yes 2. No Blank = Missing
64	Other care given	1. Yes 2. No Blank = Missing
65	Referral for psychotherapy	1. Yes 2. No Blank = Missing 999 = error
66	Other referral	1. Yes 2. No Blank = Missing 999 = error
67	Follow up appointment given	1. Yes 2. No Blank = Missing 999 = error

68	Returned for follow up care	1. Yes 2. No Blank = Missing 999 = error
69	Number of return visits	1. Yes 2. No Blank = Missing 999 = error
70	STI transmission	1. Yes 2. No Blank = Missing 999 = error
71	Pregnancy	1. Yes 2. No Blank = Missing 999 = error
72	HIV status	1. Yes 2. No Blank = Missing 999 = error
73	Legal action referral	1. Yes 2. No Blank = Missing 999 = error
74	MRN	Numerical Code Blank = Missing 999 = error
75	Site	1. Adama 2. Hawassa Blank = Missing
76	Complete	Incomplete or Complete

Appendix B: Quantitative Codebook Developed by 2015 Team

Overall codes:

999. Missing

888. Not applicable because gender

777. Error (implausible value in chart)

666. Error (researcher's fault)

555. Other

Overall notes:

1. When there are discrepancies between the written narrative and ESOG chart checkboxes, go with the written narrative.

2. When there are discrepancies between the patient chart and the ESOG registration book, go with the patient chart.

3. If there is a drawn picture of the genital area, assume that the external genitalia exam was completed, can code as "no findings" and "no injury" if no injury listed. Can also code as "no findings" if they say "no other genital injury," "well-formed genitalia." This includes labia majora, clitoris, labia minora, vestibule, and perineum. Hymen, anus, and extragenital findings have to be explicitly stated.

Variable number	Variable	Codes
0.	Chart Number (GHI – assigned)	Numerical
1.	Chart Year	Year 777. Error 999. Missing
2.	ESOG chart present	0. No 1. Yes

3.	Patient Age (years)	Numerical Use radiological age rather than chart age if there is an x-ray to determine age. If given a 2-year range, go with the lower age. If 3-year range, go with the median.
4.	Gender	0. Male 1. Female
5.	Region	0. Addis Ababa 1. Afar Region 2. Amhara Region (coded as "03" in Adama charts) 3. Benishangul-Gumuz Region 4. Dire Dawa 5. Gambela Region 6. Harari Region 7. Oromia Region (coded as "04" in Adama charts) 8. Somali Region 9. Southern Nations, Nationalities, and Peoples' Region 10. Tigray Region 777. Error 999. Missing
6.	City	Nominal 777. Error 999. Missing
7.	Kebele	Nominal 777. Error 999. Error

8.	Occupation	0. Unemployed 1. Student 2. Housewife 3. Government employee 4. Private employee 5. Merchant 6. Daily laborer 555. Other 999. Missing 777. Error
9.	Marital Status	0. Married 1. Divorced 2. Single 3. Widowed 999. Missing 777. Error
10.	Gravidity (formerly Parity)	Numerical 777. Error 888. Male 999. Missing

11.	Education level	0. Illiterate (including 0 education marked) 1. Read and write (did not attend elementary school) 2. Attended any elementary school (numbered grades up to 8th grade) 3. High school (9th-12th) 4. College 5. Post-college education 6. Nursery/lower kindergarten/kindergarten 777. Error 999. Missing
12.	Previous Consensual Sexual Experience	0. No 1. Yes 777. Error 999. Missing
13.	Previous nonconsensual sexual experience	0. No 1. Yes 777. Error 999. Missing

14.	Primary caretaker's relationship	0. Mother 1. Father 2. Grandmother 3. Grandfather 4. Friend 5. Neighbor 6. Police 7. Sibling 8. Spouse 9. Aunt 10. Uncle 11. Teacher 12. Step-parent 13. Relative NOS 14. Alone 555. Other 777. Error 999. Missing

15.	Secondary caretaker's relationship (if applicable)	0. Mother 1. Father 2. Grandmother 3. Grandfather 4. Friend 5. Neighbor 6. Police 7. Sibling 8. Spouse 9. Aunt 10. Uncle 11. Teacher 12. Step-parent 13. Relative NOS 14. Alone 555. Other 777. Error 999. Missing

16.	Assailant Relationship	0. No assailant 1. Parent 2. Non-parent relative (including non-blood relatives such as step-parents) 3. Neighbor 4. Teacher 5. Friend 6. Stranger 7. Boss 8. Classmate 9. Colleague 10. Acquaintance 11. Bajaj/bus driver 12. Guard 13. Known NOS 14. Police 15. Employee 16. Traditional Healer 17. Partner 555. Other 777. Error 999. Missing

17.	Location of incident	0. Survivor's home 1. Assailant's home 2. Rural outdoor location 3. In an institution 4. Hotel 5. Marketplace 6. Bajaj 7. Friend's house 8. Farm 9. Road 10. Religious center 11. Neighbor's house 12. Workplace 555. Other 777. Error 999. Missing
18.	Time between accident and medical visit (for abducted patients, code since time of escape, not since time of abduction)	0. Less than 1 day 1. 1 – 3 days 2. 4 -7 days 3. 8 - 30 days 4. 31 – 90 days 5. > 90 days 777. Error 999. Missing

19.	Number of assailants	Numerical 777. Error 999. Missing
20.	Number of penetrative assailants	Numerical 777. Error 999. Missing
21.	Assailant condom use	0. No 1. Yes 777. Error 999. Missing
22.	Penetration type (if penile + something else, report penile. If digital + inanimate, report inanimate.)	0. No penetration 1. Penile 2. Digital 3. Inanimate object 555. Other 777. Error 999. Missing
23.	Location of penetration	0. None 1. Vaginal 2. Anal 3. Both vaginal and anal 777. Error 888. Male 999. Missing

24.	Kidnapped "A girl/woman is forcibly taken from one location to another by 2+ men/boys with the intention of her sexual assault by a single assailant" OR "A girl/woman is forcibly taken from 1 location to another and held against her will for more than 1 day by any number of assailants."	0. No 1. Yes 777. Error 999. Missing
25.	Kidnap Duration in days	Numerical 777. Error 999. Missing (put missing if Kidnapped = 0)
26.	Means of escape	0. Escaped on own 1. Found by police 2. Rescued by family 3. Rescued by neighbor 555. Other 777. Error 999. Missing

27.	LMP Note: “amenorrheic” is the same as “no menstrual period.” “Menses” and “menarche” are the same thing as LMP.	Numerical (number of days since start, whole numbers) 444. Has not had menses yet – noted in chart (not including missing) 555. Other (such as patient does not remember, practitioner marked an answer but did not specify) 777. Error 888. Male 999. Missing
28.	Labia Majora Findings (if written as “vulva” code as labia majora AND labia minora)	0. No (if in chart no injury found, mark “no”) 1. Yes 777. Error 888. Male 999. Missing
29.	Labia Majora	0. No injury reported 1. Abrasion (includes “lesion”) 2. Bruises (includes “hematoma” and “ecchymosis”) 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 10. FGC 555. Other (includes “ulcer”) 777. Error 888. Male 999. Missing
30.	Clitoral Findings	0. No (if in chart no injury found, mark “no”) 1. Yes 777. Error 888. Male 999. Missing

31.	Clitoris	0. No injury reported 1. Abrasion (includes “lesion”) 2. Bruises (includes “hematoma” and “ecchymosis”) 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 10. Clitorodectomy /FGC 555. Other (includes “ulcer”) 777. Error 888. Male 999. Missing
32.	Labia Minoral Findings (if written as “vulva” code as labia majora AND labia minora)	0. No (if in chart no injury found, mark “no”) 1. Yes 777. Error 888. Male 999. Missing
33.	Labia Minora	0. No injury reported 1. Abrasion (includes “lesion”) 2. Bruises (includes “hematoma” and “ecchymosis”) 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 10. FGC 555. Other (includes “ulcer”) 777. Error 888. Male 999. Missing

34.	Vestibular Findings (for "vaginal hemorrhage" or "vaginal discharge" use this)	0. No (if in chart no injury found, mark "no") 1. Yes 777. Error 888. Male 999. Missing
35.	Vestibule	0. No injury reported 1. Abrasion (includes "lesion") 2. Bruises (includes "hematoma" and "ecchymosis") 3. Laceration 4. Hemorrhage (includes "clotted blood") 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 555. Other (includes "ulcer") 777. Error 888. Male 999. Missing
36.	Hymenal Findings	0. No (if in chart no injury found, mark "no") 1. Yes 777. Error 888. Male 999. Missing
37.	Hymen	0. No injury reported 1. Abrasion (includes "lesion") 2. Bruises (includes "hematoma" and "ecchymosis") 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds (includes "attenuation") 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 555. Other (includes "ulcer") 777. Error 888. Male 999. Missing

38.	Perineal Findings	0. No (if in chart no injury found, mark "no") 1. Yes 777. Error 999. Missing
39.	Perineum	0. No injury reported 1. Abrasion (includes "lesion") 2. Bruises (includes "hematoma" and "ecchymosis") 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia 555. Other (includes "ulcer") 777. Error 888. Male 999. Missing
40.	Anal Findings	0. No (if in chart no injury found, mark "no") 1. Yes 777. Error 999. Missing
41.	Anus	0. No injury reported 1. Abrasion (includes "lesion") 2. Bruises (includes "hematoma" and "ecchymosis") 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 555. Other (includes "ulcer") 777. Error 888. Male 999. Missing

42.	Penile Findings	0. No (if in chart no injury found, mark “no”) 1. Yes 777. Error 888. Female 999. Missing
43.	Penis	0. No injury reported 1. Abrasion (includes “lesion”) 2. Bruises (includes “hematoma” and “ecchymosis”) 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 555. Other (includes “ulcer”) 777. Error 888. Female 999. Missing
44.	Scrotal Findings	0. No (if in chart no injury found, mark “no”) 1. Yes 777. Error 888. Female 999. Missing

45.	Scrotum	0. No injury reported 1. Abrasion (includes “lesion”) 2. Bruises (includes “hematoma” and “ecchymosis”) 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 555. Other (includes “ulcer”) 777. Error 888. Female 999. Missing
46.	ExtraGenital Findings (If “INT/integumentary” or “MS/musculoskeletal” findings are listed, use that to tell if extragenital findings are present)	0. No (if in chart no injury found, mark “no”) 1. Yes 777. Error 999. Missing
47.	ExtraGenital Injury	0. No injury reported 1. Abrasion (includes “lesion”) 2. Bruises (includes “hematoma” and “ecchymosis”) 3. Laceration 4. Hemorrhage 5. Discharge 6. Old injury 7. Cut wounds 8. Stab wounds 9. Hyperemia/Erythematous/Redness/Erythma 555. Other (includes “ulcer”) 777. Error 888. Male 999. Missing

48.	Primary location of extragenital injury	0. No injury reported 1. Head (excluding mouth) and neck 2. Mouth 3. Breast 4. Torso (excluding breast) 5. Arms 6. Hands 7. Back 8. Legs 9. Feet 10. Buttocks 555. Other 777. Error 999. Missing
49.	Secondary location of extragenital injury	0. No injury reported 1. Head (excluding mouth) and neck 2. Mouth 3. Breast 4. Torso (excluding breast) 5. Arms 6. Hands 7. Back 8. Legs 9. Feet 10. Buttocks 555. Other 777. Error 999. Missing
50.	Wet mount (also seen as "vaginal smear")	0. No 1. Yes 777. Error 888. Male 999. Missing
51.	Wet mount result	0. Negative (includes epithelial cells, WBC, RBC, or other organisms) 1. Positive (only if findings include T. vaginalis, pus cells, trichomonas) 777. Error 888. Male 999. Missing

52.	Chlamydia testing	0. No 1. Yes 777. Error 888. Male 999. Missing
53.	Chlamydia testing result	0. Negative (includes yeast cells seen) 1. Positive 777. Error 888. Male 999. Missing
54.	Cervical culture	0. No 1. Yes 777. Error 888. Male 999. Missing
55.	Cervical culture result	0. Negative 1. Positive 777. Error 888. Male 999. Missing
56.	Gram stain	0. No 1. Yes 777. Error 888. Male 999. Missing
57.	Gram stain result	0. Negative (gram POSITIVE diplococci, gram negative rods, other pathogens found) 1. Positive (only extracellular gram NEGATIVE diplococci) 777. Error 888. Male 999. Missing
58.	VDRL testing (same as RPR and treponema pallidum)	0. No 1. Yes 777. Error 888. Male 999. Missing

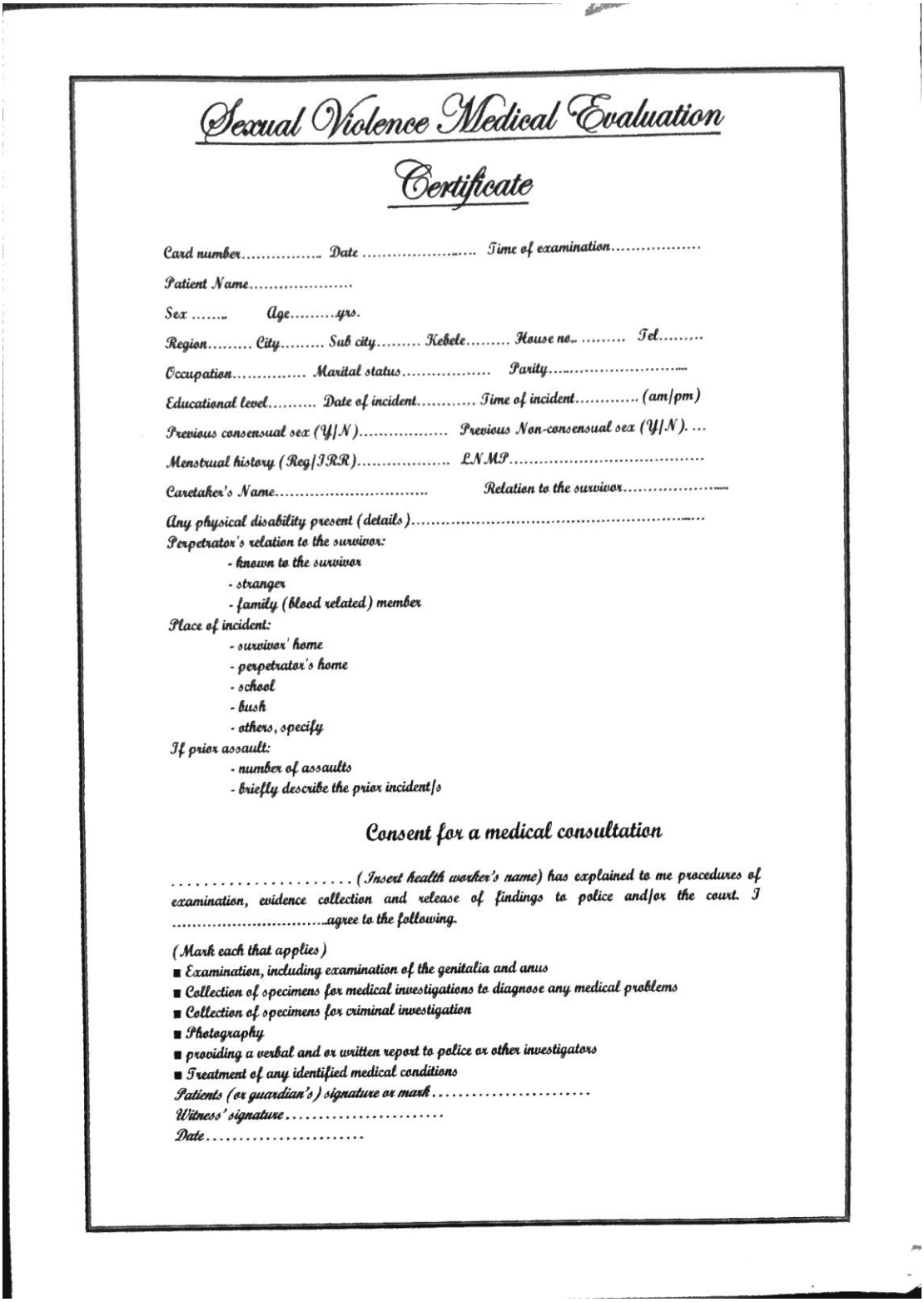
59.	VDRL testing result	0. Nonreactive 1. Reactive 777. Error 888. Male 999. Missing
60.	HIV testing (same as PICT or RIV serum)	0. No 1. Yes 777. Error 999. Missing
61.	HIV testing result (same as PICT or RIV serum)	0. Negative 1. Positive 777. Error 999. Missing
62.	Hepatitis B testing (same as HbSAg)	0. No 1. Yes 777. Error 999. Missing
63.	Hepatitis B testing result (same as HbSAg)	0. Negative 1. Positive 777. Error 999. Missing
64.	Pregnancy testing (same as HCG or human chorion gonadotrophin. Ultrasound also counts as a pregnancy test)	0. No 1. Yes 777. Error 888. Male 999. Missing
65.	Pregnancy testing result (same as HCG or human chorion gonadotrophin)	0. Negative 1. Positive 777. Error 888. Male 999. Missing
66.	Wounds treated	0. No 1. Yes 777. Error 999. Missing
67.	EC given (also known as “emergency pill” or “post emergency”)	0. No 1. Yes 777. Error 999. Missing

68.	STI PEP given	0. No 1. Yes 777. Error 999. Missing
69.	Type of STI PEP	0. Antibiotics only (doxyclycline, metronidazole, or erithryromycin, ceftriaxone) 1. Atripla only (AZT, 3TC, EFV, or listed as HIV PEP) 2. Other ARV 3. Antibiotics + Atripla 777. Error 999. Missing
70.	HB vaccine	0. No 1. Yes 777. Error 999. Missing
71.	Tetanus vaccine	0. No 1. Yes 777. Error 999. Missing
72.	Psych support	0. No 1. Yes 777. Error 999. Missing
73.	Abortion services	0. No 1. Yes (clear indication that abortion was given, including keywords: mifepristone, misoprostol, dilatation, curettage, laminara) 555. Other (came in for abortion as chief complaint, no charting about whether it was completed) 777. Error 999. Missing
74.	Other care given	0. No 1. Yes 777. Error 999. Missing

75.	Referral for psychotherapy	0. No 1. Yes 777. Error 999. Missing
76.	Other referral	0. No 1. Yes 777. Error 999. Missing
77.	Follow up appointment given	0. No 1. Yes 777. Error 999. Missing
78.	Returned for follow up care	0. No 1. Yes (if chart dates are more than 3 days apart) 777. Error 999. Missing
79.	Number of return visits	Numerical 777. Error 999. Missing
80.	STI transmission	0. No 1. Yes 777. Error 999. Missing
81.	Pregnancy	0. No 1. Yes 777. Error 888. Male 999. Missing
82.	HIV status	0. No 1. Yes 777. Error 999. Missing
83.	Legal action referral	0. No 1. Yes 777. Error 999. Missing
84.	MRN	Numerical 777. Error 999. Missing

85.	Site	1. Adama 2. Hawassa 777. Error 999. Missing

Appendix C: ESOG Sexual Evaluation Certificate



Sexual Violence Medical Evaluation Certificate

Card number..... Date ..... Time of examination.....

Patient Name.....

Sex ..... Age.....yrs.

Region..... City..... Sub city..... Kebele..... House no.. ..... Tel.....

Occupation..... Marital status..... Parity.....

Educational level..... Date of incident..... Time of incident..... (am/pm)

Previous consensual sex (Y/N)..... Previous Non-consensual sex (Y/N). ...

Menstrual history (Reg/IRR)..... LNMP.....

Caretaker's Name..... Relation to the survivor.....

Any physical disability present (details).....

Perpetrator's relation to the survivor:

- known to the survivor
- stranger
- family (blood related) member

Place of incident:

- survivor' home
- perpetrator's home
- school
- bush
- others, specify

If prior assault:

- number of assaults
- briefly describe the prior incident/s

Consent for a medical consultation

..... (Insert health worker's name) has explained to me procedures of examination, evidence collection and release of findings to police and/or the court. I .....agree to the following.

(Mark each that applies)

- Examination, including examination of the genitalia and anus
- Collection of specimens for medical investigations to diagnose any medical problems
- Collection of specimens for criminal investigation
- Photography
- providing a verbal and or written report to police or other investigators
- Treatment of any identified medical conditions

Patients (or guardian's) signature or mark.....

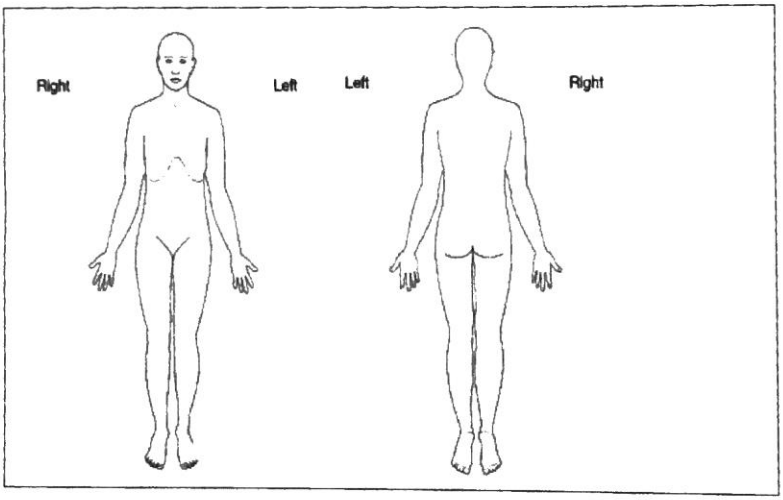
Witness' signature.....

Date.....

Description of incident (in survivor's words whenever possible)

On Clinical Examination
General Appearance (Providers observation)

Vital Signs
BP……Pulse……Respiration rate……Temp……..
Anthropometry Weight…… Kgs Height……cms
Description of Wounds and Injuries
Use pictogram and mark exact location of wounds



Description of extra genital injury observed:

.....

.....

.....

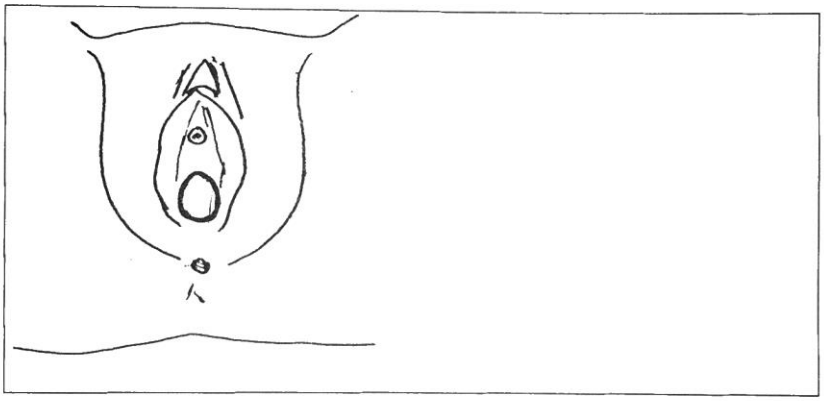
.....

Genital exam

Tissues	Types of injuries (mark all that apply)							
	Discharge	Hemorrhage	Bruise	Contusion	Laceration	Cut wound	Stab wound	Size (cms)
Labia Major								
Clitoris								
Labia minora								
Vestibule								
Hymen								
Perinium								

Genital Examination

Use pictogram and mark exact location



Examination: Painless/painful.....

Other injuries.....

Anal examination findings.....

.....

General remarks.....

.....

Remarks as to whether penetration has been effected

.....

.....

.....

.....

.....

.....

Laboratory results – which ever is available

Vaginal swab.

Sample for motile spermatozoa .....
Gram stains.....
Wet mount.....
Chlamydia test .....
Culture specimen from the cervix.....

Pregnancy test.....

Serology

VDRL.....
HBsAg.....
Serology for HIV..... (N.B. In cases where the client does not consent to her HIV status being included in the report, this fact should be so noted in the report).

Management Given

1. Wounds treated	Yes	No
2. Prevention of unwanted pregnancy given	Yes	No
If yes, type given.....		
3. STI, Preventive treatment given	Yes	No
If yes, type given.....		
.....		
4. Hepatitis B vaccination given	Yes	No
5. Tetanus vaccination	Yes	No
6. Psychological support provided	Yes	No
7. PEP provided	Yes	No
8. Abortion services provided	Yes	No
9. Other care provided	Yes	No
11. Other methods used to collect information (Photography, videography, audio)	Yes	No

Referral

Referral for psychotherapy	Yes	No
Referral for other reasons (specify)	Yes	No

Follow up appointment date _____

Name of health care provider.....
Signed.....
Date.....

Name of assistant health care provider.....
Signature.....
Date.....

Appendix D: Institutional Review Board Expedited Approval

EMORY UNIVERSITY

Institutional Review Board

TO: Jennifer Goedken, MD
Principal Investigator
OB/GYN

DATE: October 30, 2015

RE: **Expedited Approval**
IRB00080146
Evaluating a new model of comprehensive care for Ethiopian survivors of Gender-Based Violence: A follow-up study on implementation and barriers to care

Thank you for submitting a new application for this protocol. This research is eligible for expedited review under 45 CFR.46.110 and/or 21 CFR 56.110 because it poses minimal risk and fits the regulatory category F5 as set forth in the Federal Register. The Emory IRB reviewed it by expedited process on 10/28/2015 and granted approval effective from **10/28/2015** through **10/27/2016**. Thereafter, continuation of human subjects research activities requires the submission of a renewal application, which must be reviewed and approved by the IRB prior to the expiration date noted above.

- The IRB hereby grants the following waivers:
  - Waiver of all elements of informed consent
  - Complete waiver of HIPAA authorization
- The following documents are approved for use or otherwise acknowledged:
  - Study Protocol, version date 10/15/2015

Any reportable events (e.g., unanticipated problems involving risk to subjects or others, noncompliance, breaches of confidentiality, HIPAA violations, protocol deviations) must be reported to the IRB according to our Policies & Procedures at www.irb.emory.edu, immediately, promptly, or periodically. Be sure to check the reporting guidance and contact us if you have questions. Terms and conditions of sponsors, if any, also apply to reporting.

Before implementing any change to this protocol (including but not limited to sample size, informed consent, study design, you must submit an amendment request and secure IRB approval.

In future correspondence about this matter, please refer to the IRB file ID, name of the Principal Investigator, and study title. Thank you

Samuel Roberts, BA, CIP
Senior Research Protocol Analyst
This letter has been digitally signed

CC:	Chao	Samantha	Public Health
	Comeau	Dawn	Behavioral Science
	Conrad	Amelia	Emory College - Main
	Manning-Geist	Beryl	Medical School
	Murphy	Brett	Graduate Psychology
	Scully	Pamela	Women's, Gender, and Sexuality Studies

Appendix E: Recommendations for ESOG

Major findings:

- 83 male patients between 2 and 19 years
- Mean age: 9.6 years
- Most common primary caretaker: parents
- Most common assailant relationship: neighbor
- Most common assault location: assailant's home
- 4.8% assaulted by multiple assailants
- 31.3% showed genital/anal injuries
- 3.6% showed extra-genital injuries
- 2.4% positive for HIV
- 1.7% positive for Hepatitis B
- 44.6% given STI/HIV PEP

Recommendations:

- Ensure each clinic has adequate resources to include an ESOG standardized chart template in each patient medical file.
- Create a male-specific ESOG standardized chart template with:
    - Diagram of male genitalia for injury findings
    - Information about location on body where penetration was affected, sex of the assailant
    - No female-specific information on menstrual period, pregnancy, labia/clitoris/hymen, or abortion services
- Add more assault characteristic variables to the all ESOG standardized chart template (both male and female), such as whether the patient was kidnapped, type of penetration (digital, penile, or inanimate object), number of non-penetrative assailants, number of penetrative assailants.
- Collect more data on follow-ups or more long-term outcomes.
- Advertise services to male patients to increase awareness, decrease stigmatization, and improve reporting.
- Continue to conduct periodic evaluations of clinic, and start a feedback loop between model clinic providers and ESOG to communicate what is working and what is not working in order to improve patient care.