

# UC San Diego

## UC San Diego Electronic Theses and Dissertations

### Title

Understanding intimate partner violence and associated challenges to family planning among married women in Maharashtra, India

### Permalink

<https://escholarship.org/uc/item/0jr396wk>

### Author

Dasgupta, Anindita

### Publication Date

2015

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA, SAN DIEGO  
SAN DIEGO STATE UNIVERSITY

Understanding intimate partner violence and associated challenges to family  
planning among married women in Maharashtra, India

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy

in

Public Health (Global Health)

by

Anindita Dasgupta

Committee in Charge:

University of California, San Diego

Professor Anita Raj, Chair  
Professor Elizabeth Reed  
Professor Jay Silverman

San Diego State University

Professor Susan Kiene  
Professor María Luisa Zúñiga

2015

Copyright  
Anindita Dasgupta, 2015  
All rights reserved

The Dissertation of Anindita Dasgupta is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

---

---

---

---

---

---

Chair

University of California, San Diego

San Diego State University

2015

## **DEDICATION**

*I dedicate this body of work to the many survivors of intimate partner violence who have inspired me with their strength and courage over the past six years.*

## EPIGRAPH

“You can’t cross the sea merely by standing and staring at the water.”

*Rabindranath Tagore*

## TABLE OF CONTENTS

Signature Page.....	iii
Dedication.....	iv
Epigraph.....	v
Table of Contents.....	vi
List of Acronyms.....	viii
List of Figures.....	ix
List of Tables.....	x
Acknowledgements.....	xi
Vita.....	xvi
Abstract of the Dissertation.....	xviii
<b>CHAPTER 1: Introduction.....</b>	<b>1</b>
Background.....	1
Family planning in India.....	2
Marital and sexual practices related to family planning.....	2
Gender-based violence (intimate partner violence, and violence from in-laws).....	4
Study setting – Maharashtra, India.....	4
Dissertation overview.....	6
References.....	8
<b>CHAPTER 2: Understanding men’s elevated alcohol use, gender equity ideologies, and intimate partner violence among married couples in rural India.....</b>	<b>14</b>
Abstract.....	15
Introduction.....	17
Methods.....	20
Results.....	26
Discussion.....	28
References.....	38
<b>CHAPTER 3: Associations between intimate partner violence and married women’s condom and other contraceptive use in rural India..</b>	<b>42</b>
Abstract.....	43
Introduction.....	45
Methods.....	48
Results.....	54
Discussion.....	56
References.....	65
<b>CHAPTER 4: Assessing the relationship between intimate partner</b>	

<b>violence, externally-decided pregnancy and unintended pregnancies among wives residing in slum communities in Mumbai, India.....</b>	<b>70</b>
Abstract.....	71
Introduction.....	73
Methods.....	76
Results.....	81
Discussion.....	84
References.....	93
<b>CHAPTER 5: Conclusion.....</b>	<b>98</b>
References.....	102



## LIST OF ACRONYMS

CHARM	Counseling Husbands to Achieve Reproductive Health and Marital Equity
GE	Gender Equity
GEM	Gender Equitable Men
ILV	Violence from In-Laws
IPV	Intimate Partner Violence
IUD	Intrauterine Device
MCH	Mechanisms for Relations of Domestic Violence to Poor Maternal and Infant Health
NFHS	National Family Health Survey
SDG	Sustainable Development Goal

## LIST OF FIGURES

Figure 2.1: Moderation analysis examining if men’s gender equity ideologies moderate the association between husbands’ elevated alcohol use and wives’ IPV victimization.....	34
---	----

## LIST OF TABLES

Table 2.1: Profiles of married women living in rural Maharashtra: demographic, marriage, and fertility characteristics based on women's reports of physical and/or sexual IPV (N=1081).....	35
Table 2.2: Endorsement (agreed or partially agree) and associations of Gender Equitable Men (GEM) scale items among husbands in Maharashtra, India (N=1081) .....	36
Table 2.3: Unadjusted and adjusted logistic regression associations between husbands' elevated alcohol use, masculinity ideologies and physical/sexual IPV (ever in marriage) among married women living in rural Maharashtra (N=1081).....	37
Table 3.1: Profile of married women living in rural Maharashtra: demographic, marriage, fertility preferences, and exposure to violence (N=861).....	63
Table 3.2: Unadjusted and adjusted multinomial logistic regression: associations between physical IPV, and sexual IPV (past 6 month) with modern spacing contraceptive use (past 3 month) (N=861).....	64
Table 4.1: Sociodemographic profile of women by pregnancy intention living in urban slum communities in Mumbai, India (N=1047).....	91
Table 4.2: Unadjusted and adjusted multinomial logistic regression: associations between physical and/or sexual IPV (year prior to pregnancy), and externally-decided pregnancy with unintended (mistimed, unwanted) pregnancy in urban slum communities in Mumbai, India (N=1047).....	92

## **ACKNOWLEDGEMENTS**

I am fortunate to have an engaged and thoughtful dissertation committee, which is comprised of members who have provided incredible support consistently throughout (and beyond) my dissertation process. I am grateful to my dissertation committee chair, Dr. Anita Raj for her mentorship and commitment to my education since 2009, through both my masters and doctoral trainings. Over the last six years, Dr. Raj has not only molded me into the researcher I am today, but has also pushed me to balance research with teaching; advocacy with research; and work-life with home-life. I am grateful beyond words to Dr. Raj for her time, and many life lessons through this process. Dr. Jay Silverman has shaped the way I think about gender-based violence. I am grateful to him for constantly pushing me to think about the greater meaning of my research questions, and what can be done with research findings to help women contending with violence. I am grateful to Dr. Susan Kiene, who has served as an invaluable resource throughout my dissertation process. She has generously spent considerable time working with me to think through my research questions and findings not only in San Diego but via Skype from all over the world. Dr. Elizabeth Reed has been a role model for me since 2009, and has been an academic sounding board for me as I have learned to develop and answer research questions. I am grateful to Dr. Reed for spending many afternoons with me talking through paper concepts and analytic plans. I wish to thank Dr. María Luisa Zúñiga, who has not only impacted the way I think about

how my research in India fits into the larger global research agenda, but is also partially responsible for convincing me to move to San Diego to pursue my doctoral training. I am also grateful to Dr. Zúñiga for her unwavering support and positive energy, which inspired me to push through my writing at some of the most challenging points in this process. Finally, I would like to acknowledge Dr. Florin Vaida for his substantial contributions, and guidance on the development of my papers. This dissertation is stronger as a result of his contributions, and I am grateful for his efforts.

I would like to acknowledge faculty and staff in the Division of Global Public Health (led by Dr. Steffanie Strathdee), and Center on Gender Equity and Health, Department of Medicine at the University of California, San Diego. I am honored to have worked with many of these individuals over the last four years, and have learned an enormous amount from them. In particular, I wish to thank Dr. Strathdee for her unwavering support from my first days at UCSD, continued support in my future work, and ability to inspire so many of her trainees with her devotion not only to rigorous research, but also as an advocate for those who are not able to advocate for themselves.

This body of work would not be possible without the participation of the thousands of men and women who participated in the CHARM and MCH studies. I am grateful to them for taking the time to share their stories with our research team. For the past six years, I have had the privilege of being part of an incredible Indo-U.S. collaborative team between our U.S. academic agencies, the

National Institute for Research in Reproductive Health, and Population Council, India. I have learned a great deal about what it means to be part of a productive and respectful multi-country collaboration, and wish to acknowledge Drs. Balaiah Donta, Niranjan Saggurti, and Saritha Nair for their mentorship and guidance during this time. I would also like to thank Dr. Madhusudana Battala for his scientific contributions to this work, and also for his encouragement and friendship over the years. To that end, this work would not be possible without the dedication and efforts of the field research teams led by Dr. Mohan Ghule (CHARM), and Mr. Dattaram Naik (MCH) at NIRRH, who worked long hours, traveled great distances, and dealt with extreme weather conditions to gather the data that were used in this dissertation.

I am fortunate to have an incredible support system of friends who have ensured I reach this point in my training. I am grateful to my cohort, and in particular, Erin Connors and Kelly Collins for their support and friendship throughout our time in the program. I would also like to thank Julie Butash, Caitlin Edwards, and Cristina Mendonca for filling my mailbox with regular messages of love and positivity. I wish to thank Elizabeth Gastelum for her friendship, motivation, and for listening to me as I processed the findings of this dissertation, and Ozzie Moser for keeping me sane, healthy, and smiling throughout this rigorous process.

This dissertation would not be possible without the support of my family. My father, Dr. Avijit Dasgupta instilled a love and curiosity for science in all of his

children from a young age. I am grateful to him for this and his constant support and guidance. There is nobody in my life who has believed in me more than my mother, Nandita Dasgupta, and so much of what I've accomplished is due to her constant confidence in me. I am grateful to my brother, Dr. Nabarun Dasgupta, who first introduced me to the world of public health through his own inspirational work, and to my sister, Priya Dasgupta Yeung for always knowing how to keep me laughing and motivated. I am grateful to my sister-in-law, Roxanne Saucier, and brother-in-law, King Yeung for their regular messages of support and care packages, and to the Chudgar family for supporting me through this process with well-wishes and encouragement. I would also like to thank Ishan Dasgupta, and Anika and Veena Yeung for providing the best study breaks imaginable.

Finally, I would like to thank my husband, Dr. Neel Chudgar for over a decade's worth of encouragement to pursue my doctorate; for copy-editing my papers; and for pushing me to work harder than I ever thought I could. Sheryl Sandberg said that "The most important career choice you'll make is who you marry," and I truly feel that I could not have chosen better.

This dissertation was supported through generous funding from the training program in substance use, HIV, and related infections (NIDA T32DA023356; PI: S. Strathdee). In addition, this research has been supported by grant funding from the National Institute of Child Health and Human Development (RO1HD61115; PI: A. Raj, R03HD055120-01; PI: J. Silverman),

and the Department of Biotechnology, Government of India  
(BT/IN/US/01/BD/2010; PI: B. Donta).

Chapter 2, “Understanding men’s elevated alcohol use, gender equity ideologies, and intimate partner violence among married couples in rural India,” in full, is currently being prepared for publication of material. Silverman, Jay; Saggurti, Niranjana; Ghule, Mohan; Donta, Balaiah; Battala, Madhusudana; Nair, Saritha; Gajanan, Velhal; and Raj, Anita are co-authors on this manuscript. Anindita Dasgupta, the dissertation author, is the primary author of this material.

Chapter 3, “Associations between intimate partner violence and married women’s condom and other contraceptive use in rural India,” in full, is currently being prepared for publication of material. Saggurti, Niranjana; Ghule, Mohan; Reed, Elizabeth; Donta, Balaiah; Battala, Madhusudana; Nair, Saritha; Ritter, Julie; Gajanan, Velhal; Silverman, Jay; and Raj, Anita are co-authors on this manuscript. Anindita Dasgupta, the dissertation author, is the primary author of this material.

Chapter 4, “Assessing the relationship between intimate partner violence, externally-decided pregnancy and unintended pregnancies among wives residing in slum communities in Mumbai, India,” in full, is currently being prepared for publication of material. Raj, Anita; Nair, Saritha; Naik, Dattaram; Saggurti, Niranjana; Donta, Balaiah; Silverman, Jay are co-authors on this manuscript. Anindita Dasgupta, the dissertation author, is the primary author of this material.



## VITA

- 2015      Doctor of Philosophy in Public Health (Global Health)  
            Joint Doctoral Program in Public Health, Global Health  
            University of California, San Diego and San Diego State University
- 2010      Masters in Public Health (Social and Behavioral Sciences)  
            Boston University School of Public Health
- 2008      Bachelor of Arts (Biological Sciences and English)  
            Mount Holyoke College

## PUBLICATIONS

1. Raj A, Ghule M, Battala M, Dasgupta A, Ritter J, Nair S, Saggurti N, Silverman JG, Balaiah D. Brief report: Parent-adolescent child concordance in social norms related to gender equity in marriage – findings from rural India. *J Adolesc.* 2014 Oct; 37(7):1181-4. PMID: 25173179.
2. Saggurti N, Nair S, Silverman JG, Naik DD, Battala M, Dasgupta A, Balaiah D, Raj A. Impact of the RHANI Wives intervention on marital conflict and sexual coercion. *Int J Gynaecol Obstet.* 2014 Jul; 126(1): 18-22. PMID: 24795094.
3. Mody S, Nair S, Dasgupta A, Balaiah D, Saggurti N, Naik DD, Raj A, Silverman JG. Postpartum contraception utilization among low-income women seeking immunization for infants in Mumbai, India. *Contraception.* 2014 Jun; 89(6): 516-20. PMID: 24560478.
4. El-Bassel N, Shaw S, Dasgupta A, Strathdee S. People who inject drugs in intimate relationships: it takes two to combat HIV. *Current HIV/AIDS Reports.* 2014 Mar; 11(1);45-51. PMID: 24477931.
5. El-Bassel N, Shaw S, Dasgupta A, Strathdee S. Drug use as a driver of HIV risks: re-emerging and emerging issues. *Curr Opin HIV AIDS.* 2014 Mar; 9(2): 150-5. PMID: 24406532.
6. Silverman JG, Saggurti N, Cheng DM, Decker M, Coleman S, Briden C, Pardeshi M, Dasgupta A, Samet JH, Raj A. Associations of Sex Trafficking History with Recent Sexual Risk among HIV-infected FSWs in India. *AIDS Behav.* 2014 Mar; 18(3): 555-61. PMID: 23955657.

7. Raj A, Saggurti N, Battala M, Nair S, Dasgupta A, Naik DD, Abramovitz D, Silverman JG, Balaiah D. Randomized Controlled Trial to Test the RHANI Wives HIV Intervention for Women in India at Risk for HIV from Husbands. *AIDS Behav.* 2013 Nov; 17(9): 3066-80. PMID: 23921584.
8. Nair S, Raj A, Saggurti N, Naik DD, Dasgupta A, Balaiah D. Reproductive Health Concerns of Women Residing in Mumbai Slum Communities and Contending with Spousal Violence and Husband's Alcohol Use. *Int J Gynaecol Obstet.* 2013 Sept; 122(3):268-9. PMID: 23796257.
9. Raj A, Dasgupta A, Goldson I, LaFontant D, Freeman E, Silverman JG. Pilot Evaluation of the MEN [Making Employment Need] Count Intervention: Addressing Behavioral and Structural HIV Risks in Heterosexual Black Men. *AIDS Care.* 2014 Feb; 26(2):152-9. PMID: 23767788.
10. Dasgupta A, Battala M, Nair S, Naik DD, Saggurti N, Silverman JG, Balaiah D, Raj A. Associations between high local social support and depression/anxiety among women contending with partner violence and husband's heavy alcohol use in slum communities in Mumbai, India. *J Affect Disord.* 2013 Feb 15;145(1):126-9. PMID: 22877967.
11. Raj A, Saggurti N, Cheng DM, Dasgupta A, Coleman S, Briden C, Pardeshi M, Samet JH. Transactional sex risk and STI among HIV-infected female sex workers (FSWs) and HIV-infected male clients of FSWs in India. *AIDS Care.* 2011 Nov; 23(11):1374-81. PMID: 21711167.

## ABSTRACT OF THE DISSERTATION

Understanding intimate partner violence and associated challenges to family planning among married women in Maharashtra, India

by

Anindita Dasgupta

Doctor of Philosophy in Public Health (Global Health)

University of California, San Diego, 2015

San Diego State University, 2015

Professor Anita Raj, Chair

**Background:** Social practices around marital sex and family planning in Indian societies often result in gendered inequities within households, such as husbands' elevated alcohol use, poor gender equity ideologies, and wives'

intimate partner violence (IPV) victimization from husbands. The resulting power imbalance women face may contribute to challenges in contraception use and exclude wives from pregnancy decision-making.

**Objective:** To explore gendered inequities in relation to reproductive health outcomes of modern spacing contraception, and unintended pregnancy in Maharashtra, India.

**Methods:** This analysis includes data from rural, non-sterilized, couples (N=1,081) (Chapters 2-3), and postpartum ( $\leq 6$  months) wives in urban slums (N=1,047) (Chapter 4). Associations were tested between 1) husbands' elevated alcohol use, and gender equity ideologies with wives' IPV victimization via logistic regression (Chapter 2), 2) wives' IPV victimization with use of modern spacing contraception via multinomial regression (Chapter 3), and 3) wives' reports of externally-decided pregnancy and IPV victimization with unintended pregnancy, through multinomial logistic regression (Chapter 4)

**Results:** Chapter 2 findings indicate that wives were less likely to report IPV if husbands reported greater gender equity ideologies (AOR: 0.97, 95% CI: 0.95, 0.99); husband's elevated alcohol use was associated with increased risk of IPV (AOR: 1.89, 95% CI: 1.01, 3.40). Results from Chapter 3 show that women reporting physical IPV were more likely to report condom use (AOR: 2.07, 95% CI: 1.01, 3.89), and women reporting sexual IPV were more likely to report other modern spacing contraception (AOR: 2.86, 95% CI: 1.14, 7.16). Chapter 4 demonstrates that women reporting externally-decided pregnancies were more

likely to have mistimed pregnancies (AOR: 6.14, 95% CI: 3.60, 10.46), as were women reporting IPV (AOR: 2.12, 95% CI: 1.38, 3.25).

**Conclusion:** This dissertation supports the need for gender equity counseling for husbands, with potential utility of integration within existing alcohol intervention services for men (Chapter 2). Results from Chapter 3 indicate that wives contending with IPV are assessing family planning services, thus presenting opportunities for IPV intervention. Finally, results from Chapter 4 support the need to include questions on wives' role in pregnancy decision-making in both screening and intervention efforts within family planning services.

## CHAPTER 1: Introduction

### Background

India provides a unique setting to study gendered inequities related to reproductive health. Despite having the oldest government-sponsored family planning program in the world [1], India accounts for the largest share of unmet need for contraception (women who are married and don't want have a child in the next two years, but are *not* using contraception), globally [2]. Furthermore, 3.3 million pregnancies are unintended (pregnancies that were unwanted, mistimed, or ended in induced abortions [3]) in India each year. Social beliefs and practices around marital sex are strong drivers of family planning behaviors in Indian societies [4-6]. However, many of these beliefs and practices increase Indian wives' vulnerabilities to low birth-spacing and unintended pregnancies [7, 8]. These social beliefs and practices, which directly and negatively impact wives' reproductive health, are reinforced by husbands and in-laws (who often live with the couple) [4, 9]. Studies indicate that wives tend to have low power in sexual decision-making (relative to husbands) in India [8, 10, 11], which may be of even greater concern for wives contending with intimate partner violence (IPV), where power imbalances tend to be stronger. Husbands reporting heavy alcohol use [12-15], and adhering to rigid masculinity ideologies (i.e. poor gender equity ideologies) [16, 17] are more likely to perpetrate IPV against their wives. Some studies indicate women reporting that lack of involvement over pregnancy

decisions and presence of physical violence lead to nonuse of contraceptives, and unintended pregnancy [18, 19].

### **Family planning in India**

Since 1952, the Indian Government has worked to provide wide-spread access to and education on various family planning services throughout the country [20]. As a result, knowledge of contraceptive methods is high among men and women in India [5], and few perceive availability and access to contraception as barriers to family planning [21, 22]. Despite such a strong government infrastructure related to family planning, only half of women report using any form of modern contraception (inclusive of permanent and temporary methods), with female sterilization accounting for the majority of use, and spacing contraceptive methods (primarily condom, oral pills, and IUD) making up only 10% of contraceptive use [5, 21] [2]. Approximately 25% of pregnancies in India are unintended, and unfortunately the prevalence of unintended pregnancy has remained stagnant for the last ten years [20].

### **Marital and sexual practices related to family planning**

It is clear that access to and knowledge of family planning services is not enough to reduce negative family planning outcomes (low modern spacing contraceptive use, unintended pregnancy). Beliefs around sex and marriage drive practices related to family planning within India. Couples are pressured to marry early, and produce children, with a preference for sons over daughters (a belief described as “son preference”), within the first year of marriage [7, 23-28].

Once the desired number and sex ratios (i.e. more sons than daughters) of children have been produced, most wives undergo female sterilization [27, 28]. In the majority of these cases, female sterilization is the first and only method of family planning couples use [29]. Recent studies indicate that the age at sterilization is decreasing, while sterilization regret is high among wives who were sterilized prior to the age of 25 [27, 29]. [30-32]. These marital beliefs and practices around sex and family planning have been associated with poor maternal and child health outcomes (due to low pregnancy spacing, and early pregnancy) including pregnancy complications (pre-term labor, hypertension), maternal and infant mortality, and poor maternal nutrition [33-37].

Social norms related to husbands' roles in the family structures in India revolve around masculinity ideologies directly related to husbands as the key decision-makers within families [31, 32, 38]. Such societal norms encourage masculinity ideologies and unequal gender norms. Research has been conducted to understand associations between men's endorsement of masculinity ideologies (support for inequitable gender norms) and IPV victimization of their partners [16, 32]. Women contending with violence (either from husbands and/or in-laws) face extreme forms of power imbalances within their homes. Women experiencing such power imbalances are likely to be greatly disempowered (wives' inability to make decisions that influence situations in her own life) in terms of their decision-making control. These social norms likely contribute to the lack of control over family planning decision-making of wives.



## **Gender-based violence (intimate partner violence, and violence from in-laws)**

South Asia has some of the highest rates of IPV among married women in the world [39], with 37% of wives in India reporting physical or sexual spousal violence in their lifetime [5]. Women contending with IPV are at heightened risk for a myriad of physical and mental health problems including both acute and long-lasting physical injury, depression, and poor sexual and reproductive health outcomes, as well [39, 40]. Indian wives who have a greater number of children, lower education, belong to lower wealth quintiles are more likely to report IPV [31]. Women whose husbands' consume alcohol are at heightened risk for IPV [12-15]. In addition, violence from in-laws against daughters-in-law (ILV) is a concern for wives in India. Research on IPV and ILV among women in Mumbai, India documents that 26% of wives reported ILV in pregnancy or post-partum, and that ILV was more likely to occur within a household where IPV was taking place [41]. Despite the strong influence of in-laws on couples' family planning decision-making [4], and the high rates of ILV, few studies have examined relationships between these related concepts.

### **Study setting – Maharashtra, India**

While the majority (68%) of India's population resides in rural areas [42], the proportions living in rural and urban areas in the state of Maharashtra are fairly evenly divided (48% urban, 52% rural) [43]. Several disparities in access to vital resources exist between the locales, however. For example, while 84% of

households in Maharashtra have electricity, this rate is higher in urban settings (71% rural, 97% urban). Similarly, 79% of rural households are without toilet facilities, while only 12% of urban households report lack of toilet facilities. Though one-third of Maharashtra's population is in the highest wealth quintile, rural areas display much lower proportions reporting this wealth bracket (9% rural, 57% urban). Finally, Maharashtra sees large gender-disparities in education, which appear to be most pronounced in rural areas. Almost half of boys ages 16-17 attend school, while only 32% of girls attend school in rural areas [43].

Trends in modern contraception use in Maharashtra reflect national trends. While over half (65%) of married women in Maharashtra report some form of modern contraception use, temporary spacing methods (i.e. non-permanent methods such as condom, IUD, oral pills, and injectables) are rarely used [22]. Approximately 6, 4, and 2 percent of currently married women report using condoms, IUDs, and oral contraceptive pills, respectively in Maharashtra [22], though data indicate higher condom use among urban married women (10%) compared to rural married women (3%) [22]. While temporary spacing use is low for both urban and rural areas, it is still higher for urban areas (female sterilization is higher in rural areas) [22]. In Maharashtra, 31% of married women report lifetime experiences of spousal physical or sexual violence, and approximately one quarter of men drink alcohol [22]. Among those who drink almost half report drinking weekly or more [22].

## **Dissertation overview**

This dissertation includes the current introductory chapter (Chapter 1), three research papers (Chapters 2-4), and a final concluding chapter (Chapter 5). Chapter 2 (paper 1), entitled “Understanding men’s elevated alcohol use, gender equity ideologies, and intimate partner violence among married couples in rural India,” and Chapter 3 (paper 2), entitled “Associations between impact of intimate partner violence and married women’s condom and other contraceptive use in rural India,” include secondary data analysis from the baseline sample of the Counseling Husbands to Achieve Reproductive Health and Marital Equity (CHARM) study, a male-centered family planning intervention for married couples in rural Maharashtra, India, evaluated through a cluster-randomized control trial (PI: Raj, R01HD061115). In an effort to identify gendered determinants of IPV, paper 1 (Chapter 3) explores husbands’ elevated alcohol use, and endorsements of low gender equity ideologies related to wives’ experiences of physical and/or sexual IPV victimization in marriage. This paper’s secondary aim is to understand whether husbands’ gender equity ideologies moderate associations between husbands’ elevated alcohol use and wives’ IPV victimization. Paper 2 (Chapter 3) examines associations between IPV and wives’ modern spacing contraceptive use. With recognition that the form of modern spacing contraception used by couples may vary based on type, these analyses utilize a multinomial regression modeling approach to include

separation of forms of modern spacing contraception into categories of condom, and other modern spacing (oral pills, IUD).

Paper 3 (Chapter 4), entitled “Assessing the relationship between intimate partner violence, externally-decided pregnancy and unintended pregnancies among wives residing in slum communities in Mumbai, India,” includes analysis of data from the Mechanisms for Relations of Domestic Violence to Poor Maternal and Infant Health (MCH) study (PI: Silverman, R03HD055120), a cross-sectional study designed to understand associations between domestic violence and maternal and child health problems among married women in Mumbai, India. This paper examines the relationships between wives’ reports of IPV, ILV, and externally-decided pregnancy with their reports of unintended (mistimed and unwanted) pregnancy.

Despite the extensive resources provided by the Indian Government aimed at improving reproductive health in India, progress in the areas of increasing modern spacing contraceptive use, and reducing unintended pregnancies is lacking. As described, previous research has begun to link factors related to IPV (eg. husbands’ alcohol use, gender equity ideologies, and wives’ role in pregnancy decision-making) with these poor reproductive health outcomes. The purpose of this dissertation is to better understand the relationships between these factors, and provide concrete suggestions for Government Programming to reduce these gendered inequities related to reproductive health.

## REFERENCES

1. Ledbetter, R., Thirty years of family planning in India. *Asian Surv*, 1984. 24(7): p. 736-58.
2. Sedgh, G., Hussain, R., Bankole, A., Singh, S., Women with an unmet need for contraception in developing countries and their reasons for not using a method, in Occasional Report No. 37. 2007, Guttmacher Institute: New York.
3. *The Best Intentions: Unintended Pregnancy and the Well-Being of Children and Families*, ed. S.S. Brown and L. Eisenberg. 1995, Washington, DC: National Academy Press.
4. Ghule, M., Raj, A., Palaye, P., Dasgupta, A., Nair, S., Saggurti, N., Battala, M., Donta, B., Barriers to contraceptive methods among rural young married couples in Maharashtra, India: Qualitative findings. *Asian Journal of Research in Social Sciences and Humanities*, 2015. 5(6): p. 5-13.
5. Kishor, S. and Gupta, K., *Gender Equality and Women's Empowerment in India: National Family Health Survey (NFHS-3), India, 2005–06*. 2009, International Institute for Population Sciences: Calverton, Maryland, USA.
6. Visaria, L., Jejeebhoy, S.J., and Merric, T., From family planning to reproductive health: challenges facing India. *International Family Planning Perspectives*, 1999. 25(Supplement, January).
7. Jejeebhoy, S.J., Santhya, K.G., and Zavier, A.J., Demand for Contraception to Delay First Pregnancy among Young Married Women in India. *Stud Fam Plann*, 2014. 45(2): p. 183-201.
8. Santhya, K.G., Haberland, N., Ram, F., Sinha, R.K., Mohanty, S.K., Young women's experiences of forced sex within marriage: Evidence from India. *Sex without consent: Young people in developing countries*, 2005: p. 59-73.

9. Char, A., M. Saavala, and T. Kulmala, Influence of mothers-in-law on young couples' family planning decisions in rural India. *Reprod Health Matters*, 2010. 18(35): p. 154-62.
10. Go, V.F., Sethulakshmi, C. J., Bentley, M.E., Sivaram, S., Srikrishnan, A.K., Solomon, S., Celentano, D.D., When HIV-prevention messages and gender norms clash: the impact of domestic violence on women's HIV risk in slums of Chennai, India. *AIDS Behav*, 2003. 7(3): p. 263-72.
11. Joshi, A.J., Dhapola, M., Kurian, E., Pelto, P.J., Experiences and perceptions of marital sexual relationships among rural women in Gujarat, India. *Asia Pac Popul J*, 2001. 16(2): p. 177-94.
12. Berg, M.J., Kremelberg, D., Dwivedi, P., Verma, S., Schensul, J.J., Gupta, K., Chandran, D., Singh, S.K., The effects of husband's alcohol consumption on married women in three low-income areas of Greater Mumbai. *AIDS Behav*, 2010. 14 Suppl 1: p. S126-35.
13. Stanley, S., Interpersonal Violence in Alcohol Complicated Marital Relationships (A Study from India). *Journal of Family Violence*, 2008. 23: p. 767-776.
14. Go, V.F., Srikrishnan, A.K., Salter, M.L., Mehta, S., Johnson, S.C., Sivaram, S., Davis, W., Solomon, S., Celentano, D.D., Factors associated with the perpetration of sexual violence among wine-shop patrons in Chennai, India. *Soc Sci Med*, 2010. 71(7): p. 1277-84.
15. Chandrasekaran, V., Krupp, K., George, R., Madhivanan, P., Determinants of domestic violence among women attending an Human Immunodeficiency Virus voluntary counseling and testing center in Bangalore, India. *Indian Journal of Medical Sciences*, 2007. 61(5): p. 253-262.
16. Verma, R., Pulerwitz, J., Mahendra, V.S., Khandekar, S., Singh, A.K., Das, S.S., Mehra, S., Nura, A., Barker, G., Promoting gender equity as a strategy to reduce HIV risk and gender-based violence among young men in India: Horizons Final Report. 2008, Population Council: Washington, D.C.

17. Nanda, P., Gautam, G., Verma, R., Khanna, A., Khan, N., Brahme, D., Boyle, S., Kumar, S., Study on Masculinity, Intimate Partner Violence and Son Preference in India. 2014, International Center for Research on Women: New Delhi, India.
18. Khan, M., Townsend, J.W., Sinha, R., Lakhanpal, S., Sexual violence within marriage. *Seminars*, 1996(447): p. 32-35.
19. Stephenson, R., Koenig, M.A., Acharya, R., Roy, T.K., Domestic violence, contraceptive use, and unwanted pregnancy in rural India. *Stud Fam Plann*, 2008. 39(3): p. 177-86.
20. Sebastian, M.P., Khan, M.E., Kumari, K., Idnani, R., Increasing postpartum contraception in rural India: evaluation of a community-based behavior change communication intervention. *Int Perspect Sex Reprod Health*, 2012. 38(2): p. 68-77.
21. National Family Health Survey (NFHS-2), 2005–06: India: Volume II. 2007, International Institute for Population Sciences (IIPS) and Macro International: Mumbai.
22. National Family Health Survey (NFHS-3), India, 2005-06: Maharashtra, International Institute for Population Sciences (IIPS). International, Editor. 2008: Mumbai: IIPS.
23. Bhattacharya, G., Sociocultural and behavioral contexts of condom use in heterosexual married couples in India: challenges to the HIV prevention program. *Health Educ Behav*, 2004. 31(1): p. 101-17.
24. Santhya, K. and Jejeebhoy, S., Early marriage and HIV/AIDS: risk factors among young women in India. *Economic & Political Weekly*, 2007. 42(14): p. 1291-1297.
25. Mehta, S.H., Gupta, A., Sahay, S., Godbole, S.V., Joshi, S.N., Reynolds, S.J., Celentano, D.D., Risbud, A., Mehendale, S.M., Bollinger, R.C., High HIV prevalence among a high-risk subgroup of women attending sexually

- transmitted infection clinics in Pune, India. *J Acquir Immune Defic Syndr*, 2006. 41(1): p. 75-80.
26. National Family Health Survey (NFHS-3), 2005–06: India: Volume I. 2007, International Institute for Population Sciences (IIPS) and Macro International: Mumbai, IIPS.
27. Singh, A., Ogollah, R., Ram, F., Pallikadavath, S., Sterilization regret among married women in India: implications for the Indian national family planning program. *Int Perspect Sex Reprod Health*, 2012. 38(4): p. 187-95.
28. Mathews, Z., Padmadas, S.S., Hutter, I., McEachran, J., Brown, J.J., Does early childbearing and a sterilization-focused family planning programme in India fuel population growth? *Demographic Research*, 2009. 20(28): p. 693-720.
29. Xavier, F. and S. Padmadas, Use of a spacing method before sterilization among couples in Kerala, India. *International Family Planning Perspectives*, 2000. 26(1): p. 29-35.
30. Ghule, M., Raj, A., Palaye, P., Dasgupta, A., Nair, S., Saggurti, N., Battala, M., Donta, B., Barriers to use Contraceptive Methods among Rural Young Married Couples in Maharashtra, India: Qualitative Findings. *Asian Journal of Research in Social Sciences and Humanities*, 2015. 5(6): p. 18-33.
31. Kishor, S. and Gupta, K., Gender Equality and Women's Empowerment in India, in National Family Health Survey (NFHS-3), India, 2005-06. 2009, International Institute for Population Sciences (Mumbai, India): Calverton, Maryland, USA.
32. Nanda, P., Gautam, G., Verma, R., Khanna, A., Khan, N., Brahme, D., Boyle, S., Kumar, S., Study on Masculinity, Intimate Partner Violence and Son Preference in India. 2014, International Center for Research on Women: New Delhi, India.
33. Goli, S., Rammohan, A., and Singh, D., The Effect of Early Marriages and Early Childbearing on Women's Nutritional Status in India. *Matern Child Health J*, 2015.



34. Steer, P.J., Maternal hemoglobin concentration and birth weight. *Am J Clin Nutr*, 2000. 71(5 Suppl): p. 1285S-7S.
35. Stoltzfus, R.J., Iron interventions for women and children in low-income countries. *J Nutr*, 2011. 141(4): p. 756S-762S.
36. Kozuki, N., Lee, A.C., Katz, J., Child Health Epidemiology Research Group, Moderate to severe, but not mild, maternal anemia is associated with increased risk of small-for-gestational-age outcomes. *J Nutr*, 2012. 142(2): p. 358-62.
37. Raj, A., Saggurti, N., Winter, M., Labonte, A., Decker, M.R., Donta, B., Silverman, J.G., The effect of maternal child marriage on morbidity and mortality of children under 5 in India: cross sectional study of a nationally representative sample. *BMJ*, 2010. 340: p. b4258.
38. 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*, 2010. 125(2): p. 282-92.
39. World Health Organization, WHO multi-country study on women's health and domestic violence against women: initial results on prevalence, health outcomes and women's responses. 2005, World Health Organization: Geneva, Switzerland.
40. World Health Organization, Understanding and addressing violence against women. 2012, World Health Organization, Pan American Health Organization.
41. Raj, A., Sabarwal, S., Decker, M.R., Nair, S., Jethva, M., Krishnan, S., Donta, B., Saggurti, N., Silverman, J.G., Abuse from in-laws during pregnancy and post-partum: qualitative and quantitative findings from low-income mothers of infants in Mumbai, India. *Matern Child Health J*, 2011. 15(6): p. 700-12.
42. World Bank. Rural population (% of total population). [cited 2015 September 29, 2015]; Available from: <http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS>.

43. Goldenberg, R.L., Culhane, J.F., Iams, J.D., Romero, R., Epidemiology and causes of preterm birth. *Lancet*, 2008. 371(9606): p. 75-84.

**CHAPTER 2: Understanding men's elevated alcohol use, gender equity ideologies, and intimate partner violence among married couples in rural India**

Anindita Dasgupta,<sup>a-c</sup> Jay Silverman,<sup>a-b</sup> Niranjana Saggurti,<sup>d</sup> Mohan Ghule,<sup>e</sup> Balaiah Donta,<sup>e</sup> Madhusudana Battala,<sup>f</sup> Saritha Nair,<sup>g</sup> Velhal Gajanan,<sup>h</sup> Anita Raj<sup>a-b</sup>

<sup>a</sup>Division of Global Public Health, Department of Medicine, University of California, San Diego School of Medicine, San Diego, CA, USA

<sup>b</sup>Center on Gender Equity and Health, University of California, San Diego, CA, USA

<sup>c</sup>Joint Doctoral Program in Public Health (Global Health), San Diego State University/University of California, San Diego, San Diego, CA, USA

<sup>d</sup>Bill and Melinda Gates Foundation, New Delhi, India

<sup>e</sup>National Institute for Research in Reproductive Health, Mumbai, India

<sup>f</sup>Population Council, New Delhi, India

<sup>g</sup>National Institute of Medical Statistics, New Delhi, India

<sup>h</sup>Topiwala National Medical College & BYL Nair Charitable Hospital

## ABSTRACT

Background: Approximately 40% of wives in India contend with physical and/or sexual intimate partner violence (IPV) victimization from husbands. Both husbands' alcohol use and inequitable gender equity (GE) ideologies have been linked to wives' heightened risk for IPV victimization. Qualitative evidence suggests that husbands' GE ideologies may influence associations between husbands' alcohol use and wives' IPV victimization; however there remains a paucity of quantitative research on the subject.

Objective: To assess associations of husbands' elevated alcohol use and GE ideologies with wives' reports of IPV victimization, and to understand if husbands' GE ideologies moderate associations between husbands' elevated alcohol use and wives' IPV victimization among a sample of married couples in rural India.

Methods: Cross-sectional analyses were conducted using data from the baseline sample of the CHARM family planning study. Study participants included non-sterilized couples aged 18-30, residing together in Maharashtra, India (N=1081). Unadjusted and adjusted logistic regression models assessed the relationship between husbands' elevated alcohol use, GE ideologies, using the Gender Equitable Men (GEM) scale, with wives' history of physical and/or sexual IPV victimization ever in marriage. Interaction analysis was conducted to understand if GE ideologies moderate associations between husbands' elevated alcohol use and wives' IPV victimization.

Results: Husbands and wives were 18-30 years of age, and married on average of 3.9 years (SD: 2.7). Few husbands (4.6%, n=46) reported elevated alcohol use. Husbands had mean GEM scores of 47.3 (SD: 5.4, range: 35-67 out of possible range of 24-72; least equitable to most equitable). Approximately one-fifth (22.3%, n=359) of participants reported a history of physical and/or sexual IPV in marriage. Wives were less likely to report IPV if husbands reported greater gender equity ideologies (i.e. higher GEM scores) (AOR: 0.97, 95% CI: 0.95, 0.99), and husband's elevated alcohol use was associated with increased risk of IPV victimization in the final adjusted model (AOR: 1.89, 95% CI: 1.01, 3.40). The moderation analyses showed no significant associations between the interaction term of husband's elevated alcohol use with gender equity ideologies and IPV (AOR: 0.97, 95% CI: 0.88, 1.07).

Conclusion: Findings from this study indicate the need for male participation in violence intervention and prevention services, and specifically, the need to integrate counseling on alcohol use and gender equity into such programming.

## INTRODUCTION

Violence against women, or intimate partner violence (IPV), is a pervasive public health issue; greater than one-third (35%) of women globally have experienced either physical and/or sexual violence in their lifetime [1]. Women contending with IPV are at heightened risk for a myriad of physical and mental health problems including both acute and long-lasting physical injury, depression, and poor sexual and reproductive health outcomes [1, 2]. Married women in India account for a large proportion of global IPV victimization; 40% of wives report experiences of physical and/or sexual violence in their lifetime, according to national data [3]. Determinants of IPV involve factors operating at individual, relationship, community and societal levels [2]. Indian wives who have a greater number of children, lower education, belong to lower wealth quintiles, and whose husbands' consume alcohol are at heightened risk for IPV [4].

The association between husbands' alcohol use and IPV victimization of wives is well-established, globally [2, 5], and in India [4, 6-11]. Analysis of national data from India show that women with husbands who are heavy alcohol-drinkers are two to three times more likely to report IPV victimization compared to wives whose husbands are not heavy drinkers [4]. Additional research testing similar associations suggest that wives with husbands who regularly consume alcohol are almost six times more likely to report experiences of physical IPV victimization [11]. Research outside of India examining the relationship between husbands' alcohol use and IPV indicate that alcohol use results in lowering of inhibitions that may have prevented men from restraining themselves from IPV

perpetration. Alcohol, acting as a mood enhancer, may also increase the likelihood of husbands being easily angered or frustrated [5]. Due to the negative effect of alcohol on individuals' problem-solving abilities, conflict in the context of alcohol use is common [12]. Furthermore, even in situations where husbands' alcohol use does not necessarily cause IPV perpetration, research from 13 countries shows that IPV is most severe within the context of husbands' alcohol use [13]. Berg and colleagues [6] conducted a mixed methods study in India to understand how societal and cultural norms influence the relationship between husbands' alcohol use and IPV perpetration. The study confirmed prior research documenting associations between alcohol use and IPV, but also presented findings from qualitative interviews from wives of husbands who drink. This research showed that triggers for IPV included: asking husbands about drinking, refusing to give husbands money for alcohol, suspicion that wives are not faithful, domestic issues around cooking, and not having children at the expected time.

The findings from Berg and colleagues [6] illustrate the importance of considering how societal gendered norms may influence, or exacerbate, wives' risk for IPV victimization within the context of husbands' heavy drinking. Additional research from India reinforces this notion in that IPV often occurs in situations where wives challenge typical gender roles dictated by societal norms, and can be seen as threatening husbands' masculinity [14, 15]. India is characterized by social norms and practices that link the concept of masculinity with men's dominance over women [14, 16]. Social expectations of wives, often accepted by both men and women, include producing children (with a preference

for sons) early in marriage, solely taking care of children and domestic duties at home, not refusing sex from husbands, and respecting in-laws [4, 14, 17]. Social norms related to husbands' roles in the family structures in India revolve around masculinity ideologies that identify husbands as the key decision-makers within families [4, 14, 15]. Such societal norms encourage masculinity ideologies and unequal gender norms. Research has been conducted in India to understand associations between men's endorsement of masculinity ideologies (support for inequitable gender norms) and IPV victimization of their partners [14, 18]. These studies found that husbands who supported inequitable gender norms were significantly more likely to report physical, sexual, and/or verbal IPV perpetration (relative to rural men with equitable norms) against their partners, and that men residing in rural areas included in the studies displayed higher levels of gender inequity (relative to urban areas). Further, qualitative research [19, 20] conducted with men in urban Maharashtra indicate that alcohol use enhances masculinity ideologies related to sexual violence with partners (e.g., the right to have sex with wives), and that men face social pressure to drink alcohol during festivals [and, specifically that *not* drinking alcohol is linked to being a "gud" (feminine boy)].

These findings indicate that issues relating to husbands' endorsement of unequal gender norms and IPV are similar to issues related to conflict situations involving husbands' alcohol use and IPV perpetration. While many have assessed the relationship between husbands' alcohol use and IPV, and separately between husbands' endorsements of unequal gender norms and IPV in India, research is lacking in quantitatively examining how the relationship



between alcohol use and IPV may vary based on men's positive endorsements of these unequal gender norms. The current study among a sample of married couples in rural Maharashtra, India aims to build on the existing literature to better understand how these factors intersect. This analysis will 1) test associations between husbands' alcohol use, and endorsements of low gender equity ideologies, using the Gender Equitable Men scale [15], with physical and/or sexual IPV experienced by wives ever in marriage, and 2) assess whether endorsements of low gender equity ideologies alters the relationship between husbands' alcohol use and wives' reports of IPV victimization. We hypothesize that men's endorsement of poor gender equity may moderate associations between husbands' alcohol use and IPV perpetration against wives.

## **METHODS**

### **Study population**

This study involved analysis of cross-sectional data from participants in the Counseling Husbands to Achieve Reproductive Health and Marital Equity (CHARM) study. The CHARM intervention, a male-centered family planning study, was evaluated via a two armed cluster randomized control trial in Maharashtra, India. Baseline data from this study were used for the current analyses (N= 1,081).

Between March and December 2012, trained research staff approached households to identify young married men between 18 and 30 years of age within the selected clusters. If a married couple with a man in the specified age range was home, research staff provided details regarding the evaluation study and

CHARM intervention participation. If the couple indicated interest in participating, research staff would conduct the informed consent process separately with each member of the couple in a private space in the house. Once the informed consent process was complete, couples were screened for eligibility. Inclusion criteria included being 18-30 years of age, fluent in Marathi, residing with their wife in the cluster area for the past three months, plans to stay in the cluster for another two years, and no sterilization for either the man or his wife. Sex-matched research staff screened 1,881 couples; of those couples screened, 1,143 were eligible (60.8% eligibility rate), and 1081 eligible couples chose to participate in the study (94.6% participation rate).

After couples completed eligibility screening and informed consent procedures, sex-matched research staff administered a 60-minute paper survey to husbands and wives separately. Survey items covered a broad range of topics including demographics, sexual history, IPV, and gender equity attitudes. No monetary incentives were provided, and all study procedures were approved by the Institutional Review Boards at the University of California San Diego, the National Institute for Research in Reproductive Health, and the Indian Council of Medical Research. Note: details on collection of baseline data are described in full elsewhere [21].

## **Measures**

Sociodemographics included age and education for husbands and wives; husbands' caste, family's monthly income, and wives' working status. Age was kept as a continuous variable for analysis. Education was measured by a single

item asking individuals the number of years of schooling they completed (continuous measure). Note: age and education data were based on husband's and wives' reports of their own information. Caste and family income were based on husbands' reports, as women tend to take their husbands' caste (if different than their own) after marriage, and husbands tend to control family finances in these contexts. Caste was measured based on four separate categories of "scheduled caste, scheduled tribe, other backward class, none of these." The caste variable was created with the following categories: "scheduled caste/tribe," and "backward class/none." Couples belonging to scheduled castes or scheduled tribes represent greater socioeconomic marginalization relative to those belonging to either other backward class or none (not belonging to a scheduled caste, tribe or other backward class). Wives' responses were used to understand wives' working status, based on if they were engaged in any income-generating activities (dichotomous yes/no).

Marital characteristics were based on wives' reports of length of time married (i.e. marital length), and number of living children. Marital length was a continuous variable (measured in years) calculated by taking the difference between the participants' current age, and age at marriage (based on the question "How old were you when you first got married?"). Note: This variable was used descriptively in analyses (and not as a covariate). Number of births includes women's responses asking them how many living sons and daughters they delivered, the number of sons and daughters they had who had been born alive and later died, and the number of stillbirths women reported. These items

were combined to create a continuous measure reflecting total number of births reported by wives.

The outcome of interest for these analyses was physical and/or sexual intimate partner violence (IPV) victimization, reported ever in marriage by wives. This dichotomous variable was based on an 8-item measure asking women how frequently they experienced different forms of violence, based on validated measures from the National Family Health Survey (NFHS-3) [3]. The questions had response categories of “often,” “sometimes,” “not at all” (meaning not in the past 6 months), and “never in our relationship” (meaning never experiencing violence in the relationship). The following forms of violence perpetrated by husbands were included: 1) slapping, 2) arm twisting and pulling hair, 3) pushing, shaking, throwing something at her, 4) kicking, dragging, beating up, 5) choking or trying to burn, 6) threaten to attack with knife, gun or weapon, 7) forced sexual intercourse, and 8) forced to perform sexual acts against her will. Women’s endorsement of “often,” “sometimes,” or “not at all” (meaning not in the past 6 months) to any of the items were categorized as “yes” for the IPV variable (responses of “never in our relationship” were categorized as “no”). These items had strong internal reliability (Cronbach’s alpha = 0.98).

The primary independent variables were men’s gender equity ideologies, and husbands’ elevated alcohol use. Gender equity ideologies were measured by the Gender-Equitable Men (GEM) Scale [24]. This scale was developed for use in Brazil but has been translated, adapted and shown to be a reliable measure for use in six different countries, including India [20]. GEM includes 24

items measuring male gender ideology related to sexual and reproductive health, sexual relations, domestic violence, domestic responsibilities, and homophobia. Men were read a series of statements, and then asked if they “agree,” “partially agree,” or “do not agree” with each statement. Each item was scored with the least equitable response scoring 1, moderately equitable responses scoring 2, and with the most equitable responses scoring 3, thus resulting in a possible range of 24-72 (least equitable to most equitable). The scale was kept as a continuous measure, and had an acceptable level of internal consistency (Cronbach’s alpha = 0.70) to be used for a measure of masculine ideology [25].

Husbands’ drinking in the past month was assessed by a single measure asking husbands how many days within the past 30 days they had four or more drinks on one occasion. Husbands reporting one or more days of drinking with four or more drinks on one occasion in the past month were categorized as “potentially being at elevated risk of alcohol-related problems” or “elevated alcohol use” (individuals who reported zero days were categorized as not having any days in the past month with “elevated alcohol use” or “no”). The categorization of this variable is based off of (but not equivalent to) guidelines from the National Institute on Alcohol Abuse and Alcoholism for the definition of “heavy drinking” (five or more drinks on the same occasion) [22], and the widely used alcohol measure, AUDIT-C [23]. Note that our description of this variable does not coincide exactly with these definitions.

### **Statistical analysis**

Descriptive analyses (frequencies and proportions) were conducted on all demographic indicators, marital characteristics, gender equity ideologies, and IPV variables. Pearson chi-square tests of independence, and analyses of variance (for continuous variables with the categorical variable outcome) were calculated to assess differences between all demographic and independent variables with the outcome of IPV. In an effort to better-understand how husbands in the present sample endorsed certain constructs of the GEM scale, individual statements included in the GEM scale were examined descriptively to understand proportions of husbands' positive endorsements ("agree" or "partially agree") of each statement (these data are presented in Table 2.2).

Unadjusted and adjusted logistic regression models assessed husbands' gender equity ideologies, and husbands' elevated alcohol use in relation to wives' reports of IPV victimization to allow testing for main effects. Adjusted analyses controlled for age and education for husbands and wives, husbands' reports of caste, elevated alcohol use, women's reports of their working status, and number of live births. Odds ratios and 95% confidence intervals were calculated to assess size and significance of associations. Note: the measure included in regression analyses to understand gender equity ideologies was a continuous measure. Next, the second research question was tested to see if men's gender equity ideologies moderate the association between husbands' elevated alcohol use and wives' IPV victimization (Figure 2.1). An interaction term between husbands' alcohol use and gender equity ideologies was created to understand if husbands' gender equity ideologies moderate associations

between husbands' elevated alcohol use and wives' IPV victimization. Main effects were first tested, followed by analyses inclusive of interaction terms, and all covariates. All analyses were conducted using SPSS version 22 (IBM Corp, Armonk, NY, USA).

## RESULTS

Demographic and marital characteristics. Husbands and wives were aged 18-30 years. (See Table 2.1) Wives were on average 22.5 years old (SD: 2.5); husbands were slightly older on average (26.2, SD: 2.7). Husbands also had on average slightly more years of education than women (7.3, SD: 3.7 for husbands, compared to 6.4, SD: 4.2 for wives). The vast majority (72.8%, n=787) of the population belonged to a scheduled caste or tribe (most marginalized group). Most wives (77.2%, n=834) were not engaged in any income-generating activities. Couples were married on average for 3.9 years (SD: 2.7), with a range of 0-14 years, and wives reported 1.3 births (SD: 1.0), on average. Almost one-quarter (24.3%, n=263) had more than two births at time of survey.

Husbands' elevated alcohol use and gender equity ideologies. A small proportion of husbands reported elevated alcohol use (four or more drinks on one occasion) on one or more days in the past month (4.3%, n=46). However, there was a larger proportion of husbands reporting elevated alcohol use in the past month among wives reporting IPV victimization, relative to wives reporting no IPV victimization (6.4% n=23/359 vs. 3.2%, n=23/722). In terms of gender equity ideologies, husbands on average scored 47.3 (SD: 5.4) on the GEM scale, with a range of 35-67 (note: lower scores indicate lower support of equitable gender

ideologies, possible range for scores: 24-72). (See Table 2.1) Husbands had similar average scores across groups of wives reporting IPV victimization (47.6, SD: 5.5, range: 38-67) and not reporting IPV (47.2, SD: 5.4, range: 35-66). A review of endorsement of gender equity ideologies by item indicated three items in the scale where less than 60% of husbands endorsed gender inequity attitudes: “A man needs other women, even if things with his wife are fine” (15.1%, n=163); “It is okay for a man to hit his wife if she won’t have sex with him” (33.9%, n=366); “I would be outraged if my wife asked me to use a condom” (27.7%, n=299). (See Table 2.2)

Intimate Partner Violence (IPV). Less than one-quarter (22.3%, n=359) of female participants reported history of physical and/or sexual IPV in marriage. Significant differences between those reporting IPV and those reporting no IPV victimization were seen for husbands’ age ( $p=0.01$ ), husbands’ years of education ( $p=0.01$ ), and husbands’ elevated alcohol use ( $p=0.02$ ).

Associations between husbands’ alcohol use, gender equity ideologies and IPV. Table 2.3 presents unadjusted and adjusted associations between husbands’ alcohol use, gender equity ideologies and IPV. In the unadjusted regression models, husbands’ elevated alcohol use was associated with increased likelihood of wives reporting experiences of IPV (OR: 2.08, 95% CI: 1.15, 3.76). This association held after controlling for covariates (AOR: 1.89, 95% CI: 1.01, 3.40). While unadjusted associations between husbands’ gender equity ideologies and IPV were not significant (OR: 0.99, 95% CI: 0.96, 1.01), after adjusting for covariates, husbands’ gender equity ideologies were significantly



associated with IPV (AOR: 0.97, 95% CI: 0.95, 0.99), where wives were less likely to report IPV if husbands reported greater gender equity (i.e. higher GEM scores indicating greater gender equity). For every point increase in gender equity ideology (GEM scale), women were 3% less likely to report experiences of IPV. The moderation analyses showed no significant associations between the interaction term of husband's elevated alcohol use with gender equity ideologies and IPV in neither the unadjusted (OR: 1.00, 95% CI: 1.00, 1.01,  $p < 0.01$ ), nor the adjusted analyses (AOR: 0.97, 95% CI: 0.88, 1.07,  $p = 0.51$ ). Therefore husbands' gender equity ideologies did not moderate the relationship between husbands' elevated alcohol use and wives' reports of IPV victimization.

## **DISCUSSION**

The present findings bring greater understanding of how husbands' elevated alcohol use and gender equity ideologies may be associated with wives' IPV victimization. Specifically, our findings indicate that husbands who are potentially at elevated risk for alcohol-related problems are *more* likely to have wives who report IPV victimization, and husbands with more equitable gender norms are *less* likely to have wives who report IPV victimization. Contrary to our hypothesis, husbands' gender equity ideologies did not moderate associations between husbands' elevated alcohol use and wives' IPV victimization. However, our findings are consistent with the existing literature on husbands' gender equity ideologies [14, 18] and elevated alcohol use [6-8, 26], and indicate the need to integrate gender equity counseling into social services reaching men.

Married women report some of the highest rates of IPV victimization in India [3], and as evidenced by our study findings using the GEM scale, marriage as a social construct within this Indian context may present opportunities for inequitable gender ideologies to manifest as acts of violence. In particular, as discussed, violence often occurs in marriage when traditional gender roles (e.g., wives taking care of domestic duties) are challenged [4, 14]. Furthermore, findings from our study support existing understanding that violence perpetrated against women relates to the adoption of ideologies that reinforce violence as a means of control of women [14, 27]. Use of the GEM scale in the present analyses allows for inclusion of many aspects (sexual relationships, violence, domestic life, reproductive and sexual health, relations with other men) of the construct of masculinity within rural India. Existing qualitative studies on the subject [20, 27] provide context for these results. In their study, Verma and colleagues [20] found that men in India mainly viewed their roles in relationships with women as revolving around male entitlement and dominance. Though, this study was conducted in urban parts of Maharashtra, these findings may still be considered for our rural populations in the state. Interventions focused on reducing IPV among married couples must prioritize not just inclusion of men, but focus on changing norms around masculinity ideologies.

Findings from the present study also highlight the relationship between husbands' elevated alcohol use and IPV victimization of wives, which is consistent with the existing literature [6-10, 19, 20]. In our analyses, husbands' elevated alcohol use was independently associated with wives' IPV victimization,

after controlling for all other factors (including gender equity ideologies). Given the high rates of alcohol use among tribal populations in rural Maharashtra [28], it is clear that husbands' elevated drinking must also be addressed in an effort to reduce violence against wives. Based on our findings that wives of husband's who espoused greater gender equity were less likely to report IPV, there may be potential benefit to incorporating gender equity counseling into existing alcohol treatment services with men, though these resources are sparse within this context. Most programming aimed at reducing poor health outcomes related to gender inequalities has focused on women [14]. However, given men's positioning as key decision-makers across multiple facets of domestic life within Indian households [14, 16], it is imperative that men be included in interventions aimed at reducing gender inequity and IPV [14, 29]. While this approach does not appear to be in practice currently, previous literature reviews further indicate the potential such potential utility [30].

Our analysis to understand if husbands' gender equity ideologies moderated the relationship between husbands' elevated alcohol use and wives' IPV victimization did not yield significant results. Though the main effects were significant, the lack of significance of the moderation analysis suggests that the association between husbands' elevated alcohol use and IPV does not vary based on husbands' gender equity ideologies. It is possible that significant associations were unable to be detected due to low levels of alcohol use by husbands in our study. Further, lack of inclusion of appropriate measures for heavy drinking (a measure which was used in previous studies [6, 7] to test

associations between husbands' alcohol use and IPV perpetration) may have also led to our null findings. Considering the substantial qualitative evidence linking these factors together, future research should focus on better understanding the potential moderating effect of men's gender equity ideologies on associations between husbands' alcohol use and wives' IPV perpetration. Research utilizing mixed methods may prove useful to not just quantitatively test these relationships, but also by qualitatively providing context for the specific mechanism through which these relationships may or may not occur.

The results of the present study must be considered with the following limitations. Given that the study involves analysis of cross-sectional data without information on temporal sequence of events, causal relationships between husbands' gender equity ideologies and wives' IPV victimization cannot be understood. Further, based on the timeframes IPV (ever in marriage), and past 30 day elevated alcohol use for husbands, we cannot understand if husbands' alcohol use preceded IPV or if it was co-occurring. All data were collected using in-person survey data collection methodology, and as a result may be subject to social desirability bias. This may have resulted in under-reporting of IPV, gender equity ideology endorsements, and husbands' reports of elevated alcohol use. However, given that sex-matched research staff conducted data collection, biases related to gendered responses were minimized (specifically important for reporting gender equity ideologies, and IPV). Finally, the results of this study characterize husbands' elevated alcohol use, gender equity ideologies and

wives' reports of IPV victimization among married couples in rural Maharashtra, India, and should not be considered as representative for the country as a whole.

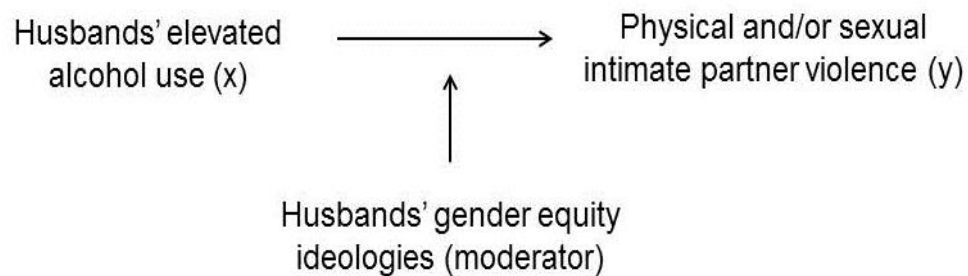
Findings from the current study build on the existing literature focused on integrating gender equity counseling through male-engagement interventions to reduce violence against women in India. However, our study's focus on married couples presents a novel understanding of how gendered issues relate to IPV within marriage – a social construct within India that offers the greatest opportunities for men to intersect with public family planning services. As the United Nations calls for the need to address violence against women and girls as a critical piece to achieve universal gender equity and empowerment of women [31], it is important that men be included in these efforts to reduce violence against women, through integration of gender equity counseling approaches within existing social service structures reaching men.

## **ACKNOWLEDGEMENTS**

I would like to acknowledge the agencies that funded this research: National Institute on Drug Abuse (T32DA023356; PI: S. Strathdee), National Institute of Child Health and Human Development (RO1HD61115; PI: A. Raj), and the Department of Biotechnology, Government of India (BT/IN/US/01/BD/2010). In addition, I would like to acknowledge Drs. Susan Kiene, Elizabeth Reed, and María Zúñiga for their significant contributions to this manuscript.

Chapter 2, "Understanding men's elevated alcohol use, gender equity ideologies, and intimate partner violence among married couples in rural India,"

in full, is currently being prepared for publication of material. Silverman, Jay; Saggurti, Niranjana; Ghule, Mohan; Donta, Balaiah; Battala, Madhusudana; Nair, Saritha; Gajanan, Velhal; and Raj, Anita are co-authors on this manuscript. Anindita Dasgupta, the dissertation author, is the primary author of this material.



**Figure 2.1: Moderation analysis examining if men's gender equity ideologies moderate the association between husbands' elevated alcohol use and wives' IPV victimization**

**Table 2.1: Profile of married women living in rural Maharashtra: demographic, marriage, and fertility characteristics based on women's reports of physical and/or sexual IPV (N=1081)**

Variable	Total Sample N=1081	IPV n=359	No IPV n=722	F-statistic (p-value)
<b>Demographic Variables</b> (mean, SD, range)				
Wives' Age	22.5, 2.5, 18-30	22.5, 2.4, 18-30	22.5, 2.5, 18-30	1.70 (0.06)
Husbands' Age	26.2, 2.7, 18-30	26.1, 2.6, 20-30	26.2, 2.7, 18-30	<b>2.11 (0.01)*</b>
Wives' years of education	6.4, 4.2, 0-17	6.1, 4.2, 0-15	6.6, 4.2, 0-17	1.18 (0.28)
Husbands' years of education	7.3, 3.7, 0-17	6.9, 4.0, 0-17	7.5, 3.6, 0-17	<b>2.09 (0.01)*</b>
Husbands' Caste [n (%)]				
Scheduled caste/tribe	787 (72.8%)	271 (75.5%)	516 (71.5%)	1.96
Backward class/none	294 (27.2%)	88 (24.5%)	206 (28.5%)	(0.17) <sup>a</sup>
Wives income generation [n (%)]				
No	834 (77.2%)	275 (76.6%)	559 (77.4%)	0.09
Yes	247 (22.8%)	84 (23.4%)	163 (22.6%)	(0.76) <sup>a</sup>
Marital length (years)	3.9, 2.7, 0-14	4.2, 2.7, 0-13	3.8, 2.6, 0-14	1.57 (0.08)
<b>Marriage and Fertility Characterization</b> (mean, SD, range)				
Number of births	1.3, 1.0, 0-8	1.4, 1.1, 0-8	1.2, 1.0, 0-5	1.74 (0.10)
Masculinity ideologies (GEM scale) <sup>†</sup>	47.3, 5.4, 35-67	47.6, 5.5, 38-67	47.2, 5.4, 35-66	1.37 (0.08)
Husbands' elevated alcohol use, past 30 days [n (%)]				
Yes (1+ days)	46 (4.3%)	23 (6.4%)	23 (3.2%)	<b>6.11</b>
No (0 days)	1035 (95.7%)	336 (93.6%)	699 (96.8%)	<b>(0.02)<sup>a*</sup></b>

<sup>†</sup>Higher score indicates greater gender equity

<sup>a</sup>Pearson Chi-Square (p-value)

\*p<0.05



**Table 2.2: Endorsement (agreed or partially agree) and associations of Gender Equitable Men (GEM) scale items among husbands in Maharashtra, India (N=1081)**

GEM Scale Items	Total Sample N=1081 N (%)
<b>Sexual relationships</b>	
It is the man who decides what type of sex to have.	913 (84.5%)
Men need sex more than women do.	930 (86.0%)
You don't talk about sex, you just do it.	860 (79.6%)
A man needs other women, even if things with his wife are fine.	163 (15.1%)
Men are always ready to have sex.	955 (88.3%)
A man should know what his partner likes during sex. <sup>†</sup>	1071 (99.1%)
<b>Violence</b>	
There are times when a woman deserves to be beaten.	671 (62.1%)
If a woman cheats on a man, it is okay for him to hit her.	884 (81.8%)
If someone insults me, I will defend my reputation, with force if I have to.	1057 (97.8%)
It is okay for a man to hit his wife if she won't have sex with him.	366 (33.9%)
A woman should tolerate violence in order to keep her family together.	926 (85.7%)
<b>Domestic life</b>	
A woman's most important role is to take care of her home and cook for her family.	1041 (92.3%)
Changing diapers, giving kids a bath, and feeding the kids are the mother's responsibility.	1005 (93.0%)
A man should have the final word about decisions in his home.	943 (87.2%)
It is important that a father is present in the lives of his children, even if he is no longer with the mother. <sup>†</sup>	1073 (99.3%)
<b>Reproductive and sexual health</b>	
Women who carry condoms on them are "easy."	822 (76.0%)
It is a woman's responsibility to avoid getting pregnant.	766 (70.9%)
I would be outraged if my wife asked me to use a condom.	299 (27.7%)
A couple should decide together if they want to have children. <sup>†</sup>	1066 (98.6%)
In my opinion, a woman can suggest using condoms just like a man can. <sup>†</sup>	1025 (94.8%)
If a guy gets a woman pregnant, the child is the responsibility of both. <sup>†</sup>	1073 (99.3%)
A man and woman should decide together what type of contraceptive to use. <sup>†</sup>	1071 (99.1%)
<b>Relations with other men</b>	
I would never have a gay friend.	1045 (96.7%)
It is important to have a male friend that you can talk about your problems with. <sup>†</sup>	949 (87.8%)

<sup>†</sup>Items recoded to indicate unidirection of scoring (agree or partially agree = lower gender equity)

**Table 2.3: Unadjusted and adjusted logistic regression associations between husbands' elevated alcohol use, masculinity ideologies and physical/sexual IPV (ever in marriage) among married women living in rural Maharashtra (N=1081)**

Variable	OR (95% CI)	AOR <sup>a</sup> (95% CI)
Masculinity ideologies (GEM)	0.99 (0.96, 1.01)	<b>0.97 (0.95, 0.99)<sup>b</sup></b>
Husbands' elevated alcohol use	<b>2.08 (1.15, 3.76)<sup>b</sup></b>	<b>1.89 (1.01, 3.40)<sup>b</sup></b>
Wives' age	1.00 (0.95, 1.05)	-
Husbands' age	1.02 (0.97, 1.07)	-
Wives' education	<b>1.03 (1.00, 1.06)</b>	0.97 (0.95, 1.04)
Husbands' education	<b>1.04 (1.01, 1.08)<sup>b</sup></b>	1.05 (0.97, 1.04)
Husbands' caste (scheduled caste/tribe)	1.23 (0.92, 1.64)	-
Wives' working status	0.96 (0.71, 1.29)	-
Number of births	<b>0.87 (0.77, 0.99)<sup>b</sup></b>	0.93 (0.81, 1.06)

<sup>a</sup>Adjusted for age, and education (husbands, and wives), husbands' caste, wives' working status, number of births, and husbands' elevated alcohol use (husband's reports).

<sup>b</sup>p≤0.05

## REFERENCES

1. World Health Organization, WHO multi-country study on women's health and domestic violence against women: initial results on prevalence, health outcomes and women's responses. . 2005, World Health Organization: Geneva, Switzerland.
2. World Health Organization, Understanding and addressing violence against women. 2012, World Health Organization, Pan American Health Organization.
3. National Family Health Survey (NFHS-3), 2005–06: India: Volume II. 2007, International Institute for Population Sciences (IIPS) and Macro International: Mumbai.
4. Kishor, S. and Gupta, K, Gender Equality and Women's Empowerment in India, in National Family Health Survey (NFHS-3), India, 2005-06. 2009, International Institute for Population Sciences (Mumbai, India): Calverton, Maryland, USA.
5. Wilson, I.M., Graham, K, and Taft, A, Alcohol interventions, alcohol policy and intimate partner violence: a systematic review. *BMC Public Health*, 2014. 14: p. 881.
6. Berg, M.J., Kremelberg, D., Dwivedi, P., Verma, S., Schensul, J.J., Gupta, K., Chandran, D., Singh, S.K., The effects of husband's alcohol consumption on married women in three low-income areas of Greater Mumbai. *AIDS Behav*, 2010. 14 Suppl 1: p. S126-35.
7. Stanley, S., Interpersonal Violence in Alcohol Complicated Marital Relationships (A Study from India). *Journal of Family Violence*, 2008. 23: p. 767-776.
8. Chandrasekaran, V., Krupp, K., George, R., Madhivanan, P., Determinants of domestic violence among women attending an Human Immunodeficiency Virus voluntary counseling and testing center in Bangalore, India. *Indian Journal of Medical Sciences*, 2007. 61(5): p. 253-262.

9. Go, V.F., Sethulakshmi, C. J., Bentley, M.E., Sivaram, S., Srikrishnan, A.K., Solomon, S., Celentano, D.D., Crossing the Threshold: Engendered Definitions of Socially Acceptable Domestic Violence in Chennai, India. *Culture, Health, & Sexuality*, 2003. 5(5): p. 393-408.
10. Sarkar, N.N., The impact of intimate partner violence on women's reproductive health and pregnancy outcome. *J Obstet Gynaecol*, 2008. 28(3): p. 266-71.
11. Jeyaseelan L, Kumar S, Neelakantan N, Peedicayil A, Pillai R, Duvvury N., Physical spousal violence against women in India: some risk factors. *J Biosoc Sci*, 2007. 39(5): p. 657-70.
12. Sayette, M.A., G.T. Wilson, and M.J. Elias, Alcohol and aggression: a social information processing analysis. *J Stud Alcohol*, 1993. 54(4): p. 399-407.
13. Wilson, I.M., Graham, K, and Taft, A, Alcohol may not cause partner violence but it seems to make it worse: a cross national comparison of the relationship between alcohol and severity of partner violence. *J Interpers Violence*, 2011. 26(8): p. 1503-23.
14. Nanda, P., Gautam, G., Verma, R., Khanna, A., Khan, N., Brahme, D., Boyle, S., Kumar, S., Study on Masculinity, Intimate Partner Violence and Son Preference in India. 2014, International Center for Research on Women: New Delhi, India.
15. 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*, 2010. 125(2): p. 282-92.
16. Jejeebhoy, S. and Z. Sathar, Women's Autonomy in India and Pakistan: The Influence of Religion and Region. *Population and Development Review*, 2001. 27(4): p. 687-712.
17. Ghule, M., Raj, A., Palaye, P., Dasgupta, A., Nair, S., Saggurti, N., Battala, M., Donta, B., Barriers to use Contraceptive Methods among Rural Young

- Married Couples in Maharashtra, India: Qualitative Findings. *Asian Journal of Research in Social Sciences and Humanities*, 2015. 5(6): p. 18-33.
18. Verma, R., Pulerwitz, J., Mahendra, V.S., Khandekar, S., Singh, A.K., Das, S.S., Mehra, S., Nura, A., Barker, G., Promoting gender equity as a strategy to reduce HIV risk and gender-based violence among young men in India: Horizons Final Report. 2008, Population Council: Washington, D.C.
  19. Verma, R. and S. Schensul, Male sexual health problems in Mumbai: cultural constructs that present opportunities for HIV/AIDS risk education, in *Sexuality in the time of AIDS in India*, V. RK, Editor. 2004, Sage: New Delhi, India.
  20. Verma, R.K., Pulerwitz, J., Mahendra, V., Khandekar, S., Barker, G., Fulpagare, P., Singh, S.K., Challenging and changing gender attitudes among young men in Mumbai, India. *Reprod Health Matters*, 2006. 14(28): p. 135-43.
  21. Reed, E., Donta, B., Dasgupta, A., Ghule, M., Battala, M., Nair, S., Silverman, J.G., Jadhav, A., Palaye, P., Saggurti, N., Raj, A., Household debt among young married couples in rural Maharashtra, India: Relation to Husbands' Attitudes Toward Gender Norms and Intimate Partner Violence Perpetration. *Public Health Reports*, 2015. In Press.
  22. National Institute on Alcohol Abuse and Alcoholism. Drinking Levels Defined. 2015 [cited 2015 24 August 2015]; Available from: <http://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking>.
  23. U.S. Department of Veterans Affairs. AUDIT-C Frequently Asked Questions. 2015 July 28, 2014 [cited 2015 September 27, 2015]; Available from: <http://www.queri.research.va.gov/tools/alcohol-misuse/alcohol-faqs.cfm#1>.
  24. Pulerwitz, J. and G. Barker, Measuring attitudes toward gender norms among young men in Brazil: Development and psychometric evaluation of the GEM Scale Men and Masculinities, 2008. 10(3): p. 322-338.

25. Streiner, D.L. and G.R. Norman, Health Measurement Scales A Practical Guide to Their Development and Use. 2008, New York: Oxford University Press.
26. Go, V.F., Sethulakshmi, C. J., Bentley, M.E., Sivaram, S., Srikrishnan, A.K., Solomon, S., Celentano, D.D., Factors associated with the perpetration of sexual violence among wine-shop patrons in Chennai, India. Soc Sci Med, 2010. 71(7): p. 1277-84.
27. 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.
28. International Institute for Population Sciences (IIPS) and Macro International. National Family Health Survey (NFHS-3), India, 2005-06: Maharashtra. 2008, IIPS: Mumbai, India.
29. Sen, G. and P. Östlin, Unequal, Unfair, Ineffective and Inefficient - Gender Inequity in Health: Why it exists and how we can change it in WHO Commission on Social Determinants of Health. 2007, World Health Organization.
30. Schensul, J.J., Singh, S.K., Gupta, K., Bryant, K., Verma, R., Alcohol and HIV in India: a review of current research and intervention. AIDS Behav, 2010. 14 Suppl 1: p. S1-7.
31. United Nations. The Millennium Development Goals Report: 2015. 2015, United Nations: New York, New York.

**CHAPTER 3: Associations between intimate partner violence and married women's condom and other contraceptive use in rural India**

Anindita Dasgupta,<sup>a-c</sup> Niranjan Saggurti,<sup>d</sup> Mohan Ghule,<sup>e</sup> Elizabeth Reed,<sup>a-b</sup> Balaiah Donta,<sup>e</sup> Madhusudana Battala,<sup>f</sup> Saritha Nair,<sup>g</sup> Ritter, Julie<sup>a-b</sup> Velhal Gajanan,<sup>h</sup> Jay Silverman,<sup>a-b</sup> Anita Raj<sup>a-b</sup>

<sup>a</sup>Division of Global Public Health, Department of Medicine, University of California, San Diego School of Medicine, San Diego, CA, USA

<sup>b</sup>Center on Gender Equity and Health, University of California, San Diego, CA, USA

<sup>c</sup>Joint Doctoral Program in Public Health (Global Health), San Diego State University/University of California, San Diego, San Diego, CA, USA

<sup>d</sup>Bill and Melinda Gates Foundation, New Delhi, India

<sup>e</sup>National Institute for Research in Reproductive Health, Mumbai, India

<sup>f</sup>Population Council, New Delhi, India

<sup>g</sup>National Institute of Medical Statistics, New Delhi, India

<sup>h</sup>Topiwala National Medical College & BYL Nair Charitable Hospital

## ABSTRACT

Background: The existing literature on the intersection between women's reports of spousal intimate partner violence (IPV) and modern contraceptive use in South Asia is conflicted; some studies from the region indicate that IPV is associated with increased contraceptive use, while other studies show the opposite relationship. Associations appear to vary based on method of contraception use, and form of violence (physical or sexual), and few have examined the relationship between IPV and various methods of modern spacing contraceptive (MSC) use.

Objective: This study seeks to assess the relative associations between IPV and MSC use among a sample of married, not-currently-pregnant couples in rural Maharashtra, India (N=861).

Methods: Multinomial logistic regression models assessed husband's physical and sexual IPV perpetration (past 6-month) in relation to women's past 3-month MSC use [categorized as condom use, other MSCs (oral pills, IUD), and no MSCs].

Results: In terms of violence, 12% and 4% of women reported recent physical and sexual IPV victimization, respectively. The majority of women (72%) did not use any MSC method in the past 3 months; 14% reported recent condom use, and the same proportion reported other MSC use. Recent physical IPV was



associated with increased likelihood of recent condom use (AOR: 2.07, 95% CI: 1.01, 3.89), and recent sexual IPV was associated with increased likelihood of recent use of other MSC (AOR: 2.86, 95% CI: 1.14, 7.16).

Conclusion: These findings reinforce the need for integration of counseling around IPV prevention and intervention programming into existing family planning services targeting married couples in rural Maharashtra, India.

## INTRODUCTION

Intimate partner violence (IPV) is a pervasive global health concern [1]. Women contending with IPV face a myriad of health consequences that include negative sexual and reproductive health outcomes such as unintended pregnancies [2-5] and, relatedly, challenges to contraceptive use [4, 6-9]. South Asia has some of the highest rates of IPV among married women in the world [1], with 37% of wives in India reporting experiencing physical or sexual spousal violence in their lifetime [6]. Studies from India document efforts by abusive husbands to interfere with wives' abilities to access family planning services [8], thus putting wives at greater risk for having unintended pregnancies [3-5]. Despite the fact that knowledge of contraceptive methods is high among men and women in India [6], and availability and access to contraception are not perceived as barriers to family planning [10, 11], only half of women report modern contraceptive use [6, 10]. India accounts for the greatest proportion of women in the world with an unmet need for family planning (women who are fecund, and sexually active, but are not using contraception, and do not want to get pregnant) [12], with 13 percent of Indian wives reporting unmet need [10, 12].

Early family planning efforts by the Indian government, starting in 1951, encouraged couples to adopt permanent methods of contraception (first male and then female sterilization) [13, 14]. While recent efforts have prioritized spacing contraception (i.e. non-permanent methods) [14, 15], female sterilization is the most common method of modern contraception used by married women (37% of married women report female sterilization) [10], and is often the first and

only method of contraception used by Indian wives [14, 16]. Family planning norms in India encourage women to marry early and produce children, with a preference for sons over daughters, within the first year of marriage [14, 16, 17]. Once the desired number and sex ratio of children are achieved, wives often undergo sterilization [14, 16, 17]. As a result, few wives use modern spacing methods such as condoms, pills, and IUD, which make up 14, 11 and 6 percent of use, respectively [6, 10]. Low use of modern spacing contraceptive methods contribute to women's risk for short birth intervals, and IPV has been associated with poor spacing, as well [1].

Given the low levels of modern spacing contraceptive use in India, it is important to understand barriers to specific methods of contraceptive use. While numerous studies indicate that IPV is associated with lower likelihood of condom use among women in India [18-21], few studies have tested associations between IPV and other methods of modern spacing contraception, which may not require male participation (oral pills, IUD). Findings from qualitative data in India show that wives report threats of physical violence from husbands as drivers of contraceptive non-use [22], and that wives dealing with abusive husbands may opt for contraceptive methods that are not dependent on male-cooperation, such as oral pills, or IUD [9]. More recently, researchers have begun to dissect further the relationship between IPV and contraceptive use, with special consideration to types of violence perpetration (i.e. physical, sexual), and methods of contraception (i.e. condoms, oral pills). Examining national data in rural India from 2002-2003, Stephenson and colleagues [4, 7, 8] found that

women reporting physical IPV alone were less likely to adopt modern contraceptives (inclusive of both permanent and temporary methods). Similar results were seen when women reported experiences of both physical and sexual IPV [6]. However, while temporary methods were included in these analyses, the majority of contraceptive users in these samples were comprised of women who underwent female sterilization.

While these findings indicate that IPV is associated with lower contraceptive use, a growing body of literature of conflicting findings is emerging as researchers examine associations between IPV and various forms of contraceptive methods with special consideration that temporary and permanent contraceptive users may differ. Using pooled national data from 2006-2007 from Bangladesh, Nepal and India, Raj and colleagues [23, 24] found that sexual IPV was positively associated with wives' reports of modern spacing contraceptive use, and negatively associated with sterilization [23]. Further, the authors found (descriptively) that wives contending with sexual IPV were more likely to use oral pills, and less likely to report condom use, though these associations were not tested [23].

These conflicting findings indicate a need for clarification of these complex relationships. While the existing literature provides understanding of the negative relationship between IPV and permanent methods of modern contraception use in India, it is imperative that the relationship between IPV and modern spacing contraceptive use be explored given the need to prioritize spacing contraception use in India. Additionally, the existing literature presents conflicting findings

based on the form of violence reported (physical vs. sexual). Further, understanding if women are able to control reproductive decision-making via use of contraceptive methods not involving male partners (i.e. oral pills, IUD) is especially important for women contending with IPV. This paper seeks to fill these gaps in the literature by assessing the relationship between IPV (physical only, sexual only), and modern spacing contraceptive use (condom, other modern spacing, none) among a sample of non-sterilized married couples living in rural Maharashtra, India. These analyses present the first paper to examine quantitatively the relationship between various forms of IPV, and modern spacing contraception broken down by form of spacing contraceptive in rural Maharashtra, where use of modern spacing methods is substantially lower than in urban areas of the state [11].

## **METHODS**

### **Study population**

This study involved analysis of cross-sectional data from participants in a two armed, cluster randomized control trial of a family planning promotion program (CHARM) in Maharashtra, India. Note: details on collection of baseline data are described in full elsewhere [25]. Present analyses used data from the baseline assessment of non-sterilized couples. Pregnant women (n=214) were excluded from analyses as women who were pregnant were not using contraception due to their pregnancy state. Additionally, women using multiple methods of contraception (n=6) were excluded from analyses to allow for understanding of women's main method of modern spacing contraception, and to

allow for greater generalizability since the majority of wives in India use only one method of contraception [10]. Therefore the final sample for analysis included women who were not pregnant at baseline, and who were only using one method of contraception [n=861 (n=214 pregnant women, and n=6 using multiple methods were excluded)].

Between March and December 2012, trained research staff approached households to identify young married men between 18 and 30 years of age within the selected clusters. If a married couple with a man in the specified age range was home, research staff provided details regarding the CHARM intervention and evaluation study. If the couple indicated interest in participating, research staff would conduct the informed consent process with the couple in a private space in the house. Note: informed consent was conducted by research staff with husbands and wives together when both were available at the same time (and separately if they were not both available). Once the informed consent process was complete, couples were screened for eligibility. Inclusion criteria included husbands and wives being 18-30 years of age, fluency in Marathi, residing together in the cluster area for the past three months, plans to stay in the cluster for another two years, and no sterilization for either the husband or his wife. Research staff screened 1,881 couples; of those couples screened, 1,143 were eligible to participate in the study (60.8% eligibility rate), and 1,081 eligible couples chose to participate in the study (94.6% participation rate).

After couples completed informed consent and eligibility screening procedures, sex-matched research staff administered a 60-minute paper survey

with husbands and wives. Survey questions were read aloud to husbands and wives separately and in private spaces in the participants' homes. Survey items covered a broad range of topics including demographics, contraception knowledge and use, substance use, sexual history, and gender equity attitudes. No monetary incentives were provided, and all study procedures were approved by the Institutional Review Boards at the University of California San Diego and the Indian Council of Medical Research.

### **Measures**

Demographic characteristics included age and educational attainment for husbands and wives; the husband's caste, family's monthly income, and the wife's working status. Age was measured continuously and was kept as a continuous variable for analysis. Education was measured by a single item asking the highest standard (year) of education completed (continuous measure). Note: age and education data were based on husbands' and wives' reports of their own information. Caste and family income were based on husbands' reports. Only husbands' reports were used for these measures, as once Hindu women marry, they take on their husbands' caste; additionally, most husbands controlled family finances, and therefore husbands' reports were most reliable for this measure.

Caste was measured based on four separate categories of "scheduled caste, scheduled tribe, other backward class, none." Individuals belonging to scheduled castes, and scheduled tribes represent the most marginalized groups, and were therefore included in one category (with those belonging to "other

backward class, and none” combined into a second category for the caste variable). Caste variables were thus created with the following categories: “scheduled caste/tribe,” and “backward class/none.” Family monthly income was based on husbands’ responses to the question “what is your household’s average monthly income?” (continuous measure; Indian currency of rupees). Wives’ working status was assessed based on asking if they were engaged in any income-generating activities (dichotomous yes/no).

Marital characteristics were assessed by wives’ reports of marital length, and number of births. Marital length was a continuous variable (measured in years) calculated by taking the difference between the participant’s current age, and age at marriage (based on the question “how old were you when you first got married?”). Note: This variable was used descriptively in analyses (and not as a covariate). Number of births includes women’s responses asking them how many living sons and daughters they delivered, the number of sons and daughters they had who had been born alive and later died, and the number of stillbirths women reported. These items were combined to create a continuous measure reflecting total number of births reported by wives.

Husbands’ risky behaviors included in the analyses were husbands’ elevated alcohol use, and men’s gender equity ideologies. Husbands’ drinking in the past month was assessed by a single measure asking husbands how many days within the past 30 days they had 4 or more drinks on one occasion. Husbands reporting 1 or more days of drinking with 4 or more drinks on one occasion in the past month were categorized as “potentially being at elevated risk



of alcohol-related problems” or “elevated alcohol use” (individuals who reported zero days were categorized as not having any days in the past month with “elevated alcohol use” or “no”). The categorization of this variable is based off of guidelines of the National Institute on Alcohol Abuse and Alcoholism’s definition of “heavy drinking” (5 or more drinks on the same occasion) [26], and the widely used alcohol measure, AUDIT-C [27]. Note that our description of this variable does not coincide exactly with these definitions.

Men’s gender equity ideologies were measured using the Gender-Equitable Men (GEM) Scale [28], which has been adapted for use in rural India [29]. GEM includes 24 items measuring male gender norms related to sexual and reproductive health, sexual relations, domestic violence, domestic responsibilities, and homophobia. Men were read a series of statements, and then asked if they “agree,” “partially agree,” or “do not agree” with each statement. Each item was scored with the least equitable response scoring 1, with the most equitable responses scoring 3 (and moderately equitable responses scoring 2), thus resulting in a possible range of 24-72 (least equitable to most equitable). The scale was kept as a continuous measure, and had an acceptable level of internal consistency (Cronbach’s alpha = 0.70) to be used for use of an attitude measure [30].

The outcome of past 3 month contraception use was based on a single question asking wives what method she and her husband used to avoid getting pregnant in the past 3 months. Options included oral pills, IUD/loop, injectables, male condom, rhythm method, withdrawal method, and emergency

contraception. Response options were separated into three categories: Male condom, other modern spacing contraceptives (hormonal oral pills, IUD, injectables), and no modern spacing contraceptives (rhythm method, withdrawal method, and no method).

The two independent variables were past 6 month physical intimate partner violence (IPV) victimization and sexual IPV in the same timeframe (asked only of wives). Both dichotomous variables were based on an 8-item measure asking women how frequently she experienced various forms of violence. All violence indicators were based on validated measures from the third wave of the National Family Health Survey (NFHS-3) [10]. The questions had response categories of “often,” “sometimes,” “not at all” (meaning not in the past 6 months), and “never in our relationship” (meaning never experiencing violence in the relationship). Physical IPV was measured by asking women whether the following forms of violence had been perpetrated by husbands in the past 6 months: 1) slapping, 2) arm twisting and pulling hair, 3) pushing, shaking, throwing something at her, 4) kicking, dragging, beating up, 5) choking, 6) trying to burn, threaten to attack with knife, gun or weapon. Items on sexual IPV measured 1) forced sexual intercourse, and 2) forced to perform sexual acts against her will. Women’s endorsement of “often” or “sometimes” to any of the 6 physical IPV items were categorized as “yes” for the physical IPV variable (responses of “not at all” or “never in our relationship” were categorized as “no”). The same categories were used for responses for the sexual IPV questions. Note: the variables are not mutually exclusive; women could report experiencing

both physical and sexual IPV victimization. Physical violence items had a Cronbach's alpha coefficient of 0.98, and the sexual violence items had a coefficient of 0.97 indicating high test reliability.

### **Statistical analysis**

Descriptive analyses were conducted on all demographic indicators, IPV variables, and contraceptive use indicators. Crude and adjusted multinomial logistic regression models assessed IPV in relation to modern spacing contraceptive use (condom use, other modern spacing contraception, no method [referent]). Adjusted analyses controlled for men and women's age and education, husband's reports of caste, elevated alcohol use, and gender equity ideologies, and women's reports of working status, and number of births. Odds ratios and 95% confidence intervals were calculated to assess size and significance of associations. While the physical and sexual violence variables were correlated, the variables were not collinear (Spearman's rank correlation:  $r=0.34$ ,  $p<0.001$ ) and thus could be included in the same model. All analyses were conducted using SPSS version 22 (IBM Corp, Armonk, NY, USA).

### **RESULTS**

Wives had a mean age of 22.6 years (SD: 2.5); husbands had a mean age of 26.2 (SD: 2.7). (Table 3.1) The majority (72.1%,  $n=621$ ) of couples belonged to scheduled caste or tribal categories (most marginalized communities). Couples were married on average for 4 years (range: 0-14 years; SD: 2.7 years). In terms of education, fewer husbands, relative to wives, reported no formal education (9.1%,  $n=78$  husbands; 17.3%,  $n=149$  wives); though husbands and wives had

similar ranges and mean years of highest standard of education completed [range 0-17 years for husbands and wives; mean=6.5 (SD: 4.2) for wives; mean=7.3 (SD: 3.7) for husbands]. The range for family monthly income was wide (9.3-1851.9 USD), with a mean of 123.9 USD (SD: 134.6 USD)] (converted from rupees to dollars, 2012). Most wives (76.1%; n=655) were not engaged in any income-generating activities, while almost all husbands reported engagement in income-generating activities (97.7%, n=841). Wives reported having an average of 1.4 children (SD: 1.0), with a range of 0-6 children.

Consistent with national trends [6], the majority of wives (72.1%; n=621) reported not using any method of modern spacing contraception; among women in this category, 98.1% (n=609) reported not using any contraception, and 3.1% (n=19) reported using a traditional method. Similar proportions of women reported using condoms (13.8%; n=119), and other modern spacing contraception (14.1%; n=121). Among other modern spacing users, 83.5% (n=101) reported using pills, 16.5% (n=20) used IUDs, and 0.8% (n=1) used injectables.

Physical and/or sexual IPV was reported by 13.0% (n=112) of women in the past 6 months; 11.6% (n=100) reported physical IPV, and 3.9% (n=34) reported sexual IPV for this timeframe. The majority of women reporting physical violence (78.0%, n=78) did not report sexual violence victimization; conversely, more than half (64.7%, n=22) of women reporting sexual IPV, also reported physical IPV victimization. Only 4.4% (n=38) of husbands reported elevated alcohol use ( $\geq 4$  drinks on one occasion), in the past 30 days. Husbands had an

average score of 34.3 (SD: 5.3) on the GEM scale, with a range from 24.0-56.0 (with higher scores indicated greater gender equity ideology).

Table 3.2 shows the results of multinomial logistic regression associations (crude and adjusted) of physical and sexual IPV, respectively, with modern spacing contraceptive use. Adjusted analyses indicate that women reporting physical IPV (past 6 months) were more likely to report condom use (past 3 months), relative to not using any method of modern spacing contraception (AOR: 2.07, 95% CI: 1.10, 3.89). No significant associations (unadjusted or adjusted) were found between physical IPV and other modern spacing contraceptive use. In both the crude and adjusted models, women reporting sexual IPV were more likely to report using other modern spacing contraception (AOR: 2.86, 95% CI: 1.14, 7.16). No significant associations (unadjusted or adjusted) were seen between women reporting sexual IPV and condom use, however.

## **DISCUSSION**

Among married couples in rural Maharashtra, India, our study revealed significant positive associations between women's reports of physical IPV victimization and condom use, where women reporting physical violence were greater than two times more likely to report using condoms (relative to not using any method of modern spacing contraception). Women reporting sexual violence were almost three times more likely to report using other modern spacing contraception (relative to not using any method of modern spacing contraception). In terms of experiences of violence, 11.6 and 3.9 percent of

women reported recent physical and sexual violence victimization, respectively, and the majority (72.1%) reported not using any method of modern contraception.

These findings build upon the existing body of work that examines relationships between IPV and contraceptive use in South Asia, and in particular, draw attention for the need to test separate pathways such as those between physical and sexual violence and various forms of contraception (rather than consider all factors in aggregate). Our results depart from the main findings of Stephenson and colleagues [4, 7, 8], and Kishor [6], where the authors found that women contending with IPV were *less* likely to report use of modern contraception. The majority of women included in these analyses, however, reported *sterilization* (i.e. permanent method) as their method of contraceptive use, whereas the current analyses focus solely on modern spacing contraceptive use. Further, Stephenson's paper focused on contraception *adoption* in their inter-survey periods of four years. Work by Raj and colleagues [23] finding that women contending with sexual IPV were less likely to use sterilization, but more likely to use modern spacing contraception highlight the important need to differentiate between spacing and permanent methods of modern contraception use. Female sterilization is associated with social norms for women to marry and bear children early, and until desired number and sex ratio of children are delivered and then undergo sterilization, which is often the first and only method of modern contraception used by women [14, 16, 17]. As a result, findings that IPV is associated with lower likelihood of female sterilization simply may be

indicative that couples are not finished childbearing. This is consistent with literature documenting associations between women contending with IPV having greater number of children compared to women without IPV victimization [6].

Our findings are consistent with those of Raj and colleagues [23, 24], in that sexual IPV is associated with increased likelihood of using modern spacing contraception. Specifically, our finding that sexual IPV is associated with increased use of modern spacing methods *other than condoms* builds on the descriptive findings from Raj and colleagues [24]. Our results add to the growing body of literature indicating that women contending with violence (specifically sexual IPV), may rely on methods of contraception that do not require male participation (i.e. modern spacing methods other than condoms). Qualitative data from India indicate that women experiencing violence may opt for covert methods of contraception as a means to control pregnancy [9]. It is possible that women may rely on methods of contraception they may have greater control over, such as oral pills, and IUDs, when contending with sexual violence.

It is important to note the lack of association between physical IPV and use of other modern spacing contraception. Though Raj and colleagues [23, 24] also did not find significant associations between physical IPV and modern spacing contraceptive use, our study is the first to test associations between IPV and various forms of modern spacing contraception. Nonetheless, this lack of association, within the presence of a significant association between sexual IPV and modern contraceptive use, suggests that the form of violence perpetrated against women does influence her contraception use.

Our study appears to be the first in this body of literature to find that physical IPV is associated with *increased* likelihood of condom use, departing from established literature indicating the opposite associations [18-21]. However, many of these studies have focused on populations at high risk for HIV through unprotected sex with female sex workers in India, where sex workers may have even more limited control over contraceptive methods due to power dynamics associated within the client-sex worker context [21]. Further, most of these studies have considered violence without consideration of potential differences in associations based on form of violence (physical/sexual).

In terms of understanding how experiences of physical violence are associated with women's increased condom use, it is conceivable that because this violence may not necessarily take place at the time of sexual intercourse, that there may be greater opportunity for conversation and use of contraception that requires male participation (i.e. condom); that while physical violence is occurring within the relationship, it may not be associated with challenges in using condoms. Social acceptability for marital violence among both husbands and wives is high within India [6], as well as within our sample, and data indicate that justification for physical violence against wives commonly includes situations when wives challenge traditional gender roles ascribed to women (ex. neglecting domestic duties) [31].

These findings must be considered with certain limitations. Due to the study's cross-sectional design, causal relationships between IPV and modern spacing contraception use could not be inferred. In addition, survey data are



subject to both recall bias and social desirability bias, which may have resulted in under-reporting of IPV and potentially over-reporting of contraceptive use, as the participants were aware that they were participating in a family planning and gender equity study. These biases may have led to conservative estimates of results. Additionally, it is possible that selection bias may have played a role in selection of study subjects, as all study participants consented to participate in a family planning intervention (and were not sterilized). It is possible that participants who were interested in participating in the study were more likely to report use of modern spacing methods relative to those who did not participate in the study. Finally, these findings are specific to married couples in rural Maharashtra, India, and should not be considered as representative for married couples in India.

Despite these limitations, the present analyses offer new insight into the complex relationship between IPV and contraceptive use among a sample of married couples in rural Maharashtra, India; an area characterized by high fertility and low use of modern spacing contraception [32]. While others [33] have examined the relationship between IPV and modern spacing contraceptive use in Maharashtra, this research was limited to urban areas (Mumbai) of the state, which sees higher rates of modern spacing contraceptive use. These studies, though consistent with our findings in that IPV was associated with a greater likelihood of women using modern spacing methods, included physical, sexual and emotional violence collectively in the definition of IPV, and also examined all methods of modern spacing contraception together.

The present study offers the first opportunity to tease apart these nuanced differences in associations. Further research in this area should be conducted to better understand contextual factors that may contribute to the association between IPV and modern spacing contraceptive use in an effort to guide family planning and violence prevention programming in India. Specifically, qualitative data collection and analysis may prove useful in providing insight into how and why various forms of violence (physical/sexual) may influence use of various methods of spacing contraception differently.

India's national family planning program has evolved over the last few decades; the Government has moved away from its promotion of permanent methods of contraception (i.e. female sterilization) [34], and is now emphasizing the use of spacing contraceptive methods (specifically, IUD) [35]. Specifically, the Government is aiming to increase community-based distribution of contraceptives through Accredited Social Health Activists (ASHAs), women who are trained to interface between the community and the government public health system [36]. Our findings indicate that women contending with physical and/or sexual IPV are utilizing modern spacing contraception. The commitment by the Indian Government to promote modern spacing methods through ASHAs presents a unique opportunity for the integration of IPV prevention and reduction services within this family planning system aimed at women in rural India. Such integration of IPV services within the context of healthcare services builds on existing evidence showing that while women rarely seek out programming for IPV reduction directly, women's engagement with reproductive-related healthcare

services is increasing, globally [37], and often offers a unique and safe space for screening, and intervention on IPV [38, 39]. Additionally, efforts should be made to intervene with men on IPV perpetration in settings where men may seek condoms, as men often provide condoms within marital relationships [34]. Findings from the present study support the need to develop and evaluate IPV programming within healthcare services in rural Maharashtra, India where men and women seek family planning services.

### **ACKNOWLEDGEMENTS**

I would like to acknowledge the agencies that funded this research: National Institute on Drug Abuse (T32DA023356; PI: S. Strathdee), National Institute of Child Health and Human Development (RO1HD61115; PI: A. Raj), and the Department of Biotechnology, Government of India (BT/IN/US/01/BD/2010). In addition, I would like to acknowledge Drs. Susan Kiene, and María Zúñiga for their significant contributions to this manuscript.

Chapter 3, “Associations between intimate partner violence and married women’s condom and other contraceptive use in rural India,” in full, is currently being prepared for publication of material. Saggurti, Niranjana; Ghule, Mohan; Reed, Elizabeth; Donta, Balaiiah; Battala, Madhusudana; Nair, Saritha; Ritter, Julie; Gajanan, Velhal; Silverman, Jay; and Raj, Anita are co-authors on this manuscript. Anindita Dasgupta, the dissertation author, is the primary author of this material.

**Table 3.1 Profile of married women living in rural Maharashtra: demographic, marriage, fertility preferences, and exposure to violence (N=861)**

Variable	n (%)
<b><i>Demographic Variables</i></b>	
Wives' Age (mean, SD, range)	22.6, 2.5, 18-30
Husbands' Age (mean, SD, range)	26.2, 2.7, 18-30
Wives' years of education (mean, SD, range)	6.5, 4.2, 0-17
Husbands' years of education (mean, SD, range)	7.3, 3.7, 0-17
Husbands' Caste (caste)	
Scheduled caste/tribe	621 (72.1%)
Other backward class/none	240 (27.9%)
Family monthly income, USD (median, SD, range)	123.9, 134.6, 9.3-1851.9
Wives' working status	
Not engaged in income-generating activities	655 (76.1%)
Marital length, years (mean, SD, range)	4.0, 2.7, 0-14
<b><i>Marriage Characterization and Fertility Preferences</i></b>	
Contraceptive use, past 3 months	
Condom use	119 (13.8%)
Other modern spacing method	121 (14.1%)
Pills	101 (83.5%)
IUD	20 (16.5%)
Injectables	1 (0.8%)
None	621 (72.1%)
No contraception use	609 (98.1%)
Traditional methods (rhythm and withdrawal)	19 (3.1%)
Number of living children (mean, SD, range)	1.4, 1.0, 0-6
<b><i>Husbands' Risky Behaviors/Attitudes</i></b>	
Husbands' gender equity ideologies (mean, SD, range)	34.4, 5.3, 24.0-56.0
Husbands' elevated alcohol use (4+ drinks, past 30 days)	38 (4.4%)
Yes (1+ days)	823 (95.6%)
No (0 days)	
Physical IPV, past 6 months	
Yes	100 (11.6%)
Sexual IPV, past 6 months	
Yes	34 (3.9%)
Physical IPV and/or forced sex, past 6 months	
Yes	112 (13.0%)

**Table 3.2 Unadjusted and adjusted multinomial logistic regression: associations between physical IPV, and sexual IPV (past 6 month) with modern spacing contraceptive use (past 3 month) (N=861)**

Variable	n (%)	OR (95% CI)	AOR <sup>a</sup> (95% CI)
<b>Physical IPV, past 6 months (n=100)</b>			
Condom use, past 3 month	19 (19.0)	1.57 (0.90, 2.73)	<b>2.07 (1.10, 3.89)<sup>b</sup></b>
Other modern contraception use, past 3 month	14 (14.0)	1.08 (0.59, 2.00)	0.92 (0.46, 1.86)
No modern contraception use	67 (67.0)	-	-
<b>Sexual IPV, past 6 months (n=34)</b>			
Condom use, past 3 month	4 (11.8)	0.99 (0.34, 2.95)	0.89 (0.26, 3.03)
Other modern contraception use, past 3 month	9 (26.5)	<b>2.30 (1.03, 5.14)<sup>b</sup></b>	<b>2.86 (1.14, 7.16)<sup>b</sup></b>
No modern contraception use	21 (61.8)	-	-

<sup>a</sup>Adjusted for age, education (husbands, and wives), husbands' caste, family's monthly income, wives' working status, and number of births, husbands' gender equity ideologies, and husbands' elevated alcohol use (husband's reports).

<sup>b</sup>p≤0.05

## REFERENCES

1. World Health Organization. WHO multi-country study on women's health and domestic violence against women: initial results on prevalence, health outcomes and women's responses. 2005, World Health Organization: Geneva, Switzerland.
2. World Health Organization. Understanding and addressing violence against women. 2012, World Health Organization, Pan American Health Organization.
3. Sarkar, N.N., The impact of intimate partner violence on women's reproductive health and pregnancy outcome. *J Obstet Gynaecol*, 2008. 28(3): p. 266-71.
4. Stephenson, R., Koenig, M.A., Acharya, R., Roy, T.K., Domestic violence, contraceptive use, and unwanted pregnancy in rural India. *Stud Fam Plann*, 2008. 39(3): p. 177-86.
5. Begum, S., Dwivedi., Pandey, A., Mittal, S., Association between domestic violence and unintended pregnancies in India: findings from the National Family Health Survey-2 data. *Natl Med J India*, 2010. 23(4): p. 198-200.
6. Kishor, S. and Gupta, K, Gender Equality and Women's Empowerment in India: National Family Health Survey (NFHS-3), India, 2005–06. 2009, International Institute for Population Sciences: Calverton, Maryland, USA.
7. Stephenson, R., Koenig, M.A. and Ahmed, S., Domestic violence and contraceptive adoption in Uttar Pradesh, India. *Stud Fam Plann*, 2006. 37(2): p. 75-86.
8. Stephenson, R., Jadhav, A., and Hindin, M., Physical domestic violence and subsequent contraceptive adoption among women in rural India. *J Interpers Violence*, 2013. 28(5): p. 1020-39.

9. Wilson-Williams, L., Stephenson, R., Juvekar, S., Andes, K., Domestic violence and contraceptive use in a rural Indian village. *Violence Against Women*, 2008. 14(10): p. 1181-98.
10. National Family Health Survey (NFHS-3), 2005–06: India: Volume II. 2007, International Institute for Population Sciences (IIPS) and Macro International: Mumbai.
11. National Family Health Survey (NFHS-3), India, 2005-06: Maharashtra, International Institute for Population Sciences (IIPS) and Macro International. International, Editor. 2008: Mumbai: IIPS.
12. Sedgh, G., Hussain, R., Bankole, A., Singh, S., Women with an Unmet Need for Contraception in Developing Countries and Their Reasons for Not Using a Method, in Occasional Report No. 37. 2007, Guttmacher Institute: New York.
13. Zavier, F. and Padmadas, S.S., Use of a Spacing Method Before Sterilization Among Couples in Kerala, India. *International Family Planning Perspectives*, 2000. 26(1): p. 29-35.
14. Mathews, Z., Padmadas, S.S., Hutter, I., McEachran, J., Brown, J.J., Does early childbearing and a sterilization-focused family planning programme in India fuel population growth? *Demographic Research*, 2009. 20(28): p. 693-720.
15. Government of India. India's 'Vision FP 2020', F.P.D. Ministry of Health and Family Welfare, Editor. 2014, Government of India: New Delhi, India.
16. Singh, A., Ogollah, R., Ram, F., Pallikadavath, S., Sterilization regret among married women in India: implications for the Indian national family planning program. *Int Perspect Sex Reprod Health*, 2012. 38(4): p. 187-95.
17. Ghule, M., Raj, A., Palaye, P., Dasgupta, A., Nair, S., Saggurti, N., Battala, M., Donta, B., Barriers to use Contraceptive Methods among Rural Young Married Couples in Maharashtra, India: Qualitative Findings. *Asian Journal of Research in Social Sciences and Humanities*, 2015. 5(6): p. 18-33.

18. Panchanadeswaran, S., Johnson, S.C., Sivaram, S., Srikrishnan, A.K., Latkin, C., Bentley, M.E., Solomon, S., Go, V.F., Celentano, D. Intimate partner violence is as important as client violence in increasing street-based female sex workers' vulnerability to HIV in India. *Int J Drug Policy*, 2008. 19(2): p. 106-12.
19. Patel, S.N., Wingood, G.M., Kosambiya, J.K., McCarty, F., Windle, M., Yount, K., Hennink, M. Individual and Interpersonal Characteristics that Influence Male-Dominated Sexual Decision-Making and Inconsistent Condom Use Among Married HIV Serodiscordant Couples in Gujarat, India: Results from the Positive Jeevan Saathi Study. *AIDS Behav*, 2014.
20. Deering, K.N., Bhattacharjee, P., Mohan, H.L., Bradley, J., Shannon, K., Boily, M.C., Ramesh, B.M., Isac, S., Moses, S., Blanchard, J., Violence and HIV risk among female sex workers in Southern India. *Sex Transm Dis*, 2013. 40(2): p. 168-74.
21. Swain, S.N., Saggurti, N., Battala, M., Verma, R.K., Jain, A.K., Experience of violence and adverse reproductive health outcomes, HIV risks among mobile female sex workers in India. *BMC Public Health*, 2011. 11: p. 357.
22. Khan, M., Townsend, J.W., Sinha, R., Lakhanpal, S., Sexual violence within marriage. *Seminars*, 1996(447): p. 32-35.
23. Raj, A., McDougal, L., Reed, E., Silverman, J.G., Associations of marital violence with different forms of contraception: Cross-sectional findings from South Asia. *Int J Gynaecol Obstet*, 2015. 130 Suppl 3: p. E56-61.
24. Raj, A. and L. McDougal, Associations of intimate partner violence with unintended pregnancy and pre-pregnancy contraceptive use in South Asia. *Contraception*, 2015. 91(6): p. 456-63.
25. Reed, E., Donta, B., Dasgupta, A., Ghule, M., Battala, M., Nair, S., Silverman, J.G., Jadhav, A., Palaye, P., Saggurti, N., Raj, A., Household debt among young married couples in rural Maharashtra, India: Relation to Husbands' Attitudes Toward Gender Norms and Intimate Partner Violence Perpetration. *Public Health Reports*, 2015. In Press.



26. National Institute on Alcohol Abuse and Alcoholism. Drinking Levels Defined. 2015 [cited 2015 24 August 2015]; Available from: <http://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking>.
27. U.S. Veterans Affairs. AUDIT-C Frequently Asked Questions. 2015 July 28, 2014 [cited 2015 September 27, 2015]; Available from: <http://www.queri.research.va.gov/tools/alcohol-misuse/alcohol-faqs.cfm#1>.
28. Pulerwitz, J. and Barker, G., Measuring attitudes toward gender norms among young men in Brazil: Development and psychometric evaluation of the GEM Scale Men and Masculinities, 2008. 10(3): p. 322-338.
29. Verma, R.K., Pulerwitz, J., Mahendra, V., Khandekar, S., Barker, G., Fulpagare, P., Singh, S.K., Challenging and changing gender attitudes among young men in Mumbai, India. *Reprod Health Matters*, 2006. 14(28): p. 135-43.
30. Streiner, D.L. and Norman, G.R., *Health Measurement Scales A Practical Guide to Their Development and Use*. 2008, New York: Oxford University Press.
31. Nanda, P., Gautam, G., Verma, R., Khanna, A., Khan, N., Brahme, D., Boyle, S., Kumar, S., Study on Masculinity, Intimate Partner Violence and Son Preference in India. 2014, International Center for Research on Women: New Delhi, India.
32. Goldenberg, R.L., Culhane, J.F., Iams, J.D., Romero, R., Epidemiology and causes of preterm birth. *Lancet*, 2008. 371(9606): p. 75-84.
33. Das, S., Bapat, U., Shah More, N., Alcock, G., Joshi, W., Pantvaidya, S., Osrin, D., Intimate partner violence against women during and after pregnancy: a cross-sectional study in Mumbai slums. *BMC Public Health*, 2013. 13: p. 817.
34. Donta, B., Begum, S., and Naik, D.D., Acceptability of male condom: an Indian scenario. *Indian J Med Res*, 2014. 140 Suppl: p. S152-6.

35. Government of India, National Health Mission: Thrust Areas under Family Planning Programme. 2015 2/2/2015 [cited 2015 4/24/2015]; Available from: <http://nrhm.gov.in/nrhm-components/rmnch-a/family-planning/background.html>.
36. Government of India, About Accredited Social Health Activist (ASHA). 2014 02 September 2014 [cited 2015 23 May 2015]; Available from: <http://nrhm.gov.in/communitisation/asha/about-asha.html>.
37. Chibber, K.S. and Krishnan, S., Confronting intimate partner violence: a global health priority. *Mt Sinai J Med*, 2011. 78(3): p. 449-57.
38. Miller, E., Decker, M.R., Raj, A., Reed, E., Marable, D., Silverman, J.G., Intimate partner violence and health care-seeking patterns among female users of urban adolescent clinics. *Matern Child Health J*, 2010. 14(6): p. 910-7.
39. Tancredi, D.J., Silverman, J.G., Decker, M.R., McCauley, H.L., Anderson, H.A., Jones, K.A., Ciaravino, S., Hicks, A., Raible, C., Zelazny, S., James,
40. L., Miller, E., Cluster randomized controlled trial protocol: addressing reproductive coercion in health settings (ARCHES). *BMC Womens Health*, 2015. 15: p. 57.

**CHAPTER 4: Assessing the relationship between intimate partner violence,  
externally-decided pregnancy and unintended pregnancies among wives  
residing in slum communities in Mumbai, India**

Anindita Dasgupta,<sup>a-c</sup> Anita Raj<sup>a-b</sup> Saritha Nair,<sup>d</sup> Dattaram Naik,<sup>e</sup> Niranjana  
Saggurti,<sup>f</sup> Balaiah Donta,<sup>e</sup> Jay Silverman,<sup>a-b</sup>

<sup>a</sup>Division of Global Public Health, Department of Medicine, University of California, San Diego School of Medicine, San Diego, CA, USA

<sup>b</sup>Center on Gender Equity and Health, University of California, San Diego, CA, USA

<sup>c</sup>Joint Doctoral Program in Public Health (Global Health), San Diego State University/University of California, San Diego, San Diego, CA, USA

<sup>d</sup>National Institute of Medical Statistics, New Delhi, India

<sup>e</sup>National Institute for Research in Reproductive Health, Mumbai, India

<sup>f</sup>Bill and Melinda Gates Foundation, New Delhi, India

## ABSTRACT

Background: India contends with high rates of violence against wives [intimate partner violence (IPV) and violence from in-laws (ILV)]; both factors may be associated with high unintended pregnancy and reflect low levels of women's decision-making control (relative to husbands and in-laws) related to their reproductive health. Few studies from South Asia have examined the relationship between pregnancy decision-making, IPV and unintended pregnancy.

Objective: This study seeks to assess associations between unintended pregnancy (mistimed and unwanted) and women's reports of externally-decided (by husband or in-laws) pregnancy, IPV and ILV, among a sample of married, postpartum women in India.

Methods: Surveys including items of maternal and child health concerns and IPV were conducted with low-income postpartum women seeking immunization for their infants ( $\leq 6$  months) in urban health centers in Mumbai slums (N=1,047). Unadjusted and adjusted multinomial logistic regression analyses assessed women's reports of having externally-decided pregnancies (decided by husbands, or in-laws) and IPV victimization (year prior to pregnancy) as factors in mistimed and unwanted pregnancies (reference category: intended pregnancy).

Results: Mistimed and unwanted pregnancies were reported by 12.2% (n=128), and 7.2% (n=76), respectively. Externally-decided pregnancies were reported by

8.8% (n=92) of women. Approximately one-third (29.4%, n=308) of women reported experiencing physical and/or sexual IPV in the year prior to pregnancy. Violence from in-laws (ILV) in the year prior to pregnancy was low (4.2%, n=44) with insufficient cases to include in regression analyses. Women reporting externally-decided pregnancies were significantly more likely to have mistimed pregnancies than intended pregnancies (AOR: 6.14, 95% CI: 3.60, 10.46), as were women reporting IPV (AOR: 2.12, 95% CI: 1.38, 3.25). Neither external pregnancy control nor IPV were associated with unwanted pregnancy.

Conclusion: Women's exclusion from pregnancy decision-making and violence from husbands relates to wives' abilities to time their pregnancies as they wish. Given the strong push by multilateral health organizations to reduce unintended pregnancies, it is important that gendered targets such as increasing women's involvement in reproductive health decision-making and reducing IPV are integrated into programming.

## INTRODUCTION

Globally, 40% of all pregnancies in developing countries were unintended (defined as pregnancies that were mistimed or unwanted [1]) in 2012; half of these resulted in abortion, 13% ended in miscarriage, and 38% ended in an unplanned birth [2]. Understanding factors that increase women's risk for having unintended pregnancies is vitally important, as having an unintended pregnancy endangers the health of both women and children [2-4], and is often indicative of challenges in contraceptive access and use [3]. Mistimed pregnancies are indicative of a woman's desire but inability to space her pregnancies, while unwanted pregnancies represent the difference between a woman's desire and actual fertility [5]. This distinction is of particular interest, as both can be managed by increasing women's use of family planning methods.

Women in developing countries who have unintended pregnancies are less likely to have adequate antenatal and delivery care [6, 7], and children (specifically, girls) resulting from unintended pregnancies are at greater risk for malnutrition, mortality [4], and inadequate immunizations [8]. This major public health concern is preventable, and has enormous potential for improving the lives of women, globally. Studies have found that reducing unintended pregnancies will improve educational and employment opportunities for women, thus improving the status of women, which in turn has the potential to increase family savings, and reduce poverty [9].

Globally, India accounts for the largest proportion of women with an unmet need for contraception (married women who are fecund, do not want to have a

child in the next two years, and are not using contraception); 31 million married women in India are at risk for unintended pregnancies according to national data [10]. Approximately 21% of all pregnancies in India are unintended (3.3 million pregnancies) each year, and the majority of these take place within marriage [11]. Associations between unintended pregnancy and poor infant and child health outcomes have also been found in India. Analysis of national data indicates that unintended pregnancies in India are associated with unattended deliveries, incomplete early childhood immunization, child stuntedness, and neonatal, postnatal, and early childhood mortality [5]. Contraceptive access and knowledge in India is high given that India's government has provided comprehensive family planning services and education since 1952 [12, 13]. However, while reductions in rates of unintended pregnancy have been seen across other global regions [2], India's prevalence of unintended pregnancy has remained stagnant for the last decade [14, 15]. Factors implicated in unintended pregnancy in India are complex and may include low socioeconomic status (education, poverty), preference for having sons over daughters [16] and intimate partner violence (IPV) [17,18].

Studies from India [17, 18] and other parts of South Asia [19-21] indicate strong associations between IPV and unintended pregnancy. Existing research indicates that wives tend to have lower power in sexual decision-making relative to husbands in India [22-24], which may be of even greater concern for wives contending with IPV, where power imbalances tend to be stronger [24, 25]. More than one-third (37%) of wives in India report experiencing physical or sexual IPV

in their marriage [26]. Further, within the Indian context, wives' in-laws strongly influence family planning decisions of couples [27-29], where women are expected to marry at early ages and produce children (specifically sons) within the first year of marriage [27]. The elevated role of in-laws, who often live with married couples in India, has implications for wives' experiences of IPV, as well. For example, national data from India indicate that both men and women are more likely to agree that IPV victimization of wives is justified if a wife disrespects her in-laws, and if she neglects domestic duties, compared to other potential reasons to justify violence (e.g., husband suspects infidelity) [30]. Further, physical violence (i.e. hitting, burning) from in-laws against daughters-in-law (ILV) is a concern for wives in India. Research on IPV and ILV among women in Mumbai, India documents that 26% of wives reported ILV in pregnancy or post-partum, and that ILV was more likely to occur within a household where IPV was taking place [31].

Women contending with violence, either from husbands and/or in-laws, face extreme forms of power imbalances within their homes. Women are likely to be disempowered and unable to make decisions that influence situations in their own lives. Analysis of nationally representative data from India show that while the majority of husbands believe that household decisions should be made jointly between husbands and wives, 10% believe that wives should have lesser say in deciding how many children to have [30]. Among currently married wives, 36% report that husbands or others usually make decisions regarding wives' healthcare [12]. These social norms likely contribute to the lack of control over



family planning decisions of wives. However, it is not clear whether this lack of control over pregnancy decision-making (i.e., “externally-decided pregnancies”) is related to a woman’s ability to plan her pregnancies as and when she chooses (i.e., pregnancy intention).

Despite the pervasiveness of ILV, and the strong influence of in-laws on couples’ family planning decisions, no studies have examined ILV in relation to wives’ reports of unintended pregnancies. Additionally, there remains a paucity of literature surrounding women’s involvement in pregnancy-decision making in relation to rates of unintended pregnancy. This paper aims to build on the existing literature, and fill research gaps by exploring the associations of violence against wives (IPV, and ILV) and externally-decided pregnancy with the outcome of unintended pregnancy (mistimed or unwanted) among a sample of wives living in slum communities in Mumbai, India.

## **METHODS**

### **Study population**

This study includes analyses of cross-sectional data from the “Mechanisms for Relations of Domestic Violence to Poor Maternal and Infant Health in India” study. Participants included mothers of infants ( $\leq 6$  months) presenting for infant immunization at urban health centers in Mumbai, India. Recruitment of study participants took place from August to December 2008 at three urban health centers located in slum communities (Shivaji Nagar, Bail Bazaar and Mohili Village). Study communities were selected based on large population size ( $>100,000$  residents) and presence of an urban health center.

Women aged 17-45 years of age, seeking immunization for their children at one of the health centers were eligible to participate in the study. Potential participants presenting at clinics for infant immunizations were approached by trained health center nursing staff and preliminarily screened for eligibility (having an infant  $\leq 6$  months). Upon receipt of infant immunizations, mothers were asked if they would be interested in participating in a women's health study. Women who indicated interest in participating were escorted by a recruiter to a private room within the health center, where a trained female research staff member would verify eligibility, confirm the participant's interest in participation, obtain written informed consent, and conduct the survey. Nursing staff approached 1,830 women to assess their interest in participation; 60.5% (n=1,108) indicated such interest. The most common reason for participation refusal was not having enough time to participate. The final sample included 1,049 women (94.6% participation rate). All research staff were trained in survey research, human subjects protections, maternal and child health, and intimate partner violence research protocols. Research staff read consent forms and survey items aloud to potential participants in an effort to promote full opportunity for women to participate regardless of literacy level. Research staff conducted 30-40 minute quantitative survey assessments in Hindi. No monetary incentives were provided for study or program participation. All study procedures were approved by the Institutional Review Boards of Harvard School of Public Health and the Indian Council of Medical Research.

## **Measures**

All variables (unless otherwise noted) used in the baseline survey assessment were taken from the National Family Health Survey-2 (NFHS-2), [15], a nationally representative survey developed for the Indian context. Demographics assessed included age and education of wives and husbands, family income, family structure, and religion. Family income was based on a single item measure asking “What is your family income (monthly)?” in rupees (measured as a continuous variable). Family structure was assessed by a question asking participants “What is the type of your family?” with response options of nuclear and joint family (extended family, including in-laws living in the home with the couple) structures. Responses regarding participant religion were collapsed into the following categories: Hindu, Muslim, other religion.

Reproductive health assessments included number of co-residing living children and modern spacing contraceptive use (pre-pregnancy). Number of living children was assessed by a single item, continuous measure asking women “How many children do you have that are currently living with you?” Modern spacing contraceptive use was assessed via two items asking women “Did you use any contraceptive method (to space birth or delay pregnancy) prior to the conception of this child?” and “What type of contraceptive did you use?” Responses were categorized as follows: condom (condom), other modern spacing contraception (oral pills, IUD, injectables), and none (no modern spacing contraceptive method).

Independent variables of interest were two forms of violence against wives in the year prior to pregnancy (IPV by husbands and in-law violence) and

decision-making regarding their most recent pregnancy. Pre-pregnancy IPV was assessed by asking if the following forms of violence were perpetrated by participants' husbands against them during the year prior to the most recent pregnancy: 1) hitting, pushing, kicking, beating, or slapping, 2) burning, 3) insisting on having sex against her will, and 4) forced sex against her will. Similarly, the pre-pregnancy ILV variable was measured by asking about the following violence directed at participants by their in-laws during the year prior to the most recent pregnancy: 1) hitting, pushing, kicking, beating, slapping, and 2) burning. If respondents reported "yes" to experiencing any IPV behaviors in the year prior to pregnancy, responses were coded as "yes" for the pre-pregnancy IPV variable. If women reported "yes" for any violent ILV behaviors, responses were coded as "yes" for pre-pregnancy ILV. These ILV measures, while based on NFHS-2 IPV items, were developed and tested through qualitative research with women who had recently given birth recruited from these same clinics preceding the quantitative phase of the MCH study [31].

The third independent variable for this study was externally-decided pregnancy. This variable was based on a single question asking women "Whose decision was it to have the most recent pregnancy?" with response categories of: mainly respondent, joint decision, mainly husband, in-laws family, and accidentally. These responses were dichotomized as follows: externally-decided pregnancy (mainly husband, in-laws family), and not externally-decided (mainly respondent, joint decision, and accidentally). The decision to include responses endorsing "accidentally" into the not externally-decided category is based on the

nature of our research question; to understand how wives' reports of having externally-decided pregnancies and IPV victimization relates to their reports of having unintended pregnancies. Women who report that the decision to have the most recent pregnancy was decided by husbands or their in-laws family are definitively confirming that they (the respondent) were excluded from the pregnancy decision-making process (i.e. that it was externally-decided). Women who report that the decision to have the most recent pregnancy was "accidental" are not making definitive statements as to their involvement in the process; therefore these responses were coded as "*not* externally-decided"). To test for co-linearity between IPV and externally-decided pregnancy decision-making, we conducted Spearman's rank-order correlation analysis; the two variables are weakly correlated and not co-linear ( $r=0.05$ ,  $p=0.10$ ).

The outcome variable for the present analysis assessed unintended pregnancy for the most recent pregnancy. Participants were asked (in reference to the most recent pregnancy) if the pregnancy was "wanted then," "wanted later," "wanted never." These response categories will be maintained but renamed as: mistimed ("wanted later"), unwanted ("wanted never"), and intended ("wanted then").

### **Statistical analysis**

Analyses for the present study excluded two women who did not answer questions on pregnancy intention resulting in a final sample of 1,047 women included in analyses. Descriptive analyses (frequencies and proportions) were conducted on all demographic, reproductive health, and violence variables.

Pearson chi-square tests of independence, and analysis of variance (for continuous variables with the categorical variable outcome) were calculated to assess differences between all demographic and independent variables with the outcome of unintended pregnancy. Note: while ILV was intended to be a primary independent variable for consideration in the present analyses, upon examination of the distribution of ILV across levels of the outcome of unintended pregnancy, it is clear that the multinomial regression analyses with ILV as a primary independent variable would be greatly underpowered (multiple cell sizes <10 cases) [32], and thus ILV was not included as a primary independent variable in the multivariate regression analysis. Unadjusted multinomial logistic regression analyses were conducted to assess associations between each independent variable of primary interest (e.g., IPV, and externally-decided pregnancy), and the outcome of unintended pregnancy. The category of “intended” was the referent group for the regression analyses. Adjusted analyses included covariates of: husbands and wives’ age, and education, caste, Odds ratios and 95% confidence intervals were calculated to assess size and statistical significance of associations. All analyses were conducted using SPSS version 23 (IBM Corp, Armonk, NY, USA).

## **RESULTS**

### **Demographic characteristics**

Table 4.1 presents demographic, marital, pregnancy, and violence characteristics for the study population based on wives’ pregnancy intent. The average age of wives was 24.6 years (SD: 4.4 years), and ranged from 17-45

years. Husbands were on average older, with a mean age of 29.1 (SD: 5.1 years), and larger age range of 18-55 years. Wives reporting unwanted pregnancies (and their husbands) tended to be slightly older relative to wives and husbands in other categories of pregnancy intention. The majority (58.9%, n=618) of the sample were Muslim, and 37.6% (n=394) were Hindu. Similar proportions of husbands and wives reported having some formal education, however husbands had slightly higher rates than wives (87.6%, n=917 for husbands vs. 84.2%, n=882 for wives). Couples reported an average monthly income of 135.5 USD (SD: 119.3 USD) (converted from rupees to dollars, 2008). The majority (61.6%, n=645) of women lived in joint families (with extended family living in the household); 38.4% (n=402) lived in nuclear family structures.

### **Pregnancy characteristics and intention**

The majority (80.5%, n=843) of women characterized their most recent pregnancy as “intended.” The remaining 19.5% (n=204) of women reported unintended pregnancies, with 12.2% (n=128), and 7.3% (n=76) reporting mistimed and unwanted pregnancies, respectively. The majority of (73.2%, n=766) women reported not using any modern spacing contraception prior to the conception of their most recent pregnancy. In terms of pregnancy-decision making, 8.8% (n=92) reported that the decision to have the most recent pregnancy was externally-decided (7.1%, n=74 decided by husband; 1.7%, n=18 decided by in-laws). The majority (91.2%, n=955) reported that the decision was *not* externally-decided (4.1%, n=43 decided by wives; 76.5%, n=801 jointly with husbands, 10.6%, n=111 accidental).

## Violence

Approximately one-third (29.4%, n=308) of women reported experiencing physical and/or sexual IPV in the year prior to pregnancy. Violence from in-laws was low for this population, with 4.2% (n=44) reporting ILV in the year prior to pregnancy. Note: ILV was not included as a primary independent variable in the regression analyses due to low rates of ILV reporting.

Significant differences across groups of unintended pregnancy (intended, mistimed, unwanted) were seen for husbands' formal education ( $p=0.04$ ), family structure ( $p<0.001$ ), number of children ( $p<0.001$ ), modern spacing contraception ( $p<0.001$ ), externally-decided pregnancy ( $p<0.001$ ), and IPV ( $p<0.001$ ).

### **Associations between externally-decided pregnancy and IPV with unintended pregnancy**

Table 4.2 presents unadjusted and adjusted associations between externally-decided pregnancy, and physical and/or sexual IPV with our multinomial outcome of unintended (mistimed, unwanted) pregnancy, with a reference category of intended pregnancy. In the unadjusted regression models, women who reported having externally-decided pregnancies were significantly more likely to report having mistimed (OR: 6.37, 95% CI: 3.92, 10.38), and unwanted (OR: 2.57, 95% CI: 1.24, 5.31) pregnancies. These associations held to predict women having mistimed pregnancies after controlling for IPV, demographic, marital, and pregnancy covariates to predict (AOR: 6.00, 95% CI: 3.52, 10.21). However, externally-decided pregnancy ceased to be significant in the adjusted models assessing unwanted pregnancies (AOR: 2.17, 95% CI: 0.90, 5.20). Women



reporting IPV in the year prior to pregnancy were significantly more likely to report having mistimed (OR: 2.22, 95% CI: 1.51, 3.25) and unwanted (OR: 2.19, 95% CI: 1.35, 3.53) pregnancies in the unadjusted models. After controlling for externally-controlled pregnancy, demographic, marital, and pregnancy covariates, women reporting IPV were almost two times more likely to report having a mistimed pregnancy (AOR: 1.94, 95% CI: 1.28, 2.94). However, associations between IPV and unwanted pregnancy were not significant in the adjusted models (AOR: 1.45, 95% CI: 0.82, 2.55).

Significant covariates for the final adjusted model to assess mistimed pregnancy included total number of living children (AOR: 2.02, 95% CI: 1.59, 2.57), and male education (AOR: 2.34, 95% CI: 1.11, 4.92). Covariates in the final adjusted model assessing unwanted pregnancy included total number of living kids (AOR: 3.13, 95% CI: 2.37, 4.14), female education (AOR: 5.89, 95% CI: 2.44, 14.25), condom use (AOR: 2.55, 95% CI: 1.23, 5.28), and other modern spacing contraceptive use (non-condom) (AOR: 2.21, 95% CI: 1.15, 4.27).

## **DISCUSSION**

This paper presents findings to understand associations between gendered inequities (i.e. externally-decided pregnancy, and IPV) with unintended pregnancy. The current study shows that women having externally-decided pregnancies are approximately six times more likely to have mistimed pregnancies, and women experiencing IPV are almost two times more likely to have mistimed pregnancies. Further, our findings indicate that even after adjusting for IPV, the strength of the relationship between having an externally-

decided pregnancy and having a mistimed pregnancy is stronger than the significant relationship between IPV and mistimed pregnancies. This finding is of particular note given the universal push for the integration of IPV counseling and screening within family planning services, and is consistent with existing literature indicating that husbands often have greater decision-making power over reproductive health decisions within marriage [29, 33].

The unadjusted analyses in our study revealed that both forms of gendered inequities (externally-decided pregnancy and IPV) were associated with women reporting mistimed and unwanted pregnancies. However, upon controlling for covariates and including both forms of inequity in models, only associations predicting mistimed pregnancies remained significant. Current findings that IPV is associated with women's reports of having mistimed pregnancies is consistent with prior research conducted in India using national data [17]. However, few studies have examined the construct of externally-decided pregnancy and IPV in relation to unintended pregnancy in India. While our findings support integrated IPV counseling and screening, the present findings also indicate the imperative need to integrate counseling and screening around pregnancy decision-making within family planning services. Among women reporting externally-decided pregnancies, while 37% also reported experiencing IPV, 63% of women did not. This indicates that efforts to reduce unintended pregnancies through screening and intervention around IPV alone will not capture the majority of women who suffer from lack of reproductive autonomy.

Although no significant associations were found between having externally-decided pregnancies or IPV and having unwanted pregnancies, it is important to note that both categories of the covariate of modern spacing contraception (condoms, and other modern spacing methods) in the year prior to pregnancy were significantly associated with unwanted pregnancy in the final model. Women reporting using either form of modern spacing contraception were more likely to report having unwanted pregnancies, even after adjusting for demographic and marital factors. In addition, a considerable proportion of women who reported not having pregnancies that were externally-decided, described the pregnancy as “accidental,” which may be indicative of lack of effective use of family planning methods. This finding indicates the need to understand why women who are using contraception are at relatively high risk for unwanted pregnancy. It is possible that women’s contraceptive use may not have been consistent, correctly used, or issues of contraceptive failure could have also been present. In an analysis based on national data from India, Nepal and Bangladesh, Raj and authors [34] found that women reporting unintended pregnancies were more likely to report contraceptive failure (relative to women reporting intended pregnancies). Additionally, findings from a literature review by Singh and colleagues [9] estimate that women reporting contraceptive use (modern or traditional) account for one-third of unintended pregnancies in developing countries. Further research should be conducted to explore the barriers that may influence women’s ability to reduce their risk for having unwanted pregnancies despite using modern spacing contraception.

The difference in results for mistimed and unwanted pregnancy is important to consider. Given the low reporting of unwanted pregnancy in our sample (7.3%, n=76), it is possible that the analyses were underpowered, making significant associations difficult to detect (though, there was sufficient power across the categories to conduct a multinomial regression analysis [all cell sizes >10 cases] [32]). It is possible that social desirability bias may have resulted in participants being less likely to report having unwanted pregnancies, and were slightly more likely to report having mistimed pregnancies. This issue may have been particularly salient to our study participants, given that their inclusion criteria involved visiting urban health clinics to receive immunizations for their child (whose pregnancy they had to characterize). Study participants may have contended with consistency bias [35], the psychological phenomenon describing the desire to reduce ill feelings associated with cognitive dissonance. In this case, the cognitive dissonance would be a result of characterizing a pregnancy as mistimed or unwanted, while caring for the child by bringing him or her in to receive immunizations. Despite these factors, and the likelihood of under-reporting of unintended pregnancies, the proportion of women reporting unintended pregnancies in our sample mirrors national estimates for unintended pregnancy [11]. Gipson and colleagues [4] conducted a literature review to understand various consequences of unintended pregnancies, globally, and found that many studies reported inconsistent results between pregnancies that were mistimed and unwanted (similar to the results of our study). The review showed that in some cases, negative maternal health outcomes were associated

only with having unwanted pregnancies (and not with having mistimed pregnancies), while others found the opposite results. Findings from a study using national data examining the negative health consequences of unintended pregnancy in India among mothers also indicated conflicting results based on whether the pregnancy was characterized as mistimed or unwanted; mistimed children (compared to wanted children) were more likely to be delivered without a skilled birth attendant, and to die in the neonatal and postnatal periods, while unwanted children (compared to wanted children) were more likely to be stunted, and die during the neonatal, post-neonatal, *and* early childhood periods [5]. Further research should be conducted to better understand how differences in pregnancy intention relate to external pregnancy decision-making and other gender inequities.

The results of the present study must be considered with additional limitations. Given that the study involves analysis of cross-sectional data, causal relationships between IPV, wives' externally-decided, and unintended pregnancies should not be made. All data were collected via survey data collection methodology, and as a result are subject to social desirability and recall bias. Social desirability bias, as described, may have resulted in under-reporting of unintended pregnancy (especially unwanted pregnancy), as well as IPV. In addition, women were asked to characterize their pregnancy intention retrospectively, and this assessment may have differed from that at the time of conception. Research indicates better accuracy in prospective measures of pregnancy intention, rather than retrospective measures [18]. Finally, the results

of this study characterize the relationship between specific gendered inequities of reproductive health (IPV and externally-decided pregnancies) and unintended pregnancies among wives in urban slum communities in Mumbai, India and should not be generalized to other populations, or even other general urban settings in Mumbai or India.

Public health efforts to support reproductive autonomy in India can have a variety of benefits to the mother, child and family. Planned integration of family planning and other maternal and child health services, and inclusion of males in such services, offer an important opportunity to address gendered inequities of health, such as IPV and women's autonomy in family planning. The findings from this paper suggest the need for consideration of these issues in both screening and interventions to reduce unintended pregnancies among married couples in India.

## **ACKNOWLEDGEMENTS**

I would like to acknowledge the agencies that funded this research: National Institute on Drug Abuse (T32DA023356; PI: S. Strathdee), the U.S. National Institute of Child Health and Human Development and the Indian Council on Medical Research Indo-US Program on Maternal and Child Health and Human Development (R03HD055120-01; PI: J. Silverman, B. Donta). In addition, I would like to acknowledge Drs. Susan Kiene, Elizabeth Reed, and María Zúñiga for their significant contributions to this manuscript.

Chapter 4, "Assessing the relationship between intimate partner violence, externally-decided pregnancy and unintended pregnancies among wives residing

in slum communities in Mumbai, India,” in full, is currently being prepared for publication of material. Raj, Anita; Nair, Saritha; Naik, Dattaram; Saggurti, Niranjan; Donta, Balaiah; Silverman, Jay are co-authors on this manuscript. Anindita Dasgupta, the dissertation author, is the primary author of this material.

**Table 4.1: Sociodemographic profile of women by pregnancy intention living in urban slum communities in Mumbai, India (N=1047)**

Variable	Total N=1047 n (%)	Unintended Pregnancies (19.5%, n=204)			$\chi^2$ (p-value) <sup>a</sup>
		Intended (80.5%, n=843) n (%)	Mistimed (12.2%, n=128) n (%)	Unwanted (7.3%, n=76) n (%)	
Wives' age (mean, SD)	24.6, 4.4	24.3, 4.2	24.2, 4.2	28.6, 4.9	0.9 <sup>†</sup> (0.59)
Husbands' age (mean, SD)	29.1, 5.1	28.8, 4.9	28.7, 4.9	33.0, 5.3	0.9 <sup>†</sup> (0.58)
Religion					8.7 (0.07)
Hindu	394 (37.6)	331 (39.3)	41 (32.0)	20 (26.3)	
Muslim	617 (58.9)	479 (56.8)	84 (65.6)	54 (71.1)	
Other religion	36 (3.4)	31 (3.7)	3 (2.3)	2 (2.6)	
Wives' formal education, none	165 (15.8)	129 (15.3)	24 (18.8)	12 (15.8)	1.00 (0.61)
Husbands' formal education, none	130 (12.4)	105 (12.5)	10 (7.8)	15 (19.7)	<b>6.25 (0.04)*</b>
Income (mean, SD)	135.5, 119.3	140.6, 127.4	123.1, 81.4	100.3, 57.7	0.8 <sup>†</sup> (0.86)
Family structure					<b>15.6 (&lt;0.001)*</b>
Joint family	645 (61.6)	537 (63.7)	77 (60.2)	31 (40.8)	
Nuclear family	402 (38.4)	306 (36.3)	51 (39.8)	45 (59.2)	
Number of children (mean, SD)	1.0, 1.2	0.8, 1.0	1.4, 1.1	2.6, 1.2	<b>14.3<sup>†</sup></b> <b>(&lt;0.001)*</b>
Modern spacing contraception					<b>34.5 (&lt;0.001)*</b>
Condom use	126 (12.0)	92 (10.9)	19 (14.8)	15 (19.7)	
Other modern spacing	155 (14.8)	105 (12.5)	26 (20.3)	24 (31.6)	
None	766 (73.2)	646 (76.6)	83 (64.8)	37 (48.7)	
Externally-decided pregnancy	92 (8.8)	47 (5.6)	35 (27.3)	10 (13.2)	<b>67.7 (&lt;0.001)*</b>
IPV, pre-pregnancy	308 (29.4)	219 (26.0)	56 (43.8)	33 (43.4)	<b>24.6 (&lt;0.001)*</b>
ILV, pre-preg.	44 (4.2)	32 (3.8)	7 (5.5)	5 (6.6)	1.9 (0.38)

<sup>a</sup>Pearson chi-square

<sup>†</sup>F-statistic

\*p<0.05



**Table 4.2: Unadjusted and adjusted multinomial logistic regression: associations between physical and/or sexual IPV (year prior to pregnancy), and externally-decided pregnancy with unintended (mistimed, unwanted) pregnancy in urban slum communities in Mumbai, India (N=1047)**

Variable	n (%)	OR (95% CI)	AOR <sup>a</sup> (95% CI)
<b>Externally-controlled decision-making (n=92)</b>			
Mistimed pregnancy	35 (38.0)	<b>6.37 (3.92, 10.38)</b>	<b>6.00 (3.52, 10.21)*</b>
Unwanted pregnancy	10 (10.9)	<b>2.57 (1.24, 5.31)</b>	2.17 (0.90, 5.20)
Intended pregnancy [reference category]	47 (51.1)	-	-
<b>Physical and/or sexual IPV, pre-preg (n=308)</b>			
Mistimed pregnancy	56 (18.2)	<b>2.22 (1.51, 3.25)*</b>	<b>1.94 (1.28, 2.94)*</b>
Unwanted pregnancy	33 (10.7)	<b>2.19 (1.35, 3.53)*</b>	1.45 (0.82, 2.55)
Intended pregnancy [reference category]	219 (71.1)	-	-

<sup>a</sup>Adjusted for demographics and marital factors (wives' age, education, and caste/religion, husbands' age and education, family's monthly income, number of living children, family structure, and modern spacing contraception), and primary independent variables (externally decided pregnancy decision making, and IPV)

\*p<0.001

## REFERENCES

1. Santelli, J., Rochat, R., Hatfield-Timajchy, K., Gilbert, B.C., Curtis, K., Cabral, R., Hirsch, J.S., Schieve, L., Unintended Pregnancy Working Group., The measurement and meaning of unintended pregnancy. *Perspect Sex Reprod Health*, 2003. 35(2): p. 94-101.
2. Sedgh, G., S. Singh, and R. Hussain, Intended and unintended pregnancies worldwide in 2012 and recent trends. *Stud Fam Plann*, 2014. 45(3): p. 301-14.
3. Kott, A., Rates of Unintended Pregnancy Remain High In Developing Regions. *International Perspectives on Sexual and Reproductive Health*, 2011. 37(1): p. Digest.
4. Gipson, J.D., M.A. Koenig, and M.J. Hindin, The effects of unintended pregnancy on infant, child, and parental health: a review of the literature. *Stud Fam Plann*, 2008. 39(1): p. 18-38.
5. Singh, A., Chalasani, S., Koenig, M.A., Mahapatra, B., The consequences of unintended births for maternal and child health in India. *Popul Stud (Camb)*, 2012. 66(3): p. 223-39.
6. Eggleston, E., Unintended pregnancy and women's use of prenatal care in Ecuador. *Soc Sci Med*, 2000. 51(7): p. 1011-8.
7. Magadi, M.A., N.J. Madise, and R.N. Rodrigues, Frequency and timing of antenatal care in Kenya: explaining the variations between women of different communities. *Soc Sci Med*, 2000. 51(4): p. 551-61.
8. Singh, A., A. Singh, and S. Thapa, Adverse consequences of unintended pregnancy for maternal and child health in Nepal. *Asia Pac J Public Health*, 2015. 27(2): p. NP1481-91.

9. Singh, S., Darroch, J.E., Ashford, L., S., Vlassoff., M., Adding it up: the costs and benefits of investing in family planning and maternal and newborn health. 2009, Guttmacher Institute and United Nations Population Fund: New York.
10. Sedgh, G., Hussain, R., Bankole, A., Singh, S., Women with an Unmet Need for Contraception in Developing Countries and Their Reasons for Not Using a Method, in Occasional Report No. 37. 2007, Guttmacher Institute: New York.
11. Muthal-Rathore, A., R. Tripathi, and R. Arora, Domestic violence against pregnant women interviewed at a hospital in New Delhi. *Int J Gynaecol Obstet*, 2002. 76(1): p. 83-5.
12. International Institute for Population Sciences (IIPS) and Macro International. National Family Health Survey (NFHS-3), India, 2005-06: Maharashtra. 2008, IIPS: Mumbai, India.
13. Government of India. National Health Mission: Thrust Areas under Family Planning Programme. 2015 2/2/2015 [cited 2015 4/24/2015]; Available from: <http://nrhm.gov.in/nrhm-components/rmnch-a/family-planning/background.html>.
14. Sebastian, M.P., Khan, M.E., Kumari, K., Idnani, R., Increasing postpartum contraception in rural India: evaluation of a community-based behavior change communication intervention. *Int Perspect Sex Reprod Health*, 2012. 38(2): p. 68-77.
15. National Family Health Survey (NFHS-2), India: 1998-99. 2002, International Institute for Population Sciences and ORC Macro: Mumbai, India.
16. Dixit, P., F. Ram, and L.K. Dwivedi, Determinants of unwanted pregnancies in India using matched case-control designs. *BMC Pregnancy Childbirth*, 2012. 12: p. 84.
17. Begum, S., Dwivedi., Pandey, A., Mittal, S., Association between domestic violence and unintended pregnancies in India: findings from the National Family Health Survey-2 data. *Natl Med J India*, 2010. 23(4): p. 198-200.

18. Stephenson, R., Koenig, M.A., Acharya, R., Roy, T.K., Domestic violence, contraceptive use, and unwanted pregnancy in rural India. *Stud Fam Plann*, 2008. 39(3): p. 177-86.
19. Silverman, J.G., Gupta, J., Decker, M.R., Kapur, N., Raj, A., Intimate partner violence and unwanted pregnancy, miscarriage, induced abortion, and stillbirth among a national sample of Bangladeshi women. *BJOG*, 2007. 114(10): p. 1246-52.
20. Rahman, M., Sasagawa, T., Fujii, R., Tomizawa, H., Makinoda, S., Intimate partner violence and unintended pregnancy among Bangladeshi women. *J Interpers Violence*, 2012. 27(15): p. 2999-3015.
21. Salam, A., A. Alim, and T. Noguchi, Spousal abuse against women and its consequences on reproductive health: a study in the urban slums in Bangladesh. *Matern Child Health J*, 2006. 10(1): p. 83-94.
22. Santhya, K.G., Haberland, N., Ram, F., Sinha, R.K., Mohanty, S.K., Young women's experiences of forced sex within marriage: Evidence from India. *Sex without consent: Young people in developing countries*, 2005: p. 59-73.
23. Go, V.F., Sethulakshmi, C. J., Bentley, M.E., Sivaram, S., Srikrishnan, A.K., Solomon, S., Celentano, D.D., When HIV-prevention messages and gender norms clash: the impact of domestic violence on women's HIV risk in slums of Chennai, India. *AIDS Behav*, 2003. 7(3): p. 263-72.
24. Joshi, A.J., Dhapola, M., Kurian, E., Pelto, P.J., Experiences and perceptions of marital sexual relationships among rural women in Gujarat, India. *Asia Pac Popul J*, 2001. 16(2): p. 177-94.
25. Nanda, P., Gautam, G., Verma, R., Khanna, A., Khan, N., Brahme, D., Boyle, S., Kumar, S., Study on Masculinity, Intimate Partner Violence and Son Preference in India. 2014, International Center for Research on Women: New Delhi, India.
26. Kishor, S. and K. Gupta, Gender Equality and Women's Empowerment in India. 2009, International Institute for Population Sciences: Mumbai, India.

27. Ghule, M., Raj, A., Palaye, P., Dasgupta, A., Nair, S., Saggurti, N., Battala, M., Donta, B., Barriers to contraceptive methods among rural young married couples in Maharashtra, India: Qualitative findings. *Asian Journal of Research in Social Sciences and Humanities*, 2015. 5(6): p.18-33.
28. Char, A., M. Saavala, and T. Kulmala, Influence of mothers-in-law on young couples' family planning decisions in rural India. *Reprod Health Matters*, 2010. 18(35): p. 154-62.
29. Ghule, M., Raj, A., Palaye, P., Dasgupta, A., Nair, S., Saggurti, N., Battala, M., Donta, B., Barriers to use Contraceptive Methods among Rural Young Married Couples in Maharashtra, India: Qualitative Findings. *Asian Journal of Research in Social Sciences and Humanities*, 2015. 5(6): p. 18-33.
30. Kishor, S. and K. Gupta, Gender Equality and Women's Empowerment in India, in *National Family Health Survey (NFHS-3), India, 2005-06*. 2009, International Institute for Population Sciences (Mumbai, India): Calverton, Maryland, USA.
31. Raj, A., Sabarwal, S., Decker, M.R., Nair, S., Jethva, M., Krishnan, S., Donta, B., Saggurti, N., Silverman, J.G., Abuse from in-laws during pregnancy and post-partum: qualitative and quantitative findings from low-income mothers of infants in Mumbai, India. *Matern Child Health J*, 2011. 15(6): p. 700-12.
32. Schwab, J.A. Multinomial Logistic Regression: Basic relationships and complete problems. 2002 [cited 2015 31 July 2015]; Available from: <http://www.utexas.edu/courses/schwab/sw388r7/SolvingProblems/>
33. Garg, S. and R. Singh, Need for integration of gender equity in family planning services. *Indian J Med Res*, 2014. 140 Suppl: p. S147-51.
34. Raj, A. and L. McDougal, Associations of intimate partner violence with unintended pregnancy and pre-pregnancy contraceptive use in South Asia. *Contraception*, 2015. 91(6): p. 456-63.

35. Safer, M.A., L.J. Levine, and A.L. Drapalski, Distortion in memory for emotions: The contributions of personality and post-event knowledge. *Personality and Social Psychology Bulletin*, 2002. 28(11): p. 1495-15

## CHAPTER 5: Conclusion

This dissertation examined relationships between gendered inequities and negative reproductive health outcomes among married women in urban and rural Maharashtra, India. The findings from these papers reinforce some existing research [eg. Paper 1 - positive associations between husbands' alcohol use, and poor gender equity ideologies and wives' reports of intimate partner violence (IPV) victimization], challenge other studies (eg. Paper 2 - positive associations between IPV and modern spacing contraceptive use), and provide potential suggestions for refinement on existing strategies to screen for and intervene with women contending with IPV, and reduce unintended pregnancy (eg. Paper 3 – recommendations to include questions on externally-decided pregnancy within IPV programming).

This body of work has been submitted to the Dissertation Committee on 29 September 2015; five days after the United Nations published the first draft of the Sustainable Development Goals (SDG) that are expected to be achieved over the next 15 years [1]. The fifth SDG is to “achieve gender equality and empower all women and girls,” with specific stipulations to “Eliminate all forms of violence against all women and girls in public and private spheres, including trafficking and sexual and other types of exploitation,” and to “Ensure universal access to sexual and reproductive health and reproductive rights...” [2].

As the Indian Government prepares to adopt these lofty Goals, it is vital that the Government reflect on challenges in achieving past related Millennium

Development Goals on Gender Equality and Empowerment. Though progress has been made in some indicators related to this goal (eg. gender parity in education), analysis by the United Nations Country Office in India calls for the Government to give high priority to changing discriminatory social norms and behaviors against women [3]. Specifically, the report highlights the need to prioritize legislation and programming to prevent violence against women [3].

The Indian Government has taken steps over the past three years to pass legislation to protect women from violence. The horrific case of gang rape of a young woman in India in December 2012 galvanized India in an unprecedented way [4], resulting in the Government taking action on a policy level by passing the Criminal Law Ordinance of 2013 [5] with the goal of deterring such violent acts. While this legislation does extend greater protections to women, it excludes marital rape from its definition of sexual assault [5]. Married women report some of the highest rates of IPV victimization in India [6], and as evidenced by findings from Paper 1, marriage as a social construct within this Indian context may present opportunities for inequitable gender ideologies to manifest as acts of violence. In particular, as discussed, violence often occurs in marriage when traditional gender roles (e.g., wives taking care of domestic duties) are challenged [7, 8]. Findings from Paper 1 highlight the need for men to be included in these efforts to reduce violence against women, through integration of gender equity counseling approaches within existing social service structures reaching men [9], as well as in efforts to reduce alcohol use among men.



Due to pro-natal norms within marriage, wives present a unique population for intervention programming, and intersect with public reproductive health services. Though the Indian Government has not prioritized efforts to intervene on IPV among wives, the Government's long-standing family planning program presents an excellent avenue for screening and intervening on IPV, and in doing so, potentially increasing modern spacing contraception and reducing unintended pregnancies. India's national family planning program has moved away from its promotion of permanent methods of contraception (i.e. female sterilization) [10], and is now emphasizing the use of spacing contraceptive methods (specifically, IUD) [11]. Paper 2's finding that women contending with sexual IPV are more likely to use modern spacing contraception other than condoms (pills, IUD) suggests this population is already seeking family planning services, and is in need of programming support around IPV. Findings from Paper 3 suggest that in addition to IPV's positive association with wives' reports of mistimed pregnancy, that externally-decided pregnancy's association with mistimed pregnancy is an even more strongly associated with wives having mistimed pregnancies. These results indicate a strong need to include discussion around pregnancy decision-making in either family planning centers, or at points of antenatal or postpartum care for wives.

The findings from this dissertation may be used to help refine existing structures reaching husbands and wives within the Indian Government Public Health System. Integration of IPV screening and intervention programming, in addition to integration of gender equity counseling within alcohol intervention

services for men are vital in helping India achieve the SDG 5 over the next 15 years.

## REFERENCES

1. United Nations. Sustainable Development Goals 2015. Available from: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>.
2. United Nations. Draft outcome document of the United Nations summit for the adoption of the post-2015 development agenda. 2015, The United Nations: New York, New York.
3. Singh, D., India and the MDGs: Towards a sustainable future for all. 2015, United Nations.
4. Raj, A. and McDougal, L., Sexual violence and rape in India. *Lancet*, 2014. 383(9920): p. 865.
5. The Criminal Law (Amendment) Ordinance of 2013, in No. 3 of 2013, Ministry of Law and Justice, Editor. 2013, Government of India: New Delhi, India.
6. National Family Health Survey (NFHS-3), 2005–06: India: Volume II. 2007, International Institute for Population Sciences (IIPS) and Macro International: Mumbai.
7. Kishor, S. and Gupta, K., Gender Equality and Women's Empowerment in India, in National Family Health Survey (NFHS-3), India, 2005-06. 2009, International Institute for Population Sciences (Mumbai, India): Calverton, Maryland, USA.
8. Nanda, P., Gautam, G., Verma, R., Khanna, A., Khan, N., Brahme, D., Boyle, S., Kumar, S., Study on Masculinity, Intimate Partner Violence and Son Preference in India. 2014, International Center for Research on Women: New Delhi, India.
9. Garg, S. and Singh, R., Need for integration of gender equity in family planning services. *Indian J Med Res*, 2014. 140 Suppl: p. S147-51.

10. Donta, B., Begum, S., and Naik, D.D., Acceptability of male condom: an Indian scenario. *Indian J Med Res*, 2014. 140 Suppl: p. S152-6.
  
11. Government of India. National Health Mission: Thrust Areas under Family Planning Programme. 2015 2/2/2015 [cited 2015 4/24/2015]; Available from: <http://nrhm.gov.in/nrhm-components/rmnch-a/family-planning/background.html>.