2013

Gender Norms, Sexual And Reproductive Behaviors And Acceptability Of Male Circumcision Among Men In Western Jamaica

Melonie Walcott
University of Alabama at Birmingham

GENDER NORMS, SEXUAL BEHAVIORS, REPRODUCTIVE HEALTH PRACTICES AND ACCEPTABILITY OF MALE CIRCUMCISION AMONG MEN IN WESTERN JAMAICA

by

MELONIE WALCOTT

PAULINE E. JOLLY, COMMITTEE CHAIR
ELLEN FUNKHOUSER
JOHNN EHIRI
MIRJAM-COLETTE KEMPF
KUI ZHANG
MAUNG AUNG

A DISSERTATION

Submitted to the graduate faculty of The University of Alabama at Birmingham,
In partial fulfillment of the requirements for the degree of
Doctor in Public Health

BIRMINGHAM, ALABAMA

2013

GENDER NORMS, SEXUAL AND REPRODUCTIVE BEHAVIORS AND ACCEPTABILITY OF MALE CIRCUMCISION AMONG MEN IN WESTERN JAMAICA

MELONIE WALCOTT

PUBLIC HEALTH

ABSTRACT

This dissertation consists of three papers designed to assess the association between gender norms and men's sexual behaviors, reproductive practices, and acceptability of male circumcision (MC). The data for this study were obtained from a cross-sectional, interviewer-administered questionnaire survey of 549 men aged 19-54 years, conducted in the western region of Jamaica between June to August 2011.

In the first paper we found increased odds of reporting multiple sex partners among men with moderate (AOR =2.2; 95% CI=1.4 – 3.5) and high (AOR = 4.4; 95% CI =2.2 – 8.8) support for inequitable gender norms. Similarly, men with moderate (AOR= 1.8; 95% CI = 1.1 – 2.8) and high (AOR =2.6; 95% CI =1.6 – 4.4) support for masculinity norms were more likely to report multiple sex partners.

In the second paper it was found that acceptance of MC varied by the circumcision status of men, and was more favorable for infants and sons than for self. In the multivariable model, which adjusted for age, education, religion and income, there was increased odds of accepting MC for infants/sons among uncircumcised men who accepted MC for self (AOR=8.1; 95% CI = 4.1 – 15.9), believed would experience more

pleasure during sex if circumcised (AOR=4.0; 95% CI = 2.0 – 8.2), and reported having no concerns regarding MC (AOR=3.0; 95% CI = 1.8 – 4.8)

The third paper revealed reduced odds for taking steps to prevent unwanted pregnancy among men with moderate (AOR = 0.5; 95% CI=0.3 - 0.8) and high (AOR =0.3;95% CI= 0.1 - 0.6) support for inequitable gender norms. Desiring large family size was associated with higher support for macho scores (AOR =2.1; 95% CI 1.3 – 3.3). Among men who had 2 or more children (41%), there was increased odds of having multiple baby mothers among men who had moderate (AOR=2.1; 95%CI=1.0 – 4.4) and high (AOR=2.4; 95%CI=1.1 – 5.6) support for masculinity norms.

Overall our findings underscore the need for the inclusion of men and gender norms in sexual and reproductive health programs in Jamaica.

Keywords: gender norms (inequitable and masculinity), men, multiple sex partners, male circumcision (MC), contraception, multiple baby mothers.

DEDICATION

This dissertation is dedicated to my mom, auntie and best friend.

.

ACKNOWLEDGEMENTS

This research would not have been possible without the inspiration, motivation and support of my committee members, Drs. Pauline Jolly, Ellen Funkhouser, John Ehiri, Mirjam-Colette Kempf, Kui Zhang, and Maung Aung. I would like to thank my committee chair, Dr. Jolly for her excellent mentorship over the past 4 years, and her guidance and encouragement while completing this dissertation. My sincere gratitude goes to all my committee members for their intellectual stimulation and constructive criticism which contributed tremendously to my professional growth and development.

Also, my appreciation to the Minority Health International Research (MHIRT) program, directed by Dr. Jolly, for providing financial support this research, and the 2 MHIRT trainees- Marion Bakhoya, Deborah Hickman for assisting me with the data collection and entry. I am especially grateful to the management and staff of the Western Regional Health Authority for going beyond the call of duty to help us to conduct the research in the region. I am most appreciative of the men who took the time to participate in study.

Special thanks to Dr. Galvin and the staff at the SOPH who made my learning experience at UAB a memorable one. I would also like to thank Drs. Figueroa and Anderson for their suggestions and for allowing me to use items from their data collection instrument and Macho scale, respectively.

Finally, I would like to thank all my friends for their thoughtfulness, support and motivation while studying for this degree.

TABLE OF CONTENTS

Page

LIST OF TABLES

Tables Page

GENDER NORMS AND SEXUAL BEHAVIORS AMONG MEN IN WESTERN JAMAICA

FACTORS ASSOCIATED WITH THE ACCEPTABILITY OF MALE CIRCUMCISION (MC) AMONG MEN IN JAMAICA

LIST OF TABLES (Continued)

Tables Page

GENDER NORMS AND FAMILY PLANNING PRACTICES AMONG MEN IN WESTERN JAMAICA

LIST OF FIGURES

Figures Page

FACTORS ASSOCIATED WITH THE ACCEPTABILITY OF MALE CIRCUMCISION (MC) AMONG MEN IN JAMAICA

LIST OF ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
GEM	Gender Equitable Men
HIV	Human Immunodeficiency virus
MC	Male Circumcision
PAHO	Pan American Health Organization
PMTCT	Prevention of Mother to Child Transmission
SRH	Sexual and reproductive health
SW	Sex Worker
STI	Sexual Transmitted Infection
UNAIDS	United Nations Program on HIV/AIDS
UNICEF	United Nations Children's Fund
UNGASS	United Nations General Assembly Special Session
WHO	World Health Organization
WRHA	Western Regional Health Authority

INTRODUCTION

The overarching aim of this research is to determine the association between gender norms, and sexual behaviors, reproductive health practices, and acceptability of male circumcision (MC) among males in the western Region of Jamaica. The data for this study were obtained from a cross-sectional, interviewer-administered questionnaire survey of 549 men aged 19-54 years who were visiting or accessing out-patient care at the 4 government operated hospitals in the western region of Jamaica between June – August 2011. The World Health Organization defines gender norms as "social expectations of appropriate roles and behaviors for males and females, as well as the social reproduction of these norms in institutions and cultural practices"[1,2]. These norms influence men's health-seeking behaviors, sexual behaviors, reproductive health practices, and impact the health of their partners and children [3-6]. Specifically, inequitable and masculinity gender norms can influence behaviors related to HIV prevention and control including prevention of mother to child transmission (PMTCT), childbearing, parenting, contraception use, and violence against women [1,7-9].

In this study, Inequitable Gender norms was measured using the Gender Equity Men's (GEM) scale [2,8], which is widely used in many other developing counties [10], while masculinity was measured using the Macho scale which were developed in Jamaica [11]. The GEM scale is designed to predict behaviors such as condom use, contraception use, multiple sexual partners and intimate partner violence [2], while the Macho scale is designed to assess dimensions of masculinity related to male dominance, virility and

domestic freedom [11]. Not only was the association between these scales and our outcome variables (multiple sexual partners, acceptance of MC, involvement in contraception use, desire to have a large family and multiple baby mothers) assessed but we also identified the factors that predicted scores on the scales.

Background and significance

HIV/AIDS. HIV/AIDS continues to be a global public health challenge [12,13] despite numerous strategies that have been implemented and resources directed to halt transmission. Sub-Saharan Africa is disproportionately affected accounting for approximately two-thirds of the 33.3 million cases of HIV-infection worldwide [14]. The Caribbean region has the second highest prevalence rate of HIV worldwide [3,15], and like sub-Saharan Africa the HIV epidemic is primarily due to heterosexual transmission [16]. The HIV epidemic in Jamaica, a population of approximately 2.8 million [17]. The HIV prevalence among adults (15-49 years) is approximately 1.7%, with higher rates among sex workers (SW) (9%) and men who have sex with men (MSM) (25-30%) [18-20]. Approximately 27,000 individuals are infected with HIV/AIDS and an estimated 11,000 are unaware of their HIV status. This study was conducted within the western region of Jamaica which consists of the four parishes of St. James, Trelawny, Hanover and Westmoreland, and has a population of approximately 464,100 [21]. The parish of St. James has the highest cumulative number of AIDS cases (992 AIDS cases per 100,000 persons) in Jamaica [22].

Men and gender norms. Increasingly there have been international agreements that the lack of inclusion of men [23,24] and gender norms in sexual and reproductive health programs are central gaps in efforts directed at halting the spread of HIV [25]. In 1994, the International Conference on Population and Development highlighted the importance of involving men as partners and including gender equality in sexual and reproductive health (SRH) programs [5,26,27], as men's sexual behavior influences the health outcomes of men, women, and children [28]. Traditionally, men's sexual health in developing countries has been considered priority [8,23], since morbidity and mortality associated with reproductive health is significantly higher among women and children. Therefore, most of the health service programs focus on women or children [23]. The common practice of focusing solely on women in matters relating to SRH has been found to be ineffective as men often act as "gatekeepers" influencing women's and children's access to health services [26]. The Pan American Health Organization (PAHO) has put forward a number of reasons for involving males in SRH [29], namely: 1) men have significant influence on sexuality and reproduction; 2) men have distinct SRH needs and demands (separate from those of women); 3) there are inequitable gender relations which are commonplace in developing countries such as Jamaica; 4) men's risky behavioral patterns negatively impact women and children; 5) there are increasing rates of STIs and HIV/AIDS; 6) the importance of using contraception in preventing unwanted and unplanned pregnancies; and 7) specific requests made by women to incorporate their partners into SRH promotion, education, and service delivery [29].

Research conducted by Pulerwitz et al. has provided key information in understanding the association between men's behavior and gender norms in countries such as Kenya, Brazil, India, Tanzania and Ethiopia [8,10]. This work has led to the development of tools such as the GEM scale that can objectively quantify gender norms [8,30]. Overall, the interventions presented by Pulerwitz et al have shown higher gender (equitable) norm scores associated with reduced risk for behaviors such as intimate partner violence, risky sex, and reproductive health [8]. Barker and colleagues (2009) [31] conducted a literature review consisting of 58 evaluation studies targeting men and boys that revealed that programs that promoted gender equitable relationships were more effective in changing behaviors related to sexual and reproductive health (including HIV prevention and control); father involvement; and gender-based violence. The authors highlighted that incorporating a gender-based approach impacted change on the social levels and not merely the individual level, and hence was more effective [31]. International agencies such as the International Center for Research on Women (ICRW) [25] and WHO [32] have also demonstrated the importance of including measures to address gender inequitable and masculinity norms to improve the effectiveness of HIV programs. The US has also acknowledged masculinity norms as a significant contributor to the rapid increase of HIV in the Black communities.[33]

Gender norms and men in Jamaica. Gender norms that increase vulnerability to HIV are pervasive in the Caribbean [34]. An assessment of HIV/AIDS in the Caribbean by Figueroa, 2004 showed gender norms influenced behaviors such as condom use, early initiation of sex, transactional sex (sex in exchange for school fees, food, gifts, social support etc.), and age mixing between older men and young females [35]. Early qualitative

work done by Chevannes *et al* in Jamaica revealed an association between gender and risky sex behaviors and violence [36]. Significant research done by Anderson in 2007 to examine the attitudes of Jamaican fathers led to the development of the Macho scale which seeks to measure dimensions of masculinity related sexual dominance, virility, and the need to father children among Jamaican men [36]. Anderson's work revealed that childbearing is integral for male identity; however, men tend to prefer sexual freedom [36]. This behavior often resulted in men producing different sets of children from various conjugal relationships [36].

Jamaican men have poor health seeking behaviors [37], and engage in higher levels of risky behaviors than women. According to the United Nations General Assembly Special Session (UNGASS) Country Progress Report (Jamaica), in 2008, only 20.2% of men (35.4% in the 14-49) age range had an HIV test in the past 12 months or knew their HIV status [38]. Behaviors such as multiple sexual partners (especially among males), practice of unprotected sex [39], early initiation of sex and poverty are the principal determinants of HIV transmission in the country [18]. Sexual behavioral practices and expectations associated with sex are deeply entrenched within the culture, and are expressed spontaneously rather than by rational choice. Boys are usually raised and socialized to have sex early as an indication of their "strength" and manhood, and to prevent being labeled as homosexuals [40]. Therefore, approximately 50% of males engage in sex by age 16 years [41]. A study done by Olukoga in 2004, showed that the mean age of sexual initiation for 47% of boys was 12.5±2.5 years, compared to 15% of girls who were sexually active by 14 years of age [42]. Although Jamaica's National HIV program has played a pivotal role in slowing the rate of the HIV epidemic and mitigating its impact [41],

little progress has been made in changing behaviors such as early initiation of sex, having multiple sexual partners and transactional sex, which are significant drivers of the HIV epidemic [41].

Male circumcision. MC has been identified as one of the six program priority areas to maximize the effectiveness of the HIV response [13]. Although, advances in HIV treatment including PMTCT have led to global optimism that a HIV-free world is achievable [13], it is not sustainable especially in many poor countries due to inadequate funding [13]. Thus, the scale-up of MC is pivotal in HIV programs as this has been proven to be a cost effective and sustainable measure. Results from three randomized studies conducted in Kenya, South Africa and Uganda revealed that MC can reduce men's risk of contracting HIV by approximately 60% [43-49]. Based on the overwhelming evidence that has been presented in these randomized controlled trials (RCT), MC has been endorsed by a number of health organizations including the World Health Organization (WHO), the United Nations (UN), and the National Institute of Health (NIH), and also supported by many countries across the world [46].

Since the WHO/UNAIDS made the recommendation for including MC as part of the comprehensive HIV package, a number potential challenges such as lack of political will, human resource constraints, limited funds, reports of adverse events (AEs) and low acceptability of MC have prevented or reduced scale up of MC in many countries[50,51]. These challenges threaten the potential impact of MC to significantly reduce incidence of HIV, as high uptake is required to obtain a potentially similar effect as herd immunity [47].

Additionally, countries are often faced with decisions regarding offering MC to neonates or adults or both, in light of resource constraints, cultural and gender norms including religious beliefs.

MC is not included in the Caribbean regions' HIV prevention program due to factors such as disagreement about the benefits of MC, concerns about the effect of MC on sexual performance, and misunderstanding of the role of MC as an HIV prevention strategy [52]. Further, limited research has been conducted in the region about MC. Given the high prevalence of multiple sex partners in Jamaica, providing MC for men, neonates, and infants could be an effective preventive strategy in reducing male vulnerability to HIV/STIs for present and future generations. However, MC is not included in Jamaica's HIV prevention program and is not routinely offered in the country. A descriptive study that was conducted by Figueroa in 2008 [53] involving a convenient sample of 143 STI clinic attendees (67 males, 76 females) in Kingston, revealed that knowledge of circumcision is limited and only 9% of the males reported that they were circumcised. Figueroa concluded adult male circumcision may not be feasible in Jamaica due to resource constraints, relatively low HIV prevalence (1.7%) and unlikely support from policy makers, surgeons and men [53]. However, the factors that were associated with acceptance of MC were not documented in Figueroa's study.

Overview of Dissertation

This dissertation consists of three manuscripts assessing the association between gender norms, sexual behaviors, reproductive health practices and acceptability of MC among men in the western region of Jamaica, as described below:

Manuscript 1: This paper, 1) Examined the association between attitudes towards gender norms using the GEM and Macho scales independently, and sexual behaviors among men aged 19-54 years in western Jamaica, 2) Identified socio-demographic factors that predict scores on the GEM and Macho scales and 3) Compared the performance of the Macho scale to the GEM scale with respect to the association with sexual behaviors and socio-demographic factors;

Manuscript 2: This paper assessed the prevalence of male circumcision (MC) among men in the western region of Jamaica, and identified factors associated with acceptability of MC for self, infants (<1 year) and older sons (1-17 years);

Manuscript 3: This paper assessed the association between inequitable and masculinity gender norms and involvement in contraception use, having multiple baby mothers, and intentions to having a large family among men in the western region of Jamaica.

The findings from this dissertation could inform the design and implementation of policy and programs to improve sexual and reproductive health outcomes and reduce risk of HIV acquisition among men in Jamaica.

GENDER NORMS AND SEXUAL BEHAVIORS AMONG MEN IN WESTERN JAMAICA

WALCOTT MELONIE M, FUNKHOUSER ELLEN, AUNG MAUNG, KEMPF MIRJAM C, EHIRI JOHN, ZHANG KUI, BAKHOYA MARION, HICKMAN DEBORAH, JOLLY PAULINE E

Submitted to AIDS and Behavior

Format adapted for dissertation

Abstract

We assessed the association between attitudes towards gender norms and multiple sexual partners and identify socio-demographic factors that predict gender inequitable and masculinity scores among men in western Jamaica. A cross-sectional, interviewer-administered survey of 549 men aged 19-54 years was conducted. Attitudes towards gender norms were measured using the Gender Equitable Men (GEM) and Macho Scales. Logistic regression and general linear models were used assess the association between gender norms and multiple sexual partners, and identify socio-demographic factors that were associated these norms. Adjusted odds ratios (AOR) and 95% confidence intervals (CI) for these models are presented. Fifty-four percent of the participants (mean age 32.4 years) reported having multiple sex partners in the past 12 months. Men with moderate and high support for masculinity and inequitable gender norms were more likely to report multiple sex partners. The need for educational interventions that target men, addressing gender norms, is highlighted.

Keywords: Sexual behaviors, gender norms, masculinity, HIV/AIDS

Introduction

The Caribbean region has the second highest HIV prevalence worldwide, after sub-Saharan Africa (1, 2). Gender differences in sexual norms have been identified as a significant driver of HIV transmission in the Caribbean and are therefore pivotal to our understanding of the dynamics of the HIV epidemic in the region (3-6). In some societies masculinity and inequitable gender norms have been associated with poor health seeking practices (3, 4, 7, 8), early initiation of sex, sex with sex workers, multiple sex partners and exerting dominance over women (3, 4, 9, 10). The effect of these norms on men's behaviors is exacerbated as most sexual and reproductive health service programs focus on women and children, with little or no involvement of men (11-13). Females on the other hand, are not expected to be knowledgeable about safer sex practices, and those seeking information about safer sex are often viewed as promiscuous or adulterous (14, 15). The World Health Organization defines gender norms as "social expectations of appropriate roles and behaviors for males and females, as well as the social reproduction of these norms in institutions and cultural practices" (16, 17). Adhering to certain gender expectations creates vulnerabilities to HIV infection, influences sexual and reproductive health behaviors and undermines HIV prevention and control programs (4, 15, 16, 18, 19).

Jamaica, the third largest island in the Caribbean, HIV prevalence among adults (15-49 years) is approximately 1.7%, with higher rates among sex workers (SW) (9%) and men who have sex with men (MSM) (25-30%) (20-22). Though Jamaica's National

HIV/AIDS Response Program has played a central role in slowing down the rate of the epidemic, little progress has been made in changing behaviors, such as multiple sexual partners, especially among men (21, 23). Multiple sex partners has been established as a significant risk factor for HIV acquisition (24, 25). This risk factor is central to the HIV epidemic in Jamaica as studies consistently reveal the prevalence of multiple sexual partners among men is >50% (23, 26-28) and 80% of HIV cases report a history of multiple sexual partners (23). Limited involvement of men, and inadequate emphasis on gender dimensions in HIV initiatives could be serving as barriers to Jamaica's HIV prevention and control program.

The objectives of this study were to: 1) Examine the association between attitudes towards gender norms using the GEM and Macho scales independently, and sexual behaviors among men aged 19-54 years in western Jamaica, 2) Identify socio-demographic factors that predict scores on the GEM and Macho scales and 3) Compare the performance of the Macho scale to the GEM scale with respect to the association with sexual behaviors and socio-demographic factors. Inequitable norms are measured using Gender Equitable Men (GEM) Scale (17, 29) which has been designed to predict behaviors such as condom use, contraceptive use, multiple sexual partners and intimate partner violence and was developed among young men (15-24 years of age) in Brazil (17). The GEM scale has been found to be a culturally-sensitive tool for measuring gender norms and has been used in a number of countries such as India, Kenya, Ethiopia, and Nicaragua (29) . The Macho scale was recently developed among fathers (18-59

years of age) residing in Jamaica, and is designed to measure sexual dominance and virility, and the primordial need to father children (30).

Materials and Methods

Study design and settings

A cross-sectional study was conducted among 549, 19-54 years old men in western Jamaica, during June to August 2011. The participants were recruited from four hospitals within the Western Regional Health Authority (WRHA), which serves the four parishes of St. James, Hanover, Westmoreland, and Trelawny, comprising a population of 474,944 (31). The parishes in the WRHA have high rates of HIV prevalence with the parish of St. James having the highest cumulative number of AIDS cases of the 14 parishes in Jamaica (21). Health care was offered at no cost at all government operated health facilities at the time this study was conducted.

To estimate the potential effect of selection bias in the recruitment from hospitals, a community sample of 51 men was compared with the hospital sample with respect to attitudes towards gender norms (GEM and Macho scores), the outcome variable (multiple sexual partners) and key socio-demographic variables (age, income, and education). Except for age and multiple sexual partners there were no statistical differences between the hospital and community samples. Men in the community sample tended to be older and were less likely to report having multiple sexual partners.

Ethical approval for the study was obtained from the Institutional Review Board (IRB) of the University of Alabama at Birmingham, the Advisory Panel of Ethics and Medico-Legal Affairs in the Jamaican Ministry of Health, and the Western Regional Health Authority.

Participants

To be eligible for participation in this study men had to be 19-54 years old, live in the western region, visit one of the hospitals for out-patient care or as a visitor. Interviews were conducted in private rooms at the hospital by trained Research Assistants. Each study participant was given a phone card at the end of the interview, valued at $215 Jamaican dollars (JAD) [equivalent to US$2.50] for completing the interview.

Data collection

A 143-item questionnaire was used to collect data on sexual behaviors, reproductive health practices, male circumcision, health seeking behaviors, attitudes towards gender norms and socio-demographic factors. Two validated scales (GEM and Macho) were included in the questionnaire. The GEM Scale (17) was used to measure gender inequitable and equitable norms**.** The scale consists of 24 items scored on a three point likert scale (1=agree, 2= partially agree, 3=disagree). Items 1-17 measure gender inequitable norms, while items 18-24 measure gender equitable norms. Scores for the inequitable norms (maximum score 51) and equitable norms (maximum score 21) subscales were calculated separately. The Cronbach alpha for the "inequitable" and equitable subscales are 0.85 and 0.77, respectively (17). Score Scores were classified as

‘‘high,’’ ‘‘moderate,’’ and ‘‘low’’ by dividing the sum of the range of answers on the two sub-scales into 3 equal and separate parts as recommended by the author. For example support for inequitable gender norms was classified as: high (41-51), moderate (29-40), low (17-28) (17).

The Macho Scale (30, 32) consists of 13 items (Cronbach's alpha of 0.82) measuring two dimensions (sexual dominance and virility, and the primordial need to beget children) of masculinity related to male-female gender relations. Items are scored using a Likert scale ranging from 1 to 5, resulting in a minimum score of 13 and a maximum of 65. Higher scores are indicative of higher levels of machismo (30, 32). Scores were classified as ‘‘high,’’ ‘‘moderate,’’ and ‘‘low’’ by dividing the cumulative frequency distribution of the sample into tertiles, as recommended by the author (30). One of the items "A man does not have to tell his partner everywhere he is going," which was included in the version of the scale that was used in this study, has since been replaced by another item "A man should never tell a woman he loves her" in the final scale that has been published by the author (30).

In our sample, internal reliability as measured by Cronbach's alpha, for the inequitable GEM, equitable GEM and Macho scales were 0.74, 0.32, and 0.74, respectively. Due to low reliability on the equitable GEM sub scale we did not use it in any of the analyses presented.

Our dependent variable, number of multiple sexual partners was assessed by asking "How many sexual partners have you had in the past 12 months"? If participants had more than one sex partner they were classified as having multiple sexual partners.

Covariates

Socio-demographic factors (age, education, income, and marital status), and drug use have been identified as potential confounders of the relationship between gender norms and multiple sex partners (10). Thus these variables along with perceived risk for HIV acquisition were also assessed in our study.

Data analysis

Differences between sexual behaviors and socio-demographic factors by age groups and attitude toward gender norms were assessed using chi-square test. To control for the Familywise Type I error rate ($\alpha_{FW)}$ due to multiple testing, a p-value ≤ 0.0023 (0.05/18) was considered statistical significant in the Chi-square analyses (Table 2). A general linear model was used to identify socio-demographic factors that were associated with attitudes towards gender norms (Macho and Inequitable GEM scores). Bivariate and multivariable analyses were performed to obtain crude and adjusted estimates (Odds Ratios) of the association between attitudes towards gender norms and having multiple sexual partners. Backward selection modeling was used in the adjusted logistic regression models. All variables in the crude analyses with a p-value <0.10 were entered and retained if $p<0.05$. Education was retained in the final models regardless of the p-value

because of its well documented association with gender norms and multiple sex partners. Separate models were constructed for inequitable and masculinity gender norms. Data analysis was performed using SAS software version 9.2 (SAS Institute, Cary, NC).

Results

The overall participation rate among eligible men was 70% with 549 men agreeing to participate. The main reasons for not participating were lack of time and fear of missing scheduled appointment while waiting for care at the hospital. Approximately 34.6% of the participants were recruited from hospitals in St James, 32.6% from Westmoreland, 17% in Trelawny and 15.7% from Hanover.

The average age of the participants was 32.4 years (SD ±10.1). The majority of men (65.5%) reported the completion of secondary education, having religious affiliations (78.6%) and reported a low monthly income (<JAD30, 000.00) (63%). Overall, 298 (54.3%) of the men reported multiple sex partners in the past 12 months, and 303 (55.9%) reported not using a condom at last sex. A higher proportion of younger men, those who were single, who reported condom use at last sex, consistent condom use, unprotected sex with non-regular partner within the past 12 months and perceived their risk of HIV acquisition as moderate or high reported having multiple sexual partners within the past 12 months. Additionally, a higher proportion of men who reported current drug use (alcohol and marijuana) and higher support for inequitable and masculinity gender norms reported having multiple sex partners (Table 1).

Men reporting multiple sexual partners stated a wide range of reasons for having more than one partner. The two main reasons given were “change in relationships” [serial relationships] (22.5%) and “it is the norm to have more than one sexual partner” (15.6%).

Among the participants who did not use condoms at last sex, the most common reasons for not using condoms were “trust partner” (44.0%), “no condom was available” (14.7%), and personal objection to condom use (13.4%). Only (30.5%) of the men reported consistent condom use. Almost all (98.5%) men identified as heterosexual.

A higher proportion of men with at least moderate support for inequitable gender norms were more likely to report having multiple sexual partners, sex with a sex worker (SW), marijuana use, having attended primary school or less. Similarly, a higher proportion of men with high Macho scores tended to report sex with a SW, multiple sex partners, marijuana and alcohol use, and primary or less education (Table 2). Overall men’s sexual behaviors and socio-demographic factors varied significantly and in the same direction on both the Inequitable and Macho scales. The main discrepancy related to “unprotected sex with non-main partner”, where a significant relationship was found with the Inequitable scale (a higher proportion of men with low scores tend to report inconsistent condom use) while no relationship was observed with the Macho scale.

In adjusted analyses, age, education and marital status were significantly associated with Macho scores: age had an U-shaped association, namely, age 25-34 had lower scores than did the older and younger age groups, higher education was inversely associated, and single marital status was directly associated with Macho scores. Associations with inequitable gender norm scores were similar to those with the Macho scores, except for income which was a significantly inversely associated with inequitable gender norms scores but not with Macho scores (Table 3).

Using multivariable analysis (Model 1 – includes all the variables with a p-value of ≤0.10 in the bivariate analysis except Macho scores), men with moderate (AOR =2.2; 95% CI=1.4 – 3.5) and high (AOR = 4.4; 95% CI =2.2 – 8.8) support for inequitable gender norms were more likely to report multiple sex partners than men with low support. A similar association was observed in Model 2 (which included all the variables with a p-value of ≤0.10 in the bivariate analysis except Inequitable gender norm scores), namely, an increased odds of reporting multiple sex partners among men with moderate (AOR= 1.7; 95% CI = 1.1 – 2.8) and high (AOR =2.6; 95% CI =1.6 – 4.4) support for masculinity norms. Except for marital status (which was associated with increased odds for having multiple sex partners in model 1 only) all the variables that were retained in both models had comparable strength of association and in the same direction in relation to having multiple sexual partners. Education was retained in both models although the p-value was >0.10 (Table 4).

Discussion

Over 50% of the men in our study reported having multiple sexual partners within the past 12 months, which is considerably higher than what has been reported in other high risk settings, such as sub-Saharan African (10, 33-35), the region with the highest burden of HIV/AIDS (36). Overall, these findings demonstrate that a high proportion of Jamaica's men are engaging in high-risk sexual behaviors that could increase their vulnerability to HIV acquisition. We found moderate and high support for inequitable and masculinity gender norms was independently associated with increased odds for having multiple sex partners after controlling for covariates such as age, education, and income as well as other known risk factors (alcohol and marijuana use, and HIV risk perception). Furthermore, socio-demographic factors (age, education, and marital status) predicting Macho and Inequitable gender norms scores were similar on both scales. These findings suggest that the newly developed Macho scale was comparable to the well-established Inequitable GEM scale, which has been used in other developing countries.

Tolerance of masculinity and inequitable gender norms that encourages men to have multiple sex partners, put men at risk for not seeking accurate risk reduction information (6, 29). The need to include "masculinity" in HIV prevention programs to reduce men's vulnerability to HIV acquisition has been highlighted in studies conducted in the US (37-40) and in developing countries such as Brazil, India (41) and Mozambique (9). A number of studies consistently revealed high prevalence (>50% in most instances) of

multiple sex partners among males (especially younger men) in Jamaica (23, 26-28). However, despite these glaring statistics the problem continues to persist. Further, among persons who are living with HIV in Jamaica, 80% have reported a history of multiple sexual partners (23). Thus the practice of having multiple sexual partners among men in Jamaica may have transitioned from being tolerated to being normalized in the society which could create an ideal environment for a rapid increase of HIV transmission over time. This could explain why little progress has been made in changing these behaviors, and highlight a crucial gap in Jamaica's comprehensive HIV prevention program.

Although condoms are widely available in Jamaica, as most of the HIV prevention programs promote condom use (5), and some progress in condom use has been made over the years (23), our study as well as others (5, 10, 26, 28, 42) show relatively low (less than 60%) condom use at last sex among individuals. While studies have shown a relatively higher rate of condom use (approximately 75%) with non-regular partners (23, 43), our study highlights the need for innovative condom promotion programs given the high proportion of men reporting multiple sexual partners, and the low prevalence of consistent condom use (31%) among men in our study. Additionally, only 36% of the men reported HIV testing in the past 12 months. Research conducted by Norman using a national of sample of 1,800 males (50.8%) and females in Jamaica has revealed a low history of HIV testing (37.6%), with men being less likely to report HIV testing (44). This suggests that a high proportion of Jamaican men are not aware of their HIV status. Thus it is not surprising that most men (74%) reported that they were at low risk for contracting HIV.

Men with little education were more likely to support masculinity and inequitable gender norms. Therefore, to effectively influence gender norms and risk behaviors that increase men's vulnerability to HIV acquisition, a sustainable multi-level approach is needed. Interventions need to involve parents, community, schools, churches, and policy reform in order to promote new ideals of manhood and gender identity (3, 4, 29, 45). This approach could also be strengthened by targeting men at social sites such as bars, and sporting activities that they commonly visit (46). The need to develop and implement culturally relevant interventions to reduce risk behaviors among Jamaica's youth, have been documented in other studies (10, 15, 38, 43). Although attitudes towards gender norms are changeable (5), it is likely to be a challenging and gradual process, which ideally should be addressed early in life (29). Modifiable social and cultural behaviors are central to reducing HIV transmission, especially in resource poor setting given that there is still no vaccine and the expensive treatment cost (36).

While the current findings contribute to the understanding of the association between gender norms and sexual behaviors in Jamaica, this study has a number of limitations, which must be taken into consideration when interpreting the results. First, we were unable to demonstrate causality. Second, all of our assessments rely on self-reported data collected through interviews. The study could potentially be affected by social desirability bias, especially since all of the interviewers were females. However, all interviewers were trained before conducting this study to reduce any effect due to bias. Third, most of the sexual behaviors relate to a one-year time period. Hence, the study could be affected by recall bias. Although we recruited participants from all of the

hospitals in WRHA, which serves a wide population area, it should be noted that these facilities might be underutilized by individuals of upper middle to high socioeconomic status. The inclusion of visitors (visiting patients, not seeking health care) to the hospitals in our sample was intended to reduce this effect. Additionally, we employed the use of a community sample to estimate the representativeness of the hospital sample. Based on our finding the differences in having multiple sexual partners in the two samples is likely to be attributed to age. Differences in age could potentially be attributed to older men being more likely to be at home compared to younger men who may be at work or engaged in other activities. Although this was a small non-randomly collected community sample, it does provide an estimation of the characteristics of a community sample.

Despite these limitations, our study calls attention to the need for involvement of men in HIV prevention interventions. Addressing gender norms that encourage high-risk sexual behavior among men, especially young men, could contribute to strengthening the country's HIV prevention and control programs. In order to effectively change attitudes towards gender norms that increase men's vulnerability to HIV acquisition, concerted efforts must be made to invest in long-term sustainable interventions that involve key agents of socialization such as schools, churches, and community based organizations. It is imperative that these messages are infused in agents of socialization early in life, since it will be extremely difficult to transform deep-rooted ideologies of masculinity and inequitable gender norms during adulthood. This study underscores the need for further

research to assess the effect of interventions designed to address inequitable and masculinity norms and sexual behaviors especially among younger Jamaican men.

Acknowledgement

This study was supported by the Minority Health International Research Training (MHIRT) grant no. T37-MD001448 from the National Institute on Minority Health and Health Disparities, National Institutes of Health, Bethesda, MD, USA, and the Ministry of Health, Jamaica.

References

1. PAHO. The UNGASS Women's and Vulnerablity to HIV/AIDS in Latin America and the Caribbean. Women Health and Development program 2002.
2. Inciardi JA, Syvertsen JL, Surratt HL. HIV/AIDS in the Caribbean Basin. AIDS Care. 2005;17 Suppl 1:S9-25. Epub 2005/08/13.
3. Jewkes R, Morrell R. Gender and sexuality: emerging perspectives from the heterosexual epidemic in South Africa and implications for HIV risk and prevention. J Int AIDS Soc.13:6. Epub 2010/02/26.
4. Greig A, Peacock D, Jewkes R, Msimang S. Gender and AIDS: time to act. AIDS. 2008;22 Suppl 2:S35-43. Epub 2008/07/25.
5. Nnedu ON, McCorvey S, Campbell-Forrester S, Chang J, Salihu HM, Jolly PE. Factors Influencing Condom Use among Sexually Transmitted Infection Clinic Patients in Montego Bay, Jamaica. The open reproductive science journal. 2008;1:45-50. Epub 2008/01/01.
6. Shawky S, Soliman C, Sawires S. Gender and HIV in the Middle East and North Africa: lessons for low prevalence scenarios. J Acquir Immune Defic Syndr. 2009;51 Suppl 3:S73-4. Epub 2009/07/30.
7. Courtenay WH. Constructions of masculinity and their influence on men's well-being: a theory of gender and health. Soc Sci Med. 2000;50(10):1385-401. Epub 2000/03/31.
8. Hirsch JS. Gender, sexuality, and antiretroviral therapy: using social science to enhance outcomes and inform secondary prevention strategies. AIDS. 2007;21 Suppl 5:S21-9. Epub 2008/01/03.
9. Macia M, Maharaj P, Gresh A. Masculinity and male sexual behaviour in Mozambique. Cult Health Sex.13(10):1181-92. Epub 2011/10/07.
10. Shannon K, Leiter K, Phaladze N, Hlanze Z, Tsai AC, Heisler M, et al. Gender inequity norms are associated with increased male-perpetrated rape and sexual risks for HIV infection in Botswana and Swaziland. PLoS One. 2012;7(1):e28739. Epub 2012/01/17.
11. Collumbien M, Hawkes S. Missing men's messages: does the reproductive health approach respond to men's sexual health needs? Culture, health & sexuality. 2000;2(2):135-50. Epub 2002/09/26.
12. Sternberg P, Hubley J. Evaluating men's involvement as a strategy in sexual and reproductive health promotion. Health Promot Int. 2004;19(3):389-96. Epub 2004/08/13.
13. Varga CA. The forgotten fifty per cent: a review of sexual and reproductive health research and programs focused on boys and young men in sub-Saharan Africa. Afr J Reprod Health. 2001;5(3):175-95. Epub 2002/12/11.
14. Verma RK, Pulerwitz J, Mahendra V, Khandekar S, Barker G, Fulpagare P, et al. Challenging and changing gender attitudes among young men in Mumbai, India. Reprod Health Matters. 2006;14(28):135-43. Epub 2006/11/15.
15. Smith D, Roofe M, Ehiri J, Campbell-Forrester S, Jolly C, Jolly P. Sociocultural contexts of adolescent sexual behavior in rural Hanover, Jamaica. The Journal of adolescent health : official publication of the Society for Adolescent Medicine. 2003;33(1):41-8. Epub 2003/07/02.
16. WHO. Engaging men and boys in changing gender-based inequity in health: Evidence from programme interventions 2007; Available from: http://www.who.int/gender/documents/Engaging_men_boys.pdf.
17. Pulerwitz J BG. Measuring Attitudes toward Gender Norms among Young Men in Brazil. Development and Psychometric Evaluation of the GEM Scale Men and Masculinities 2008;10(3):322-38.
18. WHO. Gender, Women and Health. Gender inequalities and HIV. 2011 [cited 2011]; Available from: http://www.who.int/gender/hiv_aids/en/.

19. Norman LR, Gebre Y. Prevalence and correlates of HIV testing: an analysis of university students in Jamaica. MedGenMed. 2005;7(1):70. Epub 2005/12/22.
20. Duncan J, Gebre Y, Grant Y, Wedderburn M, Byfield L, Bourne D, et al. HIV prevalence and related behaviors among sex workers in Jamaica. Sex Transm Dis.37(5):306-10. Epub 2010/01/13.
21. Pierre RB, Steel-Duncan JC, Evans-Gilbert T, Rodriguez B, Moore J, Palmer P, et al. Effectiveness of antiretroviral therapy in treating paediatric HIV/AIDS in Jamaica. West Indian Med J. 2008;57(3):223-30. Epub 2009/07/09.
22. Wood EB, Hutchinson MK, Kahwa E, Hewitt H, Waldron N. Jamaican adolescent girls with older male sexual partners. J Nurs Scholarsh.43(4):396-404. Epub 2011/10/19.
23. Figueroa JP, Duncan J, Byfield L, Harvey K, Gebre Y, Hylton-Kong T, et al. A comprehensive response to the HIV/AIDS epidemic in Jamaica: a review of the past 20 years. West Indian Med J. 2008;57(6):562-76. Epub 2009/07/08.
24. Uchudi J, Magadi M, Mostazir M. A multilevel analysis of the determinants of high-risk sexual behaviour in sub-Saharan Africa. Journal of biosocial science. 2012;44(3):289-311. Epub 2011/11/10.
25. Althoff MD, Anderson-Smits C, Kovacs S, Salinas O, Hembling J, Schmidt N, et al. Patterns and Predictors of Multiple Sexual Partnerships Among Newly Arrived Latino Migrant Men. AIDS and behavior. 2012. Epub 2012/09/22.
26. Ishida K, Stupp P, McDonald O. Prevalence and correlates of sexual risk behaviors among Jamaican adolescents. International perspectives on sexual and reproductive health. 2011;37(1):6-15. Epub 2011/04/12.
27. Gibbison GA. Attitude towards intimate partner violence against women and risky sexual choices of Jamaican males. The West Indian medical journal. 2007;56(1):66-71. Epub 2007/07/12.
28. Figueroa JP, Ward E, Walters C, Ashley DE, Wilks RJ. High risk health behaviours among adult Jamaicans. West Indian Med J. 2005;54(1):70-6. Epub 2005/05/17.
29. Pulerwitz J, Michaelis A, Verma R, Weiss E. Addressing gender dynamics and engaging men in HIV programs: lessons learned from Horizons research. Public health reports. 2010;125(2):282-92. Epub 2010/03/20.
30. Anderson P. Measuring masculinity in an afro-caribbean context. Social and Economic Studies. 2012;61(1):49-93.
31. Western Regional Health Authority (WRHA). Western Regional Health Authority (WRHA) Anual Report. 2008; Available from: http://www.wrha.gov.jm/.
32. Anderson M, Elam G, Solarin I, Gerver S, Fenton K, Easterbrook P. Coping with HIV: Caribbean people in the United Kingdom. Qual Health Res. 2009;19(8):1060-75. Epub 2009/07/30.
33. Kajubi P, Green EC, Hudes ES, Kamya MR, Ruark AH, Hearst N. Multiple sexual partnerships among poor urban dwellers in Kampala, Uganda. J Acquir Immune Defic Syndr. 2011;57(2):153-6. Epub 2011/02/15.
34. Mitsunaga TM, Powell AM, Heard NJ, Larsen UM. Extramarital sex among Nigerian men: polygyny and other risk factors. J Acquir Immune Defic Syndr. 2005;39(4):478-88. Epub 2005/07/13.
35. Mavhu W, Langhaug L, Pascoe S, Dirawo J, Hart G, Cowan F. A novel tool to assess community norms and attitudes to multiple and concurrent sexual partnering in rural Zimbabwe: participatory attitudinal ranking. AIDS Care. 2011;23(1):52-9. Epub 2011/01/11.
36. Ghebremichael M, Paintsil E. High risk behaviors and sexually transmitted infections among men in Tanzania. AIDS and behavior. 2011;15(5):1026-32. Epub 2009/07/29.
37. Christie CD, Steel-Duncan J, Palmer P, Pierre R, Harvey K, Johnson N, et al. Paediatric and perinatal HIV/AIDS in Jamaica an international leadership initiative, 2002-2007. West Indian Med J. 2008;57(3):204-15. Epub 2009/07/09.

38. Norman LR, Figueroa JP, Wedderburn M, Byfield L, Bourne D, Gebre Y. Trends in HIV risk perception, condom use and sexual history among Jamaican youth, 1996-2004. International journal of adolescent medicine and health. 2007;19(2):199-207. Epub 2007/06/28.
39. Andrinopoulos K, Figueroa JP, Kerrigan D, Ellen JM. Homophobia, stigma and HIV in Jamaican prisons. Cult Health Sex. 2011;13(2):187-200. Epub 2010/10/26.
40. Fields EL, Bogart LM, Smith KC, Malebranche DJ, Ellen J, Schuster MA. HIV risk and perceptions of masculinity among young black men who have sex with men. The Journal of adolescent health : official publication of the Society for Adolescent Medicine. 2012;50(3):296-303. Epub 2012/02/14.
41. Lippman SA, Pulerwitz J, Chinaglia M, Hubbard A, Reingold A, Diaz J. Mobility and its liminal context: exploring sexual partnering among truck drivers crossing the Southern Brazilian border. Soc Sci Med. 2007;65(12):2464-73. Epub 2007/09/01.
42. Wood EB. HIV-related sexual risk behaviours among late-adolescent Jamaican girls with older male partners. West Indian Med J. 2010;59(4):403-8. Epub 2011/03/02.
43. Stallworth J, Roofe M, Clark LF, Ehiri JE, Mukherjee S, Person S, et al. Predictors of sexual involvement among adolescents in rural Jamaica. International journal of adolescent medicine and health. 2004;16(2):165-78. Epub 2004/07/23.
44. Norman LR. HIV testing practices in Jamaica. HIV Med. 2006;7(4):231-42. Epub 2006/04/25.
45. Dunkley-Thompson J, Pierre RB, Steel-Duncan J, Palmer P, Davis D, Figueroa JP, et al. Bacille Calmette-Guerin lymphadenitis and immune reconstitution syndrome in HIV-infected children on antiretroviral therapy in Jamaica. West Indian Med J. 2008;57(3):302-6. Epub 2009/07/09.
46. Morris C, James K, Laws H, Eldemire-Shearer D. Health status and health-seeking behaviour of Jamaican men fifty-five years and over. West Indian Med J.60(3):322-9. Epub 2012/01/10.

Table I: Socio-demographic characteristics, attitudes towards gender norms and sexual risk behavior among men attending/visiting hospitals in Western Jamaica stratified by report of multiple sexual partners within the last 12 months

Selected variable	All N=549	Multiple sexual partners		P-value
		No (N=251)	Yes (N=298)	
	N (%)	N (%)	N (%)	
Age				<0.001
19-24	154 (28.1)	43 (17.1)	111 (37.3)	
25-34	157 (28.6)	70 (27.9)	87 (29.2)	
35-54	238 (43.4)	138 (55.0)	100 (33.6)	
Education				0.75
Primary or less	118 (21.5)	57 (22.7)	61 (20.5)	
Secondary	359 (65.5)	160 (63.8)	199 (66.8)	
Tertiary	72 (13.1)	34 (13.6)	38 (12.8)	
Occupation				0.53
Unskilled/laborer	172 (33.7)	84 (36.2)	88 (31.5)	
Skilled Worker	283 (55.4)	123 (53.0)	160 (57.4)	
Professional/managerial	56 (11.0)	25 (10.8)	31 (11.1)	
Employed	353 (64.3)	160 (63.8)	193 (64.8)	0.80
Monthly Income ($JA) ≤30,000[1]	348 (63.4)	169 (67.3)	179 (60.1)	0.08
Single Marital Status	350 (64.7)	134 (54.0)	216 (73.7)	<0.001
Any Religious affiliation	430 (78.6)	203 (81.5)	227 (76.2)	0.13
Childhood guardian				0.13
Both Parents	213 (38.9)	109 (43.4)	104 (35.0)	
Single	218 (39.8)	92 (36.7)	126 (42.4)	
Other[2]	117 (21.4)	50 (19.9)	67 (22.6)	
Consistent condom use	165 (30.5)	60 (24.5)	105 (35.5)	0.006
Unprotected sex with non-main partner	121 (22.3)	22 (8.9)	99 (33.6)	<0.001
Condom use at last sex	303 (55.2)	104 (42.3)	199 (67.2)	<0.001
Ever had sex with Sex worker	196 (36.0)	60 (24.2)	136 (46.0)	<0.001
Ever had an STI	192 (35.0)	81 (32.4)	111 (37.3)	0.24
Perceived HIV risk				0.02
Low	400 (74.4)	196 (80.0)	204 (69.6)	
Moderate	67 (12.5)	23 (9.4)	44 (15.0)	
High	71 (13.2)	26 (10.6)	45 (15.4)	
HIV test in past year	198 (36.3)	81 (32.5)	117 (39.4)	0.10
Ever Sexually Abused	27 (5.0)	11 (4.5)	16 (5.4)	0.62
Current Alcohol use	187 (34.1)	61 (24.4)	126 (42.3)	<0.001
Current Marijuana use	148 (27.1)	53 (21.2)	95 (32.0)	0.005
Inequitable gender norm score				<0.001
Low (17 - 28)	141 (25.7)	84 (33.5)	57 (19.1)	
Moderate (29 – 40)	335 (61.0)	145 (57.8)	190 (63.8)	
High (41 – 51)	73 (13.3)	22 (8.8)	51 (17.1)	
Macho score				<0.001
Low (13-32)	161 (29.3)	94 (37.5)	67 (22.5)	
Moderate (34 – 40)	223 (40.6)	103 (41.0)	120 (40.3)	
High (44 – 65)	165 (30.1)	54 (21.5)	111 (37.3)	

1=1USD = 85JAD

2=Includes children's home (orphanage) and other relatives

Table II: Socio-demographic characteristics and risk behaviors stratified by attitude towards gender norms among men in western Jamaica

Selected variables	Inequitable gender norms score				Macho score			
	Low	Moderate	High	p-value	Low	Moderate	High	p-value
Sexual behaviors and beliefs				0.029				0.031
Condom use at last sex								
Yes	76 (54.7)	177 (53.3)	50 (70.4)		84 (53.2)	114 (51.6)	105 (64.4)	
No	63 (45.3)	155 (46.7)	21 (29.6)		74 (46.8)	107 (48.4)	58 (35.6)	
General condom use				0.024				0.025
Consistent	32 (23.2)	103 (31.2)	30 (41.1)		37 (23.3)	68 (30.8)	60 (37.3)	
Inconsistent	106 (76.8)	227 (68.8)	43 (58.9)		122 (76.7)	153 (69.2)	101 (62.7)	
Unprotected sex with non-main partner				0.008				0.34
Yes	18 (12.9)	84 (25.5)	19 (26.0)		30 (19.0)	49 (22.1)	42 (25.8)	
No	122 (87.1)	246 (74.6)	54 (74.0)		128 (81.0)	173 (77.9)	121 (74.2)	
Multiple sex partner in past year				<0.001				<0.001
Yes								
No	57 (40.4)	190 (56.7)	51 (69.9)		67 (41.6)	120 (53.8)	111 (67.3)	
	84 (59.6)	145 (43.3	22 (30.1)		94 (58.4)	103 (46.2)	54 (32.7)	
Sex with Sex worker				0.003				0.002
Yes	40 (29.2)	115 (34.4)	41 (56.2)		40 (25.6)	83 (37.2)	73 (44.2)	
No	97 (70.8)	219 (65.6)	32 (43.8)		116 (74.4)	140 (62.8)	92 (55.8)	
Ever had an STI				0.14				0.66
Yes	48 (34.0)	111 (33.2)	33 (45.2)		21 (13.0)	26 (11.7)	16 (9.8)	
No	93 (66.0)	223 (66.8)	40 (54.8)		140 (87.0)	196 (88.3)	147 (90.2)	
Perceived HIV risk				0.005				0.008
Low	119 (86.9)	237 (71.6)	44 (62.9)		128 (81.0)	167 (76.6)	105 (64.8)	
Moderate	12 (8.8)	45 (13.6)	10 (14.3)		18 (11.4)	24 (11.0)	25 (15.4)	
High	6 (4.4)	49 (14.8)	16 (22.9)		12 (7.6)	27 (12.4)	32 (19.8)	
HIV test in past year				0.98				0.96
Yes	50 (35.7)	122 (36.5)	26 (36.1)		58 (36.0)	79 (35.8)	61 (37.2)	
No	90 (64.3)	212 (63.5)	46 (63.9)		103 (64.0)	142 (64.3)	103 (62.8)	
Safer sex self-efficacy				0.29				0.009
0-16	75 (53.2)	144 (43.0)	26 (35.6)		75 (46.9)	136 (61.0)	101 (61.2)	
17-20	66 (46.8)	191 (57.0)	47 (64.4)		85 (53.1)	87 (39.0)	64 (38.8)	
Age for boys to initiate sex				0.001				<0.001
≤16	42 (38.2)	138 (47.4)	43 (61.4)		83 (51.6)	163 (73.1)	135 (81.8)	
>16	68 (61.8)	153 (52.6)	27 (38.6)		78 (48.5)	60 (26.9)	30 (18.2)	
Age for girls to initiate sex				0.002				0.001

≤17	85 (60.3)	100 (29.9)	12 (16.4)		45 (34.4)	88 (46.6)	90 (59.6)	
>17	56 (39.7)	235 (70.2)	61 (83.6)		86 (65.7)	101 (53.4)	61 (40.4)	
Drug use								0.001
Alcohol use				<0.001				
Yes	42 (29.8)	103 (30.8)	42 (57.5)		40 (25.0)	74 (33.2)	73 (44.2)	
No	99 (70.2)	231 (69.2)	31 (42.5)		120 (75.0)	149 (66.8)	92 (55.8)	
Marijuana use				<0.001				<0.001
Yes	20 (14.2)	96 (28.8)	32 (43.8)		18 (11.3)	62 (27.8)	68 (41.5)	
No	121 (85.8)	237 (71.2)	41 (56.2)		142 (88.8)	161 (72.2)	96 (58.5)	
Age				0.044				0.006
19 – 24	53 (37.6)	148 (44.2)	37 (50.7)		57 (35.4)	114 (51.1)	67 (40.6)	
25 – 34	34 (24.1)	101 (30.2)	19 (26.0)		45 (28.0)	53 (23.8)	56 (33.9)	
35 – 54	54 (38.3)	86 (25.7)	17 (23.3)		59 (36.7)	56 (25.1)	42 (25.5)	
Education				<0.001				0.003
Primary or less	16 (11.4)	74 (22.1)	28 (38.4)		19 (11.8)	49 (22.0)	50 (30..3)	
Secondary	125 (88.7)	261 (77.9)	45 (61.6)		142 (88.2)	174 (78.0)	115 (69.7)	
Religion				0.002				0.005
None	25 (17.7)	65 (19.5)	27 (37.0)		25 (15.6)	43 (19.4)	49 (29.7)	
Any	116 (82.3)	268 (80.5)	46 (63.0)		135 (84.4)	179 (80.6)	116 (70.3)	
Income				0.002				0.010
$30,000.00	72 (51.1)	224 (66.9)	52 (71.2)		98 (60.1)	130 (58.3)	120 (72.7)	
>$30,000.00	69 (48.9)	111 (33.1)	21 (28.8)		63 (39.1)	93 (41.7)	45 (27.3)	
Marital Status				0.016				
Single	77 (55.4)	220 (66.7)	53 (73.6)		92 (58.2)	142 (64.3)	116 (71.6)	0.043
Living together/married	62 (44.6)	110 (33.3)	19 (26.4)		66 (41.8)	79 (35.8)	46 (28.4)	
Childhood guardian				0.65				0.27
Both parents	56 (39.7)	133 (39.7)	24 (33.3)		58 (36.0)	98 (44.0)	57 (34.8)	
Single parent	58 (41.1)	132 (39.4)	28 (38.9)		71 (44.1)	79 (35.4)	68 (41.5)	
Other*	27 (19.2)	70 (20.9)	20 (27.8)		32 (19.9)	46 (20.6)	39 (23.8)	

*Includes *Includes children homes (orphanage) and other relatives
$p \leq 0.0023$ considered significant

Table III: Factors associated with attitudes towards gender norms among men in western Jamaica

Characteristics	Macho Scores				Inequitable Gem score			
	Bivariate Parameter Estimate (SE)	p-value	Multivariable Parameter Estimate (SE)	p-value	Bivariate Parameter Estimate (SE)	p-value	Multivariable Parameter Estimate (SE)	p-value
Age (years)								
19-24	-0.01 (-1.4, 1.4)	0.99	1.0 (-1.0,-3.0)	0.33	-0.7 (-1.9,0.5)	0.24	-1.1 (-2.8,0.6)	0.22
25-34	-1.4 (-0.01, -2.8)	0.05	-1.7 (-3.4,-0.03)	0.04	-2.2 (-3.4,-1.0)	0.006	-3.1 (-4.5,-1.7)	<0.001
35-54	Ref		Ref		Ref		Ref	
≥**Secondary education**	-3.1 (-4.5,-1.7)	<0.001	-2.7 (-4.5,-0.9)	0.003	-3.9 (-5.1,-2.7)	0.001	-2.4 (-3.9,-0.8)	0.002
Skilled /Professional	-0.7 (0.6,-2.0)	0.26	-0.2 (-1.3,1.7)	0.80	1.3 (-2.4,-0.2)	0.019	-0.07 (-1.4,1.2)	0.92
Income >30,000	-1.1 (-2.3, 0.1)	0.08	-0.8 (-2.4,0.8)	0.28	-1.8 (-2.9,-0.7)	0.009	-1.4 (-2.6,-0.2)	0.025
Marital Status: Single	2.7 (1.4, 4.1)	0.001	3.0 (1.5,4.5)	<0.001	1.5 (0.3,2.7)	0.016	2.4 (1.1,3.7)	0.003
Any religion	-2.2 (-3.6,- 0.8)	0.002	-1.8 (-3.5,-0.1)	0.09	-1.9 (-3.2,-0.7)	0.002	-1.2 (-2.7,0.3)	0.11
Live in community ≥10yrs	0.5 (-0.9, 1.9)	0.52	-0.4 (-1.8,1.6)	0.59	0.6 (-0.7,1.9)	0.40	-0.3 (-1.7,1.2)	0.72
Childhood guardian								
Both Parents	Ref							
Single Parent	-0.1 (-1.3,1.3)	0.93	-0.8 (-2.,0.8)	0.28	-0.1 (-1.1,1.3)	0.87	-0.2 (-1.5,1.2)	0.82
Grandparents	-0.1 (-2.0,1.9)	0.96	1.4 (-1.0,3.8)	0.24	-0.9 (-0.8,2.6)	0.30	1.8 (-1.8,5.4)	0.08
Other[2]	1.3 (-1.3, 3.9)	0.21	1.1 (-1.3,3.5)	0.36	0.9 (-0.9,2.8)	0.32	1.0 (-0.9,2.9)	0.36

[1]From general linear models

[2]Include children's homes (orphanage) and other family relatives

Table IV: Univariate and multivariable predictors for having multiple sexual partners among men in western Jamaica

Characteristics	Bivariate OR (95% CI)	P-value	Multivariable Model [2] OR (95% CI)	p-value	Multivariable Model [3] OR (95% CI)	P-value
Age (years)						
19-24	3.6 (2.3 – 5.5)	<0.001	4.8 (2.9 – 8.0)	<0.001	4.0 (2.3 – 6.8)	<0.001
25-34	1.7 (1.1 – 2.6)	0.009	2.0 (1.3 – 3.1)	0.002	1.8 (1.1 – 2.9)	0.013
35-54	Ref		Ref			
≥Secondary	1.1 (0.8– 1.7)	0.53	-	-		
Income >30,000	1.4 (1.0 – 2.0)	0.08	2.1 (1.4 – 3.2)	0.003	2.1 (1.4 – 3.2)	0.005
Single marital status	2.4 (1.7– 3.4)	<0.001	-	-	1.6 (1.0 – 3.6)	0.040
Any religion	0.7 (0.5 – 1.1)	0.13	-			
Childhood guardian	Ref		-			
Both Parents	1.4 (1.0 – 2.1)	0.06				
Single Parent	1.4 (0.9 -2.2)	0.14				
Other[1]						
Sexually Abused	1.2 (0.6 – 2.7)	0.61	-			
Current Alcohol use	2.3 (1.6 – 3.3)	<0.001	2.2 (1.5 – 3.3)	0.001	2.1 (1.4 – 3.2)	0.003
Current Marijuana use	1.7 (1.2– 2.6)	0.005	-			
Perception of HIV risk	Ref		Ref		Ref	
Low	1.8 (1.1 – 3.2)	0.027	1.8 (1.0 – 3.3)	0.047	1.8 (1.0 – 2.4)	0.046
Moderate	1.7 (1.0 – 2.8)	0.06	1.5 (0.9 – 2.7)	0.16	1.5 (0.8 – 2.7)	0.16
High						
History of STIs	1.2 (0.9 – 1.8)	0.24	-			
Inequitable gender norm						
Low	Ref		Ref			
Moderate	1.9 (1.3 - 2.9)	0.001	2.2 (1.4 – 3.3)	0.009		
High	3.4 (1.8 – 6.3)	<0.001	4.2 (2.0 – 8.5)	<0.001		
Macho score						
Low	Ref				Ref	
Moderate	2.9 (1.8 – 4.5)	<0.001			1.7 (1.1 – 2.7)	0.023
High	1.6 (1.1 – 2.5)	0.019			2.5 (1.5 – 4.3)	0.004

[1]Includes children's home (orphanage) and other family members
[2]Includes all variables except Macho
[3]Includes all variables except inequitable gender norms
*Education retained in the model

FACTORS ASSOCIATED WITH THE ACCEPTABILITY OF MALE CIRCUMCISION (MC) AMONG MEN IN JAMAICA

MELONIE M WALCOTT, PAULINE E JOLLY, JOHN E EHIRI, MPH, ELLEN FUNKHOUSER, MIRJAM C KEMPF, DEBORAH HICKMAN, MAUNG AUNG, KUI ZHANG

Submitted to the PLOS ONE

Format adapted for dissertation

Abstract

Objectives: To determine the prevalence of male circumcision (MC) among men in the western region of Jamaica, and to identify factors associated with acceptability of MC for self, infants (<1 year) and older sons (1-17 years).

Methods: A cross-sectional, interviewer-administered questionnaire survey of 549 men aged 19-54 years was conducted in the western region of Jamaica. The survey included questions about the acceptance of MC for self, infants and sons followed by information about the benefits of MC in preventing HIV/STI transmission. Logistic regression models were used to identify factors that were associated with acceptability of MC. Adjusted odds ratios (AOR) and 95% confidence intervals (CI) were calculated from the models.

Results: Fourteen percent of the men reported that they were circumcised. In the multivariable model, which adjusted for age, education, religion and income, there was increased odds of accepting MC for infants/sons among uncircumcised men who accepted MC for self (AOR=8.1; 95% CI = 4.1 – 15.9), believed would experience more pleasure during sex if circumcised (AOR=4.0; 95% CI = 2.0 – 8.2), and reported having no concerns regarding MC (AOR=3.0; 95% CI = 1.8 – 4.8). Similarly, acceptance of MC for self among uncircumcised men was associated with beliefs about experiencing more pleasure during sex if circumcised and if reported having no concerns regarding MC.

Conclusion: Information about MC increased acceptance of MC for self, infants (<17 years) and sons (1-17 years). Since targeted education on the benefits of male circumcision for prevention of HIV/STI can be effective in increasing acceptability of

MC, health professionals should be trained, and willing to discuss MC with men in healthcare facilities and in the community.

Keywords: Male circumcision, acceptability, HIV/AIDS

Introduction

In 2007, the World Health Organization (WHO) and the United Nations Program on HIV/AIDS (UNAIDS) recommended the inclusion of male circumcision (MC) in HIV prevention programs, especially in countries where HIV prevalence is high and MC is low.[1-4] This recommendation was based on epidemiological evidence which shows that MC is effective in reducing HIV acquisition among males during heterosexual sex by approximately 60%.[1,5-10] The WHO/UNAIDS and UNICEF also recommend the implementation of early infant male circumcision to sustain gains made in averting new HIV infections among adults.[11] Thus ideally, MC should be offered to both male infants and adult males up to 35 years of age.[12] MC among infants is more cost effective, simpler, and less likely to result in adverse events.[11,13-16] Countries are often faced with decisions regarding the inclusion of MC in their HIV prevention package as well as whether to offer MC to infants, adults or both, in the light of resource constraints, cultural and gender norms, and religious beliefs.

Further, progress has been slow in including MC as part of the comprehensive HIV package in many countries due to challenges such as lack of political will, human resource constraints, limited funds, reports of adverse events , low acceptability of MC in some instances,[3,17] and disagreement among health workers and policy makers about the benefits of MC.[18] These challenges threaten the potential impact of MC to significantly reduce the incidence of HIV, as high uptake is required to obtain a potentially similar effect as herd immunity.[8]

Significant barriers to the acceptance of MC include concerns about pain during and after the procedure, cost, fear of complications and adverse events such as bleeding, adhesion and infections.[8,19,20] Factors such as perceptions of improved penile hygiene,[21-23] reduced risk of infection (including HIV/STIs),[8,21,23,24] and beliefs that MC will increase sexual pleasure[23,25] have been identified as facilitators of MC.

The Caribbean region could significantly benefit from MC as its HIV prevalence is second to sub-Saharan Africa,[18,26,27] and primary source of HIV transmission is also through heterosexual sex. However, MC is not included in the regions' HIV prevention program due to factors such as disagreement among policy makers and health professionals about the benefits of MC, concerns about the effect of MC on sexual performance, and misunderstanding of the role of MC as an HIV prevention strategy.[18] Two studies conducted by Brito et al in the Dominican Republic concluded that men are more likely to accept MC if well informed about its benefits. In 2008, Figueroa conducted a study involving 143 STI clinic attendees in Jamaica and found that while infant MC is likely to be supported, adult male circumcision may not be feasible due to resource constraints, relatively low HIV prevalence (1.7%) and unlikely support from policy makers, surgeons and men.[28] Only 9% of the males reported that they were circumcised, 23% of the men stated that they would consider MC, while 38% would recommend it to their sons.[28] Despite the useful data provided by Figueroa's study, the factors that are associated with acceptance of MC among men in Jamaica (a non-traditional MC country) are still unknown. The present study ascertained, among men in the western region of Jamaica: 1) the prevalence of MC, 2) the awareness of MC, 3) the

acceptance of MC for self, infants (<1 year), older sons (1-17 years), and 4) factors associated with each (prevalence, awareness, and acceptance).

Materials and Methods

Ethics Statement

Ethical approval for the study was obtained from the Institutional Review Board of the University of Alabama at Birmingham, the Advisory Panel of Ethics and Medico-Legal Affairs in the Jamaican Ministry of Health, and the Western Regional Health Authority.

Study design and settings

A cross-sectional questionnaire survey was conducted between June and August 2011 among 549 men aged 19-54 years in western Jamaica. Participants were recruited from the four government hospitals under the Western Regional Health Authority (WRHA) that serves the four parishes of St. James, Hanover, Westmoreland, and Trelawny, encompassing a population of 474,944.[29] The population served by the hospitals in each parish is as follows: St. James - 182,600 (39%); Westmoreland - 141,800 (31%); Trelawny - 72,500 (16%); Hanover - 67,200 (14%). The number of participants recruited from each parish was based on the percentage of the population served by the hospital. The parishes in the WRHA have high rates of HIV prevalence with St. James having the highest cumulative number of AIDS cases (992 per 100,000 population) of the 14 parishes in Jamaica.[30] Health care services were available at no cost at the 4 hospitals at the time this study was conducted.

Participants

To be eligible for participation in this study the men had to be aged 19-54, live in the western region of Jamaica, and visit one of the four hospitals for out-patient care or as a visitor. Interviews were conducted in private rooms at the hospital by trained Research Assistants. Each study participant was given a phone card valued at $215 Jamaican dollars (equivalent to US$2.50) as a token of appreciation for completing the interview.

To estimate the potential effect of selection bias in recruiting from hospitals, a sample of 51 men was recruited from a community in the parish of St. James. The hospital sample was compared to the community sample with respect to knowledge of MC (have heard of MC), acceptance of MC (self, infant, son), prevalence of MC, and selected socio-demographic variables (age, income and education). Except for men in the community sample being older, no statistical differences related to other factors were observed between the hospital and community samples. No differences were observed between the parishes with respect to these characteristics.

Data collection

A 143-item questionnaire was developed to collect data on sexual behaviors, reproductive health practices, male circumcision, health seeking behaviors, attitude towards gender norms and socio-demographic factors. The questionnaire was developed based on an extensive literature review. At the beginning of the interview the men were asked, "have you ever heard about male circumcision?" They were then told the definition of MC. The prevalence of MC was assessed by asking the participants a single question – "Are you

circumcised?" Acceptance of male circumcision was assessed by asking three questions: 1) Would you be willing to be circumcised? 2) Would you be willing to consent to having your infant (<1 year) circumcised? 3) Would you be willing to consent to having your son (1-17 years) circumcised? These 3 questions were re-asked after an information session in which the men were provided with education on the benefits of MC in reducing men's risk for HIV infection.

Attitudes and beliefs were measured by asking questions relating to MC and hygiene, risk of HIV/STIs, and pleasure during sex. These statements included: 1) "It is harder to keep the penis clean if a man is:", 2) "A man is more likely to experience pain during sexual intercourse if he is:", 3) "A man is likely to enjoy sex more if he is:" and 4)"It is easier for a man to contract HIV if he is:". The response options for these statements were: "circumcised", "uncircumcised", "no difference" and "don't know".

Attitude towards masculinity was measured using the Macho Scale which was recently developed among fathers (18-59 years of age) residing in Jamaica.[29] The Scale[31,32] consists of 13 items (Cronbach's alpha of 0.82) measuring three dimensions of men's masculinity related to male-female gender relations. The three dimensions of the scale are primordial need to produce children, sexual dominance (virility), and domestic freedom. These dimensions are a measure of gender norms related to masculinity wherein men's identity is associated with their ability to father children and to have multiple sexual partners. Items are scored using a Likert scale ranging from 1 to 5, resulting in a minimum score of 13 and a maximum of 65. Higher scores are indicative of higher levels

of masculinity norms[31,32]. Scores were classified as ‘‘high’’, ‘‘moderate’’ and ‘‘low’’ by dividing the cumulative frequency distribution of the sample into tertiles. One of the items “A man does not have to tell his partner everywhere he is going,” which was included in the version of the scale that was used in this study, has since been replaced by another item “A man should never tell a woman he loves her” in the final scale published by the author.[32]

Data analysis

The following were calculated: 1) the proportion of men who were circumcised (prevalence), 2) the proportion of men who had heard of MC (awareness), and 3) separately for circumcised and uncircumcised men, the proportions who reported that they would accept MC for themselves, for their male infants (<1 year of age) and their male sons (ages 1-17 years) before being provided educational information on MC. Chi-square tests were used to ascertain statistical significance of associations of each of the above with socio-demographic factors and with attitudes/beliefs regarding MC. Based on bivariate analysis, variables assessing beliefs and attitudes towards MC, including penile hygiene, pain and pleasure during sex, ease of contracting HIV/STIs, and concerns about MC, were dichotomized before multivariable modeling. Logistic regression was used to ascertain independent associations with awareness and acceptance of MC. Backward selection modeling was used in the adjusted models. Variables with a p-value <0.10 in chi-square analysis were entered into the multivariable logistic regression analyses and retained if $p<0.05$. The final model for acceptance of MC was adjusted for age, income, education, and religion as these were a priori believed to be associated with acceptance of

MC. Adjusted odds ratios (AOR) and 95% confidence intervals (CI) were calculated from the regression equations. Data analysis was performed using SAS software version 9.2 (SAS Institute, Cary, NC).

Results

Overall, approximately 70% of the men who were approached agreed to participate in the study. The main reasons for not participating were lack of time and conflicting appointment schedule. The mean age of the 549 participants (± standard deviation) was 32.4±10.1 years. Most of the men reported secondary level education (65.5%), skill-based occupation (55.5%), low monthly income (median - $JA30,000) [Jamaican Dollar], single marital status (65%) and having some type of religious affiliation (79%); almost all were Christians. The majority (>50%) of men reported either not knowing or believing that there was no difference in HIV/STI risk or in pain/pleasure during sex whether or not circumcised. A significant proportion (39%) of men reported having no concerns about MC. A higher proportion of circumcised men (73%) reported no concerns about MC compared to 35% of uncircumcised men. The 2 main concerns about MC among uncircumcised men were “Should not change the way god made the penis” (21.2%) and “Surgery may damage the penis” (18%). The mean macho score with standards deviation among the men was 37.6±6. (Table1).

Prevalence of MC

Seventy-seven (14.0%) men reported that they have been circumcised. There was no difference between circumcised and uncircumcised men with respect to age, education, income, religion or marital status (Table 1). Circumcised men had more positive perceptions of circumcision regarding penile hygiene, ease of contracting STI, and pain/pleasure associated with sex than did uncircumcised men (Table 1).

Awareness of MC

Overall, 72.6% of the men in this study reported having heard of MC. Among uncircumcised men, 73% (N=345) had heard of circumcision. This knowledge did not differ by age, but was more common among indicators of upper SES (education and occupation), among men who were married, who had some type of religious affiliation, considered themselves at low risk of HIV acquisition and had low/moderate Macho scores. Acceptance of MC for self, infants or sons did not differ by Knowledge of MC (data not shown). In the multivariable model awareness of MC was associated with being married (AOR = 1.7; 95% CI =1.1– 2.6; p=0.024), having a professional-related occupation (AOR=3.1; 95% CI =1.0 - 9.1; p=0.005) compared to unskilled occupations, and with low (AOR =2.9; 95% CI =1.6 – 5.1; p=0.002) and moderate (AOR =2.2; 95% CI =1.4 – 3.5; p=0.002) masculinity scores compared to men with high scores .

Acceptance of MC

Acceptance of MC for infants and older sons was higher among circumcised than uncircumcised men, was higher for older sons than infants, and increased in all groups

after the information session. Before given any information, among circumcised men, acceptance of MC was 77% for infants and 86% for sons. These increased to 86% and 91%, respectively, after the information session. Among uncircumcised men, acceptance of MC was 48% for infants and 51% for sons. These increased to 66% and 72%, respectively, after the information session. Among uncircumcised men, acceptance of MC for self, increased from 25% before to 45% after the information session (Figure 1).

There were no significant differences between circumcised and uncircumcised men with respect to socio-demographic factors and acceptance of MC for infants/sons (Table 2). There was no difference in beliefs/attitudes towards MC among circumcised men with respect to the acceptance of MC for infants/son except for their beliefs about penile hygiene. A higher proportion of uncircumcised men who believed it was harder to keep the penis clean, easier to contract STI/HIV and experience more pain during sex if the penis were uncircumcised, reported acceptance of MC for infant/son. Uncircumcised men who reported that men would have more pleasure during sex and women would enjoy sex more if uncircumcised, or reported concerns about MC tended to not accept MC for sons/infants. Additionally, a higher proportion of uncircumcised men who reported acceptance of MC for themselves tended to report acceptance for their infants/sons. A sizable proportion, over half, of uncircumcised men reported “no difference” or “don’t know” regarding most believes/attitudes towards acceptance of MC their sons/infants. Consequently, we combined these two categories (no difference or “don’t know”) before modeling to determine the adjusted odds ratio for the acceptance of MC for infants/sons (Table 2).

In the multivariable model, the analysis was adjusted for age, education, religion and income, the variables that remained significant in the model were beliefs/attitudes about pleasure during sex (men), concerns about MC, and acceptance of MC for self. There was increased odds of accepting MC for infants/sons among uncircumcised men who accepted MC for self (AOR=8.1; 95% CI = 4.1 – 15.9), believed they would experience more pleasure during sex if circumcised (AOR=4.0; 95% CI = 2.0 – 8.2), and reported having no concerns regarding MC (AOR=3.0; 95% CI = 1.8 – 4.8) (Table 3).

We constructed a model using the same variables as described in Table 2 to determine the factors associated with acceptance of MC for self among uncircumcised men. In the multivariable model, which adjusted for age, religion, education and income, we observed similar associations to those we found with acceptance for infant/son. An increased odds of accepting MC for self among uncircumcised men was associated with beliefs about experiencing more pleasure during sex if circumcised and if reported having no concerns regarding (Table 3).

Discussion

International agencies such as the WHO and UNAIDS recommend MC in HIV prevention programs for countries with low prevalence of MC and high rates of HIV infections, based on overwhelming evidence showing that MC can reduce heterosexual transmission by approximately 60%.[1,5-10] However, decisions to translate research into public health policy and practice can be very challenging for some countries due to concerns about unanticipated consequences, conflict of cultural beliefs, and lack of support from stakeholders including politicians. For Caribbean countries like Jamaica, in which MC is not traditionally onductedc,[18] it is imperative to understand individuals' attitude towards MC and factors associated with acceptance to guide policy and program implementation. We conducted a cross-sectional study among men in western Jamaica to identify the factors that were associated with acceptance of MC, and found that acceptance of MC varied by the MC status of men, and was more favorable for infants and older sons than for self.

Overall, the relatively high levels of acceptance of MC for infants and sons are promising given that MC is not routinely conducted in Jamaica.[18] Although providing MC during infancy and older childhood years will take a longer time to contribute to reducing rates of heterosexual transmission of HIV than during adulthood,[8] we believe this investment is crucial for Jamaica to effectively impact the HIV epidemic in the future. Findings from cost benefit analysis of infant MC in the US[33] and Rwanda[34] revealed that it is a cost-effective measure for reducing HIV acquisition. Risk behaviors, such as multiple

sexual partners, especially among youth[35-37], low condom use at last sex[35] and early sexual debut (sexual initiation by the age of 14)[38,39], which are prevalent in Jamaica, underscore the need to include MC in the country's HIV prevention program.

We found similar acceptance levels of MC for self among uncircumcised men (25%) as that reported in Figueroa's study (23%).[28] However, in our study acceptance of MC for self, increased to 47% after the information session, suggesting that knowledge had a positive effect on the reported intention to accept MC. A similar increase has been observed in another Caribbean country (Dominican Republic) where acceptance of MC for self, increased from 29% - 67% before and after inforamtion session respecitvely.[22] Overall, knowledge of MC among men in this study appeared to be low as a significant proportion of men reported "don't know" on a number of the questions relating to attitude/beliefs about MC. Further, approximately 28% of the participants reported they never heard of MC prior to the study. However, after the definition of MC was given a number of the men reported that were familiar with the procedure. This may explain why 24 of the 77 men who reported being circumcised stated that they never heard of MC prior to the study. The prevalence of MC among men in this study was 14%, which is a bit higher than the 9% found in Figueroa's study. However, if the 24 circumcised men who reported that they had not heard of MC prior to the study were excluded, the prevalence of MC among men in this study would be 9.8%. The difference in MC prevalence in our study and Figueroa's may be due to lack of understanding of the term "MC" in Figueroa's study, over reporting of MC in our study, geographical differences or selection bias (Figueroa' study was conducted among clients at an STI clinic in the

capital city of Jamaica while our study was conducted among outpatient clients and visitors at hospitals in the western region of Jamaica).

Of note, our findings did not reveal any association between acceptance of MC and support masculinity norms. This was surprising, but maybe due to the fact that the Macho scale primarily seeks to measure dimensions of masculinity relating to sexual dominance, virility, and domestic freedom, rather than disease prevention. Beliefs relating to HIV/STI acquisition,[8,19,21,22,24,40] penile hygiene,[19,22,41] which are well established in the literature, were not associated with acceptance of MC among men in this study. This may be indicative of the limited knowledge about MC among the men. In this study beliefs about pleasure during sex and acceptance of MC for self,[11,42,43] which are consistent with findings in the literature, were associated with acceptance of MC. Additionally, men who did not have any concerns about MC were more likely to accept it. Thus, MC educational and promotional programs must therefore address men's attitude towards MC as well as beliefs regarding "changing the way God made the penis" and effect of the surgery in damage the penis, as these could serve as significant barriers to the uptake of MC.

Although our study provides a better understanding of the factors associated with the acceptability of MC among men in Jamaica, a country in which MC is not traditionally offered, the findings must in interpreted in light of the following limitations. First, the study depended solely on self-reported data via interviewer administered questionnaires. Thus, the findings could be influenced by social desirability bias. Although, all the

interviewers were trained to reduce this potential bias, we are unable to estimate its effects on the study. Second, the participants were recruited at hospitals; hence the study is subjected to selection bias. Visitors at the participating hospitals were included in this study to reduce the potential effect of this bias. Additionally, we compared the hospital sample to a small community sample with respect to the outcome variables and key socio-demographic factors and found no difference between the two samples expect for age. This suggests the effect of selection bias in our sample may be minimal.

In spite of these limitations, the findings of our study suggest that Jamaican men are likely to be receptive to MC for their infants and older sons as an HIV prevention strategy, especially if the program is bolstered with an effective health education component. Fathers play a crucial role in decisions regarding MC for their infants;[43] however, men are often excluded from health related decisions involving their children.[44,45] Thus, the beliefs and attitudes of Jamaican men towards MC as documented in this study could inform policy decisions about the implementation of MC in Jamaica. Because there is still disagreement among policy makers and health care workers in the Caribbean region about the effectiveness of MC as an HIV prevention strategy[18] it would be prudent for further research to be conducted to assess the attitudes of health workers towards MC as well as their perceived ability to safely conduct MC, and the feasibility of including MC in Jamaica's health care system. Irrespective of the decision to include MC in HIV prevention programs, it is pivotal to educate men about MC so they can make informed decision and choose MC for their sons if so desired. Taking measures such as hosting public debate, media promotion and partnering with men, and community based

organization to sensitize the public of the effectives on MC as an HIV prevention strategy, and create an environment for dialogue would be beneficial for Jamaica and other Caribbean countries at this time.

References

1. Addanki KC, Pace DG, Bagasra O. A practice for all seasons: male circumcision and the prevention of HIV transmission. *J Infect Dev Ctries.* 2008;2(5):328-334.
2. WHO. Progress in scale-up of male circumcision for HIV prevention in Eastern and Southern Africa : focus on service delivery - 2011. 2011; http://whqlibdoc.who.int/publications/2011/9789241502511_eng.pdf.
3. de Bruyn G, Martinson NA, Gray GE. Male circumcision for HIV prevention: developments from sub-Saharan Africa. *Expert Rev Anti Infect Ther.* Jan;8(1):23-31.
4. Tarimo EA, Francis JM, Kakoko D, Munseri P, Bakari M, Sandstrom E. The perceptions on male circumcision as a preventive measure against HIV infection and considerations in scaling up of the services: a qualitative study among police officers in Dar es Salaam, Tanzania. *BMC Public Health.* 2012;12:529.
5. Bailey RC, Moses S, Parker CB, et al. Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial. *Lancet.* Feb 24 2007;369(9562):643-656.
6. Male circumcision for HIV prevention in high HIV prevalence settings: what can mathematical modelling contribute to informed decision making? *PLoS Med.* Sep 2009;6(9):e1000109.
7. Doyle SM, Kahn JG, Hosang N, Carroll PR. The impact of male circumcision on HIV transmission. *J Urol.* Jan 2010;183(1):21-26.
8. Westercamp N, Bailey RC. Acceptability of male circumcision for prevention of HIV/AIDS in sub-Saharan Africa: a review. *AIDS Behav.* May 2007;11(3):341-355.
9. Auvert B, Taljaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R, Puren A. Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 Trial. *PLoS Med.* Nov 2005;2(11):e298.
10. Gray RH, Kigozi G, Serwadda D, et al. Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. *Lancet.* Feb 24 2007;369(9562):657-666.
11. Mavhu W, Hatzold K, Laver SM, et al. Acceptability of early infant male circumcision as an HIV prevention intervention in Zimbabwe: a qualitative perspective. *PLoS One.* 2012;7(2):e32475.
12. White RG, Glynn JR, Orroth KK, et al. Male circumcision for HIV prevention in sub-Saharan Africa: who, what and when? *AIDS.* Sep 12 2008;22(14):1841-1850.
13. Manji KP. Circumcision of the young infant in a developing country using the Plastibell. *Ann Trop Paediatr.* Jun 2000;20(2):101-104.
14. Wamai RG, Morris BJ, Bailis SA, et al. Male circumcision for HIV prevention: current evidence and implementation in sub-Saharan Africa. *J Int AIDS Soc.*14:49.
15. Sansom SL, Prabhu VS, Hutchinson AB, et al. Cost-effectiveness of newborn circumcision in reducing lifetime HIV risk among U.S. males. *PLoS One.*5(1):e8723.
16. American Academy of Pediatrics Task Force on C. Male circumcision. *Pediatrics.* Sep 2012;130(3):e756-785.
17. Doyle SM, Kahn JG, Hosang N, Carroll PR. The impact of male circumcision on HIV transmission. *J Urol.* Jan;183(1):21-26.
18. Duncan ND. Male circumcision and the Caribbean HIV epidemic. *West Indian Med J.* Jul 2010;59(4):348-350.
19. Lukobo MD, Bailey RC. Acceptability of male circumcision for prevention of HIV infection in Zambia. *AIDS Care.* Apr 2007;19(4):471-477.
20. Hossain MR, Islam KM, Nabi J. Myiasis as a rare complication of male circumcision: a case report and review of literature. *Case reports in surgery.* 2012;2012:483431.

21. Bailey RC, Muga R, Poulussen R, Abicht H. The acceptability of male circumcision to reduce HIV infections in Nyanza Province, Kenya. *AIDS Care.* Feb 2002;14(1):27-40.
22. Brito MO, Caso LM, Balbuena H, Bailey RC. Acceptability of male circumcision for the prevention of HIV/AIDS in the Dominican Republic. *PLoS One.* 2009;4(11):e7687.
23. Ngalande RC, Levy J, Kapondo CP, Bailey RC. Acceptability of male circumcision for prevention of HIV infection in Malawi. *AIDS Behav.* Jul 2006;10(4):377-385.
24. Feng N, Lu F, Zeng G, et al. [Acceptability and related factors on male circumcision among young men with Yi ethnicity in one county of Sichuan province.]. *Zhonghua Liu Xing Bing Xue Za Zhi.* Mar;31(3):281-285.
25. Kelly A, Kupul M, Fitzgerald L, et al. "Now we are in a different time; various bad diseases have come." Understanding men's acceptability of male circumcision for HIV prevention in a moderate prevalence setting. *BMC Public Health.*12:67.
26. PAHO. The UNGASS Women's and Vulnerablity to HIV/AIDS in Latin America and the Caribbean. Women Health and Development program 2002.
27. Inciardi JA, Syvertsen JL, Surratt HL. HIV/AIDS in the Caribbean Basin. *AIDS Care.* Jun 2005;17 Suppl 1:S9-25.
28. Figueroa JP. Current perceptions of male circumsission. kingston: Ministry of Health 2008.
29. Western Regional Health Authority (WRHA). Western Regional Health Authority (WRHA) Anual Report. 2008; http://www.wrha.gov.jm/.
30. Pierre RB, Steel-Duncan JC, Evans-Gilbert T, et al. Effectiveness of antiretroviral therapy in treating paediatric HIV/AIDS in Jamaica. *West Indian Med J.* Jun 2008;57(3):223-230.
31. Anderson M, Elam G, Solarin I, Gerver S, Fenton K, Easterbrook P. Coping with HIV: Caribbean people in the United Kingdom. *Qual Health Res.* Aug 2009;19(8):1060-1075.
32. Anderson P. Measuring masculinity in an afro-caribbean context. *Social and Economic Studies.* 2012;61(1):49-93.
33. Sansom SL, Prabhu VS, Hutchinson AB, et al. Cost-effectiveness of newborn circumcision in reducing lifetime HIV risk among U.S. males. *PLoS One.* 2010;5(1):e8723.
34. Binagwaho A, Pegurri E, Muita J, Bertozzi S. Male circumcision at different ages in Rwanda: a cost-effectiveness study. *PLoS Med.* Jan 2010;7(1):e1000211.
35. Ishida K, Stupp P, McDonald O. Prevalence and correlates of sexual risk behaviors among Jamaican adolescents. *International perspectives on sexual and reproductive health.* Mar 2011;37(1):6-15.
36. Norman LR, Figueroa JP, Wedderburn M, Byfield L, Bourne D, Gebre Y. Trends in HIV risk perception, condom use and sexual history among Jamaican youth, 1996-2004. *International journal of adolescent medicine and health.* Apr-Jun 2007;19(2):199-207.
37. Figueroa JP, Duncan J, Byfield L, et al. A comprehensive response to the HIV/AIDS epidemic in Jamaica: a review of the past 20 years. *West Indian Med J.* Dec 2008;57(6):562-576.
38. Baumgartner JN, Waszak Geary C, Tucker H, Wedderburn M. The influence of early sexual debut and sexual violence on adolescent pregnancy: a matched case-control study in Jamaica. *International perspectives on sexual and reproductive health.* Mar 2009;35(1):21-28.
39. Ekundayo OJ, Dodson-Stallworth J, Roofe M, et al. The determinants of sexual intercourse before age 16 years among rural Jamaican adolescents. *TheScientificWorldJournal.* 2007;7:493-503.
40. Gasasira RA, Sarker M, Tsague L, et al. Determinants of circumcision and willingness to be circumcised by Rwandan men, 2010. *BMC public health.* 2012;12:134.

41. Herman-Roloff A, Otieno N, Agot K, Ndinya-Achola J, Bailey RC. Acceptability of medical male circumcision among uncircumcised men in Kenya one year after the launch of the national male circumcision program. *PLoS One*.6(5):e19814.
42. Young MR, Odoyo-June E, Nordstrom SK, et al. Factors associated with uptake of infant male circumcision for HIV prevention in western Kenya. *Pediatrics.* Jul;130(1):e175-182.
43. Young MR, Odoyo-June E, Nordstrom SK, et al. Factors associated with uptake of infant male circumcision for HIV prevention in western Kenya. *Pediatrics.* Jul 2012;130(1):e175-182.
44. Onyango MA, Owoko S, Oguttu M. Factors that influence male involvement in sexual and reproductive health in western Kenya: a qualitative study. *African journal of reproductive health.* Dec 2010;14(4 Spec no.):32-42.
45. Kululanga LI, Sundby J, Malata A, Chirwa E. Male involvement in maternity health care in Malawi. *African journal of reproductive health.* Mar 2012;16(1):145-157.

Table 1: Selected characteristics of men in western Jamaica stratified by male circumcision (MC) status

Selected variables	All (N=549) N	%	Circumcised (N=77) N	%	Uncircumcised (N=472) N	%	p-value
Age (years)							0.96
19-24	238	43.4	33	42.9	205	43.4	
25-34	154	28.1	21	27.3	133	28.2	
35-54	157	28.6	23	29.9	134	28.4	
Education							0.36
Primary or less	118	21.5	16	20.8	102	21.6	
Secondary	359	65.4	47	61.0	312	66.1	
Tertiary	72	13.1	14	18.2	58	12.3	
Monthly Income ($JA)							0.07
≤30,000	348	63.4	56	72.7	292	61.9	
>30,000	201	36.6	21	27.3	180	38.1	
Union Status							0.83
Living together/married	191	35.3	26	34.2	165	35.5	
Single	350	64.7	50	65.8	300	64.5	
Religion							0.33
Any religion	430	78.6	13	17.1	104	22.1	
No religion	117	21.4	63	82.9	367	77.9	
Macho score							0.12
Low (13 – 32)[1]	161	29.3	28	36.4	133	28.2	
Moderate (34 – 40)	223	40.6	33	42.9	190	40.3	
High (44 – 65)	165	30.1	16	20.8	149	31.6	
Ever heard about MC[2]	394	72.2	53*	68.0	341	72.9	0.37
Harder to keep penis clean if							**<0.001**
Circumcised	63	11.5	6	7.8	57	12.1	
Uncircumcised	235	43.0	52	67.5	185	39.2	
No difference	119	21.8	8	10.4	111	23.5	
Don't know	130	23.4	11	14.3	119	25.2	
Easier to contract STIs if							**0.001**
Circumcised	65	11.9	5	6.5	60	12.7	
Uncircumcised	143	26.1	34	44.2	109	23.1	
No difference	159	29.1	20	26.0	139	29.5	
Don't know	181	33.0	18	23.4	163	34.6	
Easier to contract HIV if							0.35
Circumcised	39	7.1	7	9.1	32	6.8	
Uncircumcised	65	11.9	13	16.9	52	11.0	
No difference	288	52.5	39	50.7	249	52.9	
Don't know	156	28.5	18	23.4	138	29.3	
More pain during sex if							**<0.001**
Circumcised	44	8.0	6	7.8	38	8.1	
Uncircumcised	117	21.3	30	39.0	87	18.4	
No difference	127	23.2	11	14.3	116	24.6	
Don't know	261	47.5	30	39.0	231	48.9	
More pleasure during sex if							**<0.001**
Circumcised	107	19.6	34	44.2	75	16.0	

Uncircumcised	45	8.3	3	3.9	42	8.9	
No difference	118	21.7	9	11.7	109	23.2	
Don't know	275	50.5	31	40.3	244	51.9	
Women enjoy sex more if man is							**0.003**
Circumcised	76	13.9	20	26.3	56	11.9	
Uncircumcised	24	4.4	5	6.6	19	4.1	
No difference	110	20.2	16	21.1	94	20.0	
Don't know	335	61.5	35	46.1	300	64.0	
HIV risk perception							0.92
Low	400	74.4	55	73.3	345	74.5	
Moderate	67	12.5	9	12.0	58	12.5	
High	71	13.2	11	14.7	60	13.0	
Ever had an STI[3]							0.80
Yes	192	35.0	26	33.8	166	35.2	
No	356	65.0	51	66.2	305	64.8	
Best age for MC							0.02
< 1year	219	45.9	42	56.0	177	44.0	
1-17 years	176	36.9	28	37.3	148	36.8	
18 years and older	82	17.2	5	6.7	77	19.2	
Who prefer to conduct MC							0.08
Doctor in Public hospital	168	31.4	29	38.7	139	30.2	
Doctor in Private hospital	249	46.5	26	34.7	223	48.5	
It does not matter	118	22.1	20	26.7	98	21.3	
Greatest concern about MC							**<0.001**
Surgery may damage penis	90	16.5	5	6.7	85	18.0	
Should not change how God made penis	103	18.9	3	4.0	100	21.2	
Other	141	25.9	12	16.0	129	27.3	
No concern	211	38.7	55	73.3	158	33.5	

[1]**Observed ranges of tertiles of Macho scores**

[2]MC: Male circumcision (before information session). Only 53 of the 77 men reporting MC, because 24 men had initially reported that they never heard of MC; however, after the definition was given they reported that they were aware of the procedure and that they were circumcised

[3]STI: Sexually Transmitted Infection

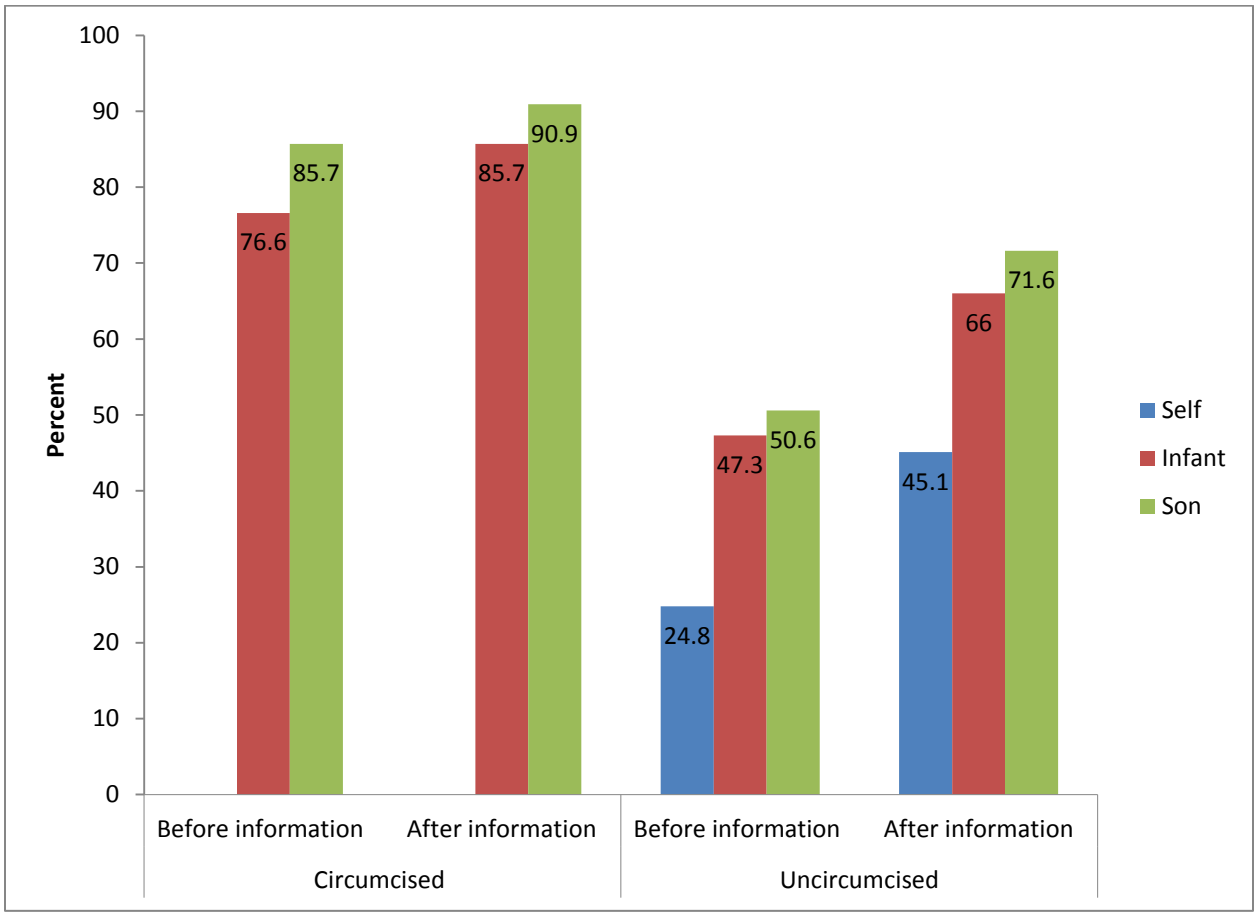

Figure 1: Acceptance of male circumcision among study participants before and after information session stratified by circumcision status

Table 2: Frequency of selected characteristics among men accepting[1] of male circumcision (MC) for infant/son stratified by circumcision status (row %)

	Acceptance of MC for infants/sons					
	Circumcised Men			Uncircumcised Men		
Selected variables	**N**	**%**	**p-value**	**N**	**%**	**p-value**
Age (years)			0.80			0.14
19-24	30	90.9		128	63.1	
25-34	18	85.7		71	53.4	
35-54	21	91.3		73	54.5	
Education			0.67			0.14
Primary or less	14	87.5		66	64.7	
Secondary and higher	55	90.2		206	56.0	
Monthly Income ($JA)			0.43			0.098
≤30,000	49	87.5		177	60.8	
>30,000	20	95.2		95	53.1	
Union Status			0.71			0.07
Single	24	92.3		105	63.6	
Living together/married	44	88.0		164	55.0	
Religion			0.34			0.43
No religion	11	84.6		56	54.4	
Any religion	58	92.1		215	58.7	**<0.001**
Acceptance of MC for self	-					
Yes	-			102	90.3	
No	-			166	47.3	
Harder to keep penis clean if			**0.03**			**<0.001**
Circumcised	6	100.0		27	47.4	
Uncircumcised	49	94.2		132	72.1	
No difference	7	87.5		57	51.4	
Don't know	7	63.6		56	47.1	
Easier to contract STIs if			0.17			**0.005**
Circumcised	3	60.0		31	51.7	
Uncircumcised	32	94.1		81	75.7	
No difference	18	90.0		73	52.5	
Don't know	16	88.9		87	53.4	
Easier to contract HIV if			0.17			**0.002**
Circumcised	5	71.4		17	53.1	
Uncircumcised	13	100.0		41	82.0	
No difference	36	92.3		143	57.4	
Don't know	15	83.3		70	50.7	
More pain during sex if			0.55			**0.005**
Circumcised	6	100.0		21	55.3	
Uncircumcised	28	93.3		63	74.1	
No difference	9	81.8		68	58.6	
Don't know	26	86.7		120	52.0	
More pleasure during sex if			0.19			**<0.001**
Circumcised	32	94.1		60	82.2	
Uncircumcised	2	66.7		21	50.0	
No difference	9	100.0		57	52.3	
Don't know	26	83.9		132	54.1	

Women enjoy sex more if man is			0.53			**0.004**
Circumcised	19	95.0		43	79.6	
Uncircumcised	4	80.0		10	52.6	
No difference	15	93.8		58	61.7	
Don't know	30	85.7		161	53.7	
HIV risk perception			0.67			0.17
Low	49	89.1		207	60.4	
Moderate	8	88.9		31	53.5	
High	11	100.0		29	48.3	
Ever had an STI[2]			0.99			0.28
Yes	46	90.2		101	61.2	
No	23	88.5		170	55.9	
Who prefer to conduct MC			0.99			0.07
Doctor in Public hospital	26	89.7		92	66.2	
Doctor in Private hospital	23	88.5		119	53.9	
It does not matter	18	90.0		58	21.6	
Greatest concern about MC			0.14			**<0.001**
Surgery may damage penis	4	80.0		47	55.3	
Should not change how God made penis	2	66.7		30	30.0	
Other	10	83.3		75	58.1	
No concern	51	68.0		120	76.9	
Macho score			0.71			0.84
Low (13 - 32)	24	85.7		79	59.9	
Moderate (34 - 40)	30	90.9		109	57.7	
High (44 - 65)	15	93.8		84	56.4	

[1]Before information session
[2]STI: Sexually Transmitted Infection

Table 3: Multivariable analysis of factors associated with acceptance of male circumcision (MC) for infants/sons and sons among uncircumcised men

Factors	Acceptance of MC for infant/son		Acceptance of MC for self	
	Adjusted[1] Odds Ratio (95% CI[2])	P-value	Adjusted[1] Odds Ratio (95% CI[2])	P-value
Age (years)				
19-24	0.9 (0.5 - 1.5)	0.40	0.7 (0.5 – 1.5)	0.41
25-34	0.8 (0.5 - 1.5)	0.79	0.9 (0.5 – 1.5)	0.65
35-54	Referent			
≥Secondary education	0.8 (0.5 - 1.4)	0.49	1.0 (0.6 – 1.7)	0.91
Income >30,000	0.7 (0.4 – 1.1)	0.12	0.9 (0.5 – 1.4)	0.52
Any religion	1.1 (0.6 - 1.8)	0.79	1.3 (0.8 – 2.4)	0.31
Accept MC for self	**8.1 (4.1-15.9)**	**<0.001**	**-**	
More pleasure during sex if				
Circumcised	**4.0(2.0 – 8.2)**	**0.002**	**2.7 (1.5 – 4.5)**	**0.004**
No concern about MC	**3.0 (1.8 – 4.8)**	**<0.001**	**2.6 (1.7 – 4.1)**	**<0.001**

[1]All characteristics listed were adjusted for

[2]CI: Confidence interval

GENDER NORMS AND FAMILY PLANNING PRACTICES AMONG MEN IN WESTERN JAMAICA

WALCOTT MELONIE M, EHIRI JOHN, KEMPF MIRJAM C, FUNKHOUSER ELLEN, BAKHOYA MARION, AUNG MAUNG, ZHANG KUI, JOLLY PAULINE E

In preparation for Tropical Medicine and International Health

Format adapted for dissertation

Abstract

Objectives: To identify the association between gender norms and involvement in contraception use, intention to have a large family size (3 or more children), and multiple baby mothers among men in western Jamaica.

Methods: A cross-sectional survey of 549 men aged 19-54 years. Logistic regression models were used to identify factors associated with men's involvement in contraception use, intention to have a large family size (3 or more children), and multiple baby mothers. Odds ratios (OR) and 95% confidence intervals (CI) were calculated from the models.

Results: We observed reduced odds for taking steps to prevent unwanted pregnancy among men with moderate (AOR = 0.5; 95% CI = 0.3 - 0.8) and high (AOR = 0.3; 95% CI = 0.1 - 0.6) support for inequitable gender norms. Desiring large family size was associated with higher support for macho scores (AOR = 2.1; 95% CI = 1.3 – 3.3). Among men who had 2 or more children (41%), there was increased odds of having multiple baby mothers among men who had moderate (AOR = 2.1; 95% CI = 1.0 – 4.4) and high (AOR = 2.4; 95%CI = 1.1 – 5.6) support for masculinity norms.

Conclusion: These findings are demonstrative of the effect of gender ideologies on family structure and subsequent effect on children's wellbeing. The importance of including men and gender norms in family planning programs in Jamaica is highlighted.

Keywords: Family planning, men, absent fathers, baby mothers

Introduction

The common practice of focusing solely on women in matters related to sexual and reproductive health (SRH) has been found to be ineffective as men often act as "gatekeepers" influencing women's and children's' access to health services (Adeleye, Aldoory, & Parakoyi, 2011; Sternberg & Hubley, 2004). One of the key components of sexual and reproductive health programs that warrant male involvement is family planning. Involving men as partners in family planning interventions/services is critical for the reduction of unwanted pregnancies, improvement of parenting skills, and the increase of sexual and reproductive health knowledge among men (Ali, Rizwan, & Ushijima, 2004; Berhane et al., 2011; Mistik, Nacar, Mazicioglu, & Cetinkaya, 2003; Ndong, Steele, & Mahony, 1998).

Masculinity and inequitable gender norms have been shown to influence family planning practices such as involvement in contraception use, responsible fatherhood, desired family size, gender preference for children, and socialization of male children (Onyango, Owoko, & Oguttu, 2010). These socially constructed roles (gender norms) of expected behaviors for males and females (Adeleye et al., 2011) that vary in different societies can negatively impact family planning programs and health outcomes among women and children (Nanda, Schuler, & Lenzi, 2013; Paek, Lee, Salmon, & Witte, 2008). In many patriarchal societies women are expected to be naive about sex, thereby limiting their ability to be informed about sex and take measure to reduce their vulnerability to unwanted pregnancies (Paek et al., 2008). Additionally, these societies support men's

dominance over authority and economic resources (Paek et al., 2008). This further challenges women's ability to negotiate safer sex and take measures to prevent unwanted pregnancy due to high dependence on men for economic support. Thus in societies like these it is fundamental to involve men as partners in family planning programs to improve health outcomes of women and children.

In Jamaica, the need for involving men in family planning is crucial because of two principal gender ideologies that are likely to contribute to reduced involvement in contraception use and increase prevalence of single parents: 1) the inherent nature of men to have more than one sexual partners and 2) need to become a father at an early age to validate manhood and demonstrate to society and their parents that they are not homosexuals (Chevannes B, 2002; M.-K. C. Chevannes B, 1992; Gibbison, 2007; P., 2012; Wyss, 2000). Approximately 45% of Jamaican households are headed by females.(Dreher M, 2010). In some instances women use their reproductive ability (get pregnant) as a strategy to gain access to men's resources (Dreher M, 2010). About 85% Jamaican children are born out of wedlock, (Dreher M, 2010) which is higher than the estimated 70% premarital births in the Caribbean overall (Gray, Parkin, & Samms-Vaughan, 2007). The expressions "baby mother" and "baby father" are commonly used in the Jamaican society to refer to unmarried parents. Unemployment among women is twice that of men, and thus a high number of children are living in poverty (Dreher M, 2010). Both poverty and absentee fathers have long been associated with an increased risk for adverse health outcomes among children, including poor academic performance, early childbearing, psychological and behavioral problems, (Ishida, 2010; Williams,

Sassler, Frech, Addo, & Cooksey, 2011) and involvement in crime (Gayle H, 2009; Lawson E, 2012; Smith & Green, 2007).

The purpose of this study is to determine the association between inequitable and masculinity gender norms and involvement in contraception use, having multiple baby mothers, and intentions to having a large family. Inequitable gender norms will be measured using the Gender Equitable Men (GEM) Scale, (Pulerwitz J, 2008; Pulerwitz, Michaelis, Verma, & Weiss) while masculinity norms will be measured using the Macho scale.(Anderson P, 2012). The GEM scale is a culturally diverse tool designed to measure dimensions of gender norms multiple sexual partners, reproductive health, violence against women and homosexuality (Pulerwitz J, 2008; Pulerwitz et al.). The Macho scale was recently developed in Jamaica and is designed to measure ideologies of masculinity pertaining to fathering children, sexual dominance and virility (Anderson P, 2012).

Materials and Methods

Study design and settings

A cross-sectional study was conducted among 549 men 19-54 years old in western Jamaica, during June to August 2011. The participants were recruited from four hospitals within the Western Regional Health Authority (WRHA), which serves the four parishes of St. James, Hanover, Westmoreland, and Trelawny, and a total population of 474,944.(Western Regional Health Authority (WRHA), 2008) The parishes in the WRHA have high rates of HIV prevalence with the parish of St. James having the highest cumulative number of AIDS cases of the 14 parishes in Jamaica.(Pierre et al., 2008) Health care is offered at no cost at all government operated health facilities at the time this study was conducted.

To estimate the potential effect of selection bias in recruiting from hospitals, a sample of 50 men was recruited from the community in the parish of St. James. The hospital sample was compared to the community sample with respect to attitude towards gender norms (GEM and Macho scores), outcome variables (involvement in family planning, number of "baby mothers", and not living in the same household with all children under 18 years old), and key socio-demographic variables (age, income and education). Men in the community sample tended to be older, desired a larger family size and were less likely to have all of their children <18 years living with them. We also compared the differences between the parishes with respect to our outcome variables and key socio-demographic factors and found that a higher proportion of men who reside in the parishes of Trelwny and Hanover were tend to report involvement in contraception use.

Ethical approval for the study was obtained from the Institutional Review Board (IRB) of the University of Alabama at Birmingham, the Advisory Panel of Ethics and Medico-Legal Affairs in the Jamaican Ministry of Health, and the Western Regional Health Authority.

Participants

To be eligible for participation in this study the men had to be 19-54 years old, live in the western region of Jamaica, visit one of the hospitals for out-patient care or as a visitor. Interviews were conducted in private rooms at the hospital by trained Research Assistants. Each study participant was given a phone card at the end of the interview, valued at $200 Jamaican dollars (equivalent to US$2.50) as a token of appreciation for completing the interview.

Data collection

A 143-item questionnaire was used to collect data on sexual behaviors, reproductive health practices, health seeking behaviors, attitude towards gender norms and socio-demographic factors. Two validated scales (GEM and Macho) were included in the questionnaire. The GEM Scale (Pulerwitz J, 2008) was used to measure gender inequitable and equitable norms**.** The GEM scale has been found to be a culturally-sensitive tool for measuring gender norms and has been used in a number of countries such as India, Kenya, Ethiopia, and Nicaragua (Pulerwitz, Michaelis, Verma, & Weiss, 2010). The Macho scale was recently developed among fathers (18-59 years of age) residing in Jamaica, and is designed to measure sexual dominance and virility, and the

primordial need to beget children (Anderson P, 2012). The scale consists of 24 items scored on a three point likert scale (1 = agree, 2 = partially agree, 3 = disagree). Items 1-17 measure gender inequitable norms, while items 18-24 measure gender equitable norms. Scores for the inequitable norms (maximum score 51) and equitable norms (maximum score 21) subscales were calculated separately. The Cronbach alpha for the "inequitable" and equitable subscales are 0.85 and 0.77, respectively (Pulerwitz J, 2008). Scores were classified as ''high,'' ''moderate,'' and ''low'' by dividing the sum of the range of answers on the two sub-scales into 3 equal and separate parts as recommended by Pulerwitz. For example, support for inequitable gender norms was classified as: high (41-51), moderate (29-40), low (17-28) (Pulerwitz J, 2008).

The Macho Scale (Anderson et al., 2009; Anderson P, 2012) which was developed in Jamaica consists of 13 items (Cronbach's alpha of 0.82) measuring three dimensions of masculinity related to male-female gender relations. The three dimensions of the scale are defined as follows: 1) Primordial need to produce children, 2) Sexual dominance (virility), and 3) Domestic freedom. Items are scored using a likert scale ranging from 1 to 5, resulting in a minimum score of 13 and a maximum of 65. Higher scores are indicative of higher levels of masculinity norms (Anderson et al., 2009; Anderson P, 2012). As recommended by Anderson, scores were classified as ''high,'' ''moderate,'' and ''low'' by dividing the frequency distribution of the sample into tertiles.

In our sample, internal reliability as measured by Cronbach's alpha, for the inequitable GEM, equitable GEM and Macho scales were 0.74, 0.32, and 0.74, respectively. Due to

low reliability of the equitable GEM sub-scale we did not use it in any further analysis. Thus, only the inequitable GEM sub-scale has been used in the current study.

Dependent variables used in this study include: 1) Involvement in contraception use; 2) Desire to have a large family, and 3) multiple "baby mothers"**.** Involvement in contraception use was determined by asking "Do you take any steps/measures to prevent your sexual partner (s) from getting pregnant? The responses were dichotomized as - "yes" or "no". Desire to have large family size was assessed by asking "How many children do you intend to have?" Men who expressed their intention to have a family size that was greater than the median desired family size (3) in our sample were classified as desiring a large family size. The number of "baby mothers" was measured by asking the men "How many baby mothers do you have?" Men who reported more than one "baby mother" were classified as having multiple baby mothers.

Data analysis

Bivariate and multivariable analyses were performed to obtain crude and adjusted estimates (Odds Ratios) of the association between gender norms, socio-demographic factors, and family planning practices (involvement in contraception use, desire to have large family, and number of "baby mothers"). Backward selection modeling was used in the adjusted models. All predictive variables resulting in a p-value < 0.10 in the crude analyses were entered in the adjusted models, and retained if p-value < 0.05. In addition, the final models were adjusted for age, education, income and religion as these variables are known to be associated with outcome. We wanted to assess the independent

association of inequitable and muscularity gender norms with the outcome variables. Data analysis was performed using SAS software version 9.2 (SAS Institute, Cary, NC).

Results

The mean age and standard deviation of the 549 men who participated in this study was 32.4±10.1. Forty percent of the men reported being raised by both parents. Most (64%) of the men fathered at least one biological child. The mean age of fathering 1st child was 23.4±5.7, while the mean number of children fathered was 1.6±1.9. Thirty-four percent of the men desired a large family (more than 3 children) and 26.5% reported multiple baby mothers. Most of the men were classified as having moderate or high support of inequitable (74%) and masculinity (71%) gender norms (Table 1).

Most (66.5%), of the men reported no preference for the gender of their health care provider. Seventy-six percent of the men reported taking steps to prevent unwanted pregnancy. The steps that were taken to prevent unwanted pregnancy include consistent condom use (40.4%), inconsistent condom use (22.0%), supporting partner to take contraception (15.4%) and using the withdrawal method (13.7%). None of the men had a vasectomy. The median number of children the men desired to have was 3 and approximately 34.9% of the men desired to have a large family size (more than 3 children).

The main sources of reproductive health knowledge were schools (25.5%), media (17%) and parents (16%). Other sources of knowledge include "the streets" and health care facilities. Fifty-one percent of the men reported that withdrawing the penis before climaxing during sex could result in unwanted pregnancy. Most (87%) men were aware that HIV can be transmitted from the mother to her baby while 73% reported that they

were aware of medications that were available to reduce the risk of the mother transmitting HIV to her baby (Table 2).

There was reduced odds of taking steps to prevent unintended pregnancy among men who were younger [19-24 age (OR = 0.5; 95% CI = 0.3-0.9), 24-35 (OR = 0.4;95% CI = 0.2 - 0.6)]; had poor health seeking behavior [obtained a routine health check ≥4 years ago (OR = 0.5; 95% CI = 0.3 – 0.8), or never (OR = 0.4; 95%CI = 0.2 – 0.7)], and had moderate (OR = 0.5; 95% CI = 0.3 - 0.9) or high (OR = 0.3; 95% CI = 0.1 - 0.5) support for inequitable gender norms. We observed increased odds for taking steps to prevent unwanted pregnancy among men reporting secondary or tertiary education (OR = 1.8; 95% CI = 1.1 – 2.8), no religious affiliation (OR=1.8; 95% CI = 1.2 – 2.8), and reside in the parishes of Trelawny (OR = 2.4; 95% CI = 1.2 – 4.7) or Hanover (OR = 3.3; 95% CI = 1.6 – 7.1). In the multivariable model, health seeking behavior, inequitable gender norms, age, and parish remained significant. The strength of association and direction for these variables in the multivariable analysis were almost identical to that which was observed in the bivariate analysis (Table 3).

Desire to have large family (>3 children) was associated with age, income, marital status and masculinity norms in the bivariate analysis (Table 4). Increased odds was observed in the desire to have large family among men who reported older age (OR = 1.9; 95% CI = 1.2 – 2.9), higher income (OR = 1.7; 95% CI = 1.1 - 2.5), and moderate (OR = 1.9; 95% CI = 1.2 - 3.0) and high (OR = 2.1; 95% CI = 1.3 - 3.4) Macho scores. There was reduced odds of desiring a large family among men who reported single marital status

(OR = 0.6; 95% CI = 0.4 - 0.9). In the multivariable model which adjusted for education, age and religion there was increased odds of desiring a large family among men with high (AOR = 2.1; 95% CI = 1.3 - 3.3) support for Masculinity norms. Higher income (AOR = 1.7; 95% CI = 1.1 - 2.5) was also associated with increased odds for desiring large family (Table 4).

In the bivariate analyses (Table 5) moderate (OR = 2.1; 95% CI = 1.1 - 4.2) and high (OR = 2.6; 95% CI = 1.2 - 5.5) support for masculinity gender norms were associated with increased odds for having multiple baby mothers among men aged 24-54 years of age who had reported fathering more than 2 children. Additionally, there was reduce odds of having multiple baby mothers among men who reported older age (>25 years) for fathering their first child (OR = 0.2; 95% CI = 0.05 - 0.7), compared to men who fathered their first child at ≤17 years. In the multivariable analysis which adjusted for age, education, religion, and income both masculinity norms [moderate (AOR = 2.1; 95% CI = 1.0 – 4.4) and high (AOR = 2.4; 95% CI = 1.1 – 5.6)], and older age at which first child was fathered (AOR = 0.3; 95% CI = 0.1 - 0.8) remained significant. This analysis was restricted to men who were within the 25-54 age range as none of the men within the 19-24 age range reported multiple “baby mothers” (Table 5).

Discussion

In recent decades there has been increasing international recognition of the importance of including men and gender norms in sexual and reproductive health programs to improve health outcomes of men, women and children (Barker, 2011; Hawkes & Hart, 2000). The findings from this cross-sectional study involving men in western Jamaica, demonstrates that inequitable and masculinity gender norms does indeed influences men's family planning practices and underscores the need to include men as partners in sexual and reproductive health programs. Specifically, we found that higher support for inequitable gender norms was associated with reduced odds for taking steps to prevent unplanned pregnancy, while higher support for masculinity norms was associated with increased odds for reporting multiple "baby mothers" and desire to have a large family (more than 3 children).

Although 77% of the men reported that they took steps to prevent unwanted pregnancy only 40% used condoms consistently. Since none of the men ever had a vasectomy, there is a high dependence on other methods such as condom use, however inconsistently, and the withdrawal method. Although ideally higher rates of consistent condom use and vasectomy is desired in men's involvement in preventing unwanted pregnancy these finding are hopeful as they suggest that most men are willing to take steps to prevent unwanted pregnancy. These findings are consistent with literature which shows that most men are generally supportive of contraception use (Hawkes & Hart, 2000; Sternberg & Hubley, 2004). Since higher support for inequitable gender norms was independently

associated with reduced odds for involvement in contraception use, it would be beneficial to include gender-transformative interventions in family planning programs targeting men in Jamaica (Nanda et al., 2013). Furthermore, knowledge about preventing unwanted pregnancy is low as only 52% of the men believed that a woman could still become pregnant while using the withdrawal contraception method, and less than 20% reported ever heard of birth spacing. This highlights a significant gap in knowledge among the men in our study.

Of note the findings of this study show the central role the health care facilities can play in influencing men's family planning practice as there was reduced odds of involvement in contraception use among men who had not been to a health care facility in more than four years. Undoubtedly, these findings could inform policies regarding the reorientation of family planning services in Jamaica. Since most of the men did not have any gender preference for their health care provider, minor policy changes such as designating special clinics for men or implementing community based programs to promote contraception use among men could result in meaningful change. Sternberg et al (Sternberg & Hubley, 2004) review of the interventions targeting men have documented a number of strategies that have been used to improve to improve men's involvement in family planning, that could be applied to men in Jamaica. These include family planning clinics for men and couples, media approaches, training programs for male dominated industries such as agriculture, and community outreach (Sternberg & Hubley, 2004).

Although only 22% of the men currently had a large family size (more than 3 children), approximately 34% of the men intended to have more than three children. Intention to have a large family was associated with high support for masculinity norms and higher income, which was not surprising given socio-economic dynamics and prevailing masculinity norms which encourages men to have children to demonstrate manhood. In the Jamaican society women are socialized to take care of the home and children while men are expected to be tough, invulnerable, and provide material support (food, clothing, shelter, money) (Chevannes B, 2002; Dreher M, 2010).

While the mean age and standard deviation of the men was 32.4±10, approximately 27% of the men reported multiple baby mothers. Higher support of masculinity norms was associated with increased odds for reporting multiple sex partners while older age for fathering first child was associated with reduced odds. These findings are demonstrative of the effect of gender ideologies on family structure and subsequent effect on children's wellbeing. For example the high prevalence (>50%) of multiple sex partners in Jamaica, (Figueroa et al., 2008; Figueroa, Ward, Walters, Ashley, & Wilks, 2005; Gibbison, 2007; Ishida, Stupp, & McDonald, 2011) coupled with beliefs about fathering a child at an early age to validate manhood and demonstrate to society and their parents that they are not homosexuals, (Chevannes B, 2002; M.-K. C. Chevannes B, 1992; Gibbison, 2007; P., 2012; Wyss, 2000) is likely to result in having multiple baby mother. Fathering children with multiple baby mothers will undoubtedly increase the odds of becoming an absentee father, which can adversely impact the health outcome of children. Thus, promoting

gender norms and family planning among men and school-age boys could potentially reduce rates of early fatherhood and multiple baby mothers among men.

Although our findings contribute to the understanding of the association between gender norms and family planning practices in Jamaica, this study has a number of limitations, which must be taken into consideration when interpreting the results. First, we were unable to demonstrate causality. Second, all of our assessments have relied on self-reported data collected through interviews. The study could potentially be affected by socially desirable bias, especially since all of the interviewers were females. Although we recruited participants from all of the hospitals in WRHA, which serves a wide population area, it should be noted that these facilities may be underutilized by individuals of upper middle to high socioeconomic status. The inclusion of visitors (men visiting patients, not seeking health care) to the hospitals in our sample was intended to reduce this potential effect. Additionally, we employed the use of a community sample to estimate the representativeness of the hospital sample. Since men in the community sample were more likely to have multiple "baby mothers" and to not have all their under 18 years of age living in their household, our findings may have underestimated the odds presented in this regard.

Despite these limitations, our study calls attention to the need to involve men in family planning programs in Jamaica, a country wherein approximately 85% of births are premarital and gender norms which encourage men to have multiple sexual partners are pervasive. Both masculinity and inequitable gender norms were observed among men in

this study which could negatively impacted family planning practices. This underscores the need to use both assessment tools (Inequitable GEM and Macho scale) when assessing gender norms related to family planning practice among men in Jamaica. Changing gender norms that predispose men to having large family and multiple baby mothers will be a long and difficult process as gender norms are hard to change. However with political will, supportive policy changes and the active involvement of men in the design and delivery of programs, meaningful and sustainable changes can be made especially if the needs of boys are addressed during the early developmental stages. Agents of socialization such as parents, schools, and churches would be key stakeholders to effectively change harmful gender norms. Future research should pilot test approaches that could be used to engage men in sexual and reproductive health program and test the effect of gender-transformative interventions on family planning practices.

References

Adeleye, O. A., Aldoory, L., & Parakoyi, D. B. (2011). Using local culture and gender roles to improve male involvement in maternal health in southern Nigeria. *J Health Commun, 16*(10), 1122-1135. doi: 10.1080/10810730.2011.571340

Ali, M., Rizwan, H., & Ushijima, H. (2004). Men and reproductive health in rural Pakistan: the case for increased male participation. *Eur J Contracept Reprod Health Care, 9*(4), 260-266.

Anderson, M., Elam, G., Solarin, I., Gerver, S., Fenton, K., & Easterbrook, P. (2009). Coping with HIV: Caribbean people in the United Kingdom. *Qual Health Res, 19*(8), 1060-1075. doi: 19/8/1060 [pii] 10.1177/1049732309341191

Anderson P. (2012). Measuring masculinity in an afro-caribbean context. *Social and Economic Studies, 61*(1), 49-93.

Barker, G., Contreras, J.M., Heilman, B., Singh, A.K., Verma, R.K., and Nascimento, M. . (2011). Evolving Men: Initial Results from the International Men and Gender Equality Survey (IMAGES). Retrieved January 14, 2013

Berhane, A., Biadgilign, S., Amberbir, A., Morankar, S., Berhane, A., & Deribe, K. (2011). Men's knowledge and spousal communication about modern family planning methods in Ethiopia. [Research Support, Non-U.S. Gov't]. *Afr J Reprod Health, 15*(4), 24-32.

Chevannes B. (2002). What You Sow Is What You Reap: Violence and the Construction of Male Identity in Jamaica *2002 Current Issues in Comparative Education* (Vol. 2): Teachers College Columbia University Current Issues in Comparative Education.

Chevannes B, M.-K. C. (1992). *"How we were grown": Cultural aspects of high-risk sexual behavior in Jamaica.* Institute of Social and Economic Research, University of the West Indies

Dreher M, H. R. (2010). Maternal conjugal multiplicity and child development in rural Jamaica. *Family Relations 2010 59*(5), 495-505.

Figueroa, J. P., Duncan, J., Byfield, L., Harvey, K., Gebre, Y., Hylton-Kong, T., . . . Brathwaite, A. R. (2008). A comprehensive response to the HIV/AIDS epidemic in Jamaica: a review of the past 20 years. *West Indian Med J, 57*(6), 562-576.

Figueroa, J. P., Ward, E., Walters, C., Ashley, D. E., & Wilks, R. J. (2005). High risk health behaviours among adult Jamaicans. *West Indian Med J, 54*(1), 70-76.

Gayle H. (2009). Young Boys Learning to Fear, Hate and Harm: A Recipe for Sustaining Tribal Political Violence in Jamaica's. *IDS Bulletin, 40* (1).

Gibbison, G. A. (2007). Attitude towards intimate partner violence against women and risky sexual choices of Jamaican males. *West Indian Med J, 56*(1), 66-71.

Gray, P. B., Parkin, J. C., & Samms-Vaughan, M. E. (2007). Hormonal correlates of human paternal interactions: a hospital-based investigation in urban Jamaica. [Comparative Study Research Support, Non-U.S. Gov't]. *Horm Behav, 52*(4), 499-507. doi: 10.1016/j.yhbeh.2007.07.005

Hawkes, S., & Hart, G. (2000). Men's sexual health matters: promoting reproductive health in an international context. [Review]. *Trop Med Int Health, 5*(7), A37-44.

Ishida, K. (2010). The Role of Ethnicity in Father Absence and Children's School Enrollment in Guatemala. *Popul Res Policy Rev, 29*(4), 569-591. doi: 10.1007/s11113-009-9160-7

Ishida, K., Stupp, P., & McDonald, O. (2011). Prevalence and correlates of sexual risk behaviors among Jamaican adolescents. *Int Perspect Sex Reprod Health, 37*(1), 6-15. doi: 10.1363/3700611

Lawson E. (2012). Single Mothers, Absentee Fathers, and Gun Violence in Toronto: A Contextual Interpretation. *Women's Studies 41*(7), 805-828.

Mistik, S., Nacar, M., Mazicioglu, M., & Cetinkaya, F. (2003). Married men's opinions and involvement regarding family planning in rural areas. *Contraception, 67*(2), 133-137.

Nanda, G., Schuler, S. R., & Lenzi, R. (2013). The Influence of Gender Attitudes on Contraceptive Use in Tanzania: New Evidence Using Husbands' and Wives' Survey Data. *J Biosoc Sci*, 1-14. doi: 10.1017/S0021932012000855

Ndong, I., Steele, C., & Mahony, E. (1998). Involving men in reproductive health: making the mandate a reality. *Sex Health Exch*(2), 14-15.

Onyango, M. A., Owoko, S., & Oguttu, M. (2010). Factors that influence male involvement in sexual and reproductive health in western Kenya: a qualitative study. [Research Support, Non-U.S. Gov't]. *Afr J Reprod Health, 14*(4 Spec no.), 32-42.

P., A. (2012). Measuring masculinity in an afro-caribbean context. *Social and Economic Studies 61*(1), 49-93.

Paek, H. J., Lee, B., Salmon, C. T., & Witte, K. (2008). The contextual effects of gender norms, communication, and social capital on family planning behaviors in Uganda: a multilevel approach. [Evaluation Studies]. *Health Educ Behav, 35*(4), 461-477. doi: 10.1177/1090198106296769

Pierre, R. B., Steel-Duncan, J. C., Evans-Gilbert, T., Rodriguez, B., Moore, J., Palmer, P., . . . Christie, C. D. (2008). Effectiveness of antiretroviral therapy in treating paediatric HIV/AIDS in Jamaica. [Multicenter Study

Research Support, Non-U.S. Gov't]. *West Indian Med J, 57*(3), 223-230.

Pulerwitz J, B. G. (2008). Measuring Attitudes toward Gender Norms among Young Men in Brazil. Development and Psychometric Evaluation of the GEM Scale *Men and Masculinities10*(3), 322-338.

Pulerwitz, J., Michaelis, A., Verma, R., & Weiss, E. Addressing gender dynamics and engaging men in HIV programs: lessons learned from Horizons research. *Public Health Rep, 125*(2), 282-292.

Pulerwitz, J., Michaelis, A., Verma, R., & Weiss, E. (2010). Addressing gender dynamics and engaging men in HIV programs: lessons learned from Horizons research. [Research Support, U.S. Gov't, Non-P.H.S.]. *Public Health Rep, 125*(2), 282-292.

Smith, D. E., & Green, K. E. (2007). Violence among youth in Jamaica: a growing public health risk and challenge. [Review]. *Rev Panam Salud Publica, 22*(6), 417-424.

Sternberg, P., & Hubley, J. (2004). Evaluating men's involvement as a strategy in sexual and reproductive health promotion. [Research Support, Non-U.S. Gov't Review]. *Health Promot Int, 19*(3), 389-396. doi: 10.1093/heapro/dah312

Western Regional Health Authority (WRHA). (2008). Western Regional Health Authority (WRHA) Anual Report, from http://www.wrha.gov.jm/

Williams, K., Sassler, S., Frech, A., Addo, F., & Cooksey, E. (2011). Nonmarital Childbearing, Union History, and Women's Health at Midlife. *Am Sociol Rev, 76*(3), 465-486. doi: 10.1177/0003122411409705

Wyss, B. (2000). Gender and cash child support in Jamaica *Review of Radical Political Economics 32*(2001), 415-439.

Table 1: Selected characteristics of men in western Jamaica

Selected characteristics	N (%)	Mean and SD
Mean age	-	32.4±10.1
Secondary of higher education	431 (78.6)	
Employed	353 (64.3)	
Lower income >JA$30,000.00 (US$348.0)	348 (63.4)	
Any religion	430 (78.6)	
Marital status	350 (64.7)	
Fathered at least 1 child	351 (64.0)	
Mean age fathered 1st child	-	23.4±5.7
Mean number of children fathered	-	1.6±1.9
Desire large family (>Median =3)	189 (34.4)	3.3±2.0
# Baby mother		1.0±1.1
Multiple	144 (26.5)	1.7±1.9*
Childhood guardian		
Both parents	213 (38.9)	
Single parent	218 (39.8)	
Other	117 (21.4)	
Inequitable gender norms		36± 6.1
Low (17 - 28)	141 (25.7)	
Moderate (29 – 40)	335 (61.0)	
High (41 – 51)	73 (13.3)	
Macho score		37.4 ± 6.9
Low (13-32)	161 (29.3)	
Moderate (34 – 40)	223 (40.6)	
High (44 – 65)	165 (30.1)	

*Among men with children

Table 2: Frequency of family planning practices/beliefs among men in western Jamaica

Selected variables	N	%
Routine health check		
≤ 1 year	285	53.1
2 – 3 years	78	14.5
≥4 years	107	19.9
Never had a routine check up	67	12.5
Preferred health care provider		
Male	24	4.4
Female	160	29.4
It does not matter	360	66.2
Source of knowledge		
Parents	86	16.1
Friends	49	9.2
Media	90	16.9
School	136	25.5
Other	169	31.7
Take steps to prevent unwanted pregnancy[1]	412	75.3
Age had first child (years)		
≤17	37	11.0
18-24	175	51.9
25	125	37.1
Total number of children intend to have		
0	29	5.7
1	26	5.1
2	166	32.4
≥3 or more	292	56.9
Total number of children fathered		
0	199	36.1
1	122	22.4
2	105	19.3
≥3 or more	119	21.8
Number of baby mothers		
0	200	36.8
1	197	36.3
2	93	17.1
≥3 or more	53	9.8
Willing to get vasectomy	83	15.2
It is ok for women to have abortion	145	27.4

Ever heard of "birth spacing"	86	15.7
Douching after sex is a good method to prevent unwanted pregnancy		
Yes	86	15.7
No	287	52.4
Don't know	175	31.9
Women can become pregnant if withdraw penis before climaxing during sex		
Yes	283	51.6
No	230	42
Don't know	35	6.4
HIV can be transmitted from Mother to her baby	475	86.84
Aware of medications for PMTCT[2]	401	73.4

1=Steps taken include – Consistent condom use 40.4%, inconsistent condom use – 22.0%, withdrawal – 13.7%, support partner to take contraception – 15.4%, vasectomy – 0%
2= PMTCT – Prevention of Mother to Child Transmission

Table 3: Bivariate and multivariable analysis of factors associated with involvement in family planning among men in western Jamaica

Selected variables	Bivariate analysis OR (95% CI)	p-value	Multivariable analysis AOR (95% CI)	p-value
Age				
19 -24	0.5 (0.3 - 0.9)	0.0178	0.4 (0.2 - 0.7)	0.0040
24-35	0.4 (0.2 - 0.6)	0.002	0.3 (0.2 - 0.6)	0.0004
35-54	Ref			
≥Secondary education	1.8 (1.1 - 2.8)	0.011	1.3 (0.8 -2.1)	0.35
Employed	0.9 (0.6 - 1.3)	0.54	-	
Monthly income $JA≤30,000	1.0 (0.6 - 1.5)	0.78	0.9 (0.5 – 1.4)	0.60
Single marital status	0.9 (0.6 - 1.3)	0.57	-	
No religion	1.8 (1.1 - 2.8)	0.01	1.4 (0.8 - 2.2)	0.023
Routine check-up (years)				
≤ 1	Ref			
2 - 3	1.3 (0.6 - 2.4)	0.500	1.1 (0.6 - 2.3)	0.70
≥4-5	0.5 (0.3 - 0.8)	0.009	0.5 (0.3 - 0.8)	0.010
Never had a routine check	0.4 (0.2 - 0.7)	0.003	0.4 (0.2 - 0.8)	0.009
Childhood guardian				
Both Parents	Ref			
Single parent	1.2 (0.8 -1.8)	0.386		
Other	0.6 (0.3 - 1.2)	0.178		
Number of children fathered				
0	Ref			
1 - 2	0.9 (0.5 - 1.3)	0.48		
≥3	1.0 (0.6 - 1.7)	0.93		
Parish				
St James	Ref			
Trelawny	2.4 (1.2 – 4.7)	0.009	2.2 (1.1 – 4.4)	0.030
Westmoreland	0.8 (0.5 – 1.2)	0.31	0.7 (0.5 – 1.2)	0.22
Hanover	3.3 (1.6 – 7.1)	0.002	3.2 (1.4 – 7.0)	0.004
Inequitable gender norm score				
Low	Ref		Ref	
Moderate	0.5 (0.3 - 0.9)	0.012	0.5 (0.3 - 0.8)	0.015
High	0.3 (0.1 - 0.5)	0.0001	0.3 (0.1 - 0.6)	0.001
Macho score				
Low	Ref			
Moderate	0.8 (0.5 - 1.3)	0.43	-	
High	0.7 (0.4 - 1.2)	0.187	-	

Adjusted for age, income, education, and religion

Table 4: Bivariate and multivariable analyzes of factors associated with desiring to have more than 3 children

Selected variables	Bivariate analysis OR (95% CI)	*p*-value	Multivariable Analysis AOR (95% CI)	*p*-vale
Age				
19-24	Ref		Ref	
25-34	1.1 (0.7 – 1.9)	0.58	0.9 (0.5 – 1.4)	0.56
35-54	1.9 (1.2 – 2.9)	0.005	0.9 (0.5 – 1.4)	0.55
≥Secondary education	0.7 (0.5 - 1.1)	0.16	0.8 (0.5 - 1.3)	0.45
Employed	0.9 (0.6 - 1.2)	0.17		
Income >$JA30,000	1.7 (1.1 0 2.5)	0.008	1.7 (1.1 - 2.6)	0.011
Single marital status	0.6 (0.4 - 0.9)	0.016	0.7 (0.5 – 1.0)	
No Religion	1.3 (0.8 - 2.0)	0.25	1.3 (0.8 – 2.0)	
Childhood guardian		0.51		
Both Parents	Ref		-	
Single parent	0.7 (0.5 - 1.1)	0.13		
Other	0.8 (0.4 - 1.4)	0.42		
Age at which had first child				
<17 years	Ref		-	
18-24 years	0.9 (0.5 – 1.9)	0.88		
>25 years	0.6 (0.3 – 1.3)	0.24		
Inequitable gender norm score				
Low	Ref		-	
Moderate	1.2 (0.8 – 1.9)	0.36		
High	1.7 (.01-3.1)	0.06		
Macho score				
Low	Ref		Ref	
Moderate	1.9 (1.2 - 3.0)	0.005	1.3 (0.9 – 2.0)	0.200
High	2.1 (1.3 - 3.4)	0.002	2.1 (1.3 – 3.3)	0.002

Adjusted for age, education, religion

Table 5: Bivariate and multivariable analyses of factors associated with multiple "baby mothers" among men 25 -54 years of age with 2 or more children

Selected variables	Multiple baby mothers			
	Bivariate Analysis		Multivariable Analysis	
	OR (95% CI)	*p*-value	AOR (95% CI)	*p*-value
Age				
25-34	Ref		Ref	
35-54	1.5 (0.8 - 2.9)	0.17	1.9 (0.9 – 4.0)	0.07
≥Secondary Education	0.9 (0.5 - 1.7)	0.84	1.3 (0.6 – 2.5)	0.47
Employed	0.7 (0.4 - 1.3)	0.25		
Income >$JA30,000	1.4 (0.8 - 2.6)	0.21	1.3 (0.7 – 2.4)	0.47
Single marital status	1.3 (0.7 - 2.3)	0.4		
Any Religion	0.8 (0.4 - 1.7)	0.59		
Childhood guardian				
Both Parents	Ref			
Single parent	0.8 (0.4 - 1.6)	0.61		
Other	1.4 (0.7 - 3.0)	0.4		
Age at which had first child				
<17 years	Ref		Ref	
18-24	0.4 (0.1 –1.3)	0.12	0.7 (0.3 - 1.9)	0.48
>25 years	0.2 (0.05 - 0.7)	**0.009**	0.3 (0.1 - 0.8)	**0.017**
Inequitable gender norm score				
Low	Ref			
Moderate	1.1 (0.6-2.1)	0.85		
High	1.2 (05 – 3.2)	0.70		
Macho score				
Low	Ref		Ref	
Moderate	2.1 (1.1 - 4.2)	**0.030**	2.1 (1.0 – 4.4)	0.041
High	2.6 (1.2 - 5.5)	**0.020**	2.4 (1.1 – 5.6)	0.037

Adjusted for age, education, religion, and income

CONCLUSION

There has been increasing recognition of the importance of including men and gender norms (masculinity and inequitable) in sexual and reproductive health programs especially in developing counties as these strategies have been proven to be effective in improving health outcomes of men, women and children. Additionally, there is preponderance of evidence of the effectiveness of including MC in HIV programs to reduce acquisition of HIV among heterosexuals. Despite this evidence, Jamaica, a country in the Caribbean (region with the second highest prevalence of HIV) has not yet included most of these strategies in its HIV prevention program. To draw credence to the need to apply these strategies to the Jamaican setting we conducted a cross-sectional study designed to assess the association between gender norms (masculinity and inequitable) and sexual and reproductive behaviors and acceptability of MC among 549 men in the western region of Jamaica.

Our findings revealed that gender norms (inequitable and masculinity) were associated with increased odds for reporting multiple sexual partners, and unfavorable reproductive behaviors l, but was not associated with acceptance of MC. Specifically, in paper 1 we observed that moderate and high support of inequitable and masculinity gender norms were associated with increased odds for reporting multiple sexual partners. Additionally, a high proportion of Jamaican men practiced high risk sexual behaviors that could increase their vulnerability to HIV acquisition. Surprisingly, in paper 2, we found no association between acceptance of MC and masculinity norms. Rather acceptance of MC was associated with factors related to beliefs about pleasure during sex and concerns

about MC (should not change the way God made the penis, and damage to the penis during surgery). The findings of this paper was very encouraging as they suggest that men would be receptive to accepting MC for their infants and sons as an HIV prevention strategy, especially if men were educated about MC. In paper 3, we found that involvement in contraception use was associated with inequitable gender norms, but not with masculinity. Men with moderate and high support for inequitable gender norms were less likely to report taking steps to prevent unwanted pregnancy. Additionally, there were increased odds of desiring to have large families and multiple baby mothers among men with higher Macho scores. Importantly also, men who reported not having a routine health check in ≥4 years were less likely to take steps to prevent unwanted pregnancy, compared to men who had a check ≤1year.

Notably, this study demonstrated that the performance of the Macho scale was comparable to the Inequitable GEM scale with respect to sexual behaviors. This suggests that the scales could be used independently when assessing the association between sexual behaviors and gender norms among men in Jamaica. However, when assessing reproductive behaviors the scales should be used together.

This study has a number of limitations, which must be taken into consideration when interpreting the results. First, we were unable to demonstrate causality. Second, all of our assessments have relied on self-reported data collected through interviews. The study could potentially be affected by socially desirable bias, especially since all of the interviewers were females. However, all the interviewers were trained before the start to reduce the potential effect of this bias. Third, we recruited participants from hospitals,

thus, the study is subjected to selection bias. However, the effect of this bias on our findings is minimal as the 4 hospitals serve a wide cross-section of the population in the western region of Jamaica. Additionally, the hospital sample was comparable to our community sample on all the parameters assessed except for age and having multiple sexual partners, suggesting the effect of selection bias is likely to have minimal effect on this study.

Overall, our findings have a number of policy implications that could be used in revising policy and developing interventions to improve sexual and reproductive health outcomes among men, women and children in Jamaica. Most notably is the need for concerted efforts to include gender norms and increase awareness about sexual and reproductive health and MC among men. Additionally, there is need for further research to pilot interventions that have been proven to be effective in reducing inequitable and masculinity norms among men and in assessing health workers' perception about including MC for infants and sons in Jamaica's HIV prevention program. Although Jamaica has relatively low HIV prevalence, the existing behaviors of men (high prevalence of multiple sex partners, relative low condom use at last sex, low rates of HIV testing) coupled with low prevalence of MC could significantly contribute to increased HIV prevalence over a short period of time. Thus it is crucial for Jamaica to reevaluate its HIV prevention approaches and adopt measures (such a MC and gender norms in HIV programs) that are recommended by international organizations such as the WHO and the UNAIDS.

GENERAL REFRENCES

1. WHO. Engaging men and boys in changing gender-based inequity in health: Evidence from programme interventions 2007; http://www.who.int/gender/documents/Engaging_men_boys.pdf.
2. Pulerwitz J BG. Measuring Attitudes toward Gender Norms among Young Men in Brazil. Development and Psychometric Evaluation of the GEM Scale Men and Masculinities 2008;10(3):322-338.
3. Inciardi JA, Syvertsen JL, Surratt HL. HIV/AIDS in the Caribbean Basin. *AIDS Care.* Jun 2005;17 Suppl 1:S9-25.
4. Varga CA. The forgotten fifty per cent: a review of sexual and reproductive health research and programs focused on boys and young men in sub-Saharan Africa. *Afr J Reprod Health.* Dec 2001;5(3):175-195.
5. Pachauri S. Male involvement in reproductive health care. *J Indian Med Assoc.* Mar 2001;99(3):138-141.
6. TZ H. Socio-Psychological Status of Female Heads of Households in Rajshahi City, Bangladesh. *Antrocom Online Journal of Anthropology.* 2010; 6(2).
7. WHO. Gender, Women and Health. Gender inequalities and HIV. 2011; http://www.who.int/gender/hiv_aids/en/, 2011.
8. Pulerwitz J, Michaelis A, Verma R, Weiss E. Addressing gender dynamics and engaging men in HIV programs: lessons learned from Horizons research. *Public Health Rep.* Mar-Apr;125(2):282-292.
9. Ghanotakis E, Peacock D, Wilcher R. The importance of addressing gender inequality in efforts to end vertical transmission of HIV. *Journal of the International AIDS Society.* 2012;15 Suppl 2:17385.
10. Pulerwitz J, Michaelis A, Verma R, Weiss E. Addressing gender dynamics and engaging men in HIV programs: lessons learned from Horizons research. *Public health reports.* Mar-Apr 2010;125(2):282-292.
11. Anderson P. Measuring masculinity in an afro-caribbean context. *Social and Economic Studies.* 2012;61(1):49-93.
12. Callahan EJ, Flynn NM, Kuenneth CA, Enders SR. Strategies to reduce HIV risk behavior in HIV primary care clinics: brief provider messages and specialist intervention. *AIDS Behav.* Sep 2007;11(5 Suppl):S48-57.
13. Sidibé M PP, Dybul M,. AIDS is not over. *Lancet.* 2013;380(9859):2058-2060.
14. Gilliam BL, Patel D, Talwani R, Temesgen Z. HIV in Africa: Challenges and Directions for the Next Decade. *Current infectious disease reports.* Feb 2012;14(1):91-101.
15. PAHO. The UNGASS Women's and Vulnerablity to HIV/AIDS in Latin America and the Caribbean. Women Health and Development program 2002.
16. Figueroa JP. An overview of HIV/AIDS in Jamaica: strengthening the response. *West Indian Med J.* Oct 2004;53(5):277-282.
17. CIA. The World Fact Book. Central America and the Caribbean: Jamaica. 2011; https://www.cia.gov/library/publications/the-world-factbook/geos/jm.html, 2011.
18. Duncan J, Gebre Y, Grant Y, et al. HIV prevalence and related behaviors among sex workers in Jamaica. *Sex Transm Dis.* May;37(5):306-310.
19. Pierre RB, Steel-Duncan JC, Evans-Gilbert T, et al. Effectiveness of antiretroviral therapy in treating paediatric HIV/AIDS in Jamaica. *West Indian Med J.* Jun 2008;57(3):223-230.
20. Wood EB, Hutchinson MK, Kahwa E, Hewitt H, Waldron N. Jamaican adolescent girls with older male sexual partners. *J Nurs Scholarsh.* Dec;43(4):396-404.

21. WRHA. Western Regional Health Authority Profile 2009; http://www.wrha.gov.jm/content/wrha_profile.html.
22. Duncan J, Gebre Y, Grant Y, et al. HIV prevalence and related behaviors among sex workers in Jamaica. *Sex Transm Dis.* May 2010;37(5):306-310.
23. Collumbien M, Hawkes S. Missing men's messages: does the reproductive health approach respond to men's sexual health needs? *Culture, health & sexuality.* Apr-Jun 2000;2(2):135-150.
24. Wegner MN LE, Wilkinson D, Tzanis Joanne. Men as partners in reporductive health: From issues to action *International Family Planning Perspectives.* 1998;24(1):5.
25. Barker G, Contreras, J.M., Heilman, B., Singh, A.K., Verma, R.K., and Nascimento, M. . Evolving Men: Initial Results from the International Men and Gender Equality Survey (IMAGES). . 2011. Accessed January 14, 2013.
26. Sternberg P, Hubley J. Evaluating men's involvement as a strategy in sexual and reproductive health promotion. *Health promotion international.* Sep 2004;19(3):389-396.
27. Bustamante-Forest R, Giarratano G. Changing men's involvement in reproductive health and family planning. *Nurs Clin North Am.* Jun 2004;39(2):301-318.
28. Ladjali M. Sexual and reproductive health. Are men indispensable? *Entre Nous Cph Den.* Winter 1999(45):11-12.
29. PAHO. Involving males in sexual and reproductive health
30. Pulerwitz J BG, Segundo M, Nascimento M. "Promoting more gender-equitable norms and behaviors among young men as an HIV/AIDS prevention strategy," Horizons Final Report. 2006; http://www.popcouncil.org/pdfs/horizons/brgendernorms.pdf.
31. Barker G, Ricardo C, Nascimento M, Olukoya A, Santos C. Questioning gender norms with men to improve health outcomes: evidence of impact. *Glob Public Health.* Sep;5(5):539-553.
32. Organization WH. Integrating gender into HIV/AIDS programmes in the health sector: tool to improve responsiveness to women's needs. 2009; http://www.who.int/gender/hiv_aids/en/.
33. Bowleg L, Teti M, Massie JS, Patel A, Malebranche DJ, Tschann JM. 'What does it take to be a man? What is a real man?': ideologies of masculinity and HIV sexual risk among Black heterosexual men. *Culture, health & sexuality.* May 2011;13(5):545-559.
34. Leo-Rhynie E, ed *Gender in the 21st Century Caribbean Persepctives, Vision and Possibilities.* Kingston Ian Randle Publishers; 2004. Bailey B, ed.
35. Figueroa JP. HIV/AIDS in the Caribbean. The need for a more effective public health response. *West Indian Med J.* Jun 2003;52(2):156-158.
36. Anderson P. The changing roles of fathers In the context of Jamaican family life 2007.
37. Force HST. Vision 2030 Jamaica National Development Plan (2009-2030). 2009.
38. program JNHS. UNGASS Country Progress Report 2010; http://www.unaids.org/fr/dataanalysis/monitoringcountryprogress/2010progressreportssubmittedbycountries/file,33636,fr..pdf.
39. Scott P, Becker J. HIV prevention and family planning: integration improves client services in Jamaica. *Aidscaptions.* Nov 1995;2(3):15-18.
40. Gibbison GA. Attitude towards intimate partner violence against women and risky sexual choices of Jamaican males. *The West Indian medical journal.* Jan 2007;56(1):66-71.
41. Figueroa JP, Duncan J, Byfield L, et al. A comprehensive response to the HIV/AIDS epidemic in Jamaica: a review of the past 20 years. *West Indian Med J.* Dec 2008;57(6):562-576.
42. Olukoga IA. Epidemiologic trends of HIV/AIDS in Jamaica. *Rev Panam Salud Publica.* May 2004;15(5):358-363.

43. Bailey RC, Moses S, Parker CB, et al. Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomised controlled trial. *Lancet.* Feb 24 2007;369(9562):643-656.
44. Male circumcision for HIV prevention in high HIV prevalence settings: what can mathematical modelling contribute to informed decision making? *PLoS Med.* Sep 2009;6(9):e1000109.
45. Doyle SM, Kahn JG, Hosang N, Carroll PR. The impact of male circumcision on HIV transmission. *J Urol.* Jan 2010;183(1):21-26.
46. Addanki KC, Pace DG, Bagasra O. A practice for all seasons: male circumcision and the prevention of HIV transmission. *J Infect Dev Ctries.* 2008;2(5):328-334.
47. Westercamp N, Bailey RC. Acceptability of male circumcision for prevention of HIV/AIDS in sub-Saharan Africa: a review. *AIDS Behav.* May 2007;11(3):341-355.
48. Auvert B, Taljaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R, Puren A. Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 Trial. *PLoS Med.* Nov 2005;2(11):e298.
49. Gray RH, Kigozi G, Serwadda D, et al. Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. *Lancet.* Feb 24 2007;369(9562):657-666.
50. Doyle SM, Kahn JG, Hosang N, Carroll PR. The impact of male circumcision on HIV transmission. *J Urol.* Jan;183(1):21-26.
51. de Bruyn G, Martinson NA, Gray GE. Male circumcision for HIV prevention: developments from sub-Saharan Africa. *Expert Rev Anti Infect Ther.* Jan;8(1):23-31.
52. Duncan ND. Male circumcision and the Caribbean HIV epidemic. *West Indian Med J.* Jul 2010;59(4):348-350.
53. Figueroa JP. Current perceptions of male circumsission. kingston: Ministry of Health 2008.

OMB No. 0990-0263
Approved for use through 1/31/2012

Protection of Human Subjects
Assurance Identification/IRB Certification/Declaration of Exemption
(Common Rule)

Policy: Research activities involving human subjects may not be conducted or supported by the Departments and Agencies adopting the Common Rule (56FR28003, June 18, 1991) unless the activities are exempt from or approved in accordance with the Common Rule. See section 101(b) of the Common Rule for exemptions. Institutions submitting applications or proposals for support must submit certification of appropriate Institutional Review Board (IRB) review and approval to the Department or Agency in accordance with the Common Rule.

Institutions must have an assurance of compliance that applies to the research to be conducted and should submit certification of IRB review and approval with each application or proposal unless otherwise advised by the Department or Agency.

1. Request Type	2. Type of Mechanism	3. Name of Federal Department or Agency and, if known, Application or Proposal Identification No.
[X] ORIGINAL [ ] CONTINUATION [ ] EXEMPTION	[ ] GRANT [ ] CONTRACT [ ] FELLOWSHIP [ ] COOPERATIVE AGREEMENT [ ] OTHER:_____	

4. Title of Application or Activity	5. Name of Principal Investigator, Program Director, Fellow, or Other
Correlates of Sexual and Reproductive Health Practices and Acceptibility of Male Circumcision Among Males in Western Jamaica (UAB Public Health / Biomedical Research Training Program)	JOLLY, PAULINE EVADNE

6. Assurance Status of this Project *(Respond to one of the following)*

[X] This Assurance, on file with Department of Health and Human Services, covers this activity:
Assurance Identification No FWA00005960, the expiration date 09/29/2013 IRB Registration No. IRB00000726

[ ] This Assurance, on file with *(agency/dept)*_____, covers this activity.
Assurance No._____, the expiration date_____ IRB Registration/Identification No._____*(if applicable)*

[ ] No assurance has been filed for this institution. This institution declares that it will provide an Assurance and Certification of IRB review and approval upon request.

[ ] Exemption Status: Human subjects are involved, but this activity qualifies for exemption under Section 101(b), paragraph_____.

7. Certification of IRB Review (Respond to one of the following IF you have an Assurance on file)

[X] This activity has been reviewed and approved by the IRB in accordance with the Common Rule and any other governing regulations.
by: [X] Full IRB Review on (date of IRB meeting) 4/13/2011 or [ ] Expedited Review on (date) _____
[ ] If less than one year approval, provide expiration date _____

[ ] This activity contains multiple projects, some of which have not been reviewed. The IRB has granted approval on condition that all projects covered by the Common Rule will be reviewed and approved before they are initiated and that appropriate further certification will be submitted.

8. Comments	Title F110311004
Protocol subject to Annual continuing review.	Correlates of Sexual and Reproductive Health Practices and Acceptibility of Male Circumcision Among Males in Western Jamaica (UAB Public Health / Biomedical Research Training Program)

IRB Approval Issued: 5/26/11

9. The official signing below certifies that the information provided above is correct and that, as required, future reviews will be performed until study closure and certification will be provided.	10. Name and Address of Institution
11. Phone No. *(with area code)* (205) 934-3789 12. Fax No. *(with area code)* (205) 934-1301 13. Email: smoore@uab.edu	University of Alabama at Birmingham 701 20th Street South Birmingham, AL 35294
14. Name of Official Albert Oberman, M.D., MPH	15. Title Vice Chair, IRB
16. Signature Albert Oberman, MD, MPH	17. Date 5/26/11

Authorized for local Reproduction

Sponsored by HHS

Public reporting burden for this collection of information is estimated to average less than an hour per response. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: OS Reports Clearance Officer, Room 503 200 Independence Avenue, S.W., Washington, DC 20201. *Do not return the completed form to this address.*

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Institutional Review Board for Human Use

February 21, 2013

To Whom It May Concern:

The IRB reviewed protocol F110311004, "Correlates of Sexual and Reproductive Health Practices and Acceptability of Male Circumcision among Males in Western Jamaica (UAB Public Health/Biomedical Research Training Program)" on May 26, 2011. The principal investigator for this project is Pauline Evadine Jolly.

The initial submission of this project included Melonie Walcott as an investigator on the project, but did not specify that she would be using her work as her dissertation project. The IRB has since been informed of this. Her thesis project has the same title as the above referenced protocol title.

Please accept this letter as confirmation that Ms. Walcott's work on this project was reviewed and approved by the IRB prior to the work beginning.

Sincerely,

Nancy Stansfield RN MSN CIP

Nancy Stansfield, RN, MSN CIP
Assistant Director
OIRB

470 Administration Building
701 20th Street South
205.934.3789
Fax 205.934.1301
irb@uab.edu

The University of
Alabama at Birmingham
Mailing Address:
AB 470
1530 3RD AVE S
BIRMINGHAM AL 35294-0104