Studying the “Snip”: A Multi-Methods Exploration of Vasectomy in the Southern United States

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Studying the “Snip”: A Multi-Methods Exploration of Vasectomy in the Southern United States

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Dedication

“Pause you who read this, and think for a moment of the long chain of iron or gold, of thorns or flowers, that would never have bound you, but for the formation of the first link on one memorable day.” – Charles Dickens, Great Expectations

I dedicate this dissertation to my family. To my parents, thank you for making my first link a resilient one. You have given me the tools to build my life. To my brothers, thank you for always believing in me. Your support makes me stronger. To my sister, thank you for inspiring me. You make me strive to be my best. To my husband, you are, quite simply, a magnificent partner and friend. I love you all.
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Abstract

Introduction: To date, women have primarily born the physical, emotional, and financial burden of contraceptive use. Men, on the other hand, have remained largely absent from conversations about pregnancy prevention and reproduction, in part because of the lingering assumption that men are uninterested in contraception. Vasectomy, one of only three available male-centered contraceptive options, represents a rare opportunity for men to control their reproduction and take on a more equitable role in pregnancy prevention. Even though vasectomy is 99.9% effective at preventing pregnancy, the method remains underused in the United States, particularly in the southern states where prevalence lags behind other parts of the country. Limited research has explored why this is the case. The purpose of this study is to explore influences on vasectomy use – including individual knowledge and attitudes, interpersonal relationships, structural barriers to access, and prevailing gender norms – in the southern United States.

Methods: Three aims guided this research. Aim 1 was to conduct a systematic review and thematic metasynthesis of global qualitative research about men’s experiences having a vasectomy over the past 20 years (n=13). Aim 2 was to create and conduct an online survey of men’s vasectomy knowledge, attitudes, and information seeking behaviors. Targeted Facebook advertising was used to recruit men aged 25-70 living in one of seven states (Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee) (n=397). Survey data were analyzed using linear and logistic
regression models in SPSS. Men who provided contact information at the end of the survey were eligible to be selected for Aim 3, a series of individual telephone interviews. Individual, intensive telephone interviews were conducted with men who had a vasectomy (n=21) and men who did not have a vasectomy (n=27). Transcripts and memos from the interviews were analyzed using a constructivist approach to grounded theory to develop an understanding of men’s vasectomy decision making.

**Results:** The metasynthesis of published literature revealed that men describe having a vasectomy as an autonomous decision, but this decision is heavily influenced by female partners and norms about masculinity. Regression models found that knowledge and attitudes about vasectomy were statistically significantly higher among men who had the procedure. Interview data moved beyond the importance of men’s attitudes to focus on the ways interpersonal relations with partners and peers shape men’s understandings. Decisions about whether or not to use vasectomy were also influenced by structural and societal factors, including insurance coverage, reproductive healthcare availability, the economy and personal finances, and what it meant to be a “good man.” Findings from across the three aims were synthesized to produce 1) a map of men’s reproductive decision making and 2) a substantive conceptual framework for understanding vasectomy use.

**Conclusions:** Overall, this research provides empirical evidence about how men think about, consider, and experience vasectomy as not only an individual act but as one that is influenced by a range of social actors, practices, and norms. Reproductive health interventions aimed at increasing the visibility of vasectomy as a contraceptive option must consider how interpersonal and structural factors may impact individual decisions.
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List of Abbreviations

ICPD ........................................... International Conference on Population and Development
IRB .............................................................. Institutional Review Board
IUD ............................................................... Intrauterine device
NSFG ............................................................ National Survey of Family Growth
NSV ............................................................... No-scalpel vasectomy
OCP .............................................................. Oral contraceptive pill
PVSA ........................................................... Post-vasectomy semen analysis
RNMS ........................................................ Rare non-motile sperm
Chapter 1 - Introduction

1.1 Problem identification

The 1994 International Conference on Population and Development (ICPD) placed universal access to reproductive health care on the international agenda.1 By criticizing earlier efforts to promote contraception as a means of population control, the ICPD affirmed the importance of reproductive health and rights, including the provision and use of contraceptives.1 Contraception is a critical component of reproductive health because it helps people have greater control over if and when they have children, as well as how many children they have.2 Further, contraception is unique among medical interventions because of its myriad of benefits. Research has linked contraceptive use to a reduction in maternal mortality due to hemorrhage, hypertension, sepsis, obstructed labor, and other complications.2–4 It also contributes to reduced maternal risks by delaying the age of first pregnancy and helping women control the timing and spacing of pregnancies.2,5,6 And, while this should not be at the forefront of reproductive decision making, contraception saves tens of billions in direct medical costs related to unintended pregnancy every year.7

There is a range of contraceptive options available in the United States today. However, most of these methods are intended for women, and, as a result, women have primarily borne the physical, emotional, and financial burden of contraceptive use.8–10
Men, on the other hand, have remained largely absent from conversations about pregnancy prevention and reproduction, in part because of the lingering assumption that men are uninterested in contraception.\textsuperscript{11–15} As a result, there is limited research that examines the role of men in issues of reproduction.\textsuperscript{11,13} \textbf{Vasectomy, one of only three available male-centered contraceptive options, represents a rare opportunity for men to control their reproduction and take on a more equitable role in pregnancy prevention.} Even though vasectomy is 99.9% effective at preventing pregnancy, the method remains underused in the United States, particularly in the southern states where prevalence lags behind other parts of the country.\textsuperscript{16,17} Limited research has sought to explore why this is the case.

1.2 \textbf{Broad aims and research contribution}

The majority of research about vasectomy relies on either the National Survey of Family Growth (NSFG) or provider chart reviews to examine trends in uptake, demographic profiles, and geographic variation in vasectomy use.\textsuperscript{17–22} Currently, no known dataset assesses men’s knowledge or attitudes about vasectomy in the United States. Relatedly, there is limited qualitative research examining how men think about vasectomy and how men’s attitudes inform their willingness to have the procedure. The work that has been done was conducted primarily in urban centers on the West Coast.\textsuperscript{9,23,24}

\textbf{The purpose of this study is to explore influences on vasectomy use – including individual knowledge and attitudes, interpersonal relationships, structural barriers to access, and prevailing gender norms – in the southern United States.} To date, these factors have remained largely unexamined in the literature.\textsuperscript{16,25} At the same
time, this research addresses the fact that men’s reproductive lives and concerns are often ignored. By focusing on vasectomy within a larger narrative of men’s reproductive histories, this research will generate empirical evidence about a largely under-researched issue while also responding to the need for more equitable reproductive health research.

**Expected outputs from this research are 1) a map of men’s reproductive decision making and 2) a substantive conceptual framework for understanding vasectomy use.** These outputs and other research findings may be used to develop evidence-based and culturally appropriate approaches to reproductive health promotion for men and their female partners that include vasectomy as a contraceptive option to consider. Given the lack of male-centered contraceptive methods in general, the limited existing research on vasectomy specifically, and the need for greater gender equity in contraceptive use, this research is both warranted and timely.

### 1.3 Conceptual background

This research is exploratory due to the limited empirical evidence about vasectomy. As a result, this project was not driven by a specific theory but rather my conceptual understanding of the likely factors influencing vasectomy decision making. Figure 1 is a conceptual model illustrating the integrated ways I approached this research. It is not a representation of findings laid out in subsequent chapters but rather a means of initially orienting the research given my experiential knowledge, existing research, and thought experiments.

Due to my training in public health, I initially conceptualized this research using an adapted ecological model to represent the nested spheres of influence on individual men’s decisions whether or not to have a vasectomy. At the core of the conceptual
model are individual men. Existing literature suggests that vasectomy use depends heavily on men’s demographic identities and their number of children.\textsuperscript{21,22} While no known survey assesses men’s knowledge or attitudes towards vasectomy in the United States, other research indicates how these same factors influence sexual behaviors and condom use, so it was intuitive to include these factors here.\textsuperscript{28–31} I also imagined interpersonal factors, particularly intimate partners and peers, would be relevant to this research given findings from studies about vasectomy in New Zealand and England.\textsuperscript{32–34}

At the institutional level, prior research suggests the importance of reproductive health provider training and contraceptive counseling practices on vasectomy use.\textsuperscript{25,35,36} At the societal level, other research about vasectomy and gendered contraceptive practices suggested that these were critical issues to consider.\textsuperscript{8,37,38} Additionally, while this research seeks to understand vasectomy as an elective procedure, I am aware that men have not always had the procedure voluntarily and included the importance of historical reproductive oppression to the conceptual model.\textsuperscript{39}

At the highest level of abstraction, I noted that this work was conducted through my own lens. As someone working from a constructivist paradigm\textsuperscript{40}, it is important to attend to how data is collected in time and place as well as my own positionality in the data collection and analysis process. My identity and experiences as a cisgender, White, able-bodied woman who does reproductive health research have undoubtedly played a role in this study. Additionally, the theoretical framework advanced by the reproductive justice movement informs this research. Reproductive justice, as described by scholars Ross & Solinger (2017), “is based on the understanding that the impacts of race, class, gender, and sexual identity oppression are not additive but integrative.”\textsuperscript{41, p. 74} As such,
reproductive justice is the application of intersectionality as a means of achieving human rights. This theoretical framework pays particular attention to the history of reproductive oppression as a way to interpret contemporary issues in the field of reproduction.

Reproductive justice is a means to facilitate access to a full range of contraceptive options while ensuring people can make an informed choice about what is best for them free of coercion and constraints. I stand by the principle that all people have the right to decide if, when, and how to become a parent. Therefore, the proposed research should not be misconstrued as a means of advocating for all men to have a vasectomy or that men who have lower rates of vasectomy use, such as Black and Latino men, should be encouraged to get the procedure. Instead, this research seeks to understand how men make decisions about vasectomy within their social contexts; such insights can inform the development of health promotion messages that position vasectomy as one of several possible contraceptive options for men (and their partners) who do not desire (more) children.

1.4 Research aims and questions

There are three components to this research, 1) a thematic metasynthesis, 2) an online survey, and 3) qualitative telephone interviews. This chapter offers an overview of the research aims and questions while Chapter 2 provides a review of previously conducted work relevant to this research. I detail the research methods for each of the study components in Chapter 3. Chapter 4 is comprised of three manuscripts prepared for submission to academic journals, one from each of the three aims of this research. In Chapter 5, I summarize findings from the three research components and present 1) a map of men’s reproductive decision making and 2) a substantive conceptual framework for understanding vasectomy use. Additional information about this research, including
consent documents, the survey instrument, and the interview guide, can be found in the appendices.

1.4.1 Aim 1: Systematic review and thematic metasynthesis

The purpose of Aim 1 was to conduct a systematic review and thematic metasynthesis of global research on men’s experiences with vasectomy over the past 20 years (n=13). The focus of this metasynthesis was to theorize how men experience having a vasectomy based on findings in previously published research.

Research question 1: What can be learned about why men decided to have a vasectomy from previous research?

1.4.2 Aim 2: Survey research

The purpose of Aim 2 was to create and conduct a survey of men’s vasectomy knowledge, attitudes, and information-seeking behaviors. To the best of my knowledge, no such survey instrument previously existed. Using targeted Facebook advertising, I recruited men aged 25-70 living in one of seven southern states (Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee) to complete an online survey (n=397). This age group was of interest because men younger than 25 typically do not undergo vasectomy, and men who do choose vasectomy usually do so before age 70.\textsuperscript{22,42,43} Beyond their shared low vasectomy prevalence rates\textsuperscript{22}, these states are also grouped because of their similar health profiles and outcomes, including lower use of contraception and higher rates of unplanned pregnancy.\textsuperscript{44,44–46} While the sample is not representative of cisgender, heterosexual men aged 25-70 living in the seven states, and therefore cannot be generalized, this exploratory survey does provide
previously unknown empirical evidence about what men know and think about vasectomy based on their demographic characteristics.

Research question 2a: What do men know about vasectomy?

Research question 2b: What are men’s attitudes towards vasectomy?

Research question 2c: Where do men get information about vasectomy?

1.4.3 Aim 3: Qualitative telephone interviews

The purpose of Aim 3 was to develop a substantive understanding of men’s vasectomy decision making using data from a series of intensive telephone interviews. Using targeted Facebook advertising for recruitment, I interviewed men aged 25-70 living in the aforementioned seven southern states who had a vasectomy (n=21) and who had not (n=27). Using Charmaz’s constructivist approach to grounded theory, I used data from these interviews to develop an understanding of men’s reproductive history, pregnancy intentions, and attitudes about or experiences with vasectomy. Together with insights from Aim 2, findings from the interviews allowed me to construct a map of men’s reproductive decision making and a conceptual framework for understanding vasectomy use.

Research question 3a: How do men conceptualize their role in pregnancy prevention?

Research question 3b: How do men discuss vasectomy?

Research question 3c: What individual, interpersonal, institutional, and normative influences shape men’s decisions to have or not have a vasectomy?
1.5 A note about terminology

I wish to clarify two things about the terminology used throughout this study. First, when I refer to “men” and “women,” I am referring to cisgender men and their relationships with cisgender women in the context of pregnancy prevention and reproduction. While I recognize that a) there is a range of sexual and gender identities and types of relationships and b) reproduction does not occur solely between cisgender men and women, this research focuses on vasectomy as a means of preventing unintended pregnancy in couples that involve cisgender men and women. Second, I use the term “vasectomy” to refer to a voluntary, consented procedure that leaves a man unable to reproduce, and the term “tubal ligation” for the female equivalent. I used “sterilization” in all instances where the procedure may not be voluntary, free from coercion, or performed without consent.
Figure 1.1 Conceptual model informing research study

- Identity
- Experiences
- Commitment to reproductive justice

Societal
- Masculinity norms
- Gendered practices
- Historical coercion

Institutional
- Provider ability and training
- Insurance coverage
- Contraceptive counseling practices

Interpersonal
- Romantic partners
- Peers

Individual
- Identities
- Knowledge
- Attitudes
- Desire for children
Chapter 2 – Background and significance

2.1 Introduction to the research problem

While conversations and practices around contraceptive use have historically focused on women, there is a recent call to pay more attention to the role of men. Unfortunately, men have limited contraceptive options to choose from: withdrawal, condoms, or vasectomy. Of these, vasectomy is the most effective and the only one which is solely male-controlled. For men (and their female partners) who have reached their ideal family size, vasectomy is an attractive contraceptive option to consider because of its permanence. However, there is scant research investigating the social determinants of vasectomy use and the method remains underused in the United States, particularly in southern states. This research examines how men conceptualize, consider, and experience vasectomy while concerning other social actors, norms, and discourses.

2.2 Review of existing literature

2.2.1 Reproductive health and contraception

The 1994 International Conference on Population and Development (ICPD) in Cairo placed universal access to reproductive health care on the international agenda. By criticizing earlier efforts that promoted contraception as a means of population control, the ICPD affirmed the importance of reproductive health and rights and was a catalyst for devoting greater resources to sexual and reproductive health efforts, including the
provision of contraceptives.\textsuperscript{1} In the decades since, the World Health Organization has continued to drive the worldwide reproductive health agenda, including contraceptive development and provision.\textsuperscript{49–54} Notably, the ICPD explicitly called for men to be integrated into reproductive health policies.\textsuperscript{55,56}

Contraception is a critical component of reproductive health because it helps people have greater control over if and when they have children, as well as how many children they have, by preventing unintended pregnancy.\textsuperscript{2} Unintended pregnancies are those either mistimed (i.e., occurring earlier than desired) or unwanted (i.e., pregnancy was not desired at that point or any point in the future).\textsuperscript{57} Contraception is unique among medical interventions because of its far-reaching benefits.\textsuperscript{30,42} Use of contraception has been linked to a reduction in maternal mortality due to hemorrhage, hypertension, sepsis, obstructed labor, and other complications.\textsuperscript{2–4} It also contributes to reduced maternal risks by delaying the age of first pregnancy and helping women control the timing and spacing of pregnancies.\textsuperscript{2,5,6} Beyond the aforementioned medical benefits, contraception saves tens of billions in direct medical costs related to unintended pregnancy every year.\textsuperscript{7}

A range of modern contraceptive options is available in the United States today for those seeking to prevent pregnancy. These methods are typically grouped based on their rates of effectiveness.\textsuperscript{58} Highly effective methods of contraception include: the implant, intrauterine devices (IUD), tubal ligation, and vasectomy. Moderately effective methods include: the shot, oral contraceptive pill (OCP), patch, and ring. The least effective means of contraception are the: male condom, female condom, diaphragm, and sponge. Among sexually active contraceptive users, the OCP is the most common method
(25.3%), followed by tubal ligation (21.8%), male condoms (14.6%), IUDs (11.8%), and vasectomy (6.5%).

There are only three male-centered forms of contraception: vasectomy, male condoms, and withdrawal. While more people report using condoms than vasectomy or withdrawal, many men (and women) do not like them and say they interfere with sexual pleasure. Vasectomy, on the other hand, has been shown to have positive effects on sexual satisfaction. For men who have achieved their ideal family size, the permanence, effectiveness (99.9%), and cost savings of vasectomy over condoms and withdrawal makes it an attractive option to consider to prevent pregnancy.

2.2.2 The role of men in reproduction

To date, men have remained almost absent in research on reproduction; this absence has reinforced the idea that both contraception and pregnancy are “women’s issues”. This has not always been the case. While there were limited contraceptive options prior to the advent of the oral contraceptive pill, male-centered methods of withdrawal and condoms were often used to prevent pregnancy. However, the introduction of the oral contraceptive pill and subsequent technologies developed for women shifted the burden to women. Oudshoorn argues that men became included in the contraceptive agenda in the 1960s and 1970s due to the pressures exerted by “political leaders in Southern countries and feminists in Northern countries” (p. 21). Political leaders in places like China and India saw the inclusion of men as a necessary provision in order to reduce population growth. Feminists in places like the United States, on the other hand, argued that men ought to share the health risks of contraceptives as well as reproductive responsibility. These efforts saw the inclusion of men in international large-
scale surveys about reproduction and sexuality beginning in the 1980s, although in the United States men were not included as part of the National Survey of Family Growth until 2002.\textsuperscript{15,64}

Presently there is a dearth of work on men’s experiences as relating to reproduction. When men are included, it is often to understand how men impact women’s reproductive health and outcomes.\textsuperscript{12} In her book \textit{Exposing Men}, Cynthia Daniels used the term “reproductive masculinity” to describe a set of four assumptions about men’s role in reproduction: 1) men are assumed to be secondary to women; 2) men are assumed to be less likely to be harmed as a result of reproduction; 3) men are assumed to be virile and capable of fathering children; and 4) men are assumed to be removed from any health problems of the children they father.\textsuperscript{14} While her work was centered on infertility, Daniels’ framework provides insight into the way that men have been marginalized in reproduction. Because men are not giving birth, there is scant consideration of their reproductive goals.\textsuperscript{12} Almeling and Waggoner build on this framework, discussing that while men’s role in conception (i.e., providing sperm to fertilize an egg) is deemed significant, their role in pregnancy is not.\textsuperscript{13} Again, this inattention to men has yielded an absence of research on how men matter in reproduction; the lack of research reinforces the lack of data about men. As such, researchers have to remind themselves that men are involved in reproduction and have reproductive lives and concerns that need to be understood.\textsuperscript{13}

One of the reasons that men have been positioned as the “second sex” in reproduction is because persistent stereotypes portray men as sexual creatures uninterested or uninvolved in pregnancy, birth, and fatherhood.\textsuperscript{12} Prior research has not
challenged these simplistic notions of masculine identity, instead accepting that it is a single, fixed entity. In so doing, these normative conceptions are reproduced by the public, perpetuating the stereotype of a single “traditional man”.11

One persistent assumption about the “traditional man” is that he is not interested in using contraception. It is possible that some men may never want to use contraception, but we must also recognize that there are also women who may not want to contracept either. However, given that women generally bear the burden of preventing pregnancy, it is important to question this belief. Do women bear the contraceptive burden because they are the ones who become pregnant, and not men? Is there something inherent to men that prevents them from shouldering this responsibility? Are men avoiding using contraception because of culturally engrained notions of masculinity? Or, maybe this unequal burden is the result of contraceptive counseling practices, markets, and technologies that themselves cater to women? Clearly, the assumption that men are uninterested in contraception is manifest on multiple levels.11

On an individual level, some researchers have assumed that men did not take an interest in contraception while also theorizing that women would not trust men with contraception.59,62 Empirically we now know that this is not true.38,56,59,65 While gender norms and expectations reinforce ideas about who is responsible for what contraception (e.g., men bring condoms, women take pills), we also know that some men conceptualize contraceptive responsibility as a way to re-affirm their masculinity.38,59

Unfortunately, even when individual men are motivated to prevent pregnancy, other barriers may circumvent their contraceptive use. A study of contraceptive counseling in San Francisco revealed that clinicians devalued male-centered
contraception by failing to discuss them as options with patients and by not emphasizing positive aspects of the methods. Such marginalization of male-centered methods may encourage women to choose a female-centered method that is not best for them. Thus, not only are clinicians reinforcing the feminization of contraception, they are also contributing to the unequal division of fertility work on a structural level.\textsuperscript{9} Biased health providers and systems serve to discourage consideration of vasectomy while also contributing to the limited involvement of men in reproduction.\textsuperscript{56}

Despite such barriers, recently there has been a shift in understanding reproductive responsibilities. The increased attention on men in reproduction has brought forth a call for the development of male hormonal contraception.\textsuperscript{15,62,66} It has been argued that such technology would reduce the burden on women to manage contraception while also providing greater reproductive autonomy for men.\textsuperscript{62} As Oudshoorn writes in her book about the development of the male contraceptive pill, “The very idea of an oral contraceptive method for men has become firmly entrenched in our culture today, although the technology itself does not exist” (p.7).\textsuperscript{15} By and large, women have born the expense of contraception, dealt with side effects, and faced fears of trying new methods.\textsuperscript{62,67–69} At the same time, men have no recourse if a woman becomes pregnant and they are not prepared to be fathers.\textsuperscript{62} While there is not yet an approved male hormonal contraceptive, the shift in understanding of reproductive responsibilities is encouraging, suggesting that the time is right to study other aspects of men’s contraceptive use, such as vasectomy.
2.2.3 A brief history of vasectomy

While evidence of the existence and use of barrier methods of contraception stretch back to the time of the Roman Empire, clinical vasectomy practices did not begin until the 1880s. Initially, vasectomy was promoted as an alternative to castration for prostate problems. Much of this early work involved physicians testing surgical techniques, including the sterilization of nearly 500 men between 1899 and 1907 in Indiana by Dr. Harry Sharp. At the turn of the 20th century, vasectomy was framed as a fountain of youth; Austrian physiologist Eugen Steinach claimed that he had “rejuvenated” a senile male rat using vasectomy. Thousands of vasectomies were performed on men looking to improve their health. Medical reviews on the effectiveness of this procedure were mixed however, and the popularity of this procedure declined and fell out of use in the 1940s.

At the same time that some men were electing to have a vasectomy for their health, others were subjected to vasectomy as part of eugenic sterilization in the early 20th century. In 1907, Indiana passed the world's first sterilization law to initiate involuntary sterilization on criminals, rapists, and people with mental disabilities. These practices were endorsed at the highest level of medicine, with the head of the American College of Surgeons, Dr. A.J. Ochsner, advocating for sterilization as a punishment for crimes and a means of imposing morality on "habitual criminals, imbeciles, perverts, paupers, morons, epileptics, and degenerates" (p.321). In 1927, the United States Supreme Court upheld Virginia's sterilization law in Buck v Bell by a vote of eight to one with Justice Oliver Wendell Holmes writing,
It is better for the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind. The principle that sustains compulsory vaccination is broad enough to cover cutting the Fallopian tubes. Three generations of imbeciles are enough. (In Stern, 2005, p.1130)

Upholding the law using the principle of public health good, the practice became entrenched; 32 states passed similar legislation by 1937.  

The use of vasectomy on men involuntarily was part of a more extensive program of forced sterilization and other eugenicist practices within the United States during this time. Poor women, women of color, and women with disabilities were also subject to sterilization policies and practices. At the same time that advances in contraceptive technologies were providing an opportunity to enhance some people's capacity to self-regulate their fertility (i.e., White, middle-class, married women), state policies and healthcare providers were curtailing the fertility of others. Reproductive oppression continued to play out across gendered, classist, racist, and ableist lines for the better part of the 20th century. This was particularly true in the Jim Crow-era of the American South. While the involuntary use of vasectomy on men ceased by the 1960s, a system of stratified reproduction that empowers some groups to reproduce while devaluing the reproduction of others still remains.

By the mid-1960s, less than 40,000 voluntary vasectomies were performed annually in the United States. It wasn’t until the 1970s that scientists again turned toward researching male contraceptives. At this point, interest in voluntary vasectomy
increased, and by the 1990s, roughly half a million procedures were performed every year in the United States.\textsuperscript{20,83} Since then, numbers of men having a vasectomy have remained stable and the method remains underused. Scholars have called for research on why this is the case.\textsuperscript{16,84}

\textit{2.2.4 Current means of performing vasectomy}

Today, the majority of vasectomies are performed as outpatient procedures requiring only local anesthesia.\textsuperscript{83} Over 75\% of vasectomies are performed by a urologist.\textsuperscript{18} Vasectomy is a minimally invasive procedure when the preferred no-scalpel vasectomy (NSV) approach is used.\textsuperscript{83} Men undergoing vasectomy are seated in a supine position, draped, and numbed.\textsuperscript{37} The physician makes an incision less than 10mm in size to deliver and isolate the vas deferens from the scrotum. The physician achieves vasal occlusion through cauterization, and the puncture site is cauterized under the skin.\textsuperscript{16,83} Altogether, the procedure takes approximately 15 minutes.\textsuperscript{37} Patients are told to limit their physical activity for several days following surgery and to use ice and over-the-counter medication (e.g., ibuprofen) for any post-operative pain. Research has demonstrated that men who had a vasectomy found it significantly less painful than they anticipated.\textsuperscript{85}

Approximately eight to twelve weeks after the vasectomy, patients are required to return to their physician for post-vasectomy semen analysis (PVSA), although research has shown that compliance with PVSA can be poor.\textsuperscript{86} A semen sample is used to determine that the vasectomy resulted in either azoospermia (i.e., absence of sperm) or rare non-motile sperm (RNMS) (i.e., \(\leq 100,000\) non-moving sperm/mL). If men are not
sterile, they are required to return for an additional PVSA four to six weeks later. Patients should use an alternative form of contraception until sterility is confirmed.\textsuperscript{83}

Once sterility is achieved, risk of pregnancy is 1 in 2,000.\textsuperscript{83} Those who have had a vasectomy often recommend it to others and even report an improved sex life.\textsuperscript{60,61} Vasectomy is a permanent form of contraception; however, there are means of reversal either by vasovasostomy or vasoepididymostomy. For men interested in reversal, success depends on the man’s age and time since sterilization.\textsuperscript{83} Some research has examined vasectomy regret, which is higher among those who were younger than 30 when they had the procedure.\textsuperscript{87} However, research has also shown that men who are childless at the time of vasectomy are unlikely to desire reversal.\textsuperscript{88} Men who undergo vasectomy reversal are typically more than five years post-surgery who have a new partner.\textsuperscript{19}

2.2.5 “The sterilization paradox”

To date the majority of work on vasectomy in America entails quantitative analyses of large, nationally representative survey data, primarily from the NSFG. Such research has found that nearly half a million vasectomies occur annually, the majority of which are performed by a urologist.\textsuperscript{18} Men report having a vasectomy as a means to prevent having (additional) children and because their partner dislikes other forms of contraception.\textsuperscript{87} An estimated 3.6 million men in the United States have had a vasectomy, although there are racial disparities in uptake.\textsuperscript{89} 14.1% of White men have had a vasectomy, but only 3.7% of Black men and 4.5% Latino men have had the procedure.\textsuperscript{21} Independent of race, vasectomy is primarily the domain of married men.\textsuperscript{90} Men are more likely to have had a vasectomy if they have ever been married, have two or more children, and are above age 35.\textsuperscript{91} Interestingly, vasectomy use is positively correlated
with the national unemployment rate (i.e., as unemployment increases, so do rates of vasectomy), reflecting the importance of financial pressure on family planning choices.\textsuperscript{92} Further, there is significant regional variation of vasectomy use by state, with the lowest rates of vasectomy occurring predominately in the southern states, including those used in this research.\textsuperscript{17}

The rate of tubal ligation - the other permanent form of contraception - is used three times more often than vasectomy; 5.7 million women report having had the procedure.\textsuperscript{42} As with men, women’s use of tubal ligation varies by race/ethnicity and socioeconomic status.\textsuperscript{89} Black and Latina women are more likely to have tubal ligation overall; however, among low-income women, White women are more likely to have a tubal ligation than minority women.\textsuperscript{93} Women are more likely to choose to have a tubal ligation if they are over 30, and have a high school education.\textsuperscript{42}

Vasectomy is safer, more effective, and less costly than tubal ligation yet the method remains underused.\textsuperscript{16} If the rate of tubal ligation and vasectomy was the same, it would save $266 million in procedure costs and $13 million in additional post-operative care.\textsuperscript{16} The demographic difference between men and women has been referred to as the sterilization paradox, prompting calls for investigation into why vasectomy is not more prevalent and why its use varies by demographic group.\textsuperscript{42,55,84} One commentary piece stated, “When a better contraceptive method is chosen much less often than a lesser comparator, it is the responsibility of family planning researchers and practitioners to investigate why this is the case”.\textsuperscript{84, p.289} This research looks to examine this paradox.
2.2.6 Vasectomy: What we know from current research

Current research on vasectomy tends to focus on one of two domains: public health research about barriers to vasectomy use or sociological research related to masculinities and meaning making. Research pertaining to barriers to use advocates for improved education, counseling, and provider availability to increase vasectomy uptake. Work in Canada has assessed how prospective vasectomy users can benefit from individual decisional support aids, suggesting that providing information about vasectomy helps men decide to have the surgery. A different study in Texas used a survey to assess interest in vasectomy among Latina women. One-third of participants reported that their male partners would be interested in learning about vasectomy, although they indicated concerns about missing work and the medical side effects of the procedures. Researchers advocated for increased education about vasectomy as a means of improving uptake among Latino men.

Shih et al. (2013) conducted focus groups and interviews with 37 couples aged 25-55 in Northern California to assess contraceptive counseling related to vasectomy. Researchers found that women received information about tubal ligation but not vasectomy and men reported they received no counseling about vasectomy unless they sought out the procedure. While participants said vasectomy counseling would ideally provide information about the procedure’s efficacy, reversibility, and expected pain, it was clear that actual counseling practices were not meeting these standards. Drawing on the same sample, Shih et al. (2013) also reported on patients’ reasons to get or not get a vasectomy. Participants stated that they would get a vasectomy to provide better care for their current family, share the responsibility for preventing pregnancy, and protect
against pregnancy in cases of infidelity. Reasons not to get vasectomy included negative associations with the term sterilization, feeling that it was equivalent to a loss of manhood, and the method’s permanence. Again, Shih et al. (2013) called for increased counseling about vasectomy and positive messaging about the method as a means of improving vasectomy uptake. This work suggests that a lack of education and counseling about vasectomy may be contributing to the low levels of use in the southern United States.¹⁷

From a provider standpoint, White et al. (2017) conducted interviews with program administrators at family planning clinics in Texas and found that the majority of participants did not offer vasectomy on-site or offer referrals. Clinics stated they lacked funding for men’s reproductive health care while at the same time expressing their perception that their predominantly Latino clients had limited interest in vasectomy. This study sheds light on how health systems and providers can influence the availability of vasectomy as an option for men in Texas. Relatedly, Nguyen et al. (2017) conducted a survey to assess interest among family planning fellowship physicians. While the majority of respondents reported counseling patients about vasectomy, few had actually performed a vasectomy in the prior year, indicating a need for increased provider training in NSV. A lack of emphasis on men’s reproductive health has limited the availability of vasectomy services and qualified providers; both factors are worth considering in this research.

In a marked shift from a public health focus on barriers to vasectomy use, sociological scholarship has examined how vasectomy is related to masculinity. Several pieces by Terry and Braun have examined how men derive and construct meaning from
their vasectomy experiences in New Zealand.\textsuperscript{32,33,38,98,99} By conducting phone interviews with a sample of 28 men - 16 who had children and 12 who did not - Terry and Braun found that most participants offered positive views about their vasectomy and related their experience to important personal values, including responsibility, commitment, and fairness. At the same time, men spoke about their experiences in terms of having control over their reproduction and how their story is framed.\textsuperscript{98} Among men who had a vasectomy preemptively (i.e., because they did not want to have any children), participants’ narratives focused on the choice and freedom associated with their lifestyle.\textsuperscript{99} In these instances, participants stated that they knew for some time that they never wanted to have children. Overall, participants consistently referred to their decision to have a vasectomy as the optimal choice and made references to themselves in comparison to others in order to illustrate both their masculinity as well as their heroic behavior that should be praised and valued.\textsuperscript{33} Terry and Braun conclude that even though men were taking on fertility work in New Zealand, these types of narratives may confirm rather than challenge male privilege in heterosexual relationships.\textsuperscript{38}

Relatedly, a study by Amor et al. (2008) in the United Kingdom used grounded theory to better understand how social support influences men to have a vasectomy.\textsuperscript{34} Nineteen men ages 34-56, all White, married, and employed, were interviewed over the phone about how they discussed vasectomy with their peers. While peer support was found to be useful in adjusting to life post-vasectomy, communication between men was construed as either joking or serious advice giving, both of which were means of managing masculinity while undergoing a process that could be construed as reducing one’s masculinity. An American study concerned with vasectomy disclosure had similar
insights. While the work of Terry and Braun and Amor et al. did not take place in the United States, their findings about gender construction in other Westernized nations may prove useful for understanding vasectomy in America.

Cragun and Sumerau (2017) provide an autoethnographic account from a male academic living in Florida that examined the question of how masculinity is constructed. Cragun retrospectively points out that he was “doing gender” at multiple stages in the vasectomy process; even when taking on the responsibility for contraception, he was imposing gendered actions. This work, along with the previously mentioned pieces, provide an opening to continue studying the way masculinity is constructed in reproduction.

2.3 Research opportunities

While reproductive rights for all people has been part of the international public health agenda for more than 30 years, work remains to bring men into this space. Lingering stereotypes that paint men as a uniform, unchanging group uninterested in pregnancy, birth, and fatherhood have gone unchallenged until relatively recently. Still, relatively little research has examined men’s roles and experiences in these domains. Vasectomy, as one of only three male-centered contraceptive options, remains both underused and under-researched in the United States. This is particularly true for the southern United States. This research investigates how men think about vasectomy within the context of their reproductive histories. In so doing, it also touches upon the role of intimate partners, the presence of children, provider counseling practices, reproductive technologies, ideas about fatherhood, performances of masculinity, and historical instances of forced sterilization. Ultimately, this research provides empirical evidence
about how men think about, consider, and experience vasectomy as not only an individual act but as one that is influenced by a range of social actors, norms, and discourses.
Chapter 3 – Methods

3.1 Overview

This chapter describes the methodological approaches I took to each of the three aims outlined in Chapter 1. As discussed in Chapter 2, there has been limited research on vasectomy as a contraceptive option specifically, and men’s roles in reproduction more generally. As such, I used multiple methods to generate different types of data that would be able to answer a range of research questions about these topics. I adhere to the pragmatic stance that “the usefulness of a method for a particular study of program of research is not judged by its origin but whether it will help in solving a particular research problem.” As such, I do not seek to get pulled into the paradigm wars but rather appreciate the ways in which different methods can answer different questions. By using multiple methods, I was able to add breadth and depth to this research, focusing on the ways in which findings from each aim converge and contrast.

3.2 Ethical concerns

The University of South Carolina Institutional Review Board (IRB) approved this research in two stages. The first approval covered a series of cognitive interviews to refine the survey instrument (Pro00087081) (see Appendix A). Cognitive interview participants were given a study information page, given a chance to ask questions, and verbally consented to a) participating in the interview and b) having their interview audio recorded. Participants selected their own pseudonyms and were made aware that they
could retract their interview at any point. Participants received a $20 electronic gift card to thank them for their time.

The second approval covered the survey and interview process (Pro00088340) (see Appendix A). Survey participants were provided a written statement about the purpose of the study and asked whether they wished to continue to answer survey questions. One in 50 respondents were randomly selected to receive a $50 electronic gift card. All survey data are de-identified and presented in aggregate. Interview participants were provided a written information sheet about the purpose of the study prior to having a phone conversation. Once on the phone, I re-read information to the participants, gave them a chance to ask any questions, and then asked for verbal consent to a) conduct the interview and b) audio record the interview. Participants selected their own pseudonyms and were made aware that they could retract their interview at any point. Only pseudonyms are used in this research; I have removed identifying information from interview transcripts in order to preserve anonymity. Participants received a $20 electronic gift card in recognition of their time.

3.3 Aim 1: Systematic review and thematic metasynthesis

Aim 1 was to conduct a systematic review and thematic metasynthesis of global research on men’s experiences with vasectomy over the past 20 years (n=13). The purpose of this review and metasynthesis was to examine extant research findings about how men decide to have a vasectomy and their subsequent experience with vasectomy use.
3.3.1 Search strategy

This synthesis began with a broad but systematic search strategy. Studies were eligible for inclusion if they focused on vasectomy and used qualitative methods, broadly defined. Because the “intervention” of interest was how men come to have a vasectomy, studies that focused on women or clinicians were excluded. I did not bound the search by the age of participants or location of research. I searched for any instance of the terms “vasectomy”, “male sterilization”, or “male sterilisation” (for studies published using British English) in either the title or abstract of academic journals from January 1999 until September 2019 (see Table 3.1). I included only articles published in English, the primary language of the study authors. Searches were performed in the following databases to ensure that a full range of relevant publications would be retrieved: Academic Search Complete, CINAHL Complete, JSTOR, PsychInfo, Social Sciences Full Text, Sociological Abstracts, and Web of Science Core Collection. I also reviewed reference lists of included studies; no additional studies meeting the inclusion criteria were identified through this search.

No articles that met the inclusion criteria were excluded based on perceived quality. I recognize that qualitative researchers approach their work from “vastly different disciplinary, philosophical, theoretical, social, political, and ethical commitments, and they often have very different views on how to execute ostensibly the same kind of qualitative research”.103, p.366 The metasynthesis embraced these inherent differences in approaches to qualitative inquiry, recognizing that even measures of quality are context-dependent and non-definitive.104 As such, I did not use a checklist to evaluate the merit of
other’s research efforts, but instead focused on how studies enhanced my understanding of men’s willingness to use vasectomy.

3.3.2 Synthesis

While there are various approaches to doing metasynthesis, this research used thematic synthesis developed by Thomas & Harden (2008). Thematic synthesis addresses “questions relating to intervention need, appropriateness, and acceptability – as well as those relating to effectiveness – without compromising on key principles developed in systematic reviews”. Included studies were imported into Atlas.ti qualitative data analysis software. Following the principles of Thomas & Harden (2008), analysis was concerned with only the reported findings of a study. This was not always straightforward since it can be difficult to identify “the findings” in qualitative research, and sometimes participants’ quotes were located in other sections of manuscripts, such as headings, background, or conclusion sections. For the metasynthesis, “findings” were considered text reported under the results (or other similar) heading and any participant quote reported elsewhere.

Thematic synthesis has three stages: 1) line-by-line coding, 2) development of descriptive themes, and 3) development of analytical themes. Starting with the oldest article and progressing to the most recent, I began by developing inductive codes using line-by-line coding to capture concepts across studies. Once all studies were coded, the authors worked together to check code consistency, refine code categories, and group codes into a hierarchical structure of descriptive themes. The defining characteristic of qualitative synthesis, and final step in analysis, is the establishment of an analytical framework that goes beyond existing research to answer a research question. In this
case, the result is a conceptual framework of how men decide to have a vasectomy. I end by discussing the implications of the conceptual framework for reproductive health researchers and healthcare providers.

3.4 Aim 2: Survey research

I created a survey to assess men’s knowledge, attitudes, and information seeking behaviors about vasectomy. As discussed in Chapter 2, no known survey examines these factors in an American context. After designing and piloting the survey, I was able to use social media advertising to recruit participants to complete the questionnaire. Results from the survey are used to describe differences in knowledge, attitudes, and information seeking based on several demographic factors.

3.4.1 Questionnaire development

The questionnaire was informed by a literature review, which revealed no known survey of these constructs in the United States, although related work had been conducted in Mexico. Drawing on this research in Mexico, information gathered from the literature, and in consultation with the co-authors, I developed a questionnaire consisting of items querying vasectomy knowledge, attitudes, and information seeking, as well as demographic information.

Once the questionnaire was drafted, I conducted a series of cognitive interviews (n=6) to identify potential issues with items from March - April 2019 (see Table 3.2). I used personal networks to recruit cognitive interview participants who met the same inclusion criteria as for the survey (see section 3.4.2 below). Participants were told that they would be asked to interpret questions about vasectomy. I scheduled cognitive interviews over email for one-hour slots at times mutually convenient for the participants.
and myself. I met with participants in closed-door environments; participants verbally consented to partake in the study and be audio-recorded. Cognitive interviews used think-aloud and verbal probing techniques to understand both overt and covert problems with survey items. Participants were not reporting about their own behavior and attitudes so much as helping the researcher understand ways the survey items may be interpreted. I kept notes during the cognitive interviews, wrote memos following the sessions, and listened to the audio recordings. Because participants had similar thoughts about things that needed to be amended the audio recordings were not professionally transcribed.

Cognitive interviews revealed that there were two issues with the survey instrument that needed to be addressed. First, that participants did not like when vasectomy was described as a surgery, they preferred the term “procedure”. Second, participants did not like the “true/false” nature of the knowledge questions, they expressed that it felt like a test. They suggested changing the knowledge questions to have scaled responses similar to the attitude items.

After making these revisions, I pretested the survey with a sample of men recruited from the authors’ Twitter and Facebook accounts in April 2019 (n=37). Participants were able to follow a link on the social media postings to SurveyMonkey where the survey was hosted. Participants read a description of the purpose of the survey and had to consent to continuing before being directed to the survey questions. Again, participants needed to meet the eligibility criteria listed below (see section 3.4.2). After several days, I checked for content or deployment issues in data collection. None were noted; the pretest was closed, and no further revisions were made.
3.4.2 Participants

To be eligible to participate in the study, a participant needed to be a cisgender, English speaking, heterosexual man between the ages of 25-70 years old. These eligibility criteria were imposed because vasectomy is positioned as a contraceptive option for cisgender men who are seeking to prevent pregnancy with their female partners who could become pregnant. The age criteria reflect known trends on the age in which one receives a vasectomy, while also capturing men who have the procedure later in life.\textsuperscript{42,43,114} Further, we restricted the sample to men living in one of seven southern states (Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, or Tennessee). The geographic bounding was used to focus on southern states that have lower vasectomy prevalence rates compared to other parts of the country.\textsuperscript{22}

3.4.3 Sampling

This research uses data from a cross-sectional convenience sample of men who took the online survey. Nonprobability samples can serve two useful purposes. First, this sampling is useful in exploratory circumstances as a way to get a sense of what people think or believe about a topic.\textsuperscript{115} There is limited information in the U.S. context about men’s vasectomy attitudes, knowledge, and information seeking and this survey asked novel questions to explore information not previously known. Second, this sampling method can be used to design and inform larger, more comprehensive surveys.\textsuperscript{115} Initial findings from this survey have been used to secure funding for a larger, probability-based survey sample based on this work.

I recognize that the use of a nonprobability survey does limit the generalizability of the results and that findings are strictly applicable to this sample only. However, given
that this survey explored an under-researched topic in a novel way, I believe that survey findings nonetheless make a considerable contribution to the reproductive health field and are suitable for publication quality journal. Indeed, other research focused on aspects of contraception also draw on nonprobability designs in exploratory circumstances.\textsuperscript{116–119}

3.4.4 Recruitment

I recruited participants to take the online survey using targeted Facebook advertising, which has been effective in recruiting for health research (see Appendix B for specific language).\textsuperscript{120–122} I set up a study-specific email account and Facebook information page (see Figure 3.1). Once those were established, I was able to set parameters for targeted Facebook advertising. Using information from members’ profile pages, the study advertisement targeted men over 18 who lived in one of the seven included states (see Figure 3.2). Facebook’s algorithms showed the advertisement to men who met these criteria. Men were able to see the advertisement and follow the links to the recruitment page and the survey hosted on SurveyMonkey. I managed the comments on the study recruitment page and advertisements as they appeared. While the comments were generally acceptable, there were some remarks that needed to be deleted (e.g., derogatory remarks about the “type” of men who should have a vasectomy).

The targeted advertising was active for six days in April 2019. During those six days, the advertisement reached 11,383 unique profiles and generated 785 clicks; it cost $123.24 (roughly $0.16 per click). Initial analysis indicated that I had collected more than 400 responses by day six, at which point I stopped the advertisement because numbers met the estimated required sample size. While not representative of the target population, participants’ demographic characteristics were evenly distributed across most indicators.
assessed, including age, location, education, and income. As a result, Facebook advertising proved to be a rapid, inexpensive, and reliable means of recruiting a relatively diverse participant pool.

3.4.5 Survey procedures

The questionnaire was hosted on SurveyMonkey. Once reaching the SurveyMonkey site, potential participants read a brief statement about the purpose of the research and other information related to informed consent. Those who agreed to participate were then taken to the screening questions to ensure they met the eligibility criteria. Those who did not meet the criteria were thanked for their time, and those who qualified proceeded to the beginning of the questionnaire; it took between 10 and 15 minutes to complete. Participants had the option of providing their email address at the end to be eligible for a drawing for a $50 Amazon gift card. One gift card was sent for every 50 respondents using computer-generated random selection.

Data were collected between April and May 2019. A total of 652 individuals consented to answer the eligibility questions. One hundred and seventy individuals were ineligible because they did not meet the qualifying criteria for either age, state of residence, or sexual orientation. An additional 85 people met the qualifying criteria but did not complete the questionnaire; these responses were excluded because they did not provide answers to questions about their attitudes, which formed the bulk of the analysis. The 397 complete questionnaire responses that met the age, location, and sexual orientation criteria are included in our analyses.
3.4.6 Survey measures

I began analysis by downloading all responses from SurveyMonkey into Excel. I cleaned the data by removing incomplete response sets then used the codebook to assign numerical values to categorical variables. See Appendix D for a table of constructs and associated variable information. I assessed knowledge of vasectomy by asking how much respondents agreed or disagreed with seven statements using a 5-point response scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”) (see Table 3.3). Statements were all original measures. Examples included “vasectomy is an outpatient procedure” and “vasectomy can be reversed.” We created the knowledge variable by summing the responses to each of the seven statements. Scores could range from 5 to 35; a higher score represents greater knowledge about vasectomy.

I assessed attitudes towards vasectomy using 33 items thought to impact the perceived acceptability of having a vasectomy. All attitude questions used a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.” Exploratory factor yielded six distinct attitudes subscales comprised of 25 items. Items were original measures or based on work by Hernandez-Aguilera & Marván (2016). See Table 3.3 for subscale construct information. Each variable represents the mean of the items for each subscale, with higher scores indicating greater endorsement of that attitude.

I assessed information seeking behaviors using two measures. First, I asked if men knew someone that had a vasectomy. I asked if men had talked to anyone about having a vasectomy. For both questions, answers are reported as either yes or no.

All respondents were asked to provide their age, state of residence, number of children, relationship status, highest completed level of education, household income, and
race/ethnicity. Participants were also asked if they had had a vasectomy. If they had a vasectomy, men were asked if they had a reversal.

3.4.7 Survey statistical analyses

I computed descriptive statistics to characterize the study sample, including the respondents’ knowledge, attitudes, and information seeking behaviors regarding vasectomy. Because only one participant had a reversal, I collapsed responses to characterize vasectomy as either yes or no; the reversal data were collapsed into the yes category. Small numbers of responses from American Indian, Asian American, Black, and Latino men required we use White and non-White for statistical tests. Next, I compared the differences between respondents who had versus had not received a vasectomy. I assessed the differences in knowledge and attitudes using Mann-Whitney U Tests because our data were not normally distributed. Differences in information seeking behavior, which was normally distributed, were assessed using chi-square tests. I also tested for differences related to age, number of children, race/ethnicity, relationship status, educational attainment, and income. Finally, I conducted linear and logistic regression analyses to estimate the relationships between sociodemographic variables and vasectomy-related knowledge, attitudes, and information seeking. I used SPSS version 25 for all analyses.123

3.5 Aim 3: Qualitative interview research

3.5.1 Using grounded theory methods

The qualitative component of this research relies on grounded theory methods. These are “systematic, yet flexible guidelines for collecting and analyzing qualitative data”.47, p.1 Originally developed by sociologists Glaser and Strauss, this approach is
useful when there is no available theory for the population being studied or the research questions at hand, as is the case with this research. The end product of grounded theory studies is the development of a substantive theory (i.e., an interpretation and/or explanation of a problem in a particular area, specific to time and place). While there are multiple ways of engaging with grounded theory methods, this research follows the constructivist approach set forth by Charmaz (2014), acknowledging that research occurs under specific conditions in time and place. As such, I attended to my positionality in the data collection and analysis process while also acknowledging that resulting findings and theories from this research are a construction.

3.5.2 Research(er) positioning

This research was approached from a constructivist paradigm, rooted in the belief that there are multiple social constructions based on context that are self-created through one’s lived experiences. However, this research also acknowledges that context is defined by a place’s cultural, political, economic, and social values. Findings from this research are the result of interactions between the participants and myself.

Initially, participants who answered the survey did not know who they were interacting with. When I contacted potential participants to schedule an interview, I signed my name, which was likely their first indication that I am a woman. Once we were on the phone, my voice confirmed this fact. As a woman interviewing men, I was inevitably “doing gender” as part of the interaction. Although participants were unable to make judgements about how I look, it is probable that they did make assumptions about me based on speech patterns and information I gave in response to their questions in attempts to build rapport. There were instances where male participants attempted to
either lead the interview or ask personal questions about my life.\textsuperscript{129,130} I did my best to deflect and give non-committal answers while avoiding critical commentary about inappropriate statements. At the same time, there were also instances where participants expressed that they were comfortable having such a sensitive conversation, sharing that they were talking about things they had not been able to share with others previously. I kept field notes and memos that scrutinized how my own experiences, decisions, and interpretations influenced the research project overall.\textsuperscript{47} Every attempt has been made to center participants’ voices in their own words and keep analysis grounded in the data.

3.5.3 Using intensive interviews to answer research questions

This research used intensive interviews to examine men’s vasectomy knowledge, attitudes, and behaviors within a larger dialogue about their reproductive history and roles. Intensive interviews are “a gently guided, one-sided conversation that explores a person’s substantial experience with the research topic.”\textsuperscript{47, p.56} This approach facilitates in-depth exploration and creates a space for participants to reflect and share their experiences on these topics, generating rich, full data.\textsuperscript{126} I developed the interview guide using “sensitizing concepts” as a place to start inquiry.\textsuperscript{47} These concepts included participants’ sexual histories, experience using contraception, and experiences with fatherhood. Over the first five interviews, I made adjustments to the order of questions. During the first interview, two questions were also added to the end of the interview guide about how men perceived the difference between “vasectomy” and “sterilization” and whether they had heard about programs of sterilization. See Appendix H for the final interview guide.
3.5.4 Participant recruitment and sampling

Interview participants met the same criteria laid out for the survey participants (see section 3.4.2). Men who completed the survey were asked whether they were interested in being contacted to participate in a follow up individual interview. I stated that interviews would be confidential, take approximately one hour to complete, and the participant would be paid $20 for their time. Those who were interested were able to provide an email address where I could reach them. I used the study-specific email account to contact men once the survey closed. The recruitment emails asked if men were still interested in participating and reminded them of the purpose of the interviews (Appendix F). If there was a response, I continued to use email to schedule a telephone interview at a mutually beneficial time. Reminders about interviews were sent the day before an interview was scheduled.

I used demographic information recorded as a part of the survey to track contact with potential interview participants based on state, age, relationship, race/ethnicity, and vasectomy status. Initially, participants were generally White, married men who did not have a vasectomy. After this initial sampling period, I shifted towards trying to recruit a more diverse pool of interviewees, theorizing that men who were not White, not married, and did have a vasectomy would elaborate the boundaries of the data. I sent follow up emails to men who met these criteria in an attempt to schedule additional interviews. Thirty-seven interview participants were recruited using the methods above from April through May 2019.

Initial analysis after this round of interviews suggested that additional data would further contribute to theory generation (see section 3.5.6). While I recruited a number of
men who had not had a vasectomy, I still wanted to recruit additional men who had the procedure or whose race/ethnicity was not White. Again, the goal was to include, as much as I could, a full range of cases that might be relevant.\textsuperscript{131} I used a follow-up advertising campaign to recruit additional participants from August through September 2019. Using Facebook advertising (Figure 3.3), I recruited men who were interested in participating in an interview. Men were directed to SurveyMonkey to answer demographic questions and provide an email address where they could be reached. I used the demographic responses to screen for eligibility and contacted men in the underrepresented categories of interest. This second round of recruitment yielded an additional 11 interviews for a total of 48 participants.

I judged that sufficient data had been collected following this second round of interviews. Much debate has centered on the meaning of “data saturation”.\textsuperscript{132,133} However, the purpose of research using grounded theory methods is to achieve theoretical sufficiency, not generalizability or representativeness.\textsuperscript{134} I concur with the argument that there can never be a complete analysis and that saturation to the point where no new information emerges is impossible.\textsuperscript{133} Data collection is not about the quantity of data collected but rather the quality of that data. Based on the 48 collected interviews, I judged that the collected data were of sufficient richness, depth, and complexity to generate significant analysis.

3.5.5 Interview procedures

All participants were interviewed over the phone at an agreed-upon time. Telephone interviews have been used successfully in previous studies about vasectomy experiences in the United Kingdom and New Zealand, which supported the feasibility of
Using telephone interviews was practical; it saved money, time, allowed for flexibility for scheduling, and enabled us to interview men from seven different states. Furthermore, this approach enabled participants to retain anonymity and privacy while still providing details about their reproductive history and goals. Men often verbally acknowledged this element of the interview, expressing that they were glad interviews were not face-to-face. This approach allowed men to disclose experiences of miscarriage, abortion, infidelity, and sexual experimentation in ways they confessed to have never told others.

I began the interviews by introducing myself and reiterating the purpose of the interview. I read the oral consent text and answered any questions the participant had (Appendix G). I then asked participants if they consented to participate in an interview and to have their interview recorded. All participants consented and agreed to have their interview recorded. Approximately two-thirds of participants chose their pseudonyms; in the remaining cases a name was assigned after the interview. After obtaining consent, I began the recording and proceeded with the interview (Appendix H). Interviews lasted an average of 70 minutes (range of 40 to 118 minutes). When the last question was asked and answered, I turned off the recording, thanked the participant, and confirmed how they would like to receive their $20 incentive (either PayPal or Amazon).

3.5.6 Data analysis

Interviews were digitally recorded and transcribed verbatim by a professional transcription service (Rev.com). Immediately following each interview, I wrote a memo reflecting on the experience (i.e., field notes), which were incorporated into the analysis. Memos recapped how the interview unfolded, agreements or disagreements with
participants’ sentiments, main discussion points, and any other distinguishing features of the interview. Throughout the coding process (described below), I wrote memos and diagrams as an intermediate step between data collection and drafting findings presented in Chapter 4.3 and Chapter 5. Memos were treated as data; all data were analyzed in Atlas.ti qualitative data software.

This research used initial and focused coding processes as described by Charmaz (2014). Interview transcripts were initially code line-by-line. This technique allows researchers to be open to possible theoretical directions while sticking closely to the data. Initial coding revealed broad concepts related to men’s reproductive history, contraceptive use, and vasectomy attitudes and experiences. After the initial coding process, analysis shifted to focused coding, a conceptual exercise of sifting through the data to further develop theory. At this point, relations between the interpersonal, social, cultural, historical, and structural influences on an individual’s decision-making about vasectomy emerged. The process of coding, memoing, and reflecting was an iterative process that took many months to complete.

In line with interpretive definitions of theory, explanations presented are the result of a construction between what participants shared and how the researcher interpreted and related them. In Chapter 4.3 and Chapter 5, I interpret participants’ understandings and experiences with vasectomy specifically, and reproduction more generally.

3.5.7 Validity and quality concerns

I used various strategies to ensure that the findings of the qualitative research were both valid and of high quality. The validity of this research was improved by recruiting a broad sample that incorporated a range of perspectives, thereby contributing
to theory generation. Relatedly, I searched for evidence of deviant cases and incorporated them into the analysis. I also accounted for the ways interview data were collected and analyzed, including providing a description of the coding process and possible explanations of data. Finally, I improved validity by engaging in reflexivity exercises throughout interview collection and analysis, paying attention to my biases and positionality.131

While expectations of the quality of grounded theory research can vary, this research can be judged on its credibility, originality, resonance, and usefulness.47 I worked to attain credibility by achieving intimate familiarity with the topic of vasectomy and provide evidence of the data and subsequent claims. This research is original in that it offers previously unreported insights into vasectomy as a contraceptive method and how men might use it within their perceived roles in reproduction. This research resonates by portraying the lives of participants and giving a full account of their views and experiences. Finally, findings contribute to the field of reproductive health and illuminate opportunities for additional research, suggesting that this research is useful.
<table>
<thead>
<tr>
<th>Database</th>
<th>Search term in title or abstract</th>
<th>Hits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Search Complete</td>
<td>Vasectomy</td>
<td>824</td>
</tr>
<tr>
<td></td>
<td>Male sterilization</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>Male sterilisation</td>
<td>149</td>
</tr>
<tr>
<td>CINAHL Complete</td>
<td>Vasectomy</td>
<td>267</td>
</tr>
<tr>
<td></td>
<td>Male sterilization</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Male sterilisation</td>
<td>48</td>
</tr>
<tr>
<td>JSTOR</td>
<td>Vasectomy</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Male sterilization</td>
<td>23</td>
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<td></td>
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<td>64</td>
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<td></td>
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<td>26</td>
</tr>
<tr>
<td></td>
<td>Male sterilisation</td>
<td>26</td>
</tr>
<tr>
<td>Social Sciences Full Text</td>
<td>Vasectomy</td>
<td>7</td>
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<tr>
<td></td>
<td>Male sterilization</td>
<td>4</td>
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<td></td>
<td>Male sterilisation</td>
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<td>Sociological Abstracts</td>
<td>Vasectomy</td>
<td>30</td>
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<tr>
<td></td>
<td>Male sterilization</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Male sterilisation</td>
<td>20</td>
</tr>
<tr>
<td>Web of Science Core Collection</td>
<td>Vasectomy</td>
<td>1,133</td>
</tr>
<tr>
<td></td>
<td>Male sterilization</td>
<td>571</td>
</tr>
<tr>
<td></td>
<td>Male sterilisation</td>
<td>571</td>
</tr>
</tbody>
</table>

*Searched academic journal articles published in English between January 1999 and September 2019.*
Table 3.2 Cognitive interview participant demographics

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Race/ethnicity</th>
<th>Highest education</th>
<th>Relationship status</th>
<th>Number of children</th>
<th>Vasectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lucky</td>
<td>36</td>
<td>Latino</td>
<td>AA</td>
<td>Married</td>
<td>4</td>
<td>No</td>
</tr>
<tr>
<td>Ryan</td>
<td>35</td>
<td>White</td>
<td>BA</td>
<td>Married</td>
<td>2</td>
<td>Considering</td>
</tr>
<tr>
<td>Zeke</td>
<td>40</td>
<td>White</td>
<td>PhD</td>
<td>Married</td>
<td>2</td>
<td>Yes</td>
</tr>
<tr>
<td>Joseph</td>
<td>43</td>
<td>Black</td>
<td>PhD</td>
<td>Married</td>
<td>2</td>
<td>No</td>
</tr>
<tr>
<td>Mark</td>
<td>43</td>
<td>Asian</td>
<td>BA</td>
<td>Married</td>
<td>3</td>
<td>Considered</td>
</tr>
<tr>
<td>Elliott</td>
<td>37</td>
<td>White</td>
<td>PhD</td>
<td>Married</td>
<td>0</td>
<td>No</td>
</tr>
</tbody>
</table>
### Table 3.3 Survey knowledge and attitude scale information

<table>
<thead>
<tr>
<th>Measure</th>
<th>Questions</th>
<th>Reverse code?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vasectomy is an outpatient procedure.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Vasectomy is meant to be a permanent means of preventing pregnancy.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Vasectomy can be reversed.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Vasectomy is more than 99% effective at preventing pregnancy.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Having a vasectomy means having your testicles removed.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Having a vasectomy means no longer having sperm in your semen.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Having a vasectomy means you can no longer ejaculate.</td>
<td>Yes</td>
</tr>
<tr>
<td>Attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential for regret (α=0.79)</td>
<td>Having a vasectomy makes you less of a man.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Men should not have a vasectomy.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Men who have a vasectomy will regret it.*</td>
<td>Yes</td>
</tr>
<tr>
<td>Changes to one’s sex life (α=0.78)</td>
<td>Once a man has a vasectomy his sex life gets worse.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>If a man has a vasectomy, he is more likely to cheat on his female partner.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Vasectomy causes men to lose interest in sex.*</td>
<td>Yes</td>
</tr>
<tr>
<td>Concerns about the procedure (α=0.76)</td>
<td>Vasectomy is a safe procedure.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Vasectomy is a painful procedure.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Vasectomy is a complicated procedure.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Vasectomy is a procedure with serious medical risks.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>If I thought about getting a vasectomy, I would be worried that something would go wrong.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>If I did get a vasectomy, I trust that the doctor would do a good job.</td>
<td>No</td>
</tr>
<tr>
<td>Concerns about recovery (α=0.64)</td>
<td>If a man has a vasectomy, he will be fully recovered a few weeks after the procedure.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Recovering from a vasectomy takes a few days.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Recovering from a vasectomy is not a big deal.</td>
<td>No</td>
</tr>
<tr>
<td>Willingness to disclose having a vasectomy (α=0.81)</td>
<td>If I had a vasectomy, I would tell my sexual partner(s) about it.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>I would feel comfortable talking with a doctor about getting a vasectomy.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>I would tell my friends that I had a vasectomy.</td>
<td>No</td>
</tr>
<tr>
<td>Measure</td>
<td>Questions</td>
<td>Reverse code?</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>I would be embarrassed to tell people that I had a vasectomy.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>I would be ashamed to tell people that I had a vasectomy.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Religious views opposing vasectomy (α=0.81)</td>
<td>My religious beliefs would not influence my decision to have a vasectomy.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>I consider it a sin to get a vasectomy.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Because of my religious beliefs, I would not get a vasectomy.</td>
<td>Yes</td>
</tr>
<tr>
<td>Information seeking</td>
<td>Before today, have you ever talked to anyone about vasectomy?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Do you know anyone that has had a vasectomy?</td>
<td>No</td>
</tr>
</tbody>
</table>

* Adapted from: Hernandez-Aguilera & Marván (2016)
Figure 3.1 Screenshot of Facebook page with study information
Figure 3.2 Screenshot of Facebook advertisement for survey recruitment
Figure 3.3 Screenshot of Facebook advertisement for supplemental interview recruitment
Chapter 4 – Men’s vasectomy experiences: A systematic review and thematic metasynthesis of 20 years of global research

Abstract

Vasectomy, one of few male-centered contraceptive methods, is underutilized in much of the world. Limited research has examined the experiences of men who have had a vasectomy to better understand their decision-making processes. We conducted a systematic review and thematic metasynthesis of global research on men’s experiences with vasectomy over the past 20 years, particularly their motivations to have a vasectomy (n=13). We produced a conceptual framework to illustrate how men come to have a vasectomy based on findings across included studies. This analysis revealed that men discuss their decision to have a vasectomy as an exercise in personal autonomy, yet their decision is ultimately influenced by social norms about masculinity and their social interactions with others, particularly their intimate partners. The study findings suggest that reproductive health researchers and healthcare providers consider how intimate partners, peers, and gender norms influence men’s decision whether or not to have a vasectomy.

Key words: vasectomy; male sterilization; thematic synthesis; masculinity; lived experience; reproduction

a Ashley L. White, Emily S. Mann, and Deborah L. Billings. To be submitted to Qualitative Health Research.
Introduction

Vasectomy (i.e., male sterilization) is a permanent, male-centered contraceptive method that is over 99% percent effective at preventing pregnancy. Compared to tubal ligation (i.e., female sterilization), vasectomy is considered a safer, simpler, and more cost-effective medical procedure.\textsuperscript{137} Despite these benefits, the prevalence of tubal ligation is more than four times that of vasectomy, with rates of vasectomy exceeding rates of tubal ligation in only a handful of countries, including Bhutan, Canada, Ireland, the Netherlands, South Korea, and the United Kingdom.\textsuperscript{138}

Research on vasectomy typically uses survey data to understand the characteristics of men who have had a vasectomy.\textsuperscript{18,20,22,43,139,140} However, less is known about men’s perceptions of the procedure and their vasectomy decision-making processes. While individual studies shed light on some of the factors that influence men’s motivation to use vasectomy, there is limited synthesized scholarship that could serve to develop a greater understanding of men’s experiences with vasectomy, particularly their motivations and experiences, as defined retrospectively. Given this gap, we conducted a metasynthesis of qualitative study findings published in peer-reviewed journals to broaden our understanding of men’s attitudes about and willingness to use vasectomy. Using thematic synthesis of findings from studies centering men who have had a vasectomy, this metasynthesis provides evidence that can be used to develop, implement,

\textsuperscript{b} Throughout this article, when we refer to “men” and “women,” we are referring to cisgender men and their intimate relationships with cisgender women in the context of pregnancy prevention and reproduction. We recognize that there are a range of sexual and gender identities and that reproduction does not occur solely between cisgender men and women, however, this research focuses on vasectomy as a means of preventing unintended pregnancy in heterosexual, cisgender couples.
and evaluate strategies for public health stakeholders to educate about and promote vasectomy as a highly effective method of contraception.\textsuperscript{141–143}

**Methods**

*Search strategy*

We conducted a metasynthesis to examine extant research findings about how men decide to have a vasectomy and their subsequent experience with vasectomy use. This synthesis began with a broad but systematic search strategy. Studies were eligible for inclusion if they focused on vasectomy and used qualitative methods, broadly defined.\textsuperscript{c} Because the “intervention” of interest is how men come to have a vasectomy, studies that focused on women or clinicians were excluded. We did not bound the search by the age of participants or location of research. We searched for any instance of the terms “vasectomy”, “male sterilization”, or “male sterilisation” (for studies published using British English) in either the title or abstract of academic journals from January 1999 until September 2019 (see Table 4.1). We included only articles published in English, the primary language of the authors. Searches were performed in the following databases to ensure that a full range of relevant publications would be retrieved: Academic Search Complete, CINAHL Complete, JSTOR, PsychInfo, Social Sciences Full Text, Sociological Abstracts, and Web of Science Core Collection. The first author also reviewed reference lists of included studies; no additional studies meeting the inclusion criteria were identified through this search.

\textsuperscript{c} For the purposes of this research, we followed the definition provided by Schwandt (2007) where qualitative methods are those used to understand people’s actions and the meaning behind them.\textsuperscript{144} This includes varying forms of social inquiry relying on non-numerical data.
No articles that met the inclusion criteria were excluded based on perceived quality. We recognize that qualitative researchers approach their work from “vastly different disciplinary, philosophical, theoretical, social, political, and ethical commitments, and they often have very different views on how to execute ostensibly the same kind of qualitative research.”[103, p.366] This metasynthesis embraces these inherent differences in approaches to qualitative inquiry, recognizing that even measures of quality are context-dependent and non-definitive.[104] As such, we did not use a checklist to evaluate the merit of other’s research efforts[105], but instead focused on how studies enhanced our understanding men’s willingness to use vasectomy.

**Synthesis**

While there are various approaches to doing metasynthesis (see Barnett-Page & Thomas, 2009)[106], this research used thematic synthesis developed by Thomas & Harden (2008).[107] Thematic synthesis addresses “questions relating to intervention need, appropriateness, and acceptability – as well as those relating to effectiveness – without compromising on key principles developed in systematic reviews.”[106, p.3] Included studies were imported into Atlas.ti qualitative data analysis software. Following the principles of Thomas & Harden (2008), analysis was concerned with only the reported findings of a study. This was not always straightforward since it can be difficult to identify “the findings” in qualitative research[108], and sometimes participants’ quotes were located in other sections of manuscripts, such as headings, background, or conclusion sections. For our meta-synthesis, “findings” were considered text reported under the results (or other similar) heading and any participant quote reported elsewhere.
Thematic synthesis has three stages: 1) line-by-line coding, 2) development of descriptive themes, and 3) development of analytical themes. Starting with the oldest article and progressing to the most recent, the first author began by developing inductive codes using line-by-line coding to capture concepts across studies. Once all studies were coded, the authors worked together to check code consistency, refine code categories, and group codes into a hierarchical structure of descriptive themes. The defining characteristic of qualitative synthesis, and final step in analysis, is the establishment of an analytical framework that goes beyond existing research to answer a research question. In this case, the result is a conceptual framework of how men decide to have a vasectomy.

Results

Literature search

A total of 4,027 results were generated by the preliminary search strategy (see Figure 4.1). The first author downloaded all citations in Zotero, a free open-source reference management software. A total of 2,266 citations were deleted because they were duplicates. Of the 1,761 remaining results, 1,485 were excluded based on a review of the title. These were articles that focused on women’s contraceptive use, women’s views on sterilization, medical surgical techniques, medical control trials, and/or sterilization in animals. The first author read the remaining 276 abstracts to determine eligibility; 248 were excluded because they either did not use qualitative methods or center men’s voices. A total of 28 articles were read in their entirety.

As pointed out by Erwin et al. (2011), criteria for inclusion and exclusion of studies needed to be flexible. Reading through abstracts and full-text articles revealed
three types of research. The first type centered men’s experiences with vasectomy, the second type included studies about vasectomy attitudes among people who had not had the procedure, and the third type was not exclusively focused on vasectomy but mentioned the term in the abstract among other findings. As these different lines of research became apparent, we revisited the central motivation for this meta-synthesis, which is to gain a greater understanding of what the experience of having a vasectomy was like for men. As a result of this process, total of 13 articles are included in this review. These articles were conducted in seven different countries and represent nine distinct studies that center the experiences of men who had a vasectomy using qualitative research methods (see Table 4.2).

Descriptive thematic findings

Men’s experiences of vasectomy are connected by five core themes and associated subthemes. Across the included studies, men discussed issues of personal autonomy, aspects of masculinity, the role of their intimate partner\(d\), how they came to have a vasectomy, and what the vasectomy procedure and recovery was like for them. Table 4.3 charts the taxonomy of themes and subthemes as well as their distribution across included studies. We draw on data from the included studies to expand on our analysis in the subsequent sections.

Autonomy

It’s an individual decision: Across studies, men described their decisions to have a vasectomy as an individual choice. As one participant said, “It was my decision. I

\(d\) Studies used different terms to describe men’s intimate relationships with women, including the terms girlfriend, wife, spouse, and partner. For simplicity, we use the term “partner” to cover the range of intimate relationships.
decided to do it.”  

Men discussed that vasectomy was a means of exerting control over their own bodies and reproduction. Participants recognized that men are not presented with many male-centered contraceptive options but vasectomy offered a rare opportunity to control their own fertility, “I just decided that a vasectomy was, I just decided that I wanted to have some control.”  

Even as participants discussed other social actors in their lives who influenced their decision to have a vasectomy, they still framed the procedure as something they chose. Framing vasectomy in such a way shows that it was not only seen as a method that allows men control over their own reproductive capacity, but also to a greater extent, control over their lives. As one participant said, “You know people have the power to create their own lives and do what they want with it.”  

Again, even while discussing other influences in their lives, men’s narratives sought to embrace their own autonomy in their decision making.

**Issues of consent:** Related to men’s emphasis on individual choice, several studies highlighted issues around consent. Men discussed how some providers required that their female partner consent to the vasectomy. One participant talked about this process:

And of course, they want the wife to come along, so the husband doesn’t do it without the wife knowing about it. [chuckle] So we both had to come, we both had to sign some papers and things like that, and then there was a week or two waiting period for us to go home and think about it.

This quote demonstrates that not only are men not always able to exercise reproductive autonomy, which has long been a centerpiece of women-centered reproductive rights advocacy, and have a vasectomy without the consent of their partner, but also that some
providers require waiting periods to make sure that both parties are sure about their
decision. Implicit in this quote is the idea that some men may have a vasectomy without
their partner knowing about it, and, since some providers may not allow that to happen,
 disclosing one’s vasectomy to their partner is a necessity. This practice was concerning to
some men:

To my concern and utter dismay, I noted that the consent form had two
signature lines: one for my spouse and another for me. As someone who
is, for a multitude of reasons, strongly pro-choice and dedicated to the idea
that women should have total control over their fertility... I did not believe
I needed my partner’s permission to become infertile, or that my partner
needs my permission to do the same.37, p.108

This participant referenced his commitment to his partner’s right to reproductive
autonomy while simultaneously questioning why he was not granted that same freedom
in having a vasectomy. While the majority of men across studies discussed their
vasectomy with their partner ahead of the procedure, men viewed the fact that some
providers would not perform the procedure without the consent of their partner as a
troubling infringement on their bodily autonomy.

**Justifying the choice to have a vasectomy:** Prior to the procedure, men disclosed
feeling social pressure to justify their decision to friends, family members, and providers.
One participant shared, “My parents said, ‘well as long as you’re sure you don’t want any
more children.’ Everybody said ‘well make sure, you know’.”100, p.194 Because vasectomy
is considered permanent, people questioned whether it was appropriate for a man to
decide to have a vasectomy. While men did not seem to express frustration at these
questions, they did feel that it was – again – really an individual choice. As one participant shared, “Really it is a very personal decision. It’s not of any importance to anyone else.”

**Deciding to disclose one’s vasectomy:** Men’s perception that vasectomy was a personal issue extended into the post-operative period and informed how they decided to conceal or disclose that they had the procedure. Whether or not men disclosed they had a vasectomy often depended on their relationship to the person in question.

Our family’s not the close knit type like my wife’s. . . . I’ve got a sister and a brother . . . I don’t even know that I brought it up with them much at all because we’re just not close . . . I probably felt less comfortable discussing things of that nature with them, than I did friends. It’s just not a close-knit type family where you’d talk about intimate things like that.

While partners almost always knew about the procedure, men determined who else to tell based on their assessment of the closeness and comfort of the relationship.

**Being masculine**

**Defining one’s manhood in relation to (in)fertility:** Men who had a vasectomy were quick to disavow the notion that having the procedure made them less of a man. One man emphasized that he was “as much a man as any other. That’s to say, eh! be that what it may, not just because of the fact that I can no longer have children will I feel any less of a man.” Others said similar things:

I disagree obviously that um you know there’s some relationship between masculinity and ability to have sperm in your ejaculate. . . . I can’t
understand the ingredients you know component of that conversation you know I just think it’s silly. 33, p.105

Despite dominant discourse to the contrary, men discussed that even though vasectomy left them sterile they did not think that changed anything essential about their own masculine identity. And, in some cases we explore below, having a vasectomy was even construed as an act that made someone more of a man.

Expressing masculinity through vasectomy: Men who had a vasectomy often framed undergoing the procedure as a masculine act. Participants quick to point out that their vasectomy made them not like other men, and as a result, participants were made to look as though they were almost better by comparison:

We have friends, for example, and he will not get a vasectomy, he absolutely refuses and she reacts badly to the pill, so she’s, she’s on IUD (clicks tongue), I mean he is pretty, well I wouldn’t say he’s typical, but he’s, he is you know, rural bloke. “Not bloody getting a vasectomy,” you know, blah, blah, blah, so, yeah I dunno, I don’t know. 33, p.105

Participants such as the one above positioned themselves as men who did something honorable, while men who refused to have a vasectomy were positioned as less enlightened by comparison.

These social comparisons that invoked meanings of manhood also played out within the context of one’s peer group. Those who had the procedure advocated for others to follow suit, situating vasectomy as something that only a real man would be brave enough to do:
Then if some of your peer group had already been through it and had a vasectomy, I can imagine then if you were in any doubt . . . they’d take the Mickey in a playful way, saying “you’re scared, you’re chicken” or whatever. Perhaps that put that little bit of extra pressure on somebody where they’d go ahead and do it.\(^\text{34, p.239}\)

Men reported that when friends or colleagues had a vasectomy, they felt pressure to conform and have one, too. Then, once they had the procedure, they would in turn pressure others to do the “manly” thing and have a vasectomy.

**Taking responsibility for the contraceptive burden:** Men further displayed their investment in asserting their masculinity when they discussed their decision to have a vasectomy as a means of taking responsibility for contraception. Reflecting on why men like him choose vasectomy, one participant said:

They’ve decided that it’s, you know, their turn to take on the responsibility. Up until that point you know, it’s been the woman’s responsibility in regards to if they’ve taken the pill and it’s their turn to do something you know take that responsibility.\(^\text{98, p.282}\)

This quote, and others like it, show that the female partner is typically the one responsible for using contraception and bearing the burden of any associated side effects. While men did not typically question this default arrangement, they did explain that vasectomy is an opportunity for men to “do something” to contribute. Another participant elaborated:

She’s taken responsibility for contraception and having kids and all that, so maybe it’s my turn to do something and she had a, um, caesarean
section for the first kid so she figured you know me going and getting a little bit of day surgery was quite appropriate.\textsuperscript{38, p.486}

Across the studies we analyzed, men’s female partners had generally given birth at least once and almost always were the one using contraception. Men conveyed that their decision to have a vasectomy came from a place of wanting to help their partners by alleviating this need. By having a vasectomy, and therefore preventing the need to use contraception moving forward, men feel they are doing the responsible thing in the context of their relationships.

\textit{Intimate partners and contraception}

\textbf{Partners as part of a man’s decision:} While men were willing to discuss having a vasectomy as an individual decision that they made, the fact remains that the overwhelming majority of participants who were partnered did discuss the procedure with their partner before undertaking it. As one man said:

\begin{quote}
I made sure that it was a group decision, I mean it wasn’t something I was just going to go in and do because I felt it needed to be done, but it wouldn’t have been something I would have had done because she told me to go in and get it done.\textsuperscript{100, p.192}
\end{quote}

Our meta-synthesis reveals that men consistently framed having a vasectomy as a personal choice, despite the heavy influence of their partner in the decision-making process, indicating it was clearly not a decision made independently. While men and their partners generally discussed vasectomy together, they did so in contexts where it was normative to use female contraceptive methods, and male-centered methods were a secondary consideration, which they typically utilized later in the reproductive life course.
Female-centered contraception by default: As mentioned earlier, female partners typically used contraception, as demonstrated by this quote: “My wife had taken the responsibility, if that’s the word, for contraceptives for most of our married life up to that time taking the pill.”38, p.488 Across the studies, men explained that their partners often used the oral contraceptive pill as a primary means of preventing pregnancy. Men recognized that their partners were the ones taking a hormonal pill day after day, often experiencing adverse side effects and changing methods to find one that worked best for their bodies and life circumstances. As one man said, “I decided to do this surgery because my ex-wife did not adopt to any contraceptive method. She tried to use several brands of contraceptive[s], but none did well.”147, p.1376

In cases where hormonal contraceptive methods were not acceptable to their partners because of adverse side effects or related issues and the couple had decided not to have more children, tubal ligation was the first permanent method that couples considered. However, across these studies, men were quick to point out that tubal ligation “for a woman is more invasive, requiring longer recovery.”146, p.33 Further, several men were concerned about the potential for their partner to have complications due to underlying health issues. In one case, a man shared, “And so we talked about it, and the doctor told us, ‘Well, you are fine and healthy. She, on the other hand, could develop a serious complication because of her various conditions.’”146, p.35 In light of these concerns, men opted to have a vasectomy to ensure that their partner was not at risk for complications while still providing a permanent, highly effective means of preventing pregnancy.
Limited options for men: In contrast to discussions of female-centered methods, some studies mentioned men’s use of condoms as the only non-vasectomy option available to them. In these instances, condoms were seen as a nuisance where men “felt that condoms reduced...sexual pleasure.”37, p.105 For one man who was waiting to have a vasectomy, he discussed the anticipation of being done with condoms: “There were occasions where I silently celebrated each time my partner put a condom on my penis as the potential final occasion.”37, p.106 While it might be tempting to draw conclusions about how men rely on their female partners to bear the burden of contraceptive use until having a vasectomy, one participant discussed how men are limited in their options:

Why aren’t there methods for men? And, really, a lot of folks, me included, think that the pharmaceuticals and companies like Bayer or whatever, when they see that a product is doing well for them, well, why should they worry about anything else? They must say, “Why should I worry about you [men] if it’s going really well for me with the [contraceptives for] women?”145, p.97

This insight sheds light on a larger issue. Men are constrained by the limited options currently available to them and this in turn places a gendered burden for pregnancy prevention on women with male partners. Even if men seek to take on some of the contraceptive responsibility from their partner, or have additional control over their reproductive capacity, there are no other methods from which men can choose. This is one of the reasons that men will decide to have a vasectomy in the context of a relationship when they do not want to have (more) children.


Coming to the decision

Fears related to vasectomy: Men disclosed they were afraid of a number of things in relation to vasectomy. For those who had a vasectomy pre-emptively (i.e., before having any children), men cited fear of fatherhood and the associated burden of caring for children. As one person said, “If you have to live with them twenty-four hours a day, that’s what scares me.”\(^{99}\) p.215 Relatedly, other men had fears about possible “what if” scenarios where they might consider having children. As one man explained:

“Many of the men here, because of their machismo, think that if in the future they break up with their wives—that they will probably enter into another relationship where the woman will want to have a child.”\(^{146}\) p.23-24

In such cases, men are worried about what could happen in the future if their current relationship ends and they feel pressure to have children in the context of a new relationship. Because vasectomy reversal may not be an option or work, men reflected on future such scenarios regularly.

Men had some other fears related to vasectomy as a surgical procedure. Some were afraid of surgery in general. As one man said, “I was afraid of vasectomy. I had never undergone surgery.”\(^{148}\) p.104 Other men had specific fears about the procedure itself. In some cases, this was due to misconceptions about what the procedure involved: “I imagined it was a kind of mutilation.”\(^{148}\) p.104 In other cases it was about the possibility of pain: “I was worried about post-surgery pain and suffering.”\(^{149}\) p.64

Additionally, men expressed fears about their condition post-procedure. For many, there was concern about how the procedure would influence their sex lives, with emphasis placed on the risk of impotence. As one person expressed, “I think that more
than anything it scares you, no? To think that . . . to think that afterwards it’s not going to work.”¹⁴⁵, p.95 Men that had a vasectomy pointed out that fears around how the procedure would affect a man’s virility prevented other men from undergoing the procedure. For participants in these studies, their fears were overcome by seeking out information from others, particularly medical professionals and trusted peers. As further discussed below, conversations with trusted information sources reduced fears related to vasectomy.

**Information seeking:** One of the prominent sub-themes to emerge from our analysis was that men sought out information from a number of different sources, including friends, colleagues, parents, and providers, to inform their decision to have a vasectomy. Generally, men first asked other men who had a vasectomy about their experiences with the procedure. In some cases, men (and their partners) were able to ask personal questions to friends:

> We probably spoke to 25 different couples that we know, and we asked them all questions like “does it, for the male, does it change anything? I mean is there a decrease in pleasure during sex, or for the female is there any kind of decrease?”¹⁰⁰, p.197

In these instances, the friends with whom men had developed a close relationship were able to provide trusted information in a straightforward manner. In other instances, particularly when relationships were less developed or among a playful cohort of peers, requests for information might be more superficial: “I would never go down and say, ‘Do you feel any more or any less of a man now you’ve had your vasectomy?’ I’d never say that. I’d say ‘Did you get any pain?’”³⁴, p.239 Such questions might be met with joking
responses, but when it came down to it, peers would typically communicate what men felt they needed to know, as demonstrated here:

A couple of days before he actually goes for operation someone will take him to one side and say ‘‘you know we’re only kidding, don’t you?’’ and he’ll say ‘‘yeah, yeah, but what is it like?’’ And then you’ll explain to him exactly what it is like.34, p.239

Men who had a vasectomy advocated for others who did not want (additional) children to also have the procedure and, in turn, provided useful information. As one man said, “If someone asks me I say I’m vasectomized and even advise them to do [it].”147, p.1380

Generally, men sought out medical providers after hearing about vasectomy and getting information from others. When they were ready to learn more, participants discussed the procedure with their medical providers: “The doctor then brought me paperwork containing an explanation of the procedure (a bilateral vasectomy), pages of pre- and post-vasectomy instructions, and a consent form.”37, p.106 Providers were able to answer questions and prepare men for the next steps as they decided to have a vasectomy.

**Number of children:** Unsurprisingly, men’s decision about whether or not to have a vasectomy was often influenced by the number of children they already had. Men discussed how they and their partner had reached their ideal family size and wanted to be sure that they did not have additional children, particularly in light of concerns about finances, careers, or their and/or their partner’s age. As one man said, “We decided to do vasectomy because we already have three children. My wife and I were already reached a certain age as the third came and this worried us.” 147, p.1377 Vasectomy, as a permanent
and highly effective contraceptive method, made sense to men as a viable option to ensure protection against future pregnancies.

At the same time, because vasectomy is understood as a permanent method, men had to consider future scenarios where their current relationship, for whatever reason, dissolved. Most men said that they were comfortable with their decision, regardless. In some cases, men were happy to commit to the permanency of vasectomy because they could not conceive of a situation where they would want to have children with another female partner: “Because I believe that I wouldn’t want to give a child to any other woman.”146, p.23 In other cases, this was due to simply being finished having children, even when there may be a change in partner. As one man said:

I had no desire to get it reversed, cause I didn’t want any more children, and she seemed to be willing to tolerate the two I already had, but she had no desire to have children of her own anyway.100, p.192-193

These quotes exemplify the way that most men approached having a change in relationship where discussion of children was again on the table. However, a handful of experiences were captured where a man did have a reversal. In these cases, even though men thought they were finished having children, the new relationships prompted men to have a reversal so they could attempt to have additional children.

Vasectomy experiences

Negative outcomes: The majority of negative outcomes associated with vasectomy were experienced in the days immediately after the procedure. Men discussed having pain for several days following their vasectomy. One man explained this in vivid terms:
By the time we arrived home, my head had cleared, but my genitals were feeling worse. To be blunt, it felt like I had been kicked in the groin, and then, before the pain could abate, I was kicked again and again.37, p.112

Beyond the pain experienced as a result of the procedure, men were also beset by fears of what it would be like to return to sexual activity. As one man said,

For the first few days after the surgery, I doubted my sexual ability due to edema at the incision site and the discomfort in my testicles; I felt regret for what I had done, but gradually this feeling melted away.149, p.622

While there was discomfort in the short term, for the majority of men, there were no long-term issues related to their vasectomy. However, a minority of participants across these studies did have lingering issues, including pain and reduced sensation. One man shared that he had complications that lasted for a year: “The scar was a bit rough and sometimes I got pain when I had an erection but that didn’t last long . . . twelve months about.”34, p.242 While such negative outcomes should be taken into account when making the decision whether or not to have a vasectomy, generally men had no long-term negative outcomes as a result of the procedure.

Positive outcomes: The majority of men reported that they were very satisfied overall with their vasectomy experience. Vasectomy was viewed as a positive thing because it removed the worry of unintended pregnancy. Men were happy to promote vasectomy for this reason: “It is a good method; I recommend it to all, as we had no more problems of unwanted pregnancies.”149, p.622 Relatedly, men reported that removing the possibility of contributing to a pregnancy had improved their sex lives. One shared, “I do not regret in any way by opting for surgery, even helped me more in my sex life, I have
more desire and pleasure, I am very happy with the result.”147, p.1380 As an additional bonus, men’s improved sex lives enhanced their relationship with their partners: “My relationship with my wife has improved, in all aspects . . . My sexual performance has improved with my wife . . .”148, p.106 For the men captured in these studies, vasectomy was beneficial not only because it removed the fear of unintended pregnancy, but also for these additional related outcomes.

Discussion

The findings from our metasynthesis reveal how men who have had a vasectomy make sense of their experiences. We assembled the themes we uncovered into a conceptual framework illustrating how men come to the decision to have a vasectomy (Figure 4.2). Men typically frame their narratives in terms of exercising bodily autonomy, where men are the ones making an individual, personal choice to have the procedure. Because vasectomy is considered a permanent contraceptive method, men initially began to consider the procedure when they had the number of children they desired, or to prevent pregnancy altogether. For men at this stage, they sought out information from friends and providers to learn more about the procedure and allay fears related to vasectomy. For the men across the studies we analyzed, the fears they expressed were based on anticipated physiological outcomes. Men had concerns about having a surgical procedure, potential changes to their sex lives, and what might happen to their intimate lives in the future. Once fears were managed, men discussed the aftermath of their vasectomies as an individual experience. They discussed how their physical recovery went and how their sex lives had improved. Throughout these narratives, vasectomy was framed as a personal experience.
Men continually framed their vasectomy as an individual choice, yet the data reveal that the decision to have a vasectomy is mediated through a specific set of social interactions. Even as men discussed their vasectomy as a personal decision, they referenced the influence of their intimate partners at each stage of the decision-making process. Men talked at length about how they negotiated the use of different forms of contraception with their partners before deciding on vasectomy. Men discussed how they and their partner determined how many children to have and reflected on how their partners needed to consent to the procedure. Men talked about how their sexual relationship with their partner improved after their vasectomy. The evidence across the studies demonstrates that as much as men described their vasectomy as an individual decision, intimate partners are integral to the process.

At each stage, men’s ideas about masculinity – informed through social interactions that reflect gender norms – informed how they exercised their personal autonomy, came to decide to have a vasectomy, and shaped the experience itself. Men framed themselves as powerful social actors in control of their own lives and outcomes, even down to their (in)ability to reproduce. Narratives often situated men as gallantly stepping up to take on the contraceptive burden from their partners, describing themselves as potentially more masculine than other men who do not do such things for their partners. And while they may have experienced some physical discomforts in the aftermath of the procedure, generally men described their vasectomies as a minor surgery with limited problems. While vasectomy as a procedure was generally described as a small inconvenience, the act of undergoing the procedure reflected on one’s masculinity.
Strengths and limitations

This study brings together the small body of qualitative research that center men’s experiences of having a vasectomy. To the best of our knowledge, this is the first metasynthesis of qualitative research on this topic. Our metasynthesis is strengthened by our comprehensive search strategy with wide-ranging search parameters and adherence to existing methods for thematic synthesis. While thematic synthesis clearly identifies themes across studies, it also benefits from being a flexible method able to incorporate diverse data. As such, by including works from diverse fields including anthropology, communications, gender studies, and public health, we are able to conduct a systematic trans-disciplinary investigation. Further, thematic synthesis was developed as means of addressing complex questions about interventions and their acceptability while still maintaining the structures used in systematic reviews. In this case, the synthesis uncovered what made vasectomy suitable for the men who had the procedure.

While this synthesis brings together qualitative research focused on the experiences of men who have had a vasectomy, because of the nature of systematic reviews, there were other studies which were excluded. This includes studies that reported on having a vasectomy from the point of view of both men and women, studies that included men that had vasectomy but also other people that had not, studies of how both men and women might consider having a vasectomy, studies centered on healthcare providers, and studies of online message board content. While we recognize that these are other important perspectives to consider, ultimately the goal of this metasynthesis was to better understand how men themselves discuss their experience vasectomy across place and time.
Implications for practice and future research

This study calls attention to the dearth of qualitative research investigating men’s experiences with vasectomy. Over the past 20 years, there has been limited investigation into how men come to have the procedure and how they discuss it retrospectively. There are many opportunities for researchers to delve into this topic, but this metasynthesis brings to light a few key areas to consider. First, while men consistently framed vasectomy as an individual choice, it seems as if most do not undergo the procedure without taking their intimate partner into consideration. There are a handful of studies that considered the views of both men and women who are considering having a vasectomy\textsuperscript{23,24,151,152}, although these have not focused exclusively on those couples where the male partner has already had the procedure. Future research efforts that investigate the dynamics among couples in vasectomy decision-making can further elucidate how this procedure is negotiated.

Second, men cited a range of fears that needed to be addressed prior to consenting to have their vasectomies. There is a need for greater awareness and communication about what the procedure of vasectomy is and entails. Across included studies, men discussed the importance of being able to ask questions about vasectomy to other men. At the same time, men also shared that they recommend the procedure to others. Public health professionals may be able to partner with men who have had the procedure to serve as peer counselors who can function as a trusted source of information for other men. These efforts may lead to increased visibility of vasectomy as one of many contraceptive options for men and their female partners to consider.
Third, it is important to remember that there are currently only two modern, male-centered contraceptive methods available globally: condoms and vasectomy.\textsuperscript{137} While our analysis calls attention to the ways in which female-centered contraception was the default for men in these studies, it is unsurprising given the lack of options for men to control their fertility, particularly since vasectomy is, for all intents and purposes, permanent. Men’s “choice” then is constrained by the options made available to them and the continued struggle to develop other male-centered methods which are highly effective, reversible, and acceptable to men (e.g., with little-to-no negative side effects).\textsuperscript{15}

**Conclusion**

This study sheds light on global research about men’s vasectomy experiences over the past 20 years while recognizing that research on this topic remains scant. While vasectomy is an underutilized contraceptive method throughout much of the world, the fact remains that some men continue to have the procedure. This, coupled with the fact that men have limited contraceptive options, warrants greater investigation into vasectomy as a potential contraceptive option for men who have reached their ideal family size. Even as men construct their vasectomy experiences as individually-driven choices, there are other social actors to consider – including partners, peers, and providers – as well as how existing gender norms shape decision-making, contraceptive use, and contraceptive method availability. We recommend that reproductive health researchers and healthcare providers consider how intimate partners, peers, and culturally specific gender norms influence men’s decision whether or not to have a vasectomy.
Table 4.1 Metasynthesis search strategy*

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*Searched academic journal articles published in English between January 1999 and September 2019.
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<th>Country</th>
<th>Sampling strategy and size</th>
<th>Data collection method</th>
<th>Analytic approach</th>
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<tr>
<td>Amor et al. (2008)</td>
<td>To examine the process of vasectomy from decision making to post-procedure adjustment</td>
<td>United Kingdom</td>
<td>Letters sent to 150 men who had vasectomy three years prior; participants opted in (n=19)</td>
<td>Individual interviews done in person or over the phone; interviews lasted between 45 and 65 minutes</td>
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<td>Cícero et al. (2014)</td>
<td>To describe vasectomized men’s perspectives on influences for having procedure</td>
<td>Brazil</td>
<td>Men &gt;25 years who had vasectomy &gt;6 months ago recruited through snowball sampling (n=13)</td>
<td>Individual, in-person interview lasting average of 30 minutes</td>
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<td>Cragun &amp; Sumerau (2017)</td>
<td>To provide an autoethnographic account of one man’s vasectomy experience</td>
<td>United States</td>
<td>One White, middle-class, heterosexual, married man (n=1)</td>
<td>Written diary and notes of experiences before, during, and after vasectomy</td>
<td>Collaborative autoethnography using narrative analysis</td>
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<td>To describe factors that motivated men to have a vasectomy</td>
<td>Mexico</td>
<td>Reporting on men who had a vasectomy as recruited from two vasectomy clinics; sample size unclear</td>
<td>Interviews of varying duration in varying settings as part of ethnographic field work</td>
<td>Ethnographic analysis using thematic analysis</td>
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<td>To describe the experiences of men who underwent vasectomy</td>
<td>Iran</td>
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<td>Individual, in-person interview lasting average of 40 minutes</td>
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<td>Used list of all men who had had vasectomy at state health clinic over prior year to randomly invite of 10% sample (n=20)</td>
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<td>Pomales (2013)</td>
<td>To allow patients to narrative their experience getting a vasectomy</td>
<td>Costa Rica</td>
<td>Men who had (or were imminently scheduled to have) a vasectomy at hospital outpatient surgery facility recruited through that facility (n=12)</td>
<td>Individual interviews done in person, the majority at outpatient survey facility post-vasectomy</td>
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<td>Rauscher &amp; Durham (2015)</td>
<td>To examine how men who have had a vasectomy communicate with others about their decision</td>
<td>United States</td>
<td>Men who had a vasectomy recruited through personal contacts and snowball sampling (n=24)</td>
<td>Individual interviews done in person or over the phone; interviews lasted between 35 and 120 minutes</td>
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<td>To examine the accounts of men who had undergone vasectomy</td>
<td>New Zealand</td>
<td>Men who had had a vasectomy either after having children (n=16) or before having children (n=12); recruited in response to press release about proposed study</td>
<td>Individual interviews done in person or over the phone; interviews lasted between 45 and 90 minutes</td>
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Table 4.3 Taxonomy of findings and distribution across included studies

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Figure 4.1 Men’s experiences of vasectomy: Flowchart of included studies
Figure 4.2 Metasynthesis conceptual framework
Chapter 5 – Men’s vasectomy knowledge, attitudes, and information seeking behaviors in the southern United States: Results from an exploratory survey

Abstract

Vasectomy is one of the few options men have to manage their reproductive capacity and take on a more equitable role in pregnancy prevention. While the method is underused throughout the United States, the southern states have a lower prevalence rate compared to the rest of the country. Existing survey research does not assess what men know or think about the procedure as a means of understanding why this is the case. The goal of the current study was to create and conduct an exploratory survey of men’s knowledge, attitudes, and information seeking behaviors about vasectomy in the southern United States. We used targeted Facebook advertising to recruit men ages 25-70 living in seven southern states (Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee) to complete an online survey (n=397). Using linear and logistic regression analyses, we found that participants who had a vasectomy knew more about the procedure and had more positive attitudes about the procedure compared to participants who had not had a vasectomy, although other demographic characteristics had limited influence. The majority of participants reported knowing someone who had had a vasectomy. This exploratory survey suggesting potential avenues for future

\(^{(c)}\) Ashley L. White, Rachel E. Davis, Deborah L. Billings, and Emily S. Mann. To be submitted to American Journal of Men’s Health.
research related to uncovering men’s attitudes towards vasectomy. Findings may be used by public health officials interested in implementing campaigns to increase knowledge about vasectomy and reduce stigma, which may encourage more positive attitudes about the procedure.

**Introduction**

It has been 25 years since universal access to reproductive health care that integrates men into policies and services was placed on the international agenda. In the years since, particularly in the United States, men’s roles in the reproductive equation have largely been ignored, and the contraceptive burden has continued to primarily fall on women. One of the reasons for this inequitable burden is that men’s choices of reproductive technologies are constrained. In practice, there are more than a dozen female-centered contraceptive methods but only three male-centered methods (i.e., withdrawal, male condoms, and vasectomy). Vasectomy is one of the few options men have to manage their reproductive capacity and take on a more equitable role in pregnancy prevention. Vasectomy is regarded as a safe, cost-effective, permanent contraceptive method that is 99.9% effective at preventing pregnancy. As such, it may be an attractive option for men and their female partners to consider when they do not wish to have children or have reached their ideal family size. Yet, vasectomy continues to be underused and understudied in the United States.

Approximately 500,000 vasectomies are performed each year in the United States. Information about who gets a vasectomy is primarily derived from the National Survey of Family Growth (NSFG). The NSFG is designed to be a nationally-representative survey of women and men aged 15-49. Analyses of the NSFG data
estimate that 6% of all men rely on vasectomy for pregnancy prevention\textsuperscript{20}, although men who have not been married are unlikely to use the method.\textsuperscript{90} Generally, men who have a vasectomy are married, White, over 35, and have two or more children.\textsuperscript{21,43,90} By comparison, an estimated 16% of women rely on tubal ligation for pregnancy prevention, although this method is more invasive, riskier, more expensive, and less effective at preventing pregnancy than vasectomy.\textsuperscript{16,44}

Research has also shown that there are regional disparities in permanent contraceptive use. Vasectomy prevalence rates are lower in the southern states compared to other parts of the country.\textsuperscript{22} At the same time, rates of tubal ligation are higher in the southern states compared to other parts of the country.\textsuperscript{158} Improving our understanding of why vasectomy is underused in the south would be a step towards addressing this inequitable balance of permanent contraception in the region.

The aforementioned research analyzing the NSFG and regional use disparities has been essential for understanding the demographic characteristics of men who decide to have a vasectomy. However, little other quantitative work examines what men know or think about the procedure. After an extensive literature review and consultation with colleagues working in the field of sexual and reproductive health, it seems that no survey has examined men’s knowledge or attitudes about vasectomy in the country. The goal of the current study was to address this gap by conducting an exploratory survey of men’s knowledge, attitudes, and information seeking behaviors about vasectomy in the southern United States. This survey serves to provide new information about how men consider vasectomy in a region with lower uptake while also generating areas of inquiry for future research.
Materials and methods

Study sample

To be eligible to participate in the study, a participant needed to be a cisgender, English speaking, heterosexual man between the ages of 25-70 years old. These eligibility criteria were imposed because vasectomy is positioned as a contraceptive option for cisgender men who are seeking to prevent pregnancy with their female partners who could become pregnant. The age criteria reflect known trends on the age in which one receives a vasectomy, while also capturing men who have the procedure later in life. We restricted the sample to men living in one of seven southern states (Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, or Tennessee). The geographic bounding was used to focus on southern states that have lower vasectomy prevalence rates compared to other regions of the country.

We used targeted Facebook advertising to recruit participants. Using information from members’ profile pages, the advertisements targeted men over age 18 who lived in one of the seven aforementioned states. Respondents who were interested in the study clicked on a hyperlink in the Facebook advertisements to link to the survey materials, which were hosted on SurveyMonkey. Once reaching the SurveyMonkey site, potential participants read a brief statement about the purpose of the research and other information related to informed consent. Those who agreed to participate were then taken to the screening questions to ensure they met the eligibility criteria. Those who did not meet the criteria were thanked for their time, and those who qualified proceeded to the beginning of the questionnaire, which took between 10 and 15 minutes to complete. Participants had the option of providing their email address at the end to be eligible for a
drawing for a $50 Amazon gift card. One gift card was sent for every 50 respondents using computer-generated random selection.

Data were collected between April and May 2019. A total of 652 individuals clicked on the questionnaire link and consented to answer the eligibility questions. One hundred and seventy individuals were ineligible because they did not meet the qualifying criteria for either age, state of residence, or sexual orientation. An additional 85 people met the qualifying criteria but did not complete the questionnaire; these responses were excluded because they did not provide answers to questions about their attitudes, which formed the bulk of the analysis. The 397 complete questionnaire responses that met the age, location, and sexual orientation criteria are included in our analyses. This research was approved by the [BLINDED] Institutional Review Board.

**Questionnaire development**

The questionnaire measured men’s vasectomy knowledge, attitudes, and information seeking behaviors. The questionnaire was informed by a literature review, which revealed no known survey of these constructs in the United States, although related work had been conducted in Mexico.\textsuperscript{111,112} Drawing on this research in Mexico, information gathered from the literature, and in consultation with the co-authors, the first author developed a questionnaire consisting of items querying vasectomy knowledge, attitudes, and information seeking, as well as demographic information. The first author conducted cognitive interviews (n=6) with a convenience sample of men living in southern states to identify potential issues with the questionnaire items.\textsuperscript{113} After minor revisions, the questionnaire was pretested (n=37) with a convenience sample of men
recruited using the first and fourth authors’ Twitter and Facebook accounts. No content or deployment issues were noted, and no revisions were made.

Measures

Vasectomy knowledge

We assessed knowledge of vasectomy by asking how much respondents agreed or disagreed with seven statements using a 5-point response scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”) (see Table 5.1). Statements were all measures developed by the authors. Examples included “vasectomy is an outpatient procedure” and “vasectomy can be reversed.” We created the knowledge variable by summing the responses to each of the seven statements. Scores could range from 5 to 35; a higher score represented greater knowledge about vasectomy.

Vasectomy attitudes

We assessed attitudes towards vasectomy using 33 items thought to impact the perceived acceptability of having a vasectomy. These items were developed by the authors or based on work by Hernandez-Aguilera & Marván (2016). All attitude questions used a 5-point Likert scale ranging from “strongly disagree” to “strongly agree.” Exploratory factor analysis conducted with the survey data indicated that 25 of the items formed six subscales: 1) potential for regret, 2) changes to one’s sex life, 3) religious views opposing vasectomy, 4) willingness to disclose having a vasectomy, 5) concerns about the procedure, and 6) concerns about recovery. See Table 5.1 for item wording and internal consistency reliability statistics. Each variable represented the mean of the items forming each subscale, with higher scores indicating greater endorsement of that attitude.
Information seeking

We assessed information seeking behaviors using two measures developed by the authors. First, we asked if participants if they knew someone that had had a vasectomy. Second, we asked if the participants had talked to anyone about having a vasectomy. For both questions, answers were reported as either “yes” or “no”.

Demographic characteristics

All respondents were asked to provide their age, state of residence, number of children, relationship status, highest completed level of education, household income, and race/ethnicity. Participants were also asked if they had had a vasectomy. If they had had a vasectomy, men were also asked if they had obtained a reversal.

Analysis

We first computed descriptive statistics to characterize the study sample, including the respondents’ knowledge, attitudes, and information seeking behaviors regarding vasectomy. Because only one participant had a received a reversal, we categorized all participants as having either had (“yes”) or not had (“no”) a vasectomy and included the one participant with a reversal in the “yes” category. Since small numbers of responses were obtained from American Indian, Asian American, Black, and Latino men, we categorized race and ethnicity for all participants as either White or non-White. Next, we compared the differences between respondents who had versus had not received a vasectomy. We assessed the differences in knowledge and attitudes using Mann-Whitney U Tests because these variables were not normally distributed. Differences in information seeking behavior, which was normally distributed, were assessed using chi-square tests. We also tested for differences in knowledge and attitudes
by age, number of children, race/ethnicity, relationship status, educational attainment, and income. Finally, we conducted linear and logistic regression analyses to estimate the relationships between sociodemographic variables and vasectomy-related knowledge, attitudes, and information seeking. We used SPSS version 25 for all analyses.123

Results

Descriptive characteristics

The mean age of participants was 47.4 years (SE±0.70; Table 5.2). Participants reported having a mean number of 1.5 children (SE±0.07). Nearly 18% of the sample had had a vasectomy (n=70). Among those who had a vasectomy, the average time since the procedure was 17.4 years (SE±1.3), with a range between one and 36 years. Nearly 90% (n=356) of the sample identified as White. The majority of respondents were married (65.5%) or cohabitating (10.6%). About half of the sample had at least a bachelor’s degree. More than 40% of the participants reported an annual household income less than $55,000. The mean knowledge score was 29.7 (SE±0.18) out of 35. The majority of participants knew someone with a vasectomy (70.8%), but only 32% of respondents had talked to someone about the procedure.

Using bivariate analyses to determine differences by vasectomy status

Participants that had a vasectomy had a higher mean knowledge score of 32.6 (SE±0.29) than participants who had not had a vasectomy (29.2 [SE±0.20], p<0.001; Table 5.3). Similarly, respondents who had had a vasectomy had statistically significantly higher mean scores on each of the six attitude subscales than respondents who had not had a vasectomy (p≤0.001). There was a statistically significant relationship between...
having obtained a vasectomy and knowing someone else who had a vasectomy ($\chi^2=9.16$, $p=0.002$) and talking with someone about vasectomy ($\chi^2=106.83$, $p\leq0.001$).

**Estimating men’s vasectomy knowledge and attitudes using linear regression models**

We conducted multiple linear regression analyses to see whether vasectomy status determined men’s knowledge or attitudes while holding demographic variables constant (Table 5.4). We found that knowledge about vasectomy was positively associated with having a vasectomy ($p<0.001$) and having a bachelor’s or master’s degree ($p<0.05$; $p<0.01$) but negatively associated with non-White race/ethnicity ($p<0.001$) or not dating anyone ($p<0.05$).

Participants who had a vasectomy had higher mean scores for each of the six attitude subscales. Number of children was negatively associated with both potential regret ($p<0.05$) and religious views ($p<0.01$). Cohabitating ($p<0.01$) or being widowed, divorced, or separated was a positive predictor of religious attitudes about vasectomy ($p<0.01$). Similarly, participants who were cohabitating had more positive attitudes about disclosing vasectomy to others compared to married participants ($p<0.05$). Having a bachelor’s degree was a significant predictor of attitudes about vasectomy’s impact on one’s sex life ($p<0.05$). Participants who made between $25,000-$54,999 had more positive attitudes about vasectomy’s impact on their sex life compared to men making less than $25,000$ ($p<0.05$). Finally, participants who made more than $115,000$ a year had more positive attitudes about disclosing vasectomy to others compared to participants making less than $25,000$ ($p<0.05$).
Estimating men’s vasectomy information seeking behaviors using logistic regression models

We also conducted multiple logistic regression analyses to see whether vasectomy status determined men’s information seeking behaviors while holding demographic variables constant (Table 5.5). We found no association between knowing someone who had obtained a vasectomy and having had a vasectomy. Non-White participants were less likely to know someone who had had a vasectomy compared to White participants (p≤0.01). Compared to respondents who were married, respondents who were dating (p≤0.001) or not dating (p≤0.001) had higher odds of knowing someone who had had a vasectomy.

Participants who had had a vasectomy were 30 times more likely to have talked to someone about a vasectomy than participants who did not have a vasectomy (p≤0.001). The odds of talking to someone about vasectomy decreased slightly with age (p≤0.001) but increased based on number of children (p≤0.001). Compared to married men, men who were widowed, divorced, or separated were less likely to have talked to someone about vasectomy (p≤0.05). We also found that respondents who made between $55,000-$84,999 (p≤0.05) or over $115,000 (p≤0.05) per year were less likely to talk with someone about vasectomy compared to respondents making under $25,000.

Discussion

In our sample, men who had a vasectomy had greater knowledge and more positive attitudes about the procedure compared to men who have not had the procedure, even when holding other demographic variables constant. It is not unexpected that men who have had a vasectomy knew more about it compared to men that have not had a
vasectomy. They have experienced it while others have not. What remains unknown though is whether men held more positive attitudes about the procedure before having it done or whether they developed these attitudes after the fact. Because this is a cross-sectional survey, we were not able to assess how attitudes might have changed over time. It may be possible that because men thought about vasectomy in a positive way, they were willing to have the procedure. However, it is also possible that men’s attitudes towards vasectomy improved in the time since they had the procedure, especially if they did not experience adverse side effects.

By contrast, it is interesting to consider why men who did not have a vasectomy had lower scores across all attitude subscales. For example, mean scores for potential regret may have been lower because men without vasectomies were still considering future scenarios where they may want to have additional children. It remains unclear how men might imagine their reproductive futures and whether the permanency of vasectomy is the driver for attitudes about potential regret. Some research has examined vasectomy regret, which has been found to be higher among men who are younger than 30 when they had the procedure. However, research has also shown that men were childless at the time of vasectomy were unlikely to desire reversal. Men who have undergone vasectomy reversal are typically more than five years post-surgery and have a new female partner. For men interested in reversal, success depends on the man’s age and time since sterilization. Of the 70 men in the sample, only one had a reversal; he was 45 and had remarried.

Misinformation about vasectomy may be a reason that men who had not had a vasectomy had more negative attitudes about potential changes to their sex life, the
procedure, and recovery. Men might believe that vasectomy causes them to lose their libido; however, research has shown that vasectomy can have positive effects on sexual satisfaction.\textsuperscript{60,61} Similarly, attitudes about the procedure and recovery may be driven by beliefs that vasectomy is invasive, painful, or debilitating. Yet, the majority of vasectomies are minimally invasive outpatient procedures requiring only local anesthesia that take approximately 15 minutes.\textsuperscript{83} Research has demonstrated that men who had a vasectomy found it significantly less painful than they anticipated.\textsuperscript{85} Public health interventions aimed at increasing the visibility of vasectomy would do well to counter potential misperceptions with these findings.

What is less clear is how men’s attitudes about disclosure and religious concerns may be understood and potentially addressed. The subscale for disclosure included items about discussing vasectomy with partners, peers, and doctors. It is certainly possible, and probably likely, that men may approach talking about vasectomy with these types of people differently. Further, the disclosure subscale included items about shame and embarrassment. Again, these elements may vary depending on who men are talking to and in what contexts, which makes them difficult to disentangle. Similarly, the subscale about religious views assessed whether or not people’s beliefs may preclude them from considering a vasectomy. What we do not know, however, is how strict men’s views may be, the views of their female partner, and whether religious opposition applies to all forms of contraception. Qualitative research would be well-situated to understanding issues around religion and concerns over disclosure. This work would be able to further explore men’s reasons and motivations within the scope of their lived experiences.
Surprisingly, other demographic variables only had limited influence on measured outcomes, although it is worth considering differences based on race/ethnicity. Among our sample, race/ethnicity was a predictor of knowledge, with non-White men found to have less knowledge about vasectomy than White men. Other research has similarly suggested that Black and Latino men have lower levels of contraceptive knowledge compared to White men.\textsuperscript{139} Relatedly, among our sample, non-White men were significantly less likely to know someone who had had a vasectomy. Existing research shows that Black and Latino men have vasectomies less often than White men\textsuperscript{21}, so it is not unexpected that the non-White participants may not have known other men who had the procedure. Despite these differences, race/ethnicity was not a predictor for any of the attitude subscales. Our findings suggest that it may not be attitudes about vasectomy that are preventing non-White men from having a vasectomy but rather other factors, such as generally low rates of counseling about vasectomy\textsuperscript{140} or resource constraints on offering vasectomy services.\textsuperscript{97} Further research into vasectomy disparities based on race/ethnicity are needed.

Finally, our logistic regression model revealed that men who had received a vasectomy were more likely to have talked to someone about the procedure compared to men who had not had a vasectomy. This makes sense because men would likely have had to have conversations with their medical provider, and potentially partners or friends, before having the procedure. However, whether or not a man had a vasectomy was not significantly related to whether or not he knew someone who had undergone the procedure. Our findings show that the majority of men in our sample reported knowing someone who had had the procedure. While it appears that men do disclose their
vasectomies with others as part of their interpersonal relationships, we do not know much about how the nature of the disclosure, whether it is a simple “I had the procedure” or a more detailed account. In either case, the ways that men gather information about vasectomy and tell others about it is a compelling area for exploration. Research in New Zealand, England, and Mexico shows that there is a social element to talking about vasectomy, and that peers could be a source of social support and inclusion when it came to men’s vasectomy decision-making.33,34,145 Future research might examine peer-to-peer interactions to understand the interpersonal dynamics around vasectomy decision-making and disclosure. Findings may illuminate ways that men can be used to increase visibility of vasectomy as a contraceptive method to consider among their peers.

**Strengths & Limitations**

This research explored men’s vasectomy attitudes, knowledge, and information seeking behaviors based on pertinent demographic characteristics. The primary limitation is that this survey did not use a probability-based sampling approach. Thus, the findings are not generalizable beyond the study population. However, nonprobability sampling strategies are useful as a means of getting a sense of what people think or believe115, and other research focused on aspects of contraception has similarly utilized nonprobability designs for exploratory research.116,117,119 We also recognize that recruiting online via Facebook can be a source of bias, potentially excluding people without access to the internet or who use social media. While the survey sample represented a range of ages, education levels, and income groups, there was limited variation by race/ethnicity. This may have been related to the use of Facebook for online recruitment as well as the fact that a very small percentage of Black and Latino men receive vasectomies.21
precluded more granular analyses based on these characteristics. Similarly, the majority of our sample was married or cohabitating. While men in such relationships may be more likely to consider vasectomy, our results may have been different if we had a larger population of participants who were single or casually dating. The proportion of respondents who have had a vasectomy, however, was slightly higher than existing national estimates.\textsuperscript{20,43} Finally, the recovery subscale had relatively low internal consistency ($\alpha=0.64$), although this may have been an artifact of only having three items. Future work may be needed to explore the content validity of this scale and expand the number of items. The information gathered from this research can be used to design and inform a larger, probability-based survey sample to further investigate these constructs.

**Conclusions**

Vasectomy remains an understudied and underused contraceptive option. While vasectomy is not the right choice for all men, the method’s effectiveness, permanence, and safety may make it an attractive option to consider for men (and their female partners) who do not want to father children or have reached their desired family size. This research brings to light pertinent demographic characteristics associated with vasectomy knowledge, attitudes, and information seeking. Findings may be used by public health officials interested in implementing campaigns to increase knowledge about vasectomy and reduce stigma, which may encourage more positive attitudes about the procedure. Providers can continue to work to expand sexual and reproductive health services to men and discuss vasectomy as one of many contraceptive options to consider for men and their female partners. Future research efforts can continue to explore how men and women gather information and make judgements about vasectomy. Qualitative
research would likely be well suited for this task, particularly given the need to understand how people conceptualize vasectomy and potential barriers to use. This work may enable more men to choose vasectomy, thereby giving men greater control over their own reproductive capacity while also reducing women’s contraceptive burdens.
Table 5.1 Survey knowledge and attitude scale information

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<td>Knowledge</td>
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<td></td>
<td>Vasectomy is an outpatient procedure.</td>
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<td>Vasectomy is meant to be a permanent means of preventing pregnancy.</td>
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<td>Vasectomy can be reversed.</td>
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<td>Vasectomy is more than 99% effective at preventing pregnancy.</td>
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<td>Having a vasectomy means having your testicles removed.</td>
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<td>Having a vasectomy means no longer having sperm in your semen.</td>
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<td></td>
<td>Having a vasectomy means you can no longer ejaculate.</td>
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<td>Potential for regret ($\alpha=0.79$)</td>
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<td></td>
<td>Having a vasectomy makes you less of a man.*</td>
<td>Yes</td>
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<td></td>
<td>Men should not have a vasectomy.*</td>
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<td></td>
<td>Men who have a vasectomy will regret it.*</td>
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<td>Changes to one’s sex life ($\alpha=0.78$)</td>
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<td>Once a man has a vasectomy his sex life gets worse.*</td>
<td>Yes</td>
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<td></td>
<td>If a man has a vasectomy, he is more likely to cheat on his female partner.*</td>
<td>Yes</td>
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<td></td>
<td>Vasectomy causes men to lose interest in sex.*</td>
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<td>Concerns about the procedure ($\alpha=0.76$)</td>
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<td>Vasectomy is a safe procedure.</td>
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<td>Vasectomy is a painful procedure.*</td>
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<tr>
<td></td>
<td>Vasectomy is a complicated procedure.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Vasectomy is a procedure with serious medical risks.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>If I thought about getting a vasectomy, I would be worried that something would go wrong.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>If I did get a vasectomy, I trust that the doctor would do a good job.</td>
<td>No</td>
</tr>
<tr>
<td>Concerns about recovery ($\alpha=0.64$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If a man has a vasectomy, he will be fully recovered a few weeks after the procedure.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Recovering from a vasectomy takes a few days.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Recovering from a vasectomy is not a big deal.</td>
<td>No</td>
</tr>
<tr>
<td>Willingness to disclose having a vasectomy ($\alpha=0.81$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If I had a vasectomy, I would tell my sexual partner(s) about it.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>I would feel comfortable talking with a doctor about getting a vasectomy.</td>
<td>No</td>
</tr>
<tr>
<td>Measure</td>
<td>Questions</td>
<td>Reverse code?</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
<td>I would tell my friends that I had a vasectomy.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>I would be embarrassed to tell people that I had a vasectomy.</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>I would be ashamed to tell people that I had a vasectomy.</td>
<td>Yes</td>
</tr>
<tr>
<td>Religious views opposing vasectomy (α=0.81)</td>
<td>My religious beliefs would not influence my decision to have a vasectomy.</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>I consider it a sin to get a vasectomy.*</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Because of my religious beliefs, I would not get a vasectomy.</td>
<td>Yes</td>
</tr>
<tr>
<td>Information seeking</td>
<td>Before today, have you ever talked to anyone about vasectomy?</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Do you know anyone that has had a vasectomy?</td>
<td>No</td>
</tr>
</tbody>
</table>

* Adapted from: Hernandez-Aguilera & Marván (2016)
### Table 5.2 Overall respondent descriptive characteristics (n=397)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>% or mean (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>47.4 (0.70)</td>
</tr>
<tr>
<td>Number of children</td>
<td>1.5 (0.07)</td>
</tr>
<tr>
<td><strong>Vasectomy</strong></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>82.4%</td>
</tr>
<tr>
<td>Yes</td>
<td>17.6%</td>
</tr>
<tr>
<td><strong>Race/ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>89.7%</td>
</tr>
<tr>
<td>Non-White</td>
<td>10.3%</td>
</tr>
<tr>
<td><strong>Relationship status</strong></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>65.5%</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>10.6%</td>
</tr>
<tr>
<td>Widowed / divorced / separated</td>
<td>7.1%</td>
</tr>
<tr>
<td>Dating but not cohabitating</td>
<td>8.1%</td>
</tr>
<tr>
<td>Not dating</td>
<td>8.8%</td>
</tr>
<tr>
<td><strong>Educational attainment</strong></td>
<td></td>
</tr>
<tr>
<td>High school / GED</td>
<td>25.9%</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>22.4%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>27.2%</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>24.4%</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;$25,000</td>
<td>11.1%</td>
</tr>
<tr>
<td>$25,000-$55,000</td>
<td>32.5%</td>
</tr>
<tr>
<td>$55,000-$85,000</td>
<td>21.2%</td>
</tr>
<tr>
<td>$85,000-$115,000</td>
<td>18.4%</td>
</tr>
<tr>
<td>&gt;$115,000</td>
<td>16.9%</td>
</tr>
<tr>
<td><strong>State of residence</strong></td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td>15.6%</td>
</tr>
<tr>
<td>Georgia</td>
<td>16.9%</td>
</tr>
<tr>
<td>Louisiana</td>
<td>6.8%</td>
</tr>
<tr>
<td>Mississippi</td>
<td>10.3%</td>
</tr>
<tr>
<td>North Carolina</td>
<td>18.1%</td>
</tr>
<tr>
<td>South Carolina</td>
<td>16.4%</td>
</tr>
<tr>
<td>Tennessee</td>
<td>15.9%</td>
</tr>
<tr>
<td><strong>Knowledge</strong></td>
<td>29.7 (0.18)</td>
</tr>
<tr>
<td><strong>Attitudes</strong></td>
<td></td>
</tr>
<tr>
<td>Regret subscale</td>
<td>11.7 (0.12)</td>
</tr>
<tr>
<td>Sex life subscale</td>
<td>12.2 (0.11)</td>
</tr>
<tr>
<td>Religion subscale</td>
<td>12.3 (0.15)</td>
</tr>
<tr>
<td>Disclosure subscale</td>
<td>19.8 (0.18)</td>
</tr>
<tr>
<td>Procedure subscale</td>
<td>22.2 (0.18)</td>
</tr>
<tr>
<td>Recovery subscale</td>
<td>11.6 (0.09)</td>
</tr>
<tr>
<td></td>
<td>% or mean (SE)</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Knew someone with a vasectomy</td>
<td></td>
</tr>
<tr>
<td>Knew nobody</td>
<td>29.2%</td>
</tr>
<tr>
<td>Knew somebody</td>
<td>70.8%</td>
</tr>
<tr>
<td>Talked to someone about vasectomy</td>
<td></td>
</tr>
<tr>
<td>Had not talked to someone</td>
<td>68.0%</td>
</tr>
<tr>
<td>Had talked to someone</td>
<td>32.0%</td>
</tr>
</tbody>
</table>
Table 5.3 Knowledge, attitudes, information seeking, and sociodemographic variables by vasectomy status (n=397)

<table>
<thead>
<tr>
<th></th>
<th>No vasectomy (n=327)</th>
<th>Has vasectomy (n=70)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge about vasectomy^a</td>
<td>29.2 (0.2)</td>
<td>32.6 (0.29)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Attitudes about vasectomy^a</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Regret subscale</td>
<td>11.6 (0.13)</td>
<td>13.1 (0.25)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sex life subscale</td>
<td>11.8 (0.12)</td>
<td>13.8 (0.19)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Religion subscale</td>
<td>12.1 (0.17)</td>
<td>13.3 (0.26)</td>
<td>0.001</td>
</tr>
<tr>
<td>Disclosure subscale</td>
<td>19.2 (0.19)</td>
<td>22.1 (0.33)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Procedure subscale</td>
<td>21.7 (0.19)</td>
<td>24.8 (0.35)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Recovery subscale</td>
<td>11.3 (0.10)</td>
<td>13.0 (0.21)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Knew someone with a vasectomy^b</td>
<td></td>
<td></td>
<td>0.002</td>
</tr>
<tr>
<td>Knew nobody</td>
<td>32.4%</td>
<td>14.3%</td>
<td></td>
</tr>
<tr>
<td>Knew somebody</td>
<td>67.6%</td>
<td>85.7%</td>
<td></td>
</tr>
<tr>
<td>Talked to someone about vasectomy^b</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Had not talked to someone</td>
<td>79.2%</td>
<td>15.7%</td>
<td></td>
</tr>
<tr>
<td>Had talked to someone</td>
<td>20.8%</td>
<td>84.3%</td>
<td></td>
</tr>
<tr>
<td>Age^a</td>
<td>45.6 (0.77)</td>
<td>55.5 (1.20)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Number of children^a</td>
<td>1.3 (0.07)</td>
<td>2.2 (0.12)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Race/ethnicity^b</td>
<td></td>
<td></td>
<td>0.921</td>
</tr>
<tr>
<td>White</td>
<td>89.6%</td>
<td>90.0%</td>
<td></td>
</tr>
<tr>
<td>Non-White</td>
<td>10.4%</td>
<td>10.0%</td>
<td></td>
</tr>
<tr>
<td>Relationship status^b</td>
<td></td>
<td></td>
<td>0.001</td>
</tr>
<tr>
<td>Married</td>
<td>61.2%</td>
<td>85.7%</td>
<td></td>
</tr>
<tr>
<td>Cohabitating</td>
<td>11.0%</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td>Widowed / divorced / separated</td>
<td>7.9%</td>
<td>2.9%</td>
<td></td>
</tr>
<tr>
<td>Dating but not cohabitating</td>
<td>9.5%</td>
<td>1.4%</td>
<td></td>
</tr>
<tr>
<td>Not dating</td>
<td>10.4%</td>
<td>1.4%</td>
<td></td>
</tr>
<tr>
<td>Educational attainment^a</td>
<td></td>
<td></td>
<td>0.888</td>
</tr>
<tr>
<td>High school / GED</td>
<td>26.3%</td>
<td>24.3%</td>
<td></td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>22.0%</td>
<td>24.3%</td>
<td></td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>26.6%</td>
<td>30.0%</td>
<td></td>
</tr>
<tr>
<td>Graduate degree</td>
<td>25.1%</td>
<td>21.4%</td>
<td></td>
</tr>
<tr>
<td>Income^a</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>&lt;$25,000</td>
<td>13.1%</td>
<td>1.4%</td>
<td></td>
</tr>
<tr>
<td>$25,000-$54,999</td>
<td>36.1%</td>
<td>15.7%</td>
<td></td>
</tr>
<tr>
<td>$55,000-$84,999</td>
<td>19.3%</td>
<td>30.0%</td>
<td></td>
</tr>
<tr>
<td>$85,000-$114,999</td>
<td>16.5%</td>
<td>27.2%</td>
<td></td>
</tr>
<tr>
<td>&gt;$115,000</td>
<td>15.0%</td>
<td>25.7%</td>
<td></td>
</tr>
</tbody>
</table>

^a Mann-Whitney U test; ^b Chi-square test
Table 5.4 Linear regression models estimating men’s vasectomy knowledge and attitudes (n=397)\(^a\)

<table>
<thead>
<tr>
<th></th>
<th>Model 1 Knowledge</th>
<th>Model 2 Regret</th>
<th>Model 3 Sex Life</th>
<th>Model 4 Religion</th>
<th>Model 5 Disclosure</th>
<th>Model 6 Procedure</th>
<th>Model 7 Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vasectomy</td>
<td>3.52(0.45)*****</td>
<td>1.53(0.33)*****</td>
<td>2.07(0.29)*****</td>
<td>1.67(0.40)*****</td>
<td>3.15(0.48)*****</td>
<td>2.98(0.48)*****</td>
<td>1.66(0.25)****</td>
</tr>
<tr>
<td>Age</td>
<td>-0.03(0.01)*</td>
<td>0.01(0.01)</td>
<td>-0.01(0.01)</td>
<td>-0.01(0.01)</td>
<td>-0.03(0.01)</td>
<td>0.01(0.01)</td>
<td>0.01(0.01)</td>
</tr>
<tr>
<td>Number of children</td>
<td>0.13(0.14)</td>
<td>-0.22(0.10)*</td>
<td>-0.03(0.09)</td>
<td>-0.36(0.12)**</td>
<td>-0.04(0.15)</td>
<td>-0.06(0.15)</td>
<td>-0.03(0.08)</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>-2.11(0.54)*****</td>
<td>0.05(0.39)</td>
<td>-0.14(0.34)</td>
<td>-0.64(0.48)</td>
<td>-0.05(0.58)</td>
<td>-0.69(0.57)</td>
<td>-0.11(0.30)</td>
</tr>
<tr>
<td>Relationship status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohabitating</td>
<td>-0.33(0.57)</td>
<td>0.61(0.41)</td>
<td>0.20(0.36)</td>
<td>1.39(0.50)**</td>
<td>1.40(0.61)*</td>
<td>0.21(0.60)</td>
<td>0.03(0.32)</td>
</tr>
<tr>
<td>Widowed/divorced/separated</td>
<td>0.13(0.66)</td>
<td>0.37(0.47)</td>
<td>0.04(0.42)</td>
<td>1.17(0.58)*</td>
<td>0.47(0.70)</td>
<td>-0.47(0.70)</td>
<td>0.65(0.37)</td>
</tr>
<tr>
<td>Dating but not cohabitating</td>
<td>-0.91(0.64)</td>
<td>0.07(0.46)</td>
<td>0.39(0.40)</td>
<td>0.65(0.57)</td>
<td>0.76(0.68)</td>
<td>0.50(0.68)</td>
<td>-0.30(0.36)</td>
</tr>
<tr>
<td>Not dating</td>
<td>-1.50(0.64)*</td>
<td>0.05(0.46)</td>
<td>-0.26(0.40)</td>
<td>-1.21(0.56)*</td>
<td>-0.28(0.68)</td>
<td>-1.32(0.68)</td>
<td>-0.04(0.35)</td>
</tr>
<tr>
<td>Educational attainment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>0.23(0.47)</td>
<td>-0.07(0.34)</td>
<td>0.38(0.30)</td>
<td>0.12(0.41)</td>
<td>0.05(0.50)</td>
<td>-0.05(0.50)</td>
<td>-0.39(0.26)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>1.09(0.45)*</td>
<td>0.14(0.32)</td>
<td>0.61(0.28)*</td>
<td>0.04(0.40)</td>
<td>0.20(0.48)</td>
<td>-0.22(0.48)</td>
<td>-0.09(0.25)</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>1.38(0.49)**</td>
<td>0.04(0.35)</td>
<td>0.39(0.31)</td>
<td>0.09(0.43)</td>
<td>-0.11(0.52)</td>
<td>0.16(0.52)</td>
<td>0.11(0.27)</td>
</tr>
<tr>
<td>Income</td>
<td>Model 1 Knowledge</td>
<td>Model 2 Regret</td>
<td>Model 3 Sex Life</td>
<td>Model 4 Religion</td>
<td>Model 5 Disclosure</td>
<td>Model 6 Procedure</td>
<td>Model 7 Recovery</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------</td>
<td>----------------</td>
<td>------------------</td>
<td>------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>$25,000-$54,999</td>
<td>0.46(0.57)</td>
<td>0.28(0.41)</td>
<td>0.68(0.36)*</td>
<td>-0.30(0.50)</td>
<td>0.91(0.60)</td>
<td>-0.30(0.60)</td>
<td>0.55(0.32)</td>
</tr>
<tr>
<td>$55,000-$84,999</td>
<td>0.27(0.64)</td>
<td>0.63(0.46)</td>
<td>0.45(0.40)</td>
<td>0.24(0.56)</td>
<td>0.86(0.68)</td>
<td>-0.21(0.68)</td>
<td>0.66(0.35)</td>
</tr>
<tr>
<td>$85,000-$114,999</td>
<td>0.14(0.66)</td>
<td>0.44(0.48)</td>
<td>0.67(0.42)</td>
<td>-0.24(0.59)</td>
<td>0.95(0.71)</td>
<td>-0.03(0.70)</td>
<td>0.47(0.37)</td>
</tr>
<tr>
<td>&gt;$115,000</td>
<td>0.38(0.68)</td>
<td>0.75(0.49)</td>
<td>1.01(0.43)</td>
<td>0.39(0.60)</td>
<td>1.63(0.73)*</td>
<td>-0.03(0.72)</td>
<td>0.46(0.38)</td>
</tr>
</tbody>
</table>

R² | 0.22 | 0.10 | 0.16 | 0.12 | 0.14 | 0.14 | 0.15 |

a Reference groups: no vasectomy, White, married, high school education, under $25,000 income

***p<0.001; **p<0.01; *p<0.05
Table 5.5 Logistic regression models estimating men’s vasectomy information seeking behaviors (n=397)\textsuperscript{a}

<table>
<thead>
<tr>
<th></th>
<th>Model 8 Know Someone</th>
<th>Model 9 Talk to Someone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( \beta ) (SE)</td>
<td>OR [95% CI]</td>
</tr>
<tr>
<td>Vasectomy</td>
<td>0.60 (0.40)</td>
<td>1.83 [0.84-3.99]</td>
</tr>
<tr>
<td>Age</td>
<td>0.01 (0.01)</td>
<td>1.00 [0.98-1.02]</td>
</tr>
<tr>
<td>Number of children</td>
<td>0.13 (0.11)</td>
<td>1.14 [0.93-1.41]</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>-1.06 (0.38)</td>
<td>0.34 [0.16-0.73]***</td>
</tr>
<tr>
<td>Relationship status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cohabitating</td>
<td>0.07 (0.42)</td>
<td>1.08 [0.48-2.44]</td>
</tr>
<tr>
<td>Widowed/divorced/separated</td>
<td>0.14 (0.49)</td>
<td>1.15 [0.44-3.01]</td>
</tr>
<tr>
<td>Dating but not cohabitating</td>
<td>1.58 (1.44)</td>
<td>4.88 [2.04-11.64]***</td>
</tr>
<tr>
<td>Not dating</td>
<td>1.10 (0.43)</td>
<td>2.99 [1.28-6.97]**</td>
</tr>
<tr>
<td>Educational attainment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>-0.50 (0.36)</td>
<td>0.60 [0.30-1.22]</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
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<tr>
<td>HL Test\textsuperscript{b}</td>
<td>4.79</td>
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\textsuperscript{a} Reference groups: no vasectomy, White, married, high school education, under $25,000 income

\textsuperscript{b} Hosmer and Lemeshow (HL) Test is a goodness of fit test for logistic regression models

***p<0.001; **p<0.01; *p<0.05
Chapter 6 – Negative connotations and historical references: Men’s understanding of “male sterilization” in the present-day

Abstract

While research has documented how forced and coercive sterilization programs played out across the intersections of gender, race, class, and ability during the 20th century, less is known about how these histories influence present-day understandings of sterilization, particularly among men in the United States. The first author conducted telephone interviews with cisgender, heterosexual men, ages 25-67, living across seven U.S. southern states from May-December 2019 (n=48). Men were recruited using targeted Facebook advertisements. The interviews explored their reproductive histories, experiences with vasectomy, and knowledge of forced sterilization. The interviews were audio-recorded, professionally transcribed, and analyzed using a modified approach to grounded theory. Nearly every participant conceptualized "vasectomy" as something different and distinct from "male sterilization," with no differences detected based on race/ethnicity. While vasectomy was viewed as a relatively benign procedure, men described sterilization as something "sinister," "bleak," and "barbaric." Further, discussing sterilization invoked both general associations with eugenicist practices as well as specific examples of forced sterilization throughout history. While some men recognized that vasectomy is a means of achieving sterilization, the majority’s responses

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emphasized the need to refrain from using "sterilization" in reproductive health
communications as the term is, as one participant said, "too connotative, and way too
culturally evocative." Our findings demonstrate that men have strong affective responses
to the term "male sterilization," which are derived from their understandings of historical
eugenicist practices.

Key words: vasectomy; male sterilization; reproduction

Introduction

Vasectomy and tubal ligation are unique among contraceptive methods because
they require surgical intervention and are intended to be permanent. Approximately
14.1% of White men have had a vasectomy, but only 3.7% of Black men and 4.5%
Latino men have had the procedure. Independent of race, men are more likely to have
had a vasectomy if they have ever been married, have two or more children, and are
above age 35. Tubal ligation, on the other hand, is used three times more often than
vasectomy. Black and Latina women are more likely to have tubal ligation overall;
however, among low-income women, White women are more likely to have a tubal
ligation than minority women. Vasectomy is safer, more effective, and less costly
than tubal ligation, yet the method remains underused.

While both can be (and are) used voluntarily, these methods are also set apart
from others because their use is part of the history of eugenic practices of forced and

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Throughout this article, we use the term “vasectomy” to refer to a voluntary, consented
procedure that leaves a man infertile, and the term “tubal ligation” for the female
equivalent. We use “sterilization” in all instances where the procedure may not be
voluntary, free from coercion, or performed with consent. We recognize that this is not
consistent with how some medical agencies refer to the procedures but seek to build a
case for a move away from “sterilization.”
coercive sterilization in the United States and elsewhere.\textsuperscript{39,71–73,76,79,159} Scholars have documented the implications of this history for women in the present-day\textsuperscript{39,41}, although less is known about how historical practices of forced sterilization may shape men's understanding of vasectomy. What we do know is that medical literature and information guides often use both “male sterilization” and “vasectomy” interchangeably,\textsuperscript{160,161} although prior research mentions that negative associations with the term sterilization were a reason not to have a vasectomy.\textsuperscript{24} An understanding of the history of reproductive oppression is necessary to interpret contemporary issues in the field of reproduction.\textsuperscript{41} Accordingly, we consider how historical practices of forced or coercive sterilization influence people’s perceptions of vasectomy.\textsuperscript{162}

**Background**

Historically, clinical vasectomy practices did not begin until the 1880s.\textsuperscript{42} Initially, vasectomy was promoted as an alternative to castration for prostate problems, and much of this early work involved physicians testing surgical techniques, including the sterilization of nearly 500 men between 1899 and 1907 in Indiana by Dr. Harry Sharp.\textsuperscript{71} At the turn of the 20th century, thousands of vasectomies were voluntarily performed on men looking to improve their health, as vasectomy was hailed as a sort of "fountain of youth". Medical reviews on the effectiveness of this procedure were mixed, and the popularity of this procedure declined until it fell out of use in the 1940s.\textsuperscript{70}

At the same time that some men were electing to have a vasectomy for their health, others were subjected to coercive practices as part of the wave of eugenic sterilization programs put in place in the United States during the early 20th century.\textsuperscript{72,73} In 1907, Indiana passed the world's first sterilization law to initiate involuntary
sterilization on people who were deemed “feebleminded”, “defective”, or otherwise a “degenerate” and therefore “unfit” to reproduce. These practices were endorsed at the highest level of medicine, with the head of the American College of Surgeons, Dr. A.J. Ochsner, advocating for sterilization as a punishment for crimes and a means of imposing morality on "habitual criminals, imbeciles, perverts, paupers, morons, epileptics, and degenerates." In 1927, the United States Supreme Court upheld Virginia's sterilization law in *Buck v Bell* by a vote of eight to one with Justice Oliver Wendell Holmes writing,  

> It is better for the world, if instead of waiting to execute degenerate offspring for crime, or to let them starve for their imbecility, society can prevent those who are manifestly unfit from continuing their kind...Three generations of imbeciles are enough. Quoted in 75, p.1130

The court painted 18-year-old Carrie Buck as “feebleminded” for her so-called low intelligence and “immoral” because she had a child out of wedlock. However, evidence shows that she was of normal intelligence and became pregnant after being raped. Nonetheless, Carrie Buck was forcibly sterilized, and the case has since been used as a prime example of governmental power triumphing over individual reproductive rights. Following the *Buck v Bell* ruling, sterilization laws became entrenched practice; 32 states passed similar legislation by 1937.  

The use of vasectomy on men involuntarily was part of a more extensive program of forced sterilization and other eugenicist practices within the United States during this time. Poor women, women of color, and women with disabilities were also subject to sterilization policies and practices. At the same time that advances in contraceptive technologies provided an opportunity to enhance some people's capacity to
self-regulate their fertility (i.e., White, middle-class, married women), state policies and healthcare providers were curtailing the fertility of socially marginalized so-called “others”. Reproductive oppression continued to play out across gendered, classist, racist, and ableist lines for the better part of the twentieth century.\textsuperscript{39,77} Involuntary sterilization began to cease by the 1960s as states repealed their laws, but a system of stratified reproduction that empowers some groups to reproduce while devaluing the reproduction of others remains.\textsuperscript{81,82}

By the mid-1960s, less than 40,000 voluntary vasectomies were performed annually in the United States.\textsuperscript{83} Although choices for men remained limited, at this point the oral contraceptive pill was made available for married women.\textsuperscript{15} For married couples, vasectomy represented an alternative to continued use of the oral contraceptive pill and its side effects or an invasive tubal ligation. At this point, interest in voluntary vasectomy increased, and by the 1990s, roughly 500,000 vasectomies were performed every year in the United States.\textsuperscript{20,83} Since then, annual numbers of men having a vasectomy have remained stable. Today, the majority of men who have a vasectomy are White, married, and hold a college degree.\textsuperscript{43,90}

Research has identified the importance of increasing education about vasectomy as a means of improving uptake\textsuperscript{96}, integrating vasectomy into patient counseling\textsuperscript{23}, and addressing training and space constraints on providers.\textsuperscript{35,97} However, there is limited work examining how historical practices of forced sterilization shape men's attitudes towards vasectomy. One study with couples in Northern California reported that negative associations with the term sterilization were a reason not to have a vasectomy, however, exploration of this issue was brief\textsuperscript{24}. Here, we explicitly investigate the meanings men
attach to "sterilization" in response to their lived experiences and knowledge of the procedure. By examining men's responses, we show that the term "male sterilization" has negative connotations rooted in historically coercive practices, which necessitates it being conceived as something separate from "vasectomy." Further, we argue that "sterilization" is not solely a relic of the past but rather an issue that continues to permeate present-day discourse and understandings about public health and reproduction.

**Methods**

*Study design*

This analysis draws on individual, in-depth telephone interview data collected as part of a mixed-methods research project examining men's vasectomy knowledge, attitudes, and behaviors. Participants were cisgender, heterosexual men between the ages of 25 and 70 living in one of seven southern states (Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, or Tennessee). We used these eligibility criteria because vasectomy is generally positioned as a contraceptive option for cisgender men who are seeking to prevent pregnancy with their cisgender female partners. The age range criterion reflect known trends on the age in which one receives a vasectomy. The geographical bounding was put in place to allow the research to uncover influences on vasectomy unique to the region, which has lower rates of vasectomy compared to other parts of the United States. The [BLINDED] Institutional Review Board (IRB) approved this research.

*Participant recruitment*

The first author recruited potential interview participants at the end of an online survey of men's vasectomy knowledge, attitudes, and behaviors. Men who completed
the survey were able to provide an email address if they were interested in being contacted to participate in a follow-up telephone interview. We sent men who provided an email further information about the purpose of the interview and asked them to specify times they would be available for a private 1.5-hour phone conversation. Based on demographic factors captured in the survey, we reached out to subgroups of men to achieve sampling variation based on age, education, racial/ethnic identity, and whether or not they had a vasectomy.

*Data collection*

The first author (AW) interviewed participants over the phone at an agreed-upon time between May and December 2019 (n=48). Telephone interviews have been used successfully in previous studies about vasectomy in the United Kingdom and New Zealand, which supported the feasibility of this approach.\(^{34,98}\) Using telephone interviews was practical, in that it saved time, maximized flexibility for scheduling, and allowed us to conduct interviews across seven states. Furthermore, this approach enabled participants to retain anonymity and privacy while still providing details about their reproductive history and goals.\(^{135}\)

The interviewer (AW) is a White, cisgender woman. As a woman interviewing men, AW was inevitably “doing gender” as part of the interaction.\(^{128}\) There were instances where male participants attempted to either lead the interview and ask personal questions about her life.\(^{129,130}\) At the same time, there were also instances where participants expressed that they were comfortable having such a sensitive conversation with AW, sharing that they were talking about things they had not been able to share with others previously. AW kept field notes and memos that scrutinized how her own
experiences, decisions, and interpretations influenced the research project overall. Every attempt has been made to center participants’ voices in their own words and keep analysis grounded in the data.

Once on the phone, the first author read the participants the oral consent text, gave them a chance to ask any questions, and asked them for verbal consent to a) participate in the interview and b) have their interview audio record. The first author advised the participants that they could refuse to answer any question, request the recording be turned off, or end the interview at any point. The first author also gave her email address to participants and told them they had the right to retract their interview from the final dataset. Participants selected their own pseudonyms; we use only their pseudonyms in this paper. Participants received a $20 electronic gift card to recognize the time they dedicated to the interview. We removed identifying information from interview transcripts to preserve anonymity, including job titles, named place of work, or specific towns where they currently or previously lived. Interviews lasted an average of 70 minutes, although the length ranged from 40 to 118 minutes. All interviews were digitally recorded and transcribed verbatim by an online professional transcription service and checked for accuracy by the first author.

Data analysis

While we asked participants many questions during their interviews, this analysis focuses on their responses to questions about sterilization, specifically. Throughout the interview, the interviewer (first author) made an intentional decision to refer to vasectomy by that name or call it a procedure, primarily because of concern about the possible negative connotations men might associate with hearing "sterilization". While
we believed that this might be the case, we wanted to investigate how men thought about these two terms. Towards the end of the interview, the first author asked participants:

Throughout the interview we've been talking about this procedure, and we've been calling it a vasectomy, but sometimes people call it male sterilization. So, I'm curious, do you think of vasectomy and male sterilization as the same thing, or as two different things?

Participants answered this question and were then encouraged to describe their thought process. The first author also asked additional questions to see if participants had heard of any specific instances of forced sterilization.

This research used the initial and focused coding processes as described by Charmaz’s (2014) constructivist approach to grounded theory. This technique allows researchers to be open to possible theoretical directions while sticking closely to the data. AW imported transcripts and memos from the interviews into Atlas.ti and performed the initial line-by-line coding. At this point, we had identified emergent responses to the term sterilization and examples of known sterilization practices. After the initial coding process, analysis shifted to focused coding, a conceptual exercise of sifting through the data to further develop theory. Here we refined thematic categories, called attention to nuanced responses by the participants, and examined deviant cases.

**Participant characteristics**

We interviewed a total of 48 men between the ages of 25 and 67 (Table 6.1). Twenty-one of the participants had a vasectomy, and 27 did not. The mean age of all participants was 40.3 (±1.5) years, although the mean age of men who had a vasectomy was greater than the mean age of those who did not have the procedure (Table 6.2). The
majority of participants had children, although 12 did not have children, including two men who had a vasectomy. Participants lived in one of the seven states included in the study, although there were greater numbers from Georgia, North Carolina, and South Carolina. Over 40% of our sample had obtained an advanced degree. Roughly two-thirds of the men without a vasectomy identified as White, with the remaining men identifying as American Indian, Asian-American, Black, biracial, or Latino. Among the subsample of men that had a vasectomy, all but one identified as White. The majority of our participants were married (68.7%), regardless of whether or not they had a vasectomy. We made multiple attempts to diversify this sample through supplemental rounds of recruitment and multiple follow-up emails to non-White men but were not able to identify additional participants through our recruitment strategy.

Results

"Way too culturally evocative": Perceived meanings of "male sterilization"

Only four of the participants—Bill, George, John, and Tyler—did not conceptualize "vasectomy" and "male sterilization" differently. All four were White, three were married with children, two had a vasectomy, and one had gone to college. As George said, "Having researched it, I saw both of those terms used, and it's just different names for the same thing as far as I'm concerned" (35, White, has vasectomy). These four men were the minority among participants, as the remaining 44 of the 48 participants conceptualized "male sterilization" as something different and separate from "vasectomy". For a handful of these men, vasectomy was conceptualized as a procedure to achieve sterilization. As Chris said, "Well I think they mean different things. A vasectomy is a means to achieve permanent male sterilization, but there's other things
natural or otherwise that happen that would render a male sterile" (38, White, no vasectomy). As such, some viewed sterilization as an umbrella term under which vasectomy was categorized alongside tubal ligation, hysterectomy, or general infertility. In these instances, the terms were viewed as linked, but not equivalent.

While some participants discussed the term "vasectomy" as a procedure to achieve "male sterilization", they did not lose sight of the fact that the name of the procedure is important. As Adam said, "If there was no word 'vasectomy,' and everybody just called it 'sterilization,' I don't think - probably not as many people would do it because it just doesn't sound as friendly" (34, White, no vasectomy). The belief that the name mattered was echoed by others, as participants used phrases like "sinister", "barbaric", "punishment", "bleak", and "a hell of a lot scarier" to describe "sterilization".

Participants' responses made it clear that while medically a vasectomy is a procedure that results in male sterilization, the two terms do not elicit the same emotional response. When asked what he thought about the term “male sterilization,” Nick best captured this idea:

That's a prejudicial, culturally biased appellation [groans] I don't know - those words are so charged... The way you say it does have significance, and in terms of describing any health matter that affects the health of people, it is my opinion that it should all be done in the least emotional terms, because humans are going to put a bunch of emotion on it anyway, and I think that that way of referring to it is way too connotative, and way too culturally evocative. - Nick (62, White, vasectomy)
When asked to elaborate on what he meant, Nick gave an example of how people might respond differently to being called a “patriot”. Using this example, he discussed how the current political climate meant that the word was “really very emotionally powerful” and meant different things to different people. Nick felt that the term “male sterilization” did the same thing. Nick ended by saying, “Whether or not male sterilization is the medical term or not, I don't think that it should be used to describe the procedure in a survey like this, because it'll put somebody into an emotional state.” Nick's response captures the beliefs that not only are the two terms different, but that "male sterilization" as a term is undesirable because of its negative connotations and inherent emotionality.

Across levels of education and race/ethnicity, negative attitudes towards "male sterilization" persisted. Men discussed that the term "sterilization" does not sound voluntary but rather like something that is forced and done to you. As Brad said, "When they say sterilization in terms of reproduction, it's typically a forced thing, or court-ordered, or something like that compared to a conscious decision" (38, White, vasectomy). Thinking about sterilization, Filipe said, "That sounds like it's a top-down procedure. Like someone forced some men, or those men to have that procedure. The framing it sounds, for some reason it sounds more painful" (30, Latino, no vasectomy). Even men who were considering vasectomy, and who had spoken favorably about the procedure throughout the interview, changed their responses when asked about "male sterilization". Tommy's response captured this phenomenon:

It's funny because when you say "sterilization," all the things I've just said to you about vasectomy, I would take it all off the table just by that term... because there's just this negative connotation with sterilization, the way
that sounds. It doesn't sound like it was voluntary. Even if you said, "voluntary sterilization," it's just like, "sterilization?!" It sounds like something that's being forced upon me as opposed to me being like - it's funny how powerful words can be, but it changes the entire narrative, and it changes the scope of this conversation for me, that quickly, just like that.

- Tommy (31, black, no vasectomy)

When participants were talking about “sterilization” they stopped framing the conversation as one about a medical procedure in the present-day. Regardless of participants' race/ethnicity, or whether or not they had a vasectomy, men regarded "sterilization" as referring to a coercive procedure rather than something one freely decides to undergo.

The connotations attached to "male sterilization" extended beyond worries about individuals' reproductive rights to an association with eugenicist practices instituted by governmental powers. Mark elaborated, saying, "It's a scary term that makes me think of sterilizing a whole group, more than just an individual" (25, White, no vasectomy). Participants made the connection between the term "sterilization" and government-ordered programs that targeted specific groups of people. One participant reflected on this meaning to a greater extent:

You know, the meaning of sterility is, it's a potent term. I think that carries weight. I think this is what it is: It's that sterilization is something that's done to you. A person is sterilized, right? That's how I see it. It's not something one chooses for oneself. Whereas, a medical term, vasectomy, is something I could elect to do to myself. I wouldn't choose to sterilize
myself, as such, right? Like that term, sterilization, its meanings are connected to programs of sterilization that have been real things, right?...

So yeah, I think that that term signifies genocidal ideas, signifies population control that makes it unappealing. - Derrick (43, Black, no vasectomy)

Derrick made it clear that "vasectomy" is something one could freely choose, while "sterilization" is something inextricably linked to genocide of specific groups - including Black people like him - predicated on the idea of population control. These sentiments were echoed by White participants, too. Artemis recognized that Black men and women had been forced into sterilization in the past and went on to say, "It just seems like any time a higher power is holding another race, that that was part of it, sterilization was part of it, removal of them from the gene pool" (Artemis, 34, White, no vasectomy).

Participants associated the term with systematic population control measures where a government entity exercised its power over a group of people deemed “lesser”. It was this perceived threat to individual reproductive autonomy, coupled with implications of eugenicist practices which made "male sterilization" so disagreeable to participants.

"I've heard of it": Recalling historical instances of forced sterilization

Of the 44 men who conceptualized "male sterilization" differently from "vasectomy", 31 named at least one example that they believed was an instance of forced sterilization. There was no notable difference between these men and the remaining 13 participants based on racial/ethnic identity, age, or vasectomy status. The only marked difference was the level of education, where those who did not provide an example generally had less than a bachelor's degree. Although these responses sometimes lacked
specific details, there was an undeniable association between perceptions of the term "sterilization" and invoking examples that had previously not come up at any point in the interview.

The most commonly referenced example of forced sterilization was the Nazi regime during World War II. Twelve participants cited the systematic persecution of people—primarily those who were Jewish—by the Nazi regime, believing that "because they were cruel, evil monsters that did that kind of stuff" (Mark, 25, White, no vasectomy), that must also include sterilization. Indeed, in 1933 as Hitler came to power, a compulsory sterilization law was put in place to target people with so-called “physical and mental disabilities.” These efforts did, of course, continue and expand to include the mass murder of groups of people deemed "inferior" until the end of World War II in 1945. While other participants did not go into this level of detail, there was nevertheless a strong connection between hearing "sterilization" and thinking of the Nazi regime. As Eric said,

If somebody were to tell me that I was going to get permanently sterilized, like use that terminology, I think I would be more hesitant to get it done. Because normally you think of sterilization like ... My brain goes back to the Holocaust, whenever they were kind of sterilize Jews. That's just what my thoughts kind of go back to. I mean, I'm not Jewish or anything, but just from history and all that kind of stuff. It just kind of gives a bad vibe because that terminology. - Eric (32, White, vasectomy)

Despite participants often linking “sterilization” to the Nazi regime, it was the United States that passed the world's first sterilization law. No participants noted this
fact, but some spoke specifically to state-level sterilization programs. Fred shared, "I come from North Carolina, and I know about the forced sterilization programs that they did with African-Americans. So that's, when I hear the word sterilization, that's what I think" (40, White, vasectomy). Fred drew on knowledge obtained growing up in a state that had a sterilization program, which lasted longer than other states (1929-1975) and sterilized over 8,000 people.80 Other participants also referenced their home states:

I know that there were African Americans in - I think - in Virginia, North and South Carolina that also went through forced sterilization. I'm sure that there were folks in my home state of Indiana that also went through forced sterilization... Yeah, I certainly heard that, and I definitely have strong feelings on it that it's wrong. - Harley (55, White, vasectomy)

Harley was reasonably confident that programs existed in Virginia, North Carolina, and South Carolina but also makes the jump to guess that Indiana, a non-southern state, also had a program, suggesting that this was a pervasive issue. Harley was correct, as each of these states did, in fact, have a sterilization law, with Indiana passing the first sterilization law in the nation, and, consequently, the world.73

A handful of participants spoke with greater confidence about who was victimized by these forced sterilization programs. John shared, "Well, I know that North Carolina had a program back in the '40s, '50s, and '60s that was sterilizing women" (33, White, no vasectomy). When asked who specifically was targeted, John elaborated that it was "poor women and usually women of color". However, he, like most participants, was unaware that this program also targeted men.
Rick was one of the few participants who explicitly discussed men as victims of forced sterilization programs in the United States. As a North Carolina native, Rick addressed the history of sterilization in the state and recent conversations about restitution:

Oh, it has been a big deal in the state of North Carolina for the last few years. They were talking about actually passing some legislation and reimbursing some of the surviving members that were forcibly sterilized… I guess it was the “less than desirables” that were forced to be sterilized. Both male and female. And it was very troubling because some of the people were just young kids that got pregnant out of wedlock, and they deemed them whatever, and decided to castrate them, or forced to sterilize them. - Rick (45, White, no vasectomy)

When asked if certain people were more likely to have been sterilized, Rick responded, "It would be your lower class, particularly minorities. People with lower intellects that were deemed to be right on the border of being mentally challenged or very low IQ. Mentally ill people." Rick not only recognized that both men and women were victims of North Carolina's sterilization program, but that these people were often socially marginalized. Rick did bring up restitution but did not elaborate further on how programs had been implemented. While not discussed, it is important to note that in North Carolina, victims were not compensated until 2013.168

"It was long ago": Constructing temporal distance from sterilization campaigns

While participants named various examples of forced sterilization, responses were generally unified by the perception that such practices and programs were located firmly
in the past, an unfortunate mistake in American history. As Jerry discussed sterilization he said, "It was long ago in the '50s, I don't know the date or whatever, but maybe they did to people who had handicaps and things like that." (42, White, vasectomy). Similarly, Melvin thought, "There's some stories about, you know, maybe the '60s or '70s where people with mental disabilities were forced" (38, White, vasectomy). While both of these men discussed how people with mental disabilities were victimized, they also placed temporal distance between themselves as able-bodied men and these programs. In both instances, men were born approximately 20 years after the decades they named, yet they discussed these events as if they happened in a much different time.

Chad provided another example of someone placing himself at a distance from historical events. When asked to explain what he knew about instances of forced sterilization he said:

The largest one that I have heard about is historically through at least the '80s in some states. I had to study some of the history of mental illness and those sort of things. The mentally ill, the mentally challenged, special needs individuals. Individuals with Down syndrome and those sorts of things." - Chad (37, White, vasectomy)

Chad spoke of instances of involuntary sterilization based on mental disability as a product historical time. While he was familiar with such practices, Chad, like others, placed himself at a distance from sterilization campaigns and constructed those programs as historical practices that happened "long ago".

Liam was one of the few participants who made a link between forced sterilizations in the past and application of those same discriminatory practices in the
present day. Initially, Liam discussed how society functioned to define who should and should not reproduce:

From the '30s and '40s and somewhat later honestly, eugenics is one of those ideas that just refuses to die. You know, the discussion that if we permit undesirable people, however that's defined, to produce offspring, then pretty soon our society will collapse and we'll all be doomed, so we better make sure they can't produce offspring. It's if they can't be trusted, that therefore we should sterilize them, whether they want it or not, to prevent that. - Liam (41, White, vasectomy)

When asked to expand on that idea, Liam provided a historical example of Catholic immigrants who had a high birth rate were therefore targeted for population control measures through contraceptive use. Liam continued by discussing how those same arguments are employed in present-day political rhetoric:

It was virtually the same debate that is unfolding in the United States now about immigration from Mexico and South America, except erase the "high birth rate South Americans will overwhelm our culture" and insert "Italians and Greeks" you've basically got it. So, yeah, I think issues of race and racism have been hugely present in questions of sterilization and abortion and birth control from day one in the United States. - Liam (41, White, vasectomy)

By speaking about the victimization of people based on social class and racial/ethnic identity, Liam's response points out the system of stratified reproduction that has existed historically and continues to exist, based on the political discourse around who is "fit" to
reproduce. Unlike most other participants, Liam constructed a narrative that traced eugenicist rhetoric through time and called attention to how similar tactics continue to pervade political and popular discourse. This response helps us to understand how meanings attached to "sterilization" continue to be pertinent to present-day understandings.

Discussion

While research has documented how forced and coercive sterilization programs played out across the intersections of gender, race, class, and ability during the 20th century, less is known about how these histories influence present-day understandings of the term "sterilization", particularly among men as potential recipients of vasectomy. Here we examine the different ways men conceptualize the term "male sterilization", drawing attention to meanings men attach to the term as well as historical instances of forced sterilization men referenced. We find that men generally view "sterilization" as something separate and distinct from "vasectomy", and that the phrase "male sterilization" has overwhelmingly negative connotations, regardless of race/ethnicity, age, or level of education. Based on both explicit and implicit language used by participants, we interpret these connotations as rooted in men's understandings of historical eugenicist practices with the implications that extend into the present-day.

Our findings show that, even in cases where men cannot give specific details about forced sterilization programs, "sterilization" was constructed as a negative term fraught with emotional meanings. While it is, of course, vital to acknowledge how people have been coerced into sterilization over time, using the term in a present-day context is inherently loaded precisely because of those past transgressions. From a practical
standpoint, it is vital for those engaged in patient care, public health promotion efforts, and research to consider these meanings attached to "sterilization". While medical reference sources and oversight bodies may use “male sterilization” and “vasectomy” interchangeably, the long history of forced and coercive sterilization practices in the United States (and elsewhere) makes it inherently difficult to separate the strictly medical meaning (i.e., a procedure that renders a person infertile) of the term from the other damaging connotations. Men, as potential recipients of the procedure, viewed the term "male sterilization" as incongruous with the modern medical procedure of vasectomy.

Our findings also speak to the fact that while participants understood that sterilization had been used as an oppressive tool in the past, they tended to distance themselves from these crimes. With the notable exception of Liam, a White man with an advanced degree, most participants used of phrases like "long ago" helped them construct a narrative where they were at a greater temporal distance from history than was actually the case. The reality is that the majority of participants were born only a decade or so from the end of these programs. Further, eight of our participants were born before 1970, when states began to repeal sterilization laws, and an additional 12 of our participants were born before 1978 when federal sterilization guidelines were put in place.

The use of defensive temporal distancing, even where participants' timelines intersected with historical instances of forced sterilization, enabled participants to minimize the harms done and the need to reconcile these harms with their own identity. Such minimization is consistent with the use of color-blind frames when discussing prior discriminatory practices. As described by Bonilla-Silva and Dietrich
(2011), color-blind frames are “unacknowledged, contextual standpoints that provide the intellectual (and moral) building blocks whites use to explain racial matters.”\textsuperscript{172} p.192 In our case, participants’ narratives were largely color-blind but also blind to issues of class and disability. While participants still felt the negative connotations associated with the term “male sterilization,” they did so in a way as to separate these practices from their present-day identities as (predominantly) White, middle-class, able-bodied men. Men acknowledged that they were aware of past injustices but constructed a greater subjective distance between themselves and history, thereby minimizing the significance of oppression and discrimination in the past.\textsuperscript{172} In so doing, participants excused such acts as a part of unfortunate circumstances that were not reflect of present-day situations.\textsuperscript{173}

While many men's responses suggested that eugenics and coercive reproductive practices are relegated to the distant past (particularly in the United States), recent events show that this is not the case. An anecdotal example is that a White male judge in Tennessee recently made the news for offering reduced jail time to men if they were sterilized.\textsuperscript{174} A more systematic example can be found in California, where from 2006 to 2010, more than 100 women in the prison system were sterilized without informed consent.\textsuperscript{175} Such examples demonstrate that while there might not continue to be named forced sterilization programs in the United States per se, the country continues to grapple with assigning differential values on who "should" and "should not" be reproducing. Interestingly, a handful of participants drew attention to political rhetoric that continues to reinforce these ideas. The pervasiveness of the continued system of stratified reproduction can be understood by looking to the reproductive justice framework. Ross & Solinger (2017) trace the history of stratified reproduction in the United States since its
inception, calling attention to how we cannot ignore this history because it is very much a part of the social context that shapes people's lives today. Findings from this research reinforce this assertion, illustrating that the history of forced sterilization in this country (and beyond) shapes how men perceive and consider vasectomy in the present-day.

This research has identified the ways that men conceptualize and discuss the term "male sterilization" but, as with any research, there are limitations to consider. While our participants reflected a range of ages, states of residence, and educational levels, about 80% of our overall sample identified as White. We conducted supplemental rounds of recruitment and sent follow-up emails to in an effort to increase representation across other races/ethnicities - particularly among the subsample of men who had a vasectomy - but this was particularly challenging. This difficulty may reflect the population-level racial disparities in vasectomy uptake, as 14.1% of White men have had a vasectomy, but only 3.7% of Black men and 4.5% Latino men have had the procedure. We found no notable differences in participants' responses for this analysis based on race/ethnicity; however, we cannot say that this would always be the case among other groups or if a larger study were conducted with a more diverse sample. Further research can target other, more diverse populations to expand on this aspect.

While other research has documented the history of sterilization practices, particularly among women, this work demonstrates how men understand the term in the contemporary context. To better assess how men and their female partners make decisions about vasectomy, we need to be mindful of the myriad of generally negative ways in which "male sterilization" is interpreted. While some have previously used the two terms interchangeably, we encourage using the term "vasectomy" instead of "male
sterilization" by reproductive health care providers, public health workers, and social science researchers in recognition of how eugenics and coercive reproductive practices continues to shape discourse in the present-day.
Table 6.1 Demographic characteristics of individual interview participants (n=48)

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<th>Pseudonym</th>
<th>Age</th>
<th>Children</th>
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<th>Degree</th>
<th>Racial/ethnic Identity</th>
<th>Relationship</th>
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<td>MA</td>
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Table 6.2 Descriptive statistics of interview participants by vasectomy status (n=48)

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<th>Overall (n=48)</th>
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<td>% or mean (SE)</td>
<td>Count or range</td>
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<td>32-67</td>
</tr>
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<td>Has children</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>10</td>
<td>37.0%</td>
<td>2</td>
</tr>
<tr>
<td>Expecting</td>
<td>1</td>
<td>3.7%</td>
<td>0</td>
</tr>
<tr>
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<td>16</td>
<td>59.3%</td>
<td>19</td>
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<tr>
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<td>6</td>
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<td>18.5%</td>
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<td>7.4%</td>
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* Percentages not calculated because participants may have been counted into multiple categories
Chapter 7 – Summary, implications, and recommendations

7.1 Major findings and implications

To date, there has been limited research examining men’s reproductive roles and experiences. Vasectomy, as one of only three male-centered contraceptive options, remains both underused and under-researched in the United States. I address this lack of empirical evidence using three methods. First, this research used thematic metasynthesis to integrate and interpret previously published work, using concepts to develop a theoretical model. Second, I created a survey instrument to assess men’s vasectomy knowledge, attitudes, and information seeking behaviors. Third, I conducted a series of intensive interviews to delve into men’s views about and experiences with vasectomy within the context of their reproductive histories. Below, I summarize findings and implications from each of these three methods before presenting a map of men’s reproductive decisions and a conceptual framework for understanding vasectomy. I end with a discussion of future directions for research and final thoughts about this research.

7.1.1 Findings from the thematic metasynthesis

The thematic metasynthesis brought together research about men’s experiences of having a vasectomy published in the last 20 years. The systematic search strategy revealed a scarcity of global qualitative research that centers men’s experiences of having a vasectomy, which is further evidence of the need for an investigation into this topic. The existing literature covered the following five themes: 1) issues of personal autonomy,
2) elements of masculinity, 3) how men decided to have the procedure, 4) the role of intimate partners, and 5) vasectomy experiences. The resulting conceptual framework revealed that one’s intimate partner heavily influences the decision to have a vasectomy. This finding is consistent with other research about vasectomy, as work with couples in California revealed men often considered having a vasectomy as a way to pay back their female partner for her prior use of contraception and childbearing.\textsuperscript{23,24} At the same time, men describe the decision to have a vasectomy as an exercise in personal autonomy. By discussing vasectomy in such a way, men can validate their masculinity.\textsuperscript{176} Indeed, men’s ideas about masculinity influenced each phase of the decision-making process, revealing that that having a vasectomy is an embodied act.\textsuperscript{177,178} Other scholars have also highlighted how the traditional system of gendered labor includes women’s contraceptive responsibilities\textsuperscript{8,59} and how cultural messages about gender influence the ways women use contraception and accept their side effects.\textsuperscript{179}

7.1.2 Findings from the survey of men’s attitudes, knowledge, and information seeking

While prior research has identified some demographic characteristics about the men who have a vasectomy in the United States\textsuperscript{17,18,20,21,42,43,90}, no known survey examines men’s knowledge, attitudes, or information seeking behaviors about the procedure. I filled this gap by creating an online survey for cisgender, heterosexual men aged 25-70 living in one of seven southern states (Alabama, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee) (n=397). Facebook proved to be a quick, cost-effective means of generating a reasonably diverse sample of participants. Other research has used Facebook to recruit for health-related studies, including work on tobacco use\textsuperscript{120}, substance use\textsuperscript{121}, and human papillomavirus\textsuperscript{122}. 
However, less work about contraception has used this method for recruitment, and the work that has targeted women. Recruitment success suggests that this method might be appropriate for other studies on male reproductive health topics.

I discuss findings from the survey in Chapter 4.2, but some additional points are worth noting. Keeping in mind that findings cannot be generalized to men living across the southern United States, this data does provide insight into men’s vasectomy attitudes and behaviors. Over 17% of the sample had a vasectomy, which is higher than the estimated percentage of men relying on the method derived from the NSFG data set. The NSFG is designed to be a nationally-representative survey, but it only includes responses from men aged 15-49. In this sample, the mean age at vasectomy was 35.8 (SE ± 0.77) years; age at the time of procedure ranged from 30 to 56. Four of the men (5.7%) had a vasectomy after they were 49. Although rare, other research shows that men up to the age of 70 do have vasectomies. Taken together, these findings suggest that current estimates from the NSFG underrepresent the number of men relying on the procedure.

Of the 70 men in the sample who had a vasectomy, only one had a reversal procedure (1.4%). This finding is less than the estimated figure of 6% of men who have a vasectomy will want a reversal. Including the man who had a reversal, only 5 participants reported feeling unhappy about having a vasectomy (7.1%). Eleven of the men reported feeling “neither happy nor unhappy” about having the procedure (15.7%), and the remaining 54% reported feeling happy about the fact they had the procedure (77.1%). Previously researchers needed to infer satisfaction based on low levels of
reversals; however, this data provides evidence to suggest that the majority of men who have a vasectomy are content with their decision.

Among the men who have not had a vasectomy, more than two-thirds reported knowing someone who had the procedure; friends or co-workers were the people men were most likely to know. However, only about 20% of men who did not have a vasectomy reported speaking to someone about the procedure. This suggests that while men might have heard that someone else had a vasectomy, they do not often discuss it to any extent. In comparison, over 85% of men who have had a vasectomy reported knowing someone else who had the procedure and nearly all men reported talking to someone else about it. This suggests that there is a social element to vasectomy. Findings from the metasynthesis and interviews also support the conclusion that men do not decide to have a vasectomy in isolation, but rather in conversation with their partners and peers.

Media sources - whether internet, television, or print media - were the most common places for men who have not had a vasectomy to get information about the procedure. The mass media can have an impact on how people come to understand sexual and relationship norms. While popular media may provide correct information and encourage conversation, a recent analysis of online discussion boards about vasectomy revealed that information is not always factual. There is limited other research characterizing the media as a source of information about vasectomy. Research does show that women rely on the internet for information about contraception, yet this information is of varying quality. Further research in this area is needed.

Finally, the survey asked men to indicate who was responsible for making decisions about contraception. Among men who have a vasectomy, about 58% say they
share the responsibility in making decisions, about 40% of men say they are mostly or solely responsible, and about 2% say their partner is mostly or solely responsible. By contrast, about 73% of men without a vasectomy say they are equally responsible for making decisions about contraception, 13% say they are mostly or solely responsible, and the remaining 14% say their partner is mostly or solely responsible. It makes sense that a greater percentage of men who have a vasectomy self-report primary responsibility for contraceptive decisions compared to men without because vasectomy is a male-centered contraceptive method. However, within both subgroups of men, the majority report that both partners are equally responsible for decisions about contraception. Data from the survey is unable to provide other insight on this phenomenon, but findings from the metasynthesis and interviews show that men in committed partnerships generally do have conversations about contraception with their partners, which may be how men rationalize their survey responses. That said, even if both partners are involved in decision making, research shows that it is typically women who bear the physical, emotional, and financial burden of contraceptive use.\textsuperscript{8,179,188,189} This component of vasectomy negotiation within couples is worthy of further investigation.

7.1.3 Findings from intensive interviews

I built on the information gathered from the survey by conducting a series of intensive interviews to understand how men thought about and experienced vasectomy. Drawing on telephone interviews with men who had a vasectomy (n=21) and men who had not (n=27), I used a constructivist approach to grounded theory\textsuperscript{47} to investigate and interpret participants’ understandings and experiences with vasectomy specifically, and reproduction more generally. I found that men acknowledged the use of the telephone for
interviews, with some expressing that they were glad interviews were not face-to-face. At the end of his interview, Michael touched on this topic:

I appreciate the chance to tell my story. Nobody's really asked me all these questions, but my now-wife knows all these things that I shared with you. Now, I'll be honest with you. She doesn't know that I'm doing this today, because I've not mentioned it... well, because some of this stuff has to do with my former spouse, and they don't get along. And so, there's some raw feelings, so the fact that I would talk to a stranger about my first wife would be - it might cause a little tension, so I chose to withhold that from her at this time. (Michael)

Michael draws attention to the fact that nobody has been interested in his reproductive life and choices. While his current wife is aware of his history, he exercised his right to privacy by deciding not to disclose that he was doing an interview. The telephone enabled Michael to 1) schedule his interview when his wife was out of the house and 2) keep himself at a distance from the “stranger” who interviewed him. While there might be bias against telephone interviews, I argue that men were more willing to disclose experiences of miscarriage, abortion, infidelity, and sexual experimentation because of the anonymity and privacy the telephone provides.

I document some insights from the interviews in Chapter 4.3. I show that the term “male sterilization” has negative connotations rooted in historically coercive practices, which necessitates its conceptualization as something separate from “vasectomy.” There is a rich body of literature that documents how sterilization was used to advance sexist, racist, classist, and ableist agendas in the United States during the 20th
However, less attention has been paid to how these historical practices influence present-day understandings, particularly among men. I found that “vasectomy” was viewed as a relatively benign procedure, but that “sterilization” was described in terms like “sinister,” “bleak,” and “barbaric.” I argue that men’s conceptualizations of “sterilization” are relevant to present-day discourse and understandings about public health and reproduction. In the United States, evidence points to the continued existence of coercive sterilization practices, and a system of stratified reproduction continues to exist. As a consequence, public health efforts need to be mindful of the myriad of generally negative ways in which “male sterilization” is interpreted.

Beyond the findings discussed above, the interview data provided a range of other insights into the individual, interpersonal, and structural elements that affect vasectomy use. Interviews produced a rich dataset that described men’s reproductive life histories. The interview data was the primary source for the development of both the decision map (see section 5.1.4) and the conceptual model (see section 5.1.5) presented below.

### 7.1.4 Mapping men’s reproductive decisions

I have synthesized findings from the multiple methods discussed above to create a map of men’s reproductive decision making (Figure 7.1). Once men become sexually active, they must question whether they and their female partners are biologically able to reproduce. For men who have already had a vasectomy or are otherwise sterile, they are not able to contribute to pregnancy. Likewise, men whose female partners have had a tubal ligation, have gone through menopause, or who are otherwise infertile are not able to conceive. Charlie’s wife, for example, had a partial hysterectomy as the result of...
endometriosis; afterward, they were no longer concerned about pregnancy. Similarly, Rick’s wife underwent chemotherapy to treat breast cancer. She is now in remission, but the cancer treatment left her infertile. While they are considering becoming foster parents in the future, they are unable to conceive. In these cases, the man (or couple) is not concerned about pregnancy prevention (indicated in orange in Figure 7.1).

If both partners are biologically able to reproduce, men must ask themselves whether or not they want to have a child in the future. While the average desired family size in the United States is two children⁴⁴, this study had men who desired no children (e.g., Bubba, Jerry) as well as men who did not want to limit their number based on religious beliefs (e.g., Adam).

For people that do not want to have a child and are at their ideal family size, they then need to question whether permanent contraception is the right choice for them. If permanent methods are not desirable, the man (and his female partner) can consider other contraceptive methods. If permanent contraception is an option, then the question becomes who will use a permanent method - the man (vasectomy) or woman (tubal ligation) - indicated in green in Figure 7.1. Sometimes having a tubal ligation was portrayed as the right choice. In Nick’s case, his wife had a tubal ligation following the cesarean delivery of their twins since they decided not to have additional children. Other times having a tubal is not the right choice for women, and there are a range of reasons why women may decline to have the procedure.²⁵,¹⁹³,¹⁹⁴ Men stated that their female partners were often apprehensive about the invasiveness of the procedure and subsequent recovery time. In these instances, the act of undergoing a permanent procedure became negotiated. Based on the participants’ responses, sometimes this negotiation was
rationalized based on risk (Eric), cost (Mike), or ease of vasectomy (Bill) compared to tubal ligation. Other times the negotiation was based on issues of equity in reproduction. As an illustrative example, Brad reported his wife saying, “I had two kids, you can go get snipped.” And in one instance, both partners used permanent contraception (Vince), purportedly to ensure there was “no risk” of an unplanned pregnancy. Men’s reasons for (not) choosing a vasectomy are discussed further in section 5.1.5 below.

If a man and/or his female partner use a form of permanent contraception, the next logical question is whether they want to have the procedure reversed. If they do not want a reversal, they are not concerned about pregnancy prevention; if they do want a reversal, their decision making progress returns to the top of the map. No man reported having their vasectomy reversed. Generally, participants were confident and happy in their decision. Harley, for example, yelled “oh God no!” when asked if he would ever consider a reversal. There were only two participants (Gene and Steve) who said that they would potentially consider it. Both men had a vasectomy in the context of prior intimate relationships and said they might consider a reversal if their current or future partners wanted to have children. Findings are consistent with prior research that suggests that rates of vasectomy regret are low and that men who are childless at the time of vasectomy are unlikely to desire reversal. Men who undergo vasectomy reversal are typically more than five years post-surgery who have a new partner.

While some men and their female partners may not want (more) children, others may want a child soon. These people are not using contraception and are actively trying to become pregnant. An estimated 85% of couples not using a method of contraception will experience pregnancy within one year. While no participants disclosed that they
were currently trying to conceive, Toby’s partner was eight months pregnant at the time of his interview. Once pregnant, couples are faced with the decision of whether to continue or end the pregnancy. No participant who was trying to conceive reported having an abortion, however, ten participants reported experiencing miscarriages (or non-elective terminations), and five of these reported experiencing more than one. To participants, these miscarriages were conceptualized as a loss of a child that was emotionally devastating. Doug, who experienced three miscarriages with his partner - including one loss due to Patau syndrome - shared, “I felt responsible. I got her pregnant. It was my fault.” Doug offered insight into how painful miscarriage experiences can be for men, an area of research that is often neglected.197,198

Between the men who do not want any (more) children and those who are actively trying to conceive are those who are either unsure about their future intentions or those who want a child but not now. In either case, these men next need to question whether they or their female partners will use contraception. Couples who do not use contraception run the risk of becoming pregnant. In some cases - which participants often referred to as “scares” - their female partner did not become pregnant, and men returned to the top of the reproductive decision map (Figure 7.1) as part of the continued navigation and negotiation of their fertility. In other cases, couples who did not contracept conceived, and again were faced with the decision of what to do about the pregnancy. In Melvin’s case, he and his partner unsure about having children; they “pulled the goalie” and were not contracepting. While they were not actively trying to become pregnant, they nonetheless eventually became pregnant, and his partner delivered their first child. While Melvin and his partner intentionally stopped using contraception
because they were unsure of their goals, Michael said he did not want a child at the time, but neither he nor his partner was contracepting. Like Melvin, Michael and his partner decided to continue the pregnancy. Both examples support other research that shows that pregnancy-related behaviors are not strictly planned.199–201

For men and their female partners who do decide to use contraception, the next question is who will use a method. The boxes listing all of the methods men or their partners reported using are shaded blue in Figure 7.1. While men used condoms and withdrawal, and occasionally joint methods like the “rhythm” method (i.e., natural family planning), women bore the primary responsibility for contraceptive use (discussed further in section 5.1.5). Regardless of how contraceptive use was negotiated, the next question is whether or not the method(s) prevented pregnancy. Multiple participants reported contraceptive failures resulting in pregnancy, particularly from male-centered methods. Both Larry and Lamar used condoms while Jack and Eugene used withdrawal. Over one year, 13% of couples relying on condoms will become pregnant, and 20% of couples relying on withdrawal will become pregnant.196 And again, men and their partners have to determine what to do about the pregnancy. Larry and Jack both decided with their partners to continue the pregnancies, and both ended up with sons. In the case of Lamar and Eugene, both men’s partners decided to end the pregnancy; both men reported conflicted feelings about this event in their reproductive lives.

Finally, some people use contraception and the method prevents pregnancy. In these cases, people need to decide whether or not to continue using the method in the future. Peter is an excellent illustrative example. Peter and his partner were relying on a hormonal IUD to prevent pregnancy. This method is more than 99% effective at
They continued to use this method for about two years following the birth of their second child until Peter’s partner wanted to have her IUD removed over concerns about the long-term risks of hormonal contraceptive use. At this point, Peter returned to the beginning of the decision making map. Since he and his partner were biologically able to reproduce, but no longer wanted to have children, they considered permanent contraception. For Peter, it was an easy decision to have a vasectomy, reporting that tubal ligation is “an unnecessary risk. A vasectomy is in-and-out-done. I don't see a reason to put my wife through an invasive surgery for something that's a convenience.” Peter reported feeling sure about not wanting a reversal, and as a result, he and his partner are no longer concerned about pregnancy prevention.

Drawing on the reproductive histories of men in this study, I have created a map showing how they and their partners navigated key questions about pregnancy, contraception, and whether or not to have a vasectomy. While not necessarily definitive given limitations of the sample (see section 5.2), this schematic allows us to understand the complex reproductive pathways in which men find themselves. Of particular importance are the feedback loops, emphasizing that men are continually confronted with these questions until they or their female partners are unable to reproduce. Indeed, this is not a one-time process but rather a continuous journey that lasts over men’s reproductive lives. I recognize that human reproductive behavior is often more complicated than models created by researchers, yet argue that this is a useful starting point for exploring the continuum of pregnancy intentions and related contraceptive use for men, who are often excluded from such work.
7.1.5 Conceptualizing vasectomy

In addition to the reproductive decision map discussed above, I also synthesized findings from the separate pieces of this research to create a conceptual framework for understanding vasectomy use (see Figure 7.2). This figure uses colors to differentiate factors based on ecological levels. Individual factors are in blue boxes, interpersonal factors are in grey boxes, structural factors are in yellow boxes, and societal factors are in green boxes. I use arrows to linkage the individual, interpersonal, and structural concepts. The societal factors permeate each element of the framework. This model and associated linkages are derived from the data. Therefore, the framework is not exhaustive of all possibilities but rather is a representation of findings gathered from this study.

Interviews began by asking men to describe what life was like growing up and how they might have imagined their lives as adults. What became apparent is that men’s formative environment and experiences played a key role in staging their future relationships, pregnancy intentions, and attitudes towards contraception. Men discussed both positive and negative examples of parental role-models and family life. Men invoked shows like *Leave it to Beaver* or *Stranger Things* to describe the sort of family life and childhood they experienced within a specific period.

In some cases, parents were a valuable source of information and support about sex. Tommy discussed his positive relationship with his mother and later credited it as making him comfortable with negotiating contraception with his partners:

She just goes, "Well, are you using condoms?" and I was like, "What?" and she was like, "Yeah, are you using these things?" and then the first conversation I said like, "Where do I get those?" Then she would just,
casual conversation, then it just kind of went from there. - Tommy (31, Black, no vasectomy)

And in other cases, men viewed their parents as an example of what not to do in the future. When asked what his family life was like, Jerry said:

Weird. My mom got married, my mom was on her fourth husband. My parents got divorced maybe when I was less than three. And then, the second marriage was not positive in my eyes. I did not call that person dad, I called him by his first name. I did not like him, and that marriage didn't last long. The third marriage that my mom had, I loved that guy a lot and called him dad. And he was not good for our family at all for a variety of reason, which I can get into if you want, but that's a long, complicated story. - Jerry (42, White, vasectomy)

Jerry went on to explain that his decision not to have children and get a preemptive vasectomy was rooted in his desire not to repeat what was done to him. In this sense, trauma from Jerry’s early life shaped his later reproductive decisions. Whether positive or negative, men drew on these experiences during their childhood and teenage years when relating subsequent decisions about whether to become a parent, how to parent, and how they hoped their children would be. Existing research about men has used a reproductive life course approach to explain how men experience infertility and fatherhood. While men did discuss their own reproductive timelines vis-à-vis normative expectations for themselves and their female partners, our findings suggest that motivations about pregnancy intentions and fatherhood can be traced beyond the initiation of sexual activity to formative environments and experiences.
Prior research has demonstrated differences in vasectomy use based on race, relationship status, number of children, education, and age.\textsuperscript{20–22,42,43,90} This research shows that the average person who has a vasectomy is White, married with more than two children, has at least a bachelor’s degree, and is in their early 40s. The men in our study who had a vasectomy generally shared these demographics attributes, with the notable exception of Vince (41 at vasectomy, 2 kids, Black), Bubba (32 at vasectomy, no kids, White), and Jerry (31 at vasectomy, no kids, White). Beyond demographic characteristics, our survey findings showed that men who had a vasectomy had more positive attitudes about the procedure compared to men who did not have the procedure. Interview responses suggest that men have to think positively about the procedure to consider having one.

Popular culture also proved to be a source of information informing men about vasectomy. Men mentioned either watching or hearing about shows such as \textit{Home Improvement}, \textit{Brooklyn-99}, and \textit{Family Guy} as having episodes about vasectomy. Men were quick to acknowledge that they were referencing fiction and therefore recognized that the shows were meant to be humorous, not factual. However, the fact that men referenced these shows in conversation illustrates the staying power of media depictions of vasectomy. To the best of my knowledge, there has not been an analysis of media coverage of this topic. But, research about television depictions of abortion suggests that fictionalized accounts are misrepresentative and skew people’s perceptions of the procedure.\textsuperscript{203–205} Future work might consider if this is the case with vasectomy.

Men’s religious beliefs also determined their attitudes towards vasectomy. While questions about religious views were not included in the interview guide, the majority of
participants did bring up their beliefs during interviews. In some cases, their religious views precluded them from using contraception. Adam, who was raised Baptist but joined the Catholic Church as an adult, discussed how vasectomy was antithetical to his beliefs:

   Well, for me it's a moral issue. It just completely frustrates the whole purpose of sex, and I have these bodily organs that are working just fine. Why would I want to alter it to make it not work, to make it not do what it's supposed to do? It's just completely nonsensical. - Adam (34, White, no vasectomy)

Participants like Adam are unlikely to consider vasectomy, or assorted other contraceptive options, out of deference to their religious beliefs. On the other hand, some participants who had strong religious views mentally separated their sexual lives from their beliefs. While some work has examined the relationship between religion and contraceptive use\textsuperscript{206–208}, future research about the cognitive dissonance and compartmentalizing in one’s ability to be both religious and sexual is needed.

Men referred to their female partner’s attributes, primarily her age, prior pregnancy outcomes, and experiences with contraceptive side effects when discussing their intentions to consider a vasectomy. Men who reported that their partners had complicated pregnancies or experienced contraceptive side effects were more likely to have considered vasectomy. If men’s partners were post-menopausal, they did not have to worry about preventing pregnancy. However, if their partner was in or approaching her 40s, men were concerned about how a possible pregnancy would affect their partner. Men talked about the “risk” of being pregnant at an “older” age as well as what it would
be like to be an “older” mother. Medical literature describes women who become
pregnant after 35 as at increased risk for conditions like endometriosis and gestational
diabetes while also putting fetuses at higher risk for chromosomal anomalies and neonatal
deaths.\textsuperscript{209,210} Findings from this study suggest that men interpret these perceived medical
risks and think about them concerning their female partner’s health.

Men discussed their decisions to have, or not to have, a vasectomy in the context
of their relationships. Each of the men who had a vasectomy in this study did so in the
context of a long-term, committed relationship (either cohabitating or married). If men
were not in a relationship, or the relationship was transient, men did not consider a
vasectomy because of its permanency. Even among men who were in committed
relationships, reasons to decline a vasectomy included potential “what-if” scenarios that
could occur in the future. In these instances, men imagined a future where they were not
with their current partner and might want to have a child. Research in Mexico also
discussed this phenomenon.\textsuperscript{145} While vasectomy’s permanence was a selling point for
some men, others considered it a detractor when imagining the future of their
relationships.

For men in committed relationships, the decision of whether to use contraception,
and which method to use, took place within the broader relational dynamics in committed
relationships. Men commented on the number and types of contraceptive options
available, drawing attention to the fact that their partners often used contraception
because they did not have many options. Men often brought up hearing about a “male
pill,” with some saying they would be interested in having that option to control their
fertility. Beyond contraceptive use, men and their partners also negotiated issues like
whether or not to have children, how many children to have, how to handle parenting
duties, and work arrangements. Among men in this sample, those who were older
generally reported adherence to traditional labor structures, where men went into the
workforce and their partner performed the bulk of the parenting duties. The younger
respondents reported having a more diverse set of arrangements, including several
instances of female-breadwinners and stay-at-home fathers.

Men discussed their relationships in a way that called attention to prevailing
pronatalist-tendencies and normative reproductive timelines. Men who had a vasectomy
talked about their lives in the successive order of education, dating, marriage, having
children, and then having a vasectomy. As previously mentioned, only two participants
(Jerry and Bubba) elected to have a preemptive vasectomy but both did it once in a
committed relationship. Bubba shared how he and his partner thought about it:

Well we just didn't let it bother us because it's like, "Okay, it's our life to
live. Not someone else's show." They can judge us if they want, but this is
the way we want to live. And so, we just didn't really care about what
others thought. - Bubba (64, White, vasectomy)

Among the ten men who had not had a vasectomy and also did not have children, only
two (Filipe and John) expressed a desire to not have children. As Filipe said, “I don't
think I would like to have children. I have felt like that for a long time... It's a lot of work.
Your freedom, you basically lose your freedom for the most part” (30, Latino, no
vasectomy). Otherwise, participants’ responses indicated that they did desire, or at least
would consider, having children in the future.
Within men’s relationships, decisions about pregnancy, children, and working arrangements were often financially motivated. Participants discussed wanting to have economic stability before having children. Younger participants acknowledged that it was difficult to achieve, particularly those who graduated in the later years of the aughts (2008-2010) when the “bubble burst” and the economy entered a recession. At the same time, financial limitations were often a motivator to stop having children and consider having a vasectomy. It was at this point that men questioned whether having a vasectomy would be covered by their insurance and how much the procedure would cost. No participant was without insurance; several relied on Medicaid, several relied on TRICARE (i.e., insurance for uniformed service members), and the majority had private insurance. The Affordable Care Act does not require that insurance companies cover vasectomies, although most cover at least some of the cost. Alabama, Louisiana, Mississippi, North Carolina, and South Carolina have expanded Medicaid coverage to include vasectomies; Georgia and Tennessee have not. Men in this study expressed confusion about whether the procedure would be covered, and those who had a vasectomy talked about how insurance covered costs, less their deductibles. The average cost of a vasectomy is approximately $700. While significantly cheaper than the average tubal ligation at roughly $2,900\(^6\), the cost may still be prohibitive for some men, although it was not the case among study participants.

While men may have discussed vasectomy with their partners, they consistently framed the decision as an individual choice rooted in logic. For example, Russell explained how he and his wife did not want any more children (they had one). When I
asked Russell what prompted him to have a vasectomy, he said that his wife was unable to use the oral contraceptive pill because of her high blood pressure and she did not want to use the IUD or implant. This left them with a choice of either a tubal ligation or vasectomy. Russell went on to say:

[Tubal ligation] is much more dangerous, and you're a much higher risk category... that would just be terrible decision on many different levels. It was my decision, no forcing. No coercion. Just, "Hey, here's our two choices," and that one [vasectomy] was the most logical for me. - Russell (39, White, vasectomy)

Men discussed vasectomy as something less risky than tubal ligation, and therefore it was a more sensible choice. In both the metasynthesis and interviews, men discussed the procedure as a rational, individual choice that is consistent with normative masculine ideals. At the same time, men’s narratives relied on the fact that they viewed women’s bodies as at risk of harm. As Larry said, “it was easier on me than it would have been on her” (67, White, vasectomy). Overall, men recounted their decision to have a vasectomy as an act of individual agency where they could exercise control over their bodies while also calling attention to the idea that their partners’ bodies were more vulnerable. In so doing, they positioned themselves as being “good men” who “took responsibility,” thereby adhering to hegemonic patterns of masculinity.

Interview findings revealed that for men that had a vasectomy, experiences were remarkably similar. Participants’ recounted having an initial consultation procedure with a urologist, returning between one day and one week later to have the procedure, and having an uneventful recovery. Participants did not report any issues finding or accessing
a healthcare provider, which may because most lived in suburban or urban environments. No participant reported any side effects beyond discomfort for several days following the procedure. Relatedly, survey findings also showed that the majority of participants who had a vasectomy were content with their decision. Qualitative interviews conducted in New Zealand also report generally positive experiences with the procedure. Because vasectomy is designed to be permanent, there is a concern that men may regret the procedure, but research demonstrates this is not often the case. Findings from this study concur with prior research and suggest that once men make the decision to have the procedure, they are unlikely to feel remorse after the fact.

While the actual experience of having a vasectomy was consistent, men’s ideas about how to talk about it with others varied widely. Interview participants decided to have a vasectomy as part of their relationship work, and therefore their partners knew. But, whether men disclosed the procedure to other family members, friends, or peers as part of their social discussions depended on several interrelated factors. First, it depended on whether or not men felt that sex and reproduction were appropriate topics for social discussion; men who did not feel comfortable talking about their intimate lives were unlikely to willingly tell others about the procedure. Second, it seemed to depend on the type of relationship, where friends of a similar age were generally the ones men were most likely to talk to about vasectomy. Third, it depended on the assessed strength of the relationship. Fourth, it also depended on the opportunity to have these conversations. In some instances, men said they would be willing to tell others about their vasectomy experience but that nobody had ever asked. Findings from the metasynthesis and survey also highlighted the social element of discussing vasectomy. To date, this area of
vasectomy decision making has gone unexamined. Future research can investigate how different groups of men assess these factors and navigate varying social settings. Such work would help with the development of public health outreach activities designed to improve the visibility of vasectomy as a contraceptive option to consider.

Drawing on the rich data gathered from the interviews, as well as findings from the metasynthesis and survey, I have created a conceptual framework for understanding vasectomy use. This framework provides a representation of the individual, interpersonal, structural, and societal factors found in the data that influenced vasectomy decision making. Since vasectomy has been little examined in the United States\textsuperscript{16}, this model may provide a basis for various other forms of inquiry on this topic. As one participant said, “[vasectomy] was a small procedure but it's a big thing” (George, 35, White, vasectomy). Accordingly, future research may not need to examine the medical procedure itself, but rather the multitude of social actors, norms, and practices that surround it.

7.2 Limitations

As with any research, there are limitations to consider. Concerning the metasynthesis, I focused on work published in English-language academic journals, precluding the inclusion of work published in other languages. While I cannot be sure, there may be published literature in other languages that might center men’s vasectomy experiences. Similarly, of the research published in English, the focus on men’s experiences meant that studies which included men who did not have a vasectomy and women were excluded. Given that the theoretical model produced emphasized the importance of both men’s apprehensions and the influence of intimate partners on the decision whether or not to have a vasectomy, the excluded research may have further
informed the conceptual framework and findings. However, despite these exclusions, the metasynthesis brings together disparate research studies in a way that has not been done, giving a more holistic view about the nature of men’s vasectomy decision making.

Concerning the survey, the most significant limitation is that the sample was not representative of the target population of cisgender, heterosexual men aged 25-70 living in the seven states. The exploratory nature of this survey, coupled with cost constraints, meant that I recruited online using targeted Facebook advertising, although I recognize this is a potential source of bias. Relatedly, the sample had limited racial/ethnic diversity and did not reflect that among included states, the percentage of the population identifying as non-White ranges from 26% in Tennessee to 48% in Georgia. As a result, I was unable to perform more granular analyses based on these characteristics. Despite these limitations, the methods are consistent with other recently published work concerning under-researched topics in contraception.

As with the survey, a limitation of the interviews is the limited racial/ethnic diversity of the sample. Among the subsample of men who did not have a vasectomy, one-third identified as non-White (9 of 27). However, I was only able to recruit one non-White man who had a vasectomy. This difficulty may reflect the fact that statistically, it is very rare for Black or Latino men to have a vasectomy. It may also reflect the fact some men may have been skeptical about the legitimacy of the study, particularly since it was about a sensitive topic. As a result, the sample reflects the average vasectomy user (i.e., a White, married man), allowing insight into how this group experiences vasectomy. I do acknowledge that future work with a more racially diverse sample could (and likely would) solicit different narratives, particularly among men who had a
vasectomy. It is also worth mentioning is that I conducted interviews over the telephone. As a result, I was unable to capture visual cues that are possible using in-person or video conference interviews. However, based on feedback from participants, I believe the anonymity of the telephone made men feel more comfortable and facilitated greater honesty than might have otherwise been the case. As a result, I argue this tradeoff was beneficial to the overall study and was worth the tradeoff of losing the visual cues.

7.3 Future directions

Based on the findings from this research, there are multiple ways of continuing to study both vasectomy and the role of men in reproduction. First, while the survey generated data about men’s knowledge, attitudes, and information seeking behaviors, findings are based on a non-representative sample. A subsequent study with a representative sample would provide improved empirical evidence about how men think about vasectomy. I would also be able to conduct more granular statistical analyses based on race/ethnicity. In addition, this body of research revealed the importance of female partners in considering whether or not to have a vasectomy. I plan to amend the survey instrument to include additional questions about men’s female partners to investigate possible correlations between women’s ages, methods of contraception, number of children, and vasectomy use.

This research generated a rich qualitative dataset that highlights the potential for additional related work. Future efforts could consider intensive interviews using different demographic characteristics than adhered to in this study. While this research was geographically bounded to seven southern states with low vasectomy prevalence rates\textsuperscript{17}, it would be useful to investigate the experiences of men outside this region. The Pacific
Northwest and Northeast, in particular, might provide excellent contrast because of their higher vasectomy prevalence rates\textsuperscript{17} and political environments which are less likely to impose restrictions on contraception.\textsuperscript{215} Men in these regions might have different reproductive experiences, timelines, and views on contraceptive responsibility which could further develop the decision making map and vasectomy framework. Additionally, eligibility criteria stipulated that participants be cisgender, heterosexual men because vasectomy is generally positioned as a contraceptive option for those men to prevent pregnancy in the context of their relationships with cisgender, heterosexual women. However, cisgender men with differing sexual orientations may also have vasectomies, although there is no known data about this in the United States. Along the same lines, two interview participants had a preemptive vasectomy (i.e., having a vasectomy without having any children). Although research in New Zealand discussed this phenomenon\textsuperscript{99}, further work in the United States would be useful to uncover how discourses about being child-free may affect men’s use of vasectomy.

Findings from the survey and interviews highlight the importance of media sources for information about vasectomy. Whether television, print, or the internet, these were the avenues that men used to gather information and form opinions about the procedure. Research efforts can further investigate the influence of mass media on vasectomy behaviors and attitudes by looking at different information sources and critically assessing the way the procedure is portrayed. From a public health standpoint, these same media sources can be leveraged to improve the image of vasectomy and make it more visible as a contraceptive method for people to consider. Public health outreach
campaign efforts can focus on improving awareness about vasectomy by dispelling myths about the procedure and providing better information to men and women.

All three components of this dissertation highlight the importance of peers in men’s vasectomy decision-making. While men found friends and co-workers to be a source of information and support, men also reported conflicting feelings about discussing the procedure or disclosing they had the procedure to others. These aspects of vasectomy specifically, and men’s sexual health more generally, are wrapped up in cultural constructions of masculinity. While this is not something I delve into specifically, further investigations that tease out the social dynamic of contraceptive discussions and disclosure among men given these norms around masculinity could be particularly fruitful for informing public health outreach programs.

Finally, this research demonstrates that men, like women, lead complex reproductive lives that deserve attention in research and in practice. Future research needs to continue to draw on men’s reproductive life histories to develop more robust understandings of these complexities and reveal areas for intervention. In practice, men’s reproductive health remains an afterthought. In the short-term, men’s ability to have a vasectomy depends on being aware of the procedure. A recent opinion piece by Patel & Nguyen (2019) highlighted how obstetricians and gynecologists could improve the visibility of vasectomy by discussing the method with their female patients. I agree with their assessment and propose future work that emphasizes the integration of vasectomy into routine contraceptive conversations. In the long-term, continued efforts are needed to address structural level concerns, including insurance coverage, the availability of
contraception for men, and the way healthcare is organized, which largely exclude men’s reproductive needs.

7.4 Concluding remarks

It has been 25 years since universal access to reproductive health care that integrates men into policies and services was placed on the international agenda.\(^1\) However, in the years since men’s roles in the reproductive equation have largely been ignored and the contraceptive burden has continued to fall on women.\(^ {13} \) Vasectomy is one of the few options men have to manage their reproductive capacity and take on this burden from their female partner. Despite this, the method continues to be underused in favor of female-centered methods of contraception, particularly tubal ligation - which is more invasive, more risky, more expensive, and less effective at preventing pregnancy by comparison.\(^ {16,44} \)

Existing quantitative research on vasectomy provides a demographic profile of the typical vasectomy user\(^ {17,20-22,42,43,90} \) but not much additional information. Relatedly, only a handful of qualitative studies have examined what people think about vasectomy, and these have primarily taken place in urban settings on the West coast.\(^ {23,24} \) It is the southern United States, however, which has the lowest vasectomy prevalence.\(^ {17} \) I addressed this gap in the literature by conducting a multi-method examination of vasectomy in the southern United States. This research involved the use of a metasynthesis to theorize previously published international work, the development of a survey instrument to assess knowledge, attitudes, and information seeking behaviors, and intensive telephone interviews to investigate the ways men discuss and experience vasectomy. The resulting outputs are a map of men’s reproductive decision making and a substantive conceptual
framework for understanding vasectomy. Overall, this research provides considerable empirical evidence about how men think about, consider, and experience vasectomy as not only an individual act but as one that is influenced by a range of social actors, norms, and practices.
Figure 7.1 Men’s reproductive decision-making map
Figure 7.2 Conceptual framework for understanding vasectomy use
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Appendix A: Notices of Institutional Review Board Approval
OFFICE OF RESEARCH COMPLIANCE

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
APPROVAL LETTER for EXEMPT REVIEW

Ashley White
Arnold School of Public Health
Department of Health Promotion, Education & Behavior
915 Greene Street, 5th Floor
Columbia, SC 29208

Re: Pro00087081

Dear Ms. Ashley White:

This is to certify that the research study Cognitive interviewing to refine a survey of vasectomy knowledge, attitudes, and practices among men in South Carolina was reviewed in accordance with 45 CFR 46.104(d)(2) and 45 CFR 46.111(a)(7), the study received an exemption from Human Research Subject Regulations on 3/18/2019. No further action or Institutional Review Board (IRB) oversight is required, as long as the study remains the same. However, the Principal Investigator must inform the Office of Research Compliance of any changes in procedures involving human subjects. Changes to the current research study could result in a reclassification of the study and further review by the IRB.

Because this study was determined to be exempt from further IRB oversight, consent document(s), if applicable, are not stamped with an expiration date.

All research related records are to be retained for at least three (3) years after termination of the study.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). If you have questions, contact Lisa Johnson at lisaj@mailbox.sc.edu or (803) 777-6670.

Sincerely,

Lisa M. Johnson
ORC Assistant Director and IRB Manager
INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH
APPROVAL LETTER for EXEMPT REVIEW

Ashley White
Arnold School of Public Health
Department of Health Promotion, Education & Behavior
915 Greene Street, 5th Floor
Columbia, SC 29208

Re: Pro00088340
Dear Ms. Ashley White:

This is to certify that the research study Exploring Vasectomy in South Carolina: A Mixed-Methods Study was reviewed in accordance with 45 CFR 46.104(d)(2) and 45 CFR 46.111(a)(7), the study received an exemption from Human Research Subject Regulations on 4/11/2019. No further action or Institutional Review Board (IRB) oversight is required, as long as the study remains the same. However, the Principal Investigator must inform the Office of Research Compliance of any changes in procedures involving human subjects. Changes to the current research study could result in a reclassification of the study and further review by the IRB.

Because this study was determined to be exempt from further IRB oversight, consent document(s), if applicable, are not stamped with an expiration date.

All research related records are to be retained for at least three (3) years after termination of the study.

The Office of Research Compliance is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). If you have questions, contact Lisa Johnson at lisaj@mailbox.sc.edu or (803) 777-6670.

Sincerely,

Lisa M. Johnson
ORC Assistant Director and IRB Manager
Appendix B: Facebook advertising for survey recruitment
Are you a man over the age of 25 living in the South?

Complete a 15-minute online survey and be entered to win a $50 Amazon gift card.

Take our survey at: https://www.surveymonkey.com/r/1usc
Are you a man over the age of 25 living in the South?

Tell us what you think about parenthood and pregnancy prevention.

Complete a 15-minute online survey and be entered to win a $50 Amazon gift card.

Take our survey at: https://www.surveymonkey.com/r/1usc
Appendix C: Survey questionnaire
University of South Carolina Men’s Sexual Health Survey Consent statement

You are being invited to complete a survey.

This is a survey conducted by a graduate student at the University of South Carolina for a study about men’s reproductive health. The purpose of this survey is to understand your views about fatherhood and the use of male permanent sterilization (i.e., vasectomy) to prevent pregnancy. The survey should take you approximately 15 minutes to complete. Your participation is completely voluntary; you can stop taking the survey at any time. Your responses will be confidential.

If you complete the survey, you will be entered to win 1 of several $50 Amazon gift cards as a thank you for your time.

If you have any questions about this survey, please contact the research team at uscvasstudy@gmail.com.

1. Agreeing to take the survey means you have read and understood the above consent statement. Would you like to continue and take the survey?

   Yes, take me to the first question.

   No, I would like to exit the survey now.

Screening questions

2. Where do you live? (select from 50 state drop down list)

3. How old are you?
   a. Under 25
   b. 25-34
   c. 35-44
   d. 45-54
   e. 55-64
   f. 65 or older

4. What sex were you assigned at birth?
   a. Male
   b. Female
   c. Choose not to disclose

5. What is your current gender identity?
   a. Male
   b. Female
   c. Transgender male / trans man / female-to-male (FTM)
   d. Transgender female / trans woman / male-to-female (MTF)
6. Do you think of yourself as:
   a. Straight or heterosexual
   b. Gay, lesbian, or homosexual
   c. Bisexual
   d. Something else: please describe:
   e. Don’t know
   f. Choose not to disclose

[Participants who have not been disqualified based on eligibility criteria will continue on through the rest of the survey]

Questions about reproductive history

7. How many biological children have you had? [Select from drop down number 0 – 10+]

8. How old are your biological children? [Enter ages in free text boxes]

9. Some men have had a vasectomy, which is an operation that makes it impossible for them to father a child. Have you ever had a vasectomy?
   a. Yes
   b. No [Skip to 12]

10. How many years ago did you have your vasectomy? [Select from drop down number 0 – 10+]

11. How do you feel about the fact that you had a vasectomy?
   a. Very happy that I had a vasectomy
   b. A little happy I had a vasectomy
   c. Neither happy nor unhappy
   d. A little unhappy that I had a vasectomy
   e. Very unhappy that I had a vasectomy

12. Some men are not physically able to father children. As far as you know, is it possible for you, yourself, to biologically father a child in the future?
   a. Yes
   b. No
   c. Unsure
13. When was the last time you had sex with a female partner?
   a. Within the past 30 days
   b. Within the past 1-3 months
   c. Within the past 4-6 months
   d. Within the past 7-12 months
   e. More than a year ago
   f. Never [Skip to 18]

14. The last time you had sex with a female partner, did she use any method to prevent pregnancy?
   a. Yes
   b. No [Skip to 16]
   c. Unsure [Skip to 16]

15. What method(s) did she use? Check all that apply.
   a. The pill
   b. Tubal sterilization or other female sterilization ("tubes tied")
   c. The shot (e.g., Depo)
   d. Hormonal implant (e.g., Nexplanon)
   e. Intrauterine device (e.g., Mirena, Liletta, Kyleena, Skyla, ParaGard)
   f. Contraceptive patch
   g. Vaginal contraceptive ring (e.g., NuvaRing)
   h. Do not know
   i. Other: ______

16. The last time you had sex with a female partner, did you, yourself, use any method to prevent pregnancy?
   a. Yes
   b. No [Skip to 18]
   c. Unsure [Skip to 18]

17. What method(s) did you use? Check all that apply.
   a. Condom or rubber
   b. Withdrawal or pulling out
   c. Vasectomy
   d. Other: ______

18. Which of the following best describes how you make decisions about using contraception:
   a. My female partner is solely responsible
   b. My female partner is mostly responsible
   c. My female partner and I are equally responsible
   d. I am mostly responsible
   e. I am solely responsible
19. How much to you want to have a/another child in the future?
   a. Really want a/another child
   b. Want a/another child
   c. Neutral
   d. Do not want a/another child
   e. Really do not want a/another child

Questions about vasectomy information seeking practices

20. Before today, where have you heard about vasectomy? Check all that apply.
   a. Spouse or significant other
   b. Brother
   c. Brother in-law
   d. Father
   e. Father in-law
   f. Other family member
   g. Friend
   h. Co-worker
   i. Doctor or another medical professional
   j. Newspaper
   k. Magazine
   l. Billboard
   m. Book
   n. Internet
   o. Television
   p. Other: _____
   q. Nowhere, I have never heard about vasectomy before today

21. Before today, where have you looked for information about vasectomy? Check all that apply.
   a. Nowhere, I have never looked for information about vasectomy before today
   b. Materials from a doctor, urologist, or other medical office
   c. Newspaper
   d. Magazine
   e. Billboard
   f. Book
   g. Online using Google
   h. Online using the WebMD website
   i. Online using the Mayo Clinic website
   j. Online using the Planned Parenthood website
   k. Another online source: _______
   l. Other: ______
22. Do you know anyone who has a vasectomy?
   a. Yes
   b. No [Skip to 24]

23. Who do you know that has had a vasectomy? Check all that apply.
   a. Brother
   b. Brother in-law
   c. Father
   d. Father in-law
   e. Other family member
   f. Friend
   g. Co-worker
   h. Other: _____

24. Have you ever talked with someone about you, yourself, getting a vasectomy?
   a. Yes
   b. No [Skip to 26]

25. Who have you talked to about having a vasectomy? Check all that apply.
   a. Spouse or significant other
   b. Brother
   c. Brother in-law
   d. Father
   e. Father in-law
   f. Other family member
   g. Friend
   h. Co-worker
   i. Doctor or another medical professional
   j. Other: _____

Questions about vasectomy knowledge

26. Vasectomy is an outpatient procedure.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

27. Vasectomy is meant to be a permanent means of preventing pregnancy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree
28. Vasectomy can be reversed.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

29. Vasectomy is more than 99% effective at preventing pregnancy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

30. Having a vasectomy means having your testicles removed.
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree

31. Having a vasectomy means no longer having sperm in your semen.
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree

32. Having a vasectomy means you can no longer ejaculate.
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree

33. Having a vasectomy means you are no longer able to biologically father children.
    a. Strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree
Questions about vasectomy attitudes

34. Having a vasectomy makes you less of a man.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

35. Men should not have a vasectomy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

36. Being able to father children is an essential part of being a man.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

37. Men who have a vasectomy will regret it.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

38. I would consider having a vasectomy if I did not want any (more) children.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

39. Once a man has a vasectomy his sex life gets worse.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree
40. If a man has a vasectomy, he is more likely to cheat on his female partner.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

41. Vasectomy causes men to lose interest in sex.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

42. Vasectomy is an effective method for preventing pregnancy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

43. Having a vasectomy means never worrying about preventing pregnancy again.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

44. Having a vasectomy will make a man’s sex life better.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

45. If a man has a vasectomy, he can have sex with his female partner more often.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

46. Vasectomy is a safe procedure.
   a. Strongly agree
   b. Agree
   c. Neutral
d. Disagree
e. Strongly disagree

47. Vasectomy is a painful procedure.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

48. Vasectomy is a complicated procedure.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

49. Vasectomy is a procedure with serious medical risks.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

50. If a man has a vasectomy, he will experience bruising for a few days after the procedure.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

51. If a man has a vasectomy, he will be in pain for a few days after the procedure.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

52. After a man has a vasectomy, it will always be painful for him to have sex.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree
53. If a man has a vasectomy, he will be fully recovered a few weeks after the procedure.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

54. Recovering from a vasectomy takes a few days.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

55. Recovering from a vasectomy is not a big deal.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

56. If I wanted a vasectomy, I would talk to my sexual partner(s) about it.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

57. If I had a vasectomy, I would tell my sexual partner(s) about it.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

58. If my sexual partner(s) asked if I had a vasectomy I would tell her/them.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

59. I would feel comfortable talking with a doctor about getting a vasectomy.
   a. Strongly agree
   b. Agree
c. Neutral
d. Disagree
e. Strongly disagree

60. If I thought about getting a vasectomy, I would be worried that something would go wrong.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

61. If I did get a vasectomy, I trust that the doctor would do a good job.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

62. I would tell my friends that I had a vasectomy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

63. I would be embarrassed to tell people that I had a vasectomy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

64. I would be ashamed to tell people that I had a vasectomy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

65. My religious beliefs would not influence my decision to have a vasectomy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree
66. I consider it a sin to get a vasectomy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

67. Because of my religious beliefs, I would not get a vasectomy.
   a. Strongly agree
   b. Agree
   c. Neutral
   d. Disagree
   e. Strongly disagree

Demographic questions

68. How old are you? [Select from dropdown range 35 – 64]

69. Do you consider yourself:
   a. American Indian or Alaskan Native
   b. Asian
   c. Black or African American
   d. Latino or Hispanic
   e. Native Hawaiian or Other Pacific Islander
   f. White
   g. Other: please describe_____

70. When did you last visit a doctor’s office for a personal health issue?
   a. Within the past 30 days
   b. Within the past 1-3 months
   c. Within the past 4-6 months
   d. Within the past 7-12 months
   e. More than a year ago

71. What is your current relationship status?
   a. Married
   b. Not married but living with a partner
   c. Widowed
   d. Divorced or annulled
   e. Separated
   f. In a serious relationship but not living together
   g. Casually dating one or more people
   h. Not currently in a romantic relationship or seeing anyone in particular
72. What is the highest level of education you have completed?
   a. Less than 12th grade
   b. 12th grade, no diploma
   c. High school diploma or GED
   d. Associate’s degree (e.g., AA, AS)
   e. Bachelor’s degree (e.g., BA, BS)
   f. Master’s degree or other advanced professional degree (e.g., MD, PhD)

73. What is your yearly household income before taxes?
   a. Less than $25,000
   b. $25,000 - $39,999
   c. $40,000 - $54,999
   d. $55,000 - $69,999
   e. $70,000 - $84,999
   f. $85,000 - $99,999
   g. $100,000 - $114,999
   h. $115,000 - $129,999
   i. $130,000 - $144,999
   j. More than $145,000

74. What is your current employment status? Check all that apply.
   a. Employed full time (35 or more hours per week)
   b. Employed part time (up to 35 hours per week)
   c. Unemployed
   d. Student
   e. Retired
   f. Stay at home parent
   g. Unable to work
   h. Other: ______

75. What type of health insurance do you have? Check all that apply.
   a. Plan through your / your partner's employer
   b. Plan purchased by yourself or your partner
   c. Medicaid
   d. Medicare
   e. TRICARE / military health coverage
   f. Not covered by health insurance
   g. Other ______

76. At the present time, what is your religious affiliation? [Free response field]

Invitation to participate in an interview

77. Thank you for answering these survey questions. Are you interested in being contacted to participate in a follow up individual interview? Interviews are
confidential and will take place at a time convenient to you and will take approximately one hour to complete. Participants will be paid $20 for their time.
   a. Yes
   b. No [Skip to 80]

78. If you are interested in participating in a confidential interview, please provide an email address where a member of the research team can contact you. We will also use this to contact you if you are the winner of a $50 Amazon gift card. [Free response box]

79. Thank you for responding to the survey. If you have questions about this study, please contact the researcher at uscvasstudy@gmail.com
   a. Exit survey

Invitation to enter to win a gift card

80. Thank you for answering these survey questions. Are you interested in being entered to win a $50 Amazon gift card? You will be asked to provide an email address.
   a. Yes
   b. No [Taken to survey end page]

81. If you are interested in being entered to win a $50 Amazon gift card, please provide an email address where a member of the research team can contact you. We will only contact you if you are a winner. [Free response box]
Appendix D: Survey item constructs and variable information
<table>
<thead>
<tr>
<th>Category</th>
<th>Subscale</th>
<th>Question</th>
<th>Variable type</th>
<th>Response codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic</td>
<td>-</td>
<td>Where do you live?</td>
<td>Nominal</td>
<td>0 - Alabama 1 - Georgia 2 - Louisiana 3 - Mississippi 4 - North Carolina 5 - South Carolina 6 - Tennessee</td>
</tr>
<tr>
<td>Demographic</td>
<td>-</td>
<td>How old are you?</td>
<td>Continuous</td>
<td>Numeric value</td>
</tr>
<tr>
<td>Demographic</td>
<td>-</td>
<td>How many children have you had?</td>
<td>Continuous</td>
<td>Numeric value</td>
</tr>
<tr>
<td>Demographic</td>
<td>-</td>
<td>Have you ever had a vasectomy?</td>
<td>Dichotomous</td>
<td>0 - No 1 - Yes</td>
</tr>
<tr>
<td>Demographic</td>
<td>-</td>
<td>How many years ago did you have your vasectomy?</td>
<td>Continuous</td>
<td>Numeric value</td>
</tr>
<tr>
<td>Demographic</td>
<td>-</td>
<td>How do you feel about the fact that you had a vasectomy?</td>
<td>Ordinal</td>
<td>1 - Very unhappy 2 - A little unhappy 3 - Neither happy nor unhappy 4 - A little happy 5 - Very happy</td>
</tr>
<tr>
<td>Demographic</td>
<td>-</td>
<td>Do you consider yourself [check race/ethnicity]</td>
<td>Dichotomous</td>
<td>0 - White 1 - Non-White</td>
</tr>
<tr>
<td>Demographic</td>
<td>-</td>
<td>What is your current relationship status?</td>
<td>Nominal</td>
<td>0 - Married 1 - Cohabitating 2 - Widowed, divorced, separated 3 - Dating but not living with anyone 4 - Not dating</td>
</tr>
<tr>
<td>Demographic</td>
<td>-</td>
<td>What is the highest level of education you have completed?</td>
<td>Ordinal</td>
<td>0 - High school or GED 1 - 2 year college degree 2 - 4 year college degree 3 - Advanced college degree</td>
</tr>
</tbody>
</table>
| Demographic | - | What is your yearly household income before taxes? | Ordinal | 0 - Less than $25,000  
1 - $25,000 - $54,999  
2 - $55,000 - $85,999  
3 - $85,000 - $114,999  
4 - $115,000 + |
| Knowledge | - | Vasectomy is an outpatient procedure. | Ordinal | 1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree |
| Knowledge | - | Vasectomy is meant to be a permanent means of preventing pregnancy. | Ordinal | 1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree |
| Knowledge | - | Vasectomy can be reversed. | Ordinal | 1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree |
| Knowledge | - | Vasectomy is more than 99% effective at preventing pregnancy. | Ordinal | 1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree |
| Knowledge | - | Having a vasectomy means no longer having sperm in your semen. | Ordinal | 1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree |
| Knowledge | - | Having a vasectomy means having your testicles removed. | Ordinal | 1 - Strongly agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Strongly disagree |
| Knowledge | - | Having a vasectomy means you can no longer ejaculate. | Ordinal | 1 - Strongly agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Strongly disagree |
|---|---|---|---|---|
| Attitudes | Procedure | Vasectomy is a safe procedure. | Ordinal | 1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree |
| Attitudes | Procedure | Vasectomy is a painful procedure. | Ordinal | 1 - Strongly agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Strongly disagree |
| Attitudes | Procedure | Vasectomy is a complicated procedure. | Ordinal | 1 - Strongly agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Strongly disagree |
| Attitudes | Procedure | Vasectomy is a procedure with serious medical risks. | Ordinal | 1 - Strongly agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Strongly disagree |
| Attitudes | Procedure | If I thought about getting a vasectomy, I would be worried that something would go wrong. | Ordinal | 1 - Strongly agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Strongly disagree |
| Attitudes | Procedure | If I did get a vasectomy, I trust that the doctor would do a good job. | Ordinal | 1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree |
<table>
<thead>
<tr>
<th>Attitudes</th>
<th>Recovery</th>
<th>If a man has a vasectomy, he will be fully recovered a few weeks after the procedure.</th>
<th>Ordinal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes</td>
<td>Recovery</td>
<td>Recovering from a vasectomy takes a few days.</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Attitudes</td>
<td>Recovery</td>
<td>Recovering from a vasectomy is not a big deal.</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Attitudes</td>
<td>Regret</td>
<td>Having a vasectomy makes you less of a man.</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Attitudes</td>
<td>Regret</td>
<td>Men should not have a vasectomy.</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Attitudes</td>
<td>Regret</td>
<td>Men who have a vasectomy will regret it.</td>
<td>Ordinal</td>
</tr>
<tr>
<td>Attitudes</td>
<td>Sex life</td>
<td>Once a man has a vasectomy his sex life gets worse.</td>
<td>Ordinal</td>
</tr>
</tbody>
</table>

1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree
| Attitudes   | Sex life     | If a man has a vasectomy, he is more likely to cheat on his female partner. | Ordinal | 1 - Strongly agree  
|            |             | 2 - Agree  
|            |             | 3 - Neutral  
|            |             | 4 - Disagree  
|            |             | 5 - Strongly disagree  |
| Attitudes   | Sex life     | Vasectomy causes men to lose interest in sex. | Ordinal | 1 - Strongly agree  
|            |             | 2 - Agree  
|            |             | 3 - Neutral  
|            |             | 4 - Disagree  
|            |             | 5 - Strongly disagree  |
| Attitudes   | Disclosure  | If I had a vasectomy, I would tell my sexual partner(s) about it. | Ordinal | 1 - Strongly disagree  
|            |             | 2 - Disagree  
|            |             | 3 - Neutral  
|            |             | 4 - Agree  
|            |             | 5 - Strongly agree  |
| Attitudes   | Disclosure  | I would feel comfortable talking with a doctor about getting a vasectomy. | Ordinal | 1 - Strongly disagree  
|            |             | 2 - Disagree  
|            |             | 3 - Neutral  
|            |             | 4 - Agree  
|            |             | 5 - Strongly agree  |
| Attitudes   | Disclosure  | I would tell my friends that I had a vasectomy. | Ordinal | 1 - Strongly disagree  
|            |             | 2 - Disagree  
|            |             | 3 - Neutral  
|            |             | 4 - Agree  
|            |             | 5 - Strongly agree  |
| Attitudes   | Disclosure  | I would be embarrassed to tell people that I had a vasectomy. | Ordinal | 1 - Strongly agree  
|            |             | 2 - Agree  
|            |             | 3 - Neutral  
|            |             | 4 - Disagree  
|            |             | 5 - Strongly disagree  |
| Attitudes   | Disclosure  | I would be ashamed to tell people that I had a vasectomy. | Ordinal | 1 - Strongly agree  
|            |             | 2 - Agree  
|            |             | 3 - Neutral  
|            |             | 4 - Disagree  
|            |             | 5 - Strongly disagree  |
| Attitudes | Religion | My religious beliefs would not influence my decision to have a vasectomy. | Ordinal | 1 - Strongly disagree  
2 - Disagree  
3 - Neutral  
4 - Agree  
5 - Strongly agree |
| --- | --- | --- | --- | --- |
| Attitudes | Religion | I consider it a sin to get a vasectomy. | Ordinal | 1 - Strongly agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Strongly disagree |
| Attitudes | Religion | Because of my religious beliefs, I would not get a vasectomy. | Ordinal | 1 - Strongly agree  
2 - Agree  
3 - Neutral  
4 - Disagree  
5 - Strongly disagree |
| Information seeking | Know someone | Do you know anyone who has a vasectomy? | Dichotomous | 0 - No  
1 - Yes |
| Information seeking | Talked to someone | Have you ever talked with someone about you, yourself, getting a vasectomy? | Dichotomous | 0 - No  
1 - Yes |
Appendix E: Facebook advertising for supplemental interview recruitment
What do you think of the “snip, snip”? 

Qualify for an interview at: https://www.surveymonkey.com/r/1usc
Appendix F: Interview recruitment language
Hello,

Thank you for completing our online survey about men's reproductive health. I am writing to see if you are still interested in participating in a confidential interview at a time that is convenient for you. Details are below.

The interview will take between 1 and 2 hours and include questions about your opinions / experiences with preventing pregnancy, fatherhood, and vasectomy. The interview will be conducted over the phone. At the end of the interview, you will receive $20, either through PayPal (if you have an account) or an Amazon e-gift card, to thank you for your participation.

We are currently scheduling interviews between [dates]. To schedule your interview, please reply to this email and provide three 2-hour windows of time during which you are available. These 2-hour windows can be any day of the week, between 7am and 9pm ET. If that window doesn't work for you, just let me know and we can find another time that does.

Please let me know if you have questions. I look forward to hearing from you.

Best,

Ashley White, MS, PhD(c)
Department of Health Promotion, Education & Behavior
Arnold School of Public Health
University of South Carolina
Appendix G: Interview consent statement
Consent to Participate in Research

Project Title: Exploring Vasectomy in the Southern United States
Principal Investigator: Ashley L. White, MSHP, PhD candidate
Department of Health Promotion, Education, and Behavior
University of South Carolina
Columbia, SC 29208
Alw3@email.sc.edu

Interview Oral Consent Text:

You are being asked to take part in a research study. If you have any questions or concerns about the contents of this agreement, please discuss them with me before deciding whether to participate in the study.

As you know, I am a researcher from the University of South Carolina. I am conducting a study of fatherhood, men’s sexual health, and opinions about male permanent sterilization, also called vasectomy. The focus of this study is men aged 25 and older who live in the American South.

If you agree to be in the study, I would like to audio-record our conversation, so I can get your words accurately. The interview will last approximately one hour. If at any time during our talk, if you feel uncomfortable answering a question, please let me know. You do not have to answer any question if you don’t want to. Or, if you want to answer a question, but do not want it tape recorded, please let me know and I will turn off the machine. If at any time you want to withdraw from this study, please tell me and I will delete the recording of our conversation.

Maintaining and safeguarding your rights, welfare and confidentiality are a top priority. I will do everything I can to protect your privacy. You will receive $20
immediately upon completion of the interview to thank you for your time. You may choose to withdraw from the study at any time.

If you would like a copy of this letter for your records, please let me know and I will give you a copy. If you have any questions regarding the research, contact please me, Ashley L. White, at uscvasstudy@gmail.com or alw3@email.sc.edu.

Now I would like to ask you if you agree to participate in this study, and to talk to me about your experiences and thoughts about fatherhood, men’s sexual health, and vasectomy. Do you agree to participate and to allow me to tape record our conversation?
Appendix H: Interview guide
Exploring Vasectomy Interview Guide

[Begin with reading oral consent form]

Thank you for agreeing to participate in this interview. The interview will last approximately one hour. Before we get started, I would like for you to pick a fake name that we will use to refer to you in the study as a privacy measure. Do you know which name you would like to use? If not, we can come back to this at the end of the interview.

[Begin recording]

This is _____________ and I am interviewing participant #___ who is using the pseudonym ________________.

Part 1. Life course goals

1. First, I’d like to learn more about you. Can you tell me a little about yourself?
   a. What is your age
   b. What do you think best describes your racial/ethnic background?
   c. What community do you currently live in?
   d. What is your current relationship status?
   e. What is the highest level of education you have completed?
   f. How would you describe your employment status?

2. Now I want you to think about to when you were a child and a teenager. How did you imagine your life would be as an adult?
   a. Probe for family and career goals
   b. Probe: What was your family life like growing up?

3. What were your parents’ expectations for your life when you were younger?
a. Probe: Do you think their expectations influenced your own goals for your life?

4. Would you say your life has turned out differently from what you expected when you were younger?

Part 2. Contraceptive use and reproductive history

Now I am going to ask you some questions about the reproductive experiences you have had throughout your life, including contraceptive use and fatherhood. If some of these questions aren’t relevant, let me know and I will move to the next question.

5. First, I want you to think about contraceptives. Contraceptives are things people use to prevent pregnancy. It is also called birth control. Please name all the contraceptive methods for women you that you can think of.

6. Let’s think about men like you now. What types of contraceptive methods are there for men, specifically?

7. Of all the contraceptive methods we just talked about, which ones have you used?
   a. Probe: For each method you have used, please tell me what you liked/disliked about using the method.
   b. Probe: How often did you use each method?

8. Where did you learn about contraception?
   a. Probe: Did you have sex education in school?
   b. Probe: When did you learn about these?
   c. Probe: Who, if anyone, did you ever talk about these things growing up?
9. Now I want you to think back to when you first began noticing and interacting with women. Can you walk me through your romantic history from your first sexual encounter through today?
   a. Probe for perceived seriousness of the relationship, age at relationship, duration of relationship, and contraceptive use by participant or partner
   b. Probe for number of sexual partners
   c. Probe: During these encounters, how did you prevent pregnancy? Who was responsible for contraception?
   d. Probe for pregnancies/children as a result of relationships
   e. Probe: (if resulted in child) How old is your child / are your children?

Part 3. Fatherhood [Skip to Part 4 for those who do not have children]

10. [Go through with each pregnancy] Was the [# time] your partner became pregnant a surprise?
   a. Probe: How old were you when you found out that your partner was pregnant?
   b. Probe: How did you feel when you learned about the pregnancy?
   c. Probe: What happened with the pregnancy? (Looking for relationship status, planned or unplanned, outcome and feeling about it)

11. How would you describe yourself as a father?
   a. Probe: What do you hope your child/children learn from you?
   b. Probe: How do you define “successful” parenting?

12. How has your life changed since becoming a parent?
   a. Probe for relationship status, partner roles, career changes
b. Probe for likes and dislikes about parenthood

13. Do you think you would like to have another child or more children in the future?
   a. Probe for why or why not
   b. Probe for motivations related to partner, finances, career
   c. Probe [if they do not want more children]: How will you prevent pregnancy moving forward so that you do not have children? How will that responsibility be handled?

Part 4. Not being a parent [Skip to Part 5 if have children]

14. So, you mentioned that you do not have any children. Do you think you would like to have a child in the future?
   a. Probe for why or why not
   b. Probe for experiences that have motivated answer

[Ask the following only to people who do want children in the future]

15. When do you think you might consider trying to have a child?
   a. Probe for motivations related to partner, finances, career

16. If you do have a child, how do you think your life might change?
   a. Probe for issues related to responsibility and labor tasks
   b. Probe for role of female partner

17. If you do have a child, what type of father do you hope to be?
   a. Probe for issues related to presence, caretaking, goals to indicate “success”

[Ask the following only to people who do not want children in the future]

18. You’ve shared that you do not want children in the future. Can you tell me more about why you want to be childfree?
a. Probe for possible motivations related to self, partner, career, freedom, environment

19. Who have you ever told that you do not want to have children?
   a. Probe: What of reactions did you receive?
   b. Probe: How did you feel about those reactions?

20. How do you try to prevent pregnancy so that you do not have children?
   a. Probe for information about relationship and partner conversations
   b. Probe for gender attitudes about whose responsibility it is to prevent pregnancy.

Part 5. Vasectomy knowledge and attitudes [for those who have not had a vasectomy]

Now I want to talk to you specifically about vasectomy, which is a contraceptive option for men.

21. When I say the word “vasectomy” what do you think about?
   a. Probe: Can you tell me what you know about vasectomy?
      a. Probe: How do you think vasectomy works?
      b. Probe: How effective is vasectomy?
      c. Probe: How painful do you think vasectomy is?
      d. Probe: After someone has a vasectomy, how long do you think it takes to recover? Sexual recovery?
      e. Probe: Have you ever heard anything about vasectomy reversal?
      f. Probe: Do you think vasectomy is covered by insurance?
22. Where have you heard about vasectomy before?
   a. Probe for partner, family, friends, coworkers, media

23. Do you know anyone who has had a vasectomy?
   a. Probe for whether participant has vasectomy
   b. Probe for specific people and how found out about

24. Now I want you to think about other people. When other people talk about
   vasectomy, what kind of things do they say?
   a. Probe for different type of people
   b. Probe for what participant thinks of others’ opinions
   c. Probe: do people think vasectomy relates to what it means to be a man?
   d. Probe: to you, what does it mean to be a “man”?

Part 6. Vasectomy experience [Skip to Part 7 for those who have not had a
   vasectomy]

25. Can you tell me about how you decided to have a vasectomy?
   a. Probe for prompts from partner, family, friends, etc.
   b. Probe for information sources or research done before procedure
   c. Probe for concerns or worries about procedure
   d. Probe: did you have a consultation visit with your provider?
   e. Probe: was your wife/partner required to be at the consultation?
   f. Probe: was your wife/partner required to consent to the procedure? If so,
      how did it make you feel to have that requirement when you were the one
      having a procedure on your body?
g. Probe: Did you have insurance coverage? If you did, did it cover the costs? If you did not, how did you pay for it?

26. What was the process of having a vasectomy like for you?
   a. Probe: how did you feel about the care you received?
   b. Probe: did you have any concerns or worries during the procedure?
   c. Probe: was anyone with you when you had your vasectomy?

27. How was recovering from your vasectomy?
   a. Probe for any side effects experienced, pain, duration of recovery
   b. Probe: did the medical staff prepare you for the recovery process?
   c. Probe: what kind of follow up did you do after your vasectomy?
   d. Probe: how did you feel about returning to sexual activity? How long did you wait?

28. Who have you told that you had a vasectomy?
   a. Probe for specific people like partner, family, friends, coworkers
   b. Probe: what did you tell that person?
   c. Probe: why did you decide to tell that person?
   d. Probe: what did that person think about it?

29. Looking back, how do you feel about your decision to have a vasectomy?
   a. Probe: is there anything you would change about your vasectomy experience?
   b. Probe: is there anything you wish you knew about vasectomy before it happened?
30. Have you ever thought about having your vasectomy reversed?
   a. Probe for reasons why or why not
   b. Probe for key actors (partner, children, etc.)
   c. Probe: did the medical staff discuss reversal with you prior to the procedure?

31. If someone else asked you about vasectomy, what would you tell them?
   a. Probe: do you think vasectomy is something that other men should consider?

32. Have you ever encountered someone saying that vasectomy makes you less of a man?
   a. Probe [if yes]: how did that make you feel?
   b. Probe [if yes]: what do you think about that statement?
   c. Probe [if no]: If someone said that around you, how do you think you would react?
   e. Probe: do people think vasectomy relates to what it means to be a man?
   f. Probe: to you, what does it mean to be a “man”?

Part 7. Decision to have or not have vasectomy [Skip to Part 8 for those who have had a vasectomy]

33. Do you think you would ever consider having a vasectomy?
   a. Probe for why or why not
   b. Probe: have you ever looked into having a vasectomy?

34. If you were thinking about having a vasectomy, who would you talk to about it?
   a. Probe for information about partner, family, friends
b. Probe for discussion with medical professionals

35. If you knew a guy that had a vasectomy, what would you ask him?
   a. Probe: What would you think about him for having a vasectomy?

36. Do you think vasectomy is something that other men should consider?
   a. Probe for why or why not
   b. Probe: If someone asked you about vasectomy, what would you tell them?

Part 8. Naming vasectomy

I have just a few more questions. Throughout this interview I have consistently called this procedure “vasectomy” but sometimes it is referred to as “male sterilization”.

37. Do you think of “vasectomy” and “male sterilization” as the same thing?
   a. Probe: When you hear me say “male sterilization” what do you think about?
   b. Probe for differences in meaning to the respondent, and what they think the differences are

38. Have you ever heard of people being forced to get sterilized?
   a. Probe for what they have heard, where, and what specific populations
   b. Probe: do you think certain people have been more likely to have been sterilized in the past? (looking for race, class)

Part 9. Conclusion

39. We covered a lot of topics today. Is there anything else you want to share? Or perhaps something we did not get to talk about?

40. Is there anything you would like to ask me?

[Stop recording; confirm how participant would like to be paid; end interview]