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GENITAL HAIR REMOVAL AND SEXUALLY TRANSMITTED INFECTIONS: A HISTORY AND A SYSTEMATIC REVIEW OF THE LITERATURE

a dissertation

by

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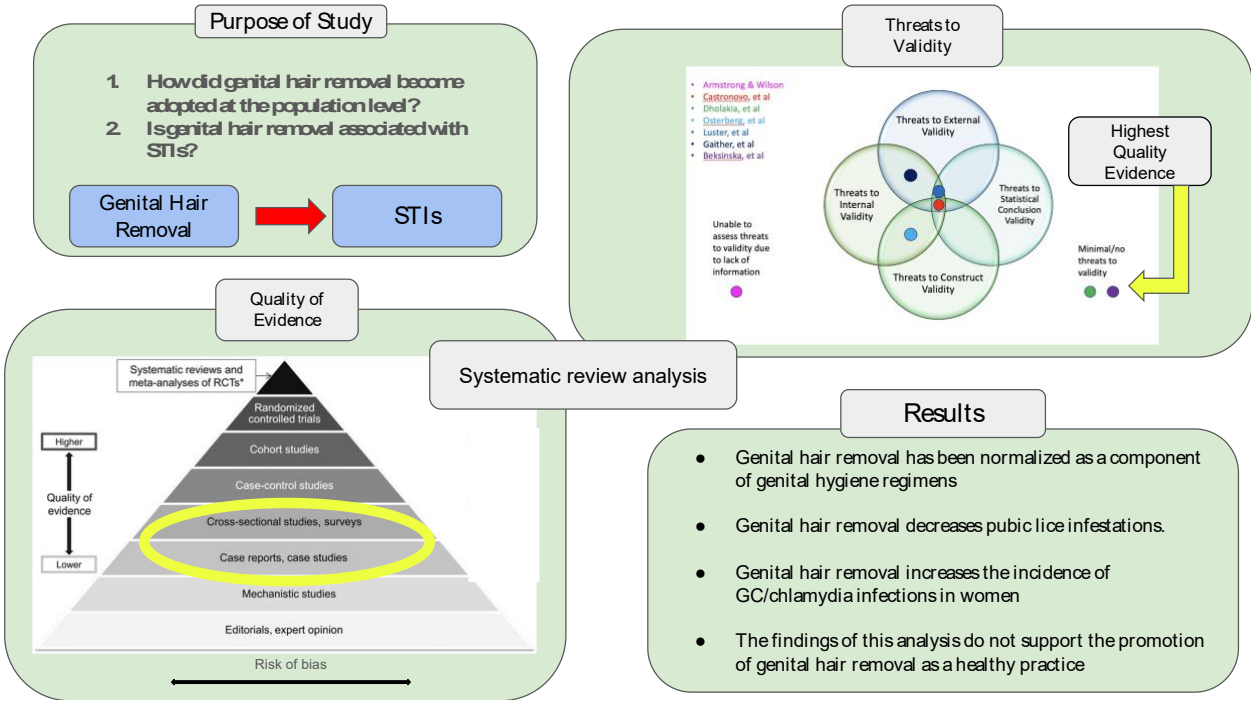
Submitted to fulfill the final requirements
for the degree of
Doctor of Philosophy
March 21, 2024

Written Abstract

Background: Genital hair removal is a popular practice in Westernized cultures and has been associated with the belief that removal is necessary for hygiene. A body of literature exists that has found that genital hair removal is associated with adverse health outcomes, including sexually transmitted infections (STIs). This dissertation aims to detail the history of the practice, why the hygiene belief exists, and to systematically review the existing literature that assesses genital hair removal and STIs. **Methods:** Historical, socio-cultural analysis from the feminist perspective was performed on the literature to outline why genital hair removal was adopted at a population level. The STI/genital hair removal literature was systematically reviewed and analyzed utilizing PRISMA guidelines. The data generated did not support meta-analysis. **Results:** Genital hygiene removal has been normalized in Westernized culture as a compulsory component of genital hygiene, particularly for women. Genital hair removal decreases pubic lice infestations. Genital hair removal increases the incidence of gonorrhea and chlamydia infections in women. The data does not support that genital hair removal is necessary for genital hygiene and may be harmful to genital health. **Conclusions:** Healthcare providers should ask about genital hair and genital hygiene practices when taking a sexual health or preventative care history. Health care providers can educate patients that genital hair removal is not necessary for genital health. New research inquiries on this topic must account for the normalization of the genital hygiene belief.

Graphical Abstract



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Chapter 1
Statement of the Problem

Introduction

Augmentation or removal of genital hair is a common practice in America. It originated from a complex milieu of social and cultural factors at the beginning of the 21st Century and occurs across the whole of the American population. A body of literature exists that has examined the health effects of the practice, including its association with sexually transmitted infections (STIs). However, there are gaps in this literature. To date, there is no historical account of how the practice started, nor has there been a synthesis of the studies looking at STIs and genital hair removal to determine if there is sufficient information to understand the health implications of the practice and further, to potentially to make clinical recommendations. This dissertation aims to detail the history genital hair removal and to systematically analyze the available literature that has examined genital hair removal and STIs to produce new knowledge that will move the field of nursing forward.

Definitions and Assumptions

There is a much-needed sociocultural shift underway that is questioning the automatic association of biological anatomy at birth with binary gender and sexual identity. Additionally, in an effort to move away from the male bias that exists in Western cultural practices and language, the written use of binary gender words (e.g. she/he) is changing (Cameron, 2005; Lindqvist et al., 2019). Major health organizations like the National Institutes of Health, the Centers for Disease Control (CDC), The American College of Obstetricians and Gynecologists (ACOG), and the American Nurses Association (ANA) have all recommended gender-inclusive or

gender-neutral language when describing or categorizing people prior to self-identification, particularly regarding sexual identities and practices (Abbott, 2022; Gateway to Health Communication, 2021; Jolley & Peck, 2022; National Institutes of Health, 2019; The American College of Obstetricians and Gynecologists, 2022). However, the movement is in its infancy and not yet widely accepted or adopted, particularly in academic literature. While I do not personally believe in the gender binary that associates persons born with internal genitals as "female/women" and those with external genitals as "male/men," all research discussed in this dissertation uses these terms. Therefore, when the words "female/feminine/woman/women/girl" are used moving forward, this will indicate my intention to describe a person with internal genital anatomy. Similarly, when the words "male/masculine/man/men/boy" are used, this will describe a person with external genital anatomy.

Internal anatomy (or genitalia) as a general term will be used to collectively describe the mons pubis, vulva, vagina, uterus, fallopian tubes, and ovaries. External anatomy (or genitalia) will be used to collectively describe the mons pubis, penis, scrotum, testicles, and prostate gland. Neither term is completely anatomically accurate as the vulva, which includes the external and internal labia, the clitoris and the vaginal introitus, is an external structure and the prostate gland is an internal organ. However, using these terms allows for an easy categorization and description of genital anatomy.

Humans develop new hair growth in the genital region as a hormonally mediated secondary sex characteristic of normal puberty. Under the influence of androgens, fine vellus hairs in the pubic region shifts to coarser, thicker, darker, more absorbent terminal hairs (Craig

& Gray, 2019; Ramsey et al., 2009). For persons with internal genitalia, genital hair grows on the mons pubis, within the inguinal folds, the external labia, the perineum, and perianal region. There is no hair growth on the inner labia, clitoris, within the vagina or on any of internal pelvic organs. For persons with external genitalia, genital hair grows on the mons pubis, within the inguinal folds, the perineum, and perianal region. There is scant hair growth on the penis and scrotum and none on the prostate gland. For the remainder of this paper, this hair will be referred to as genital hair. Pubic hair is a different term that describes hair anatomically limited to the mons pubis. Augmentation or modification of genital hair will refer to any practice that alters genital hair from its original growth pattern but leaves intact hair on the body. Removal of genital hair will indicate a practice where the intention is to remove all hair either to the surface of the skin (e.g., shaving) or under the surface of the skin (e.g., plucking, waxing, electrolysis, or laser hair removal).

Sexually transmitted infections are categorized into two major groupings: cutaneous and secretory. Cutaneous STIs are those that produce dermatological manifestations and include syphilis, human papilloma virus (HPV), herpes simplex virus (HSV), and molluscum contagiosum. Secretory STIs are those that produce a genital discharge and include chlamydia, gonorrhea, mycoplasma genitalium, and trichomoniasis. Human immunodeficiency virus (HIV) does not fall into either category. Bacterial vaginosis (BV) is a clinical condition where the normal lactic acid and hydrogen peroxide producing lactobacilli colonies in the vagina are disrupted and replaced by high levels of anaerobic bacteria (Muzny et al., 2019). A significant amount of research exists which has shown that having BV is an independent risk factor for acquiring other STIs. And recently, a controversy has arisen as to whether BV is itself a STI

because it frequently presents only in the context of sexual activity (Adriane, S.B., 2017; Muzny et al., 2022; Zhang et al., 1997). The global prevalence of BV in reproductive aged women is between 23% and 29%, a much higher prevalence than any of the other STIs combined (Peebles et al., 2019). However, because there is not consensus at this time about whether BV is an STI, it was not included in the systematic review inclusion criteria.

Genital Hair Removal Epidemiology

Through human evolution, body hair growth patterns have changed, yet we continue to develop genital hair. Researchers have linked it to several important biological functions. It is a visual signal of sexual development, a conduit for pheromone release that represents different reproductive states, and a skin protector that absorbs body fluids and decreases friction during movement and intercourse (Craig & Gray, 2019; Mezin-Sarbu & Wohlrab, 2023; Ramsey et al., 2009). In persons with internal genitalia, genital hair has also been shown to protect the vulva and vagina from pathogens (Craig & Gray, 2019; Mezin-Sarbu & Wohlrab, 2023). However, over the past twenty years, millions of people across Westernized cultures have adopted voluntary and repeated genital hair removal practices. Genital hair removal is now nearly ubiquitous among people under 45 years of age, and is performed across different ethnic groups, sexual orientations and socioeconomic classes (Beksinska et al., 2020; Borkenhagen et al., 2020; Boroughs et al., 2005; Boroughs & Thompson, 2013; Braun et al., 2013; Braun & Wilkinson, 2001; Butler, Smith, Collazo, et al., 2015; Y. Chen et al., 2017; Crann & Jenkins, 2017; DeMaria et al., 2016, 2021; DeMaria & Berenson, 2013; Fahs & Delgado, 2011; Gaither et al., 2017; Luster et al., 2019; Martins et al., 2008; Morrison et al., 2005; Obst et al., 2019; Osterberg et al.,

2017a; Stone et al., 2016; Terry & Braun, 2013; Tiggemann & Hodgson, 2008; Tiggemann & Lewis, 2004; M. S. Truesdale et al., 2017). Yet, this phenomenon is still new- evidence shows that genital hair removal began only among a small subsection of American women in the late 1990s and early 2000s. As a practicing clinician, I witnessed the rapid acceptance of genital hair removal among my patients during the first ten years of my career and it generated a lasting personal curiosity about how it became popular so quickly. My doctoral work has become a vehicle for exploring this personal interest and as Chapter 2 will detail, my research revealed new socio-cultural reasons why once it started, the practice became normalized so quickly within our culture (Banner, 1983; Basow & Braman, 1998; Basow & Willis, 2001; Cokal, 2007; Crann & Jenkins, 2017; Herbenick et al., 2010; Kinnick, 2007; Labre, 2002, 2002; Ramsey et al., 2009; Riddell et al., 2010; Rowen et al., 2016; Tiggemann & Kenyon, 1998; Toerien et al., 2005; Toerien & Wilkinson, 2003). Further, I believe I have found the socio-cultural explanation about why there is a commonly held the belief that genital hair removal is a necessary component of genital hygiene.

Significance of the Problem

Researchers have estimated that up to 80% of people who remove their genital hair have experienced at least one adverse health event from hair removal, but also found that less than 5% reported seeking medical treatment for the issue or discussing genital hair removal with their healthcare providers (Crann et al., 2018; DeMaria et al., 2014a; Rouzi et al., 2018; M. S. Truesdale et al., 2017). Nonetheless, because the numbers of people engaging in genital hair removal has exponentially increased, the number of cases where substantial hair removal

complications or injuries have occurred has been significant. In a longitudinal review of national Emergency Department (ED) records, people presenting with hair removal complications increased nine-fold from 1991-2014 and whereas, prior to 2010, the majority of the complications from hair removal happened on anatomical locations other than the genitals, more complications have been reported in the genital region than any other body site since 2010 (Glass et al., 2012a; Swain et al., 2016). Dermatologically, genital hair removal has been reported to cause skin irritation or "razor burn," in-grown hairs, itching, contact dermatitis and allergic reactions, cuts, lacerations and abrasions, folliculitis, cellulitis and abscesses, blistering, burns, permanent pigmentary changes, scarring, skin texture changes, paradoxical increased hair growth, dysplasia, inflammation, and severe fungal infections (Baxi & Dziadosz, 2014; Boroughs et al., 2005; Boroughs & Thompson, 2013; Butler, Smith, & Collazo, 2015; DeMaria et al., 2014a, 2016; DeMaria & Berenson, 2013; Dendle et al., 2007; Gaither et al., 2015; Glass et al., 2012a; Goldberg, 2006; Osterberg et al., 2017b; Riddell et al., 2010; Rouzi et al., 2018; Schild-Suhren et al., 2017; Swain et al., 2016; Trager, 2006). These dermatological sequalae have been the main posited reason why genital hair removal may be associated with increased risk of STI acquisition. In addition to eliminating the protection that genital hair provides during sexual activity, removal has been shown to create microtears in the epithelium and increase cutaneous inflammation (Armstrong & Wilson, 2006; Beksinska et al., 2020; Castronovo et al., 2012; Gaither et al., 2015; Luster et al., 2019; Osterberg et al., 2017b). Evidence has shown that if present in other body areas, these specific skin disruptions increase the rates of infection (Yazdi et al., 2016).

The possible association between genital hair removal and STIs is important to understand because rates of STIs have been steadily increasing in the United States since the year 2000 (Centers for Disease Control, 2024). Under- or untreated STIs are known to cause pelvic inflammatory disease, ectopic pregnancy, spontaneous abortion, pre-term labor, infertility, chronic abdominal pain, adverse pregnancy outcomes including intrauterine fetal death, urethral strictures, epididymitis, genital malignancies, proctitis, colitis, liver failure, liver cancer, central nervous system disease and meningoencephalitis. Data has repeatedly shown that these health outcomes disproportionately occur among women and people of color (Centers for Disease Control, 2024; Chambers et al., 2018; Chesson et al., 2017; Cohn & Harrison, 2022). Sixteen billion dollars in healthcare costs are generated annually from preventable STIs, with significant costs accruing when complications arise secondary to unrecognized and untreated infections (Centers for Disease Control, 2021; Chesson et al., 2017).

It is notable then, that although almost 20 years of health data exists that has primarily identified only negative health outcomes related to genital hair removal, there is very little generalized health knowledge about the practice (Mezin-Sarbu & Wohlrab, 2023). None of the national organizations that generate evidenced-based clinical recommendations have published language that discusses genital hair removal, and there is no guidance for providers to assess for hair removal practices if a patient has a genital or sexual health concern (*A Guide to Taking a Sexual History*, 2022; *How to Prevent Sexually Transmitted Infections (STIs)*, 2023; *Sexually Transmitted Infections*, 2022a; *Sexually Transmitted Infections*, 2022b; *Sexually Transmitted Infections (STIs) Prevention*, 2023; *Vaginitis*, 2023; Centers for Disease Control, 2021, p. 9;

Kimberlin et al., 2021; Lewis & Laurent, 2020; Workowski, K.A. et al., 2021). How quickly the practice was adopted at the population level and the quality of the available evidence may help to explain this clinical resource gap. As Chapter 2 will discuss, quickly adopted social behaviors like this are difficult to study experientially using the same methodologies as other types of health phenomena and require alternative types of research to link the behavior with specific outcomes (Hill Collins & Bilge, 2016; Schroder et al., 2003b, 2003a; Smelser, 1963). However, by systematically analyzing what is available as evidence, this dissertation could help to inform future research that could produce the kind of reliable data needed for the development of genital hair removal clinical recommendations, best-practice clinical protocols and treatment plans that that aim to reduce the rates of STIs, all of which would be helpful given the scope and pervasiveness of the behavior.

Chapter 1 Summary Table

Problem and Significance	1. Genital hair removal is a phenomenon that is practiced by many Americans. 2. Research exists that has examined the health effects of genital hair removal, including an association with STIs. 3. STI rates are increasing nationally and are associated with significant medical morbidity and mortality. 4. There are no existing sexual health clinical recommendations regarding genital hair removal.
Research purpose	1. To provide a history of body hair removal in American culture to examine the socio-cultural basis for the practice. 2. To systematically review and analyze the existing data on genital hair removal and STIs.
Aims	1. Using sociological theoretical frameworks, this dissertation aims to investigate the cultural significance of body hair removal and its normalization over the last century to inform the understanding of current genital hair removal practices. 2. This dissertation aims to systematically review the available literature that has examined genital hair removal and STIs to comment on the state of the science and make recommendations for practice and future research.

Chapter 2
Review of the Literature

Voluntary body hair removal, particularly among women, is such a normalized behavior in American culture that it is often only notable when it is not practiced. Socially, people of both genders have reported for decades that female body hair removal is obligatory to appear properly feminine and different from men (Basow, 1991; Basow & Braman, 1998; Fahs, 2011, 2014b; Herzig, 2015; Hope, 1982; Stone et al., 2016; Terry & Braun, 2013; Tiggemann & Hodgson, 2008; Tiggemann & Kenyon, 1998). However, a historical analysis reveals that femininity was not always associated with hairlessness and that the practice started at the turn of the 20th Century under the influence of significant cultural events that threatened the hegemonic social power structure. Two sociological theories, the Theory of Intersectionality, and the Theory of Collective Behavior, provide the framework for understanding the initiation of the practice and why it has remained so prevalent. This context is important to understand because it is the basis for why genital hair removal also gained popularity and became the cultural standard that it is.

The Theory of Intersectionality

Intersectionality, or the interconnected nature of social categorizations, was first conceived by Black feminist scholars in the 1980s. Kimberle Crenshaw is often credited with the first disseminated piece of scholarship that detailed the model of intersectionality as it pertained to Black women who had to engage with the American legal system. She argued that Black women experienced multiple layers of discrimination within the courts which tended to view cases from a singular social identification axis, for example gender or race, and failed to take into account the multiple layers of disadvantage that occur when individuals are members

of more than one disadvantaged group, for example being both female and Black (Crenshaw, 1989). Her model was developed into a theory by other predominantly Black feminist scholars over the next decade and is summarized well by Patricia Hill Collins:

> Intersectionality is a way of understanding and analyzing the complexity in the world, in people, and in human experiences. The events and conditions of social and political life and the self can seldom be understood as shaped by one factor. They are generally shaped by many factors in diverse and mutually influencing ways. When it comes to social inequality, people's lives, and the organization of power in a given society are better understood as being shaped not by a single axis of social division, be it race or gender or class, but by many axes that work together and influence each other. Intersectionality as an analytic tool gives people better access to the complexity of the world and of themselves (Hill Collins & Bilge, 2016, p. 11).

Female body hair removal was influenced by the exact three social axes noted by Hill Collins- race, gender, and class- in an intermixing fashion that ultimately helped to keep women in the subservient social position to men that they had occupied for centuries. Its ubiquitous presence over a hundred years later in Western cultures reinforces the power of this gender construct and the difficulty women have faced in attempting to change it. Body hair removal practices are at the root of genital hair removal practices, as will also be detailed in this chapter. While intersectionality is an excellent framework to explain the female-specific American cultural milieu that led to the social conditions that supported the beginning of body hair removal, the theory of collective behavior is another important aspect of why the practice began *en masse* among wealthy and middle-class white women.

The Theory of Collective Behavior

The term collective behavior was first described in the 1920s by Franklin Giddings, a Columbia University sociologist (Giddings, 1924). Generally defined as a behavior that is suddenly adopted by many people within a social group, collective behavior is predicated on

the mobilization of people who strongly believe that extraordinary forces in their world are working to either change or stagnate the dominant social structure to their disadvantage (Giddings, 1924; Smelser, 1963). Some examples of collective behavior are riots, fashion crazes and religious revivals (Smelser, 1963). In *The Theory of Collective Behavior*, Smelser refines Giddings' work and further divides collective behavior into five specific behavioral patterns which include the panic, the craze, the hostile outburst, the norm-oriented movement and the value-oriented movement (Smelser, 1963, p. 2). Of these, the craze and norm-oriented behavior are the best aligned with this research.

Smelser defines the craze as behavior that people exhibit after experiencing "mobilization for action based on a positive wish-fulfillment belief" (Smelser, 1963, p. 171). Crazes, which are often centered around visual signals that include body and clothing modifications, are "expressive symbol(s) of differential prestige in ranking systems" (Smelser, 1963, p. 172). In other words, people that partake in crazes are attempting to appear to belong to a specific social group, most often the wealthy or fashionable, although they actually inhabit a different, and usually lesser, social rank (Meyersohn & Katz, 1957; Smelser, 1963). History is rich with examples of crazes, and the behavior has been thought to be less harmful to individuals than other types of collective behavior like riots, because they typically produce superficial and temporary changes in appearance (Meyersohn & Katz, 1957; Smelser, 1963).

Norm-oriented collective behavior is more complex because it contains elements of the panic, the craze and the hostile outburst (Smelser, 1963, p. 271). Described by Smelser as "an attempt to restore, protect, codify or create norms in the name of a generalized belief," norm-oriented collective behavior occurs when there is social panic about an impending normative

change, a generalized belief that this change threatens the established social structure, a subsequent mobilization of people to combat the change *plus* the need to eradicate or suppress the supporters of the new ideology- an important additional element that does not occur during crazes (Smelser, 1963, p. 270). Additionally, while crazes often do not dramatically alter dominant cultural values and practices, norm-oriented collective behavior can have longer and lasting social effects because normalized social behavior is produced or reinforced (Meyersohn & Katz, 1957; Smelser, 1963).

Voluntary female body hair removal started as a collective behavior in the United States at the turn of the 20th Century (Hope, 1982). At first glance, the practice might be mistaken for a fashion craze, specifically occurring after American women adopted European dress style changes that exposed more of the female body (Reddy, 2018, 2020d). However, deeper analysis reveals that the adoption of this practice by wealthy and middle-class women is more consistent with a norm-oriented collective behavior that reinforced the hegemonic white, wealthy, patriarchal social power structure via the intersectionality of gender, race, and class. The practice, which started among a small portion of women, became so normalized that, more than one hundred and twenty years later, 98-99% of all women report that body hair removal is compulsory in order to *be* female (Basow, 1991; Basow & Braman, 1998; Fahs, 2011, 2014b; Herzig, 2015; Hope, 1982; Stone et al., 2016; Terry & Braun, 2013; Tiggemann & Hodgson, 2008; Tiggemann & Kenyon, 1998).

Body Hair Removal History

Rules about and illustrations of body hair removal, including genital hair removal, can be found throughout history. Greek, Roman and Egyptian artifacts depict body and genital hair removal in the context of hygiene and sexual activity (Fernandez et al., 2013; Kilmer, 1982; Rahbari, 2019; Ramsey et al., 2009). Edicts within Muslim and Jewish religious texts detail how and when to remove body and genital hair and indigenous cultures of the Americas, Africa, the Arctic, Asia, and Australia have documented body and genital hair augmentation practices for both hygiene and social signaling purposes (Bickart, 2019; Craig & Gray, 2019; Demirci et al., 2008; Ramsey et al., 2009). Centuries of British, Germanic and Celtic Europeans removed genital hair, primarily as a treatment for infestation, but interestingly, often replaced the shorn genital hair with pubic wigs called merkins (Fernandez et al., 2013; Ramsey et al., 2009). Historians believe that this is because genital hair has long been associated with sexual maturity and its presence is a visual social signal that an individual is healthy and of reproductive age. Thus, lacking genital hair would indicate a non-ideal state of health (Herzig, 2015; Hildebrandt, 2003). Of note, these described body hair removal rituals infrequently recommended total hair removal, were practiced by both men and women after achieving sexual maturity, and were practiced by entire social groups regardless of class or race (Bickart, 2019; Craig & Gray, 2019; Fernandez et al., 2013; Herzig, 2015; Kilmer, 1982).

Voluntary female body hair removal, however, is a significantly different social phenomenon. Wealthy and middle-class, white American women began to collectively remove their body hair as a response to intersecting social movements and events including: the rise of feminism, post-Civil War social discourse about racial superiority, the development of germ

theory in the context of disease transmission, and as a means of differentiation from recently immigrated people (Fernandez et al., 2013; Hope, 1982; Niemoeller, 1938). Each of these topics will be discussed further in the following sub-sections.

Feminism

The centeredness and power of white, male, European culture was firmly established in America shortly after the Revolutionary War (Hilkey, 1997; Hoganson, 1998; Rotundo, 1993). Based on the rules of British wealth inheritance, the socio-political, economic and geographic structure of the country was rooted in white male land ownership, which was generationally handed down from father to son (Rotundo, 1993; Stein, 2015). The economy was primarily agrarian and, while cities existed, the majority of Americans lived rurally on large estates (Hubka, 2020; Verbrugge, 1988). The estates employed and housed the poor and their labor produced the necessary goods and services to keep the estate functional (Hubka, 2020). Culturally, America's predominant social and moral values were constructed from the tenets of Victorianism, which dictated that white men should occupy positions of authority and power because they had inherent biological and cognitive superiority over all other people (Rotundo, 1993; Stein, 2015; Verbrugge, 1988).

The prevailing acceptable cultural expression of femininity in Victorian America was a woman whose personal characteristics innately included "nurturance, intuitive morality, domesticity, passivity and affection" and whose most important social value was as a wife and mother (Freedman, 1974; Patterson, 2005; Smith-Rosenberg & Rosenberg, 1973, p. 334). After marriage, which often occurred in middle or late adolescence, women transferred from their

birth home to their husband's home and spent the remainder of their lives involved in domestic activities (Patterson, 2005; D. S. Smith, 1973; Smith-Rosenberg & Rosenberg, 1973; Verbrugge, 1988). Other than religious services, there did not exist many social spaces where women could congregate together (Patterson, 2005; D. S. Smith, 1973). Also, women were not allowed to be formally educated beyond early adolescence because medicine and science purported that women were biologically incapable of the same cognitive function as men, a disparity that was immutable (Patterson, 2005; Rotundo, 1993; Smith-Rosenberg & Rosenberg, 1973).

However, the Civil War and the second Industrial Revolution initiated significant social upheaval which caused major elements of the hegemonic social structure to be disrupted in the middle of the 19th Century ("City Life in the Late 19th Century," n.d.; Emery, 1978; Haines, 1994; Steckel, 1987). In the fifty years between the Civil War and first World War, commerce replaced land ownership as the path to wealth and factories replaced estates as employment centers ("City Life in the Late 19th Century," n.d.; Steckel, 1987). Masses of people began moving to these new centers of the county to profit from new employment opportunities ("City Life in the Late 19th Century," n.d.; Haines, 1994; Steckel, 1987). The migration was so great, that within several years, more Americans were living in cities than in rural areas for the first time in the country's history (Hubka, 2020; Steckel, 1987; Verbrugge, 1988). The simultaneous advances in printing and media distribution created a flood of material that documented the social fabric of the new American city life which showed that that Americans were socializing in fundamentally different ways than had been possible before, including that there was a dramatic increase in social interactions between genders, classes and races (Berg & Berg, 1978; Chauncey, 1994; Haines, 1994; Steckel, 1987). These interactions helped to foster the formation of many

important social movements, including the first wave of American feminism (Dicker, 2008; Emery, 1978; Kitch, 2001).

In the 1880s, bolstered by European feminist's work, American women successfully began to enter historically male-only social spheres, including higher education, politics, and medicine (Dicker, 2008; O'Connor, 1996). This occurred in large part because cities allowed women to participate in non-domestic social activities together (Berg & Berg, 1978; Dicker, 2008; O'Connor, 1996; Offen, 2000; Patterson, 2005; Smith-Rosenberg & Rosenberg, 1973; Verbrugge, 1988). Over the next thirty years, as upper and middle class women availed themselves of their new rights, a "New" American woman emerged that was educated, independent, and had a vibrant social life outside of the home (Freedman, 1974; Patterson, 2005; Rabinowitch-Fox, 2017, p. 1; Smith-Rosenberg & Rosenberg, 1973; Verbrugge, 1988). Female social clubs, organizations and activities thrived in American cities, allowing women new freedom of personal and collective gender expression (Dicker, 2008; O'Connor, 1996; Verbrugge, 1988). As a group, New Women began delaying marriage and motherhood in favor of personal development and education- so much so that the national birth rate decreased over the latter half of the 19th Century for the first time since census records were kept (Patterson, 2005; D. S. Smith, 1973; Smith-Rosenberg & Rosenberg, 1973; Verbrugge, 1988). New Women were often identified by the way they dressed. Victorian era dresses were anchored by stiff, restrictive corsets, heavy fabrics, long sleeves and to-the-ground hemlines, which promoted modesty but also limited mobility and physical activity (Franklin, 2020a, 2020b; D. S. Smith, 1973; Steele, 2001). In contrast, the New Women's clothes reflected a more active lifestyle. Clothing was made of lighter fabrics, had higher hemlines, shorter or absent sleeves and

minimal corsetry (Reddy, 2018, 2020d; Steele, 2001). The popularity of the bicycle as a mode of transportation caused many women to bifurcate their skirts, which eventually led to some adopting pants or "bloomers" to facilitate their safe travel (Christie-Robin et al., 2012; Verbrugge, 1988). This fashion change alone was so dramatically different than what was acceptable for women under Victorian rules that it was sensationalized in the media and led to the arrest of some women for public indecency (Christie-Robin et al., 2012; Rabinowitch-Fox, 2017; Verbrugge, 1988).

The rapidity of the social changes produced by women's movement caused a prolific and harsh anti-feminist backlash. Politicians, religious leaders, physicians and scientists accused feminists of masculinizing women out of their reproductive duties, which were necessary to produce the next generation of Americans that would maintain the country's international economic and political dominance as well as keeping male generational wealth transfer in place (Patterson, 2005; Smith-Rosenberg & Rosenberg, 1973; Verbrugge, 1988). New Women were labeled selfish, amoral, unpatriotic, unmarriable and homosexual in medical and scientific publications, the general media and at the pulpit (Berg & Berg, 1978; Patterson, 2005; D. S. Smith, 1973; Smith-Rosenberg, 1975; Verbrugge, 1988). Often depicted with masculine characteristics like Adam's apples or facial hair and in lower class, male-dominated environments, like saloons and bars, feminists as New Women were vilified and stereotyped as an unacceptable and dangerous version of femininity (Berg & Berg, 1978; Patterson, 2005; Smith-Rosenberg & Rosenberg, 1973).

In contrast, the Gibson Girl surfaced as an example of an appropriate expression of womanhood. Created by Charles Dana Gibson, a popular illustrator at the beginning of the 20th

Century, the Gibson Girl was a white, young, single, women who was depicted in a shirtwaist with long sleeves, a high collar, a tight corset, and long bell-shaped skirt (Banner, 1983; Freedman, 1974; Patterson, 2005; Rabinowitch-Fox, 2017; Smith-Rosenberg & Rosenberg, 1973). Although she was often depicted in public social spaces, the Gibson Girl frequented female-appropriate areas, like shops or high-end restaurants (Banner, 1983; Rabinowitch-Fox, 2017). She was portrayed as someone who recognized her responsibility to marry and have children, and was content to live a life of domesticity (Banner, 1983; Patterson, 2005; Rabinowitch-Fox, 2017). For anti-feminists, the Gibson Girl was idolized as the antithesis of the New Woman and promoted as the standard to which all women should strive, creating a social tension for women regarding their gender expression (Banner, 1983; Patterson, 2005; Smith-Rosenberg, 1975; Smith-Rosenberg & Rosenberg, 1973). If a woman dressed more like a New Woman as opposed to a Gibson Girl, she risked being labeled as a feminist, regardless of her personal beliefs. It is of importance, then, that New Woman and their changed clothing styles would have caused female body hair to be revealed in public for the first time (Freedman, 1974; Reddy, 2018, 2020a; Smith, 1989). For the first decades of the new century, visible body hair was associated with New Women and feminist political ideology.

Racial Superiority and Body Hair

The emancipation of American slaves invigorated an already contentious national discussion about race and racial superiority (Herzig, 1999; Stein, 2015). The antebellum period is marked by the rise of ethnology, which was the scientific study and identification of corporeal markers that indicated racial and genetic dominance (Herzig, 2015; Stein, 2015). Body hair, and

its associated texture, color, amount and distribution patterns, was one of the characteristics repeatedly studied and interpreted by popular and influential ethnologists (including Charles Darwin) as a measure of intelligence, civility, sexual virility and biological superiority (Herzig, 1999; "Racial Characteristics of Hair," 1917; Stein, 2015). As Ethnology, or Racial Anthropology as it is known today, became popular, scientists that were influenced by the racial divide in the country, began publishing studies that alleged that Caucasian hair growth patterns were the normal standard for all humans, making it the referent to which all other hair types were compared (Herzig, 1999; Hope, 1982; Stein, 2015). Deep social concern developed over deviating body hair patterns because of the science that concluded that this was associated with decreased cognitive ability, both sexual impotence and sexual insatiability, and overall biological inferiority (Herzig, 2015; Stein, 2015). In general, lighter hair growth, both in amount and color, was promoted as evidence of intelligence, reproductive advantage and strong genetic health (Herzig, 2015; Stein, 2015). Women in particular were admonished that the presence of "superfluous" body hair was a visual indicator to potential mates of imperfect genetics and could threaten an individual's ability to secure a husband (Ayer, 1899; Herzig, 2015; Niemoeller, 1938, p 10).

In 1877, the medical field contributed to women's anxieties about body hair when the American Dermatological Association defined a new medical condition called *hypertrichosi*s, which was defined as pathological excessive body hair growth (Herzig, 1999; Niemoeller, 1938). The parameters of hypertrichosis were ill defined and while the diagnosis was liberally applied to non-white people as a means of reinforcing white racial superiority, there is evidence that it was also disproportionately assigned to young, white, upper- and middle-class women (Herzig,

1999; Hope, 1982). Within 20 years of the diagnosis' creation, there was such concern over being diagnosed with hypertrichosis that many women developed psychological distress regarding their body hair that was akin to severe depression and anxiety (Ayer, 1899; Herzig, 2015; Niemoeller, 1938).

It is not coincidental that within the medical system structure of that time, physicians could directly profit from providing women hypertrichosis treatments and hair removal products, which certainly incentivized giving the diagnosis to people who could both afford to pay for hair removal and had reason to change or eliminate their body hair (Herzig, 1999, 2015). The timing of the creation of the hypertrichosis diagnosis, ethnology as a popular science and in relation to the feminist movement is significant. Now, any woman with visible body hair could be criticized as contributing to the decline of American society- not just by delaying marriage and pregnancy like New Women, but by having a health condition that could interfere with reproduction. It is also significant that women who removed or attempted to alter their post-pubertal body hair became visually suspended in childhood, and as figurative children, were not candidates for social independence, serving to reinforce Victorian tenets of female submissiveness.

However, as powerful as the social forces of anti-feminism, ethnology and the hypertrichosis diagnosis were, they alone were not sufficient to normalize female body hair removal. The last factor that cemented the practice into American culture was the link between body hair removal and personal hygiene.

Body Hair Removal, Personal Hygiene, and Immigration

In the second half of the 19th Century, infectious diseases caused the majority of deaths in the United States and affected all classes, races and ages (Elman & Myers, 1999). Prior to the Civil War, the Miasma Theory was the accepted scientific framework that informed the understanding of infectious disease transmission (Johnson, 2006; Tomes, 1990). Miasmas, or unhealthy air vapors, were thought to harbor disease within them and when inhaled, cause illness (Johnson, 2006; Tomes, 1990). Within this context, disease prevention recommendations emphasized the availability of clean air as a mechanism to decrease disease spread. For example, people were encouraged to prioritize in-home ventilation to expedite the removal of noxious vapors produced by human waste as opposed to avoidance or removal of the waste itself (Johnson, 2006). Based on the rural distribution of the American population at this time, health professionals focused on eradicating miasma clusters that were produced by livestock and decay within the natural environment rather than those produced by human activity (Elman & Myers, 1999; Marcus, 1979).

However, after the Civil War, major advances in science and technology lead to the development of Germ Theory (Johnson, 2006; Markel, 2000; Tomes, 1990). The discovery of the role microbes played in infectious disease transmission fundamentally changed medical and scientific health promotion and disease prevention strategies (Tomes, 1990). For the first time, the medical and public health communities began to advise specific, individual hygiene practices aimed at reducing infections, like the removal of human waste, quarantining of sick individuals and the preventative use of disinfectants (Tomes, 1990). By the end of the 1880s, these recommendations had been standardized and thoroughly disseminated to the public as

"domestic hygiene practices" (Tomes, 1990, p. 510). Of the four groups of tasks that were detailed within these recommendations- general maintenance of the physical structure of the home, interior housecleaning, maintenance of children's cleanliness, and appropriate care of ill family members- women were responsible for the latter three, likely because they fit into already established female domestic responsibilities (Tomes, 1990). Thus, within the domestic hygiene framework, when an individual or family became sick, the labor of the female head of the household was examined for deficiencies in hygiene practices that could have contributed to disease transmission (Markel & Stern, 2002; Tomes, 1990). Even with this impossible pressure, the collective efforts of middle class and working women to meet domestic hygiene standards were significant enough that rates of infectious disease decreased for twenty years after the Civil War (Shaw-Taylor, 2020; Tomes, 1990). However, by the late 1880s, infectious disease rates began to rapidly increase, and of particular concern were the rates in newly populated cities (Markel & Stern, 2002). Science and medicine were tasked with decreasing the outbreaks, and while women continued to be targeted for ineffective domestic hygiene, a new group of people- immigrants- found themselves under scrutiny for causing illness in the population (Markel & Stern, 2002; Tomes, 1990; Verbrugge, 1988).

In the final decades of the 19th Century, millions of people from Ireland, Italy, Poland, Spain, Greece, Portugal, Turkey, Russia, China and Japan traveled to the United States to escape poverty and benefit from America's economic and political freedoms (Library of Congress, 2022; Markel & Stern, 2002). Within a few years of the immigration surge, the media, backed by medical reports, began to propagate rhetoric that the new arrivals were diseased and their presence endangered the health, safety and security of the country (Markel & Stern, 2002).

While it is well documented that the limited sanitation and crowded conditions on immigrant ships caused some people to arrive to the country ill, those that were acutely sick with an infectious disease represented a fraction of the total number of arriving immigrants (Markel & Stern, 2002; Reckner, 2002). Nonetheless, anti-immigration supporters fueled a narrative that immigrants, particularly those from "new" areas like southern Europe, Asia, and Russia, were dirty, diseased and of "bad stock" (Marcus, 1979; Markel & Stern, 2002, p. 760, 761).

While a minority of immigrants came to the country with active infectious diseases, many acquired them once arriving. Because the majority of immigrants did arrive impoverished without the ability to immediately relocate, they necessarily settled in the coastal cities were they landed (Markel & Stern, 2002; Reckner, 2002). The existing housing infrastructure was quickly overwhelmed by the population explosion and large tenements were rapidly erected to help solve the housing crisis (Markel & Stern, 2002; Reckner, 2002; Verbrugge, 1988). However, historical records indicate that almost none of these buildings had indoor plumbing or running water (Hubka, 2020; Verbrugge, 1988). Crowded, and without the resources for sanitary human waste removal, pockets of infectious disease repeatedly developed in these housing developments, which subsequently spread throughout the city population (Library of Congress, 2022; Markel & Stern, 2002; Reckner, 2002). Immigrants were blamed for failing to participate in the domestic hygiene practices that kept infections at bay, regardless of the fact that it was impossible for them to do so, and their presence in cities was vilified (Markel & Stern, 2002; Reckner, 2002; Verbrugge, 1988). Calls for immigration limitations and bans became popular among leading politicians and scientists as media reports surfaced claiming that immigrants cared little for their own health and wellness, as evidenced by the condition of their homes and

bodies, and therefore endangered the health of all Americans (Markel & Stern, 2002; Reckner, 2002).

Consequently, the white upper classes started placing a new emphasis on personal hygiene as a means of demonstrating their class and race. This included ensuring that their clothes and bodies were free of visible soil or unpleasant odors, particularly when in public spaces (Hope, 1982; Reckner, 2002; Tomes, 1990). The ability to accomplish this type of personal hygiene was possible only by those who were able to privately afford the installation of sewer and water lines into their homes, providing access to clean water and waste disposal (Hubka, 2020; Verbrugge, 1988). Wealthy Americans gained access to this decades before the middle and lower classes, creating discernable distinctions between groups of people due, in part, to the way they smelled (Hubka, 2020; Tomes, 1990). The voracity of the urban immigrant stereotype as dirty and malodorous became so pervasive that there are references to it in literature, art, public policy and medical histories for decades after the turn of the century, long after the rates of immigration declined (Markel, 2000; Markel & Stern, 2002; Reckner, 2002). And, of all the intersecting reasons to remove body hair that have already been discussed, it was the desire to disassociate from poor immigrants that appears to be a main reason that voluntary female body hair began in America.

Recognizing that there was a now a confluence of social pressures for women to be both hair *and* body odor free, producers of products started selling commodities that augmented or and removed axillary hair specifically under the auspice of health and hygiene. In reviewing printed advertisements of body hair removal products in the first decades of the 1900's, Christine Hope noted not only that many mentioned cleanliness or hygiene in their language,

but they were products advertised only to women (Hope, 1982). Jane Nicholas found the same theme in the Canadian literature (Nicholas, 2015). By selling products that promised reduction of hair and body odors, marketers tapped into the established fears that women had regarding abnormal body hair growth and inappropriate hygiene. The number and scope of products that became available on the market is a testament to how quickly axillary hair removal became popular among wealthy and middle-class white women, as this was the only group of women that had immediate monetary resources to spend on hair removal (Hope, 1982). Within a few years, women could choose between female-specific razors, creams and depilatories, plucking tools, electrolysis and x-ray hair removal techniques to keep their axillae "smooth" and odor-free (Adams, 1978; Ayer, 1899; Fernandez et al., 2013; Herzig, 1999; Hope, 1982, p 94; Niemoeller, 1938). It is notable that there was never any scientific or medical evidence that axillary hair removal was associated with necessary, infection-preventing hygiene. It was a strictly social behavior that women rapidly adopted. However, women who practiced extensive personal hygiene regimens were able to demarcate themselves from working-class and poor women by not only their clothing styles, but also in their visual and olfactory public presence. The class connotations surrounding cleanliness and odor were so pervasive that they overtook the anti-feminist and racial reasons for body hair removal. As the century entered its second decade, there is evidence that voluntary axillary hair removal had extended into all groups of women including, non-wealthy, non-white women, and feminist New Women (Hope, 1982; Rabinowitch-Fox, 2017; Reddy, 2020a). By 1920, as documented in the media and photographs, visible body hair in all women had virtually disappeared.

Thus, it is within these intersecting paradigms of gender expression, gender role expectations, race, and socio-economic status that it is possible to position female body hair removal as a norm-oriented collective behavior as opposed to a craze, albeit one that ultimately disadvantaged women. The practice was born from the deep fissures that our culture experienced during the antebellum, post-industrial era where the established centers of power were threatened, particularly with the breakdown of the Victorian gender structure. By creating a normalized difference between the acceptability of male and female body hair, female body hair removal served to reinforce culturally derived standards of female inferiority and otherness. While a man's body was acceptable with the hair that it naturally grew, a woman's body required alteration from its natural state to *become* feminine- a construct that continues to persist and is responsible for the adoption of genital hair removal eighty years later.

Body Hair Removal Extended

Like the period after the Civil War, the two World Wars and the Depression caused major social and cultural changes in America. In the late 1940s and 1950s, America again underwent a significant geographical redistribution of the population. Spurred by familiar media messages that non-white people and immigrants were creating danger in cities, white families began migrating to newly developed urban suburbs where individual homes were spaced apart and mimicked the familial estates of the 1800s (Boustan, 2010). Women's daily activities shifted back towards domestic responsibilities as they were displaced from the jobs they took during the Wars (Cobble, 1994; Hartmann, 1994). United in the early decades of the century towards obtaining the right to vote, women's rights groups refocused their efforts to

their individual, more specific causes in the 1940s, which served to dilute their messages and allowed the hegemonic standards of femininity to predominate relatively unchallenged (Dicker, 2008; Meyerowitz, 1994). Women were homogenously depicted in the media as housewives- June Cleaver and Donna Reed are good examples- whose social value returned to being wives and having children (Meyerowitz, 1994). America's economy was firmly capitalistic, and consumerism was a major locus of money exchange, with products and services advertised through the media. Advertisers continued to sell services and goods in print and on the radio, but a new, lucrative market developed via television (Emery, 1978). Eighty percent of American homes had a television by the 1960's, up from 9% in the 1940s, providing companies increased access to the American public (Cokeley, 2014).

Women's body work was now a standard cultural expectation and included regular removal of body hair, which was no longer associated with medical diagnoses or treatments, but was instead encouraged as a part of needed female-specific hygiene practices (Dengel, 1943; Herzig, 2015). Women were cautioned that failure to remove body hair would cause an individual to be unclean, to chance foul and unpleasant body odors and, most importantly, to be unattractive to men (Basow, 1991; Dengel, 1943; Hope, 1982). Advertisements for body hair removal products no longer promoted initiation of hair removal, but superiority of one method or product over others (Basow, 1991; Dengel, 1943). As fashions changed in the immediate post-war decades and hemlines for skirts, dresses and pants elevated, the lower legs became another anatomical area where women routinely removed their body hair ("Advice for Women Who Shave," 1964; "Depilatories," 1975; Hope, 1982; Reddy, 2019, 2020b). Most upper and middle-class homes across the nation had private bathrooms and running water, which allowed

for female body work to occur in isolation and women were cautioned never to let anyone, including their husbands and children, see them in their natural state or while completing their hygiene routines (Dengel, 1943). However, the fallacy that women's bodies, and female body hair specifically, was somehow inherently more unclean than men's was recognized, even by the medical community. As one physician noted:

> Strictly speaking, of course, superfluous hair is not in itself of great importance from the standpoint of health, which is to say that it will not in itself cause ill health or death. But worry over its blemish, brooding over the loss of popularity occasioned by it, etc., can and has induced in women mental states that bring on the direst of consequences. Such women may become morose and subject to fits of depression, develop a mania for seclusion, and it has even been known to lead to suicide. Besides this, it may have more immediate effects of standing in the way of social progress, preventing one from obtaining a desirable position over a more presentable rival, or even interfere with one's ultimate happiness by preventing the attraction of a husband. (Niemoeller, 1938, pg 11).

Yet the pressure to appear feminine outweighed the evidence that these practices were unnecessary and as mothers started instructing their daughters to remove their body hair, women began initiating removal at younger and younger ages (Dengel, 1943; Herzig, 2015).

The 1960s saw a backlash to the social restrictions of the 40s and 50s, evidenced in part by the dramatic changes in women's fashion. The mini-skirt and mini-dress were adopted from Britain, and while the bikini was developed in 1946, it mainstreamed into American culture in the mid-1960s (Herzig, 2015; Ramsey et al., 2009; Reddy, 2020e; Riddell et al., 2010). Unsurprisingly, companies quickly developed new hair removal products that focused on the upper legs and the female "bikini area" (Riddell et al., 2010; Weigle, 2009). In media and advertising, women were now depicted as having smooth and hairless skin in the axillae and from the hip to the toes (Ramsey et al., 2009; Riddell et al., 2010). The second-wave feminist movement of the 1970s pushed back on the normalization of female body hairlessness and

promoted the natural growth of body hair. However, these feminists were resoundingly stigmatized as dirty, masculine, and lesbian, in a fashion very similar to their first-wave predecessors (Dicker, 2008; Herzig, 2015). Because of the intense social pressure this generated, the body hair growth movement quickly ended (Herzig, 2015).

However, second-wave feminism did contribute to a historical shift regarding sexual activity. Younger generations began balking at the pre- and inter-war generations' beliefs that acceptable sex occurred only within the confines of marriage (Meyerowitz, 2014). The second "free love" movement promoted sex unrestricted by relationship status and both mass media and popular entertainment became more sexually explicit (Buhle et al., 1998; Meyerowitz, 2014; Wolf, 1991). In 1968, the Production Code Administration (PCA) was dissolved and access to media that showed a women's genitals dramatically changed (Kinnick, 2007). The PCA, founded in the 1920s, outlined what was considered pornography in different forms of media. One of the key restrictions was that visible genital hair in any publication or film would cause it to be labeled as pornography, thus great lengths were taken to avoid its exposure (Kinnick, 2007; Ramsey et al., 2009). For example, in Playboy, one of the oldest sexually explicit magazines published in the US, none of the monthly centerfolds were pictured with a visible mons pubis or labia throughout the 1950s and 60s in order to comply with PCA publishing restrictions (Schick et al., 2011). But once the PCA was suspended, Playboy started publishing images of women's genital hair (Schick et al., 2011).

Concurrently, a year after the disbanding of the PCA, the Supreme Court heard the case of Stanley v. Georgia, which involved an individual who was arrested for being in the possession of "obscene" materials when his home was searched for an unrelated matter (Katz, 1969, p.

203). Based on First Amendment protections, the Court ultimately ruled that adults could consume any media they chose, effectively eliminating the remaining national legal restrictions around the production and dissemination of pornography (Katz, 1969; Roberts, 1970). Multiple different mediums for pornography consumption arose including print media that could be purchased in bookstores or mailed to homes, "arcades" where people could pay a nickel or dime to watch a short loop of film and theaters that offered full length films (Roberts, 1970, p. 66). The risqué nature of seeing parts of the body and sexual acts that had previously been forbidden was in and of itself the draw to early pornography, and alteration of pubic hair did not immediately take place (Cokal, 2007; Schick et al., 2011; Williams, 1989).

Interestingly, it has been suggested that the advent of the videocassette recorder (VCR) lead to the removal of pubic hair among actors in sexually explicit films, which was the first time that any group of Americans modified or removed their genital hair (Cokal, 2007). The VCR's technology allowed the consumer to watch media, and pornography specifically, at home and only view the portions of movies that they wished, fast-forwarding or rewinding at will (Cokal, 2007). However, images were much smaller on a TV screen than on a movie screen and directors had to contend with increasing consumer demand to see more sexual acts in more detail while taking screen size into consideration (Cokal, 2007). Removal of pubic hair among pornographic actors solved this problem by allowing increased visualization of sex acts, and over the next twenty years, augmentation of genital hair became commonplace in sexually explicit media (Cokal, 2007; Kinnick, 2007). This is also evidenced in Playboy, where, by the end of the 1990s, the majority of centerfolds had fully visible genitalia with augmented or absent pubic hair (Schick et al., 2011).

The legalization of pornography also increased the sexualization of all women within American culture (Kinnick, 2007; Oppliger, 2008). Beginning in the 1980s, advertising for common, every-day products, like soda and cars, began to use female sexual inuendo as a main advertising theme (Kinnick, 2007; Oppliger, 2008). As these messages became more sexually explicit, the definition of the ideal feminine woman changed again (Kinnick, 2007; Labre, 2002). Suddenly, all women were expected to exude an outward sex appeal for public consumption, while continuing to only participate in sex within the confines of a monogamous partnership or marriage (Basow & Braman, 1998; Cokal, 2007; Kinnick, 2007; Meyerowitz, 2014; Rotundo, 1993; Tiggemann & Kenyon, 1998). The development of new, man-made textiles and materials influenced changes in female clothing trends that also contributed to women being stereotyped as available sexual objects (McDougall, 2013; Reddy, 2020c). The advent of synthetic fibers like spandex and rayon in conjunction with the fitness craze of the 1980s led to the mainstreaming of leotards, leggings and other body conscious clothing that had previously been reserved for dancers and other entertainers (McDougall, 2013; Reddy, 2020c). Women's bodies now "shaped the clothes rather than the clothes shaping the body" (Hennessey, 2012, p. 388). Swimsuits featured new high-cut designs, as the popular television show *Baywatch* made famous, exposing more of the genital region for depilation (Ibbetson, 2020). Yet, even as sexiness was cemented into culture as one of the essential characteristics of female gender expression, women were still not routinely removing their genital hair.

What changed this was the explosion of data and media sharing that occurred in the late 90s and early 2000s over the newly created internet. Pornography became feely available for the first time, and more people, particularly young, white, heterosexual men, engaged with

it online (Buzzell, 2005; Kinnick, 2007). The stigmatized hairless genitalia of those in the porn industry became less foreign to male consumers and they began to associate female genital hairlessness with sexual attractiveness (Cokal, 2007; Labre, 2002; Schick et al., 2011). It was during this time that crossover into the general population began to occur.

Celebrities, popular magazines, television shows and websites began championing genital hair removal as in vogue, exotic and necessary to always be prepared for sex (Kinnick, 2007; Labre, 2002). One particular waxing salon in New York City gained notoriety in the press for providing New York's elite and famous women with "Brazilian waxes," so named because the 5 sisters that owned the salon were from Brazil, not, as it came to be thought, that all Brazilian women removed their genital hair (Labre, 2002). The term entered the mainstream and the country saw a 24% increase in the number of waxing salons offering a form of the Brazilian genital wax in the early 2000s (Herzig, 2009). Initially, women endorsed engaging in the practice for their real or potential male sexual partners (Braun & Wilkinson, 2001; Fahs, 2014a; A. Y. Li & Braun, 2017; Reinholtz & Meuhlenhard, 1995; Rowen et al., 2016; Stone et al., 2016; Terry & Braun, 2013; Tiggemann & Hodgson, 2008; Tiggemann & Lewis, 2004; Toerien & Wilkinson, 2004). However, there is no evidence that men specifically pressured women into removing their genital hair, rather, research has documented that women began policing themselves, other women, and ultimately men's genital hair removal practices, creating a new social pressure for both genders to be hair free as a sign of sexual readiness (Fahs, 2014b; Li & Braun, 2017; Terry et al., 2018). As such, the practice became culturally normalized and people of all races, socioeconomic statuses and sexual preferences began to augment and remove their genital hair to position themselves as ideal sexual partners (Fahs, 2011, 2022; Li & Braun,

2017; Terry & Braun, 2013). This normalization is evidenced in the literature by the contradicting way people report that genital hair removal is a personal choice, but women in particular also say they have never seriously considered leaving their genital hair intact because of the perceived social consequences of doing so (Fahs, 2011, 2014a, 2014b; Fahs & Delgado, 2011; Obst et al., 2019).

As scientists have recognized the pervasiveness of genital hair removal, studies have been done that have attempted to examine the health effects of the practice. However, establishing causality between genital hair remvoal and specific health outcomes has been and will remain challenging. Because researchers and clinicians began studying the practice after it had already become popular, identifying a control group of hair non-removers has been difficult or impossible in certain settings. Additionally, the strength of the belief that hair removal is actually a healthy behavior has become so ingrained in Western culture that without unequivical evidence to the contrary, people have been and will likely continue to be reluctant to change their practices, even temporarily (Fahs, 2014b, 2022). Sexual activity, as a stand alone variable, also has its own unique research challenges and has been shown to be difficult to control and study (Schroder et al., 2003a, 2003b). So, while disruptions in skin integrity and inflammation have been proven to increase the risk of infection in other contexts, there has yet been a study that has been able to definitively correlate this phenomenon in relation to genital hair removal and STIs (Sabat et al., 2019; Weatherhead & Lawrence, 2009; Yazdi et al., 2016). Yet, systematiclly analyzing this data could provide new information to direct research endeavors and change clinical practices. That is the second aim of this dissertation and a description of that process and results it generated will be detailed in the following chapters.

Chapter 3
Systematic Review Design and Methods

The systematic review was done in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Moher et al., 2009). The study protocol is registered on PROSPERO: International Prospective Register of Systematic Reviews. The published protocol is Appendix A and the PRISMA flowchart is Appendix B.

Original Language:
English

Start date of Review: September 1, 2022

Completion date of Review: January 13, 2024

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Search Strategy and Study Selection:

A literature search was performed that focused on genital hair augmentation or removal. Filters were placed on the search to include literature published in English and included studies published before 12/31/2022. PubMed, EMBASE, CINAHL, PsychInfo, Cochrane Review and Web of Science databases were searched using the following search terms: “pubi* hair remov*,” “pubi* hair augment*” “genital hair remov*,” “genital hair augment*,” “pubi* hair groom*,” “genital hair groom*,” “Brazilian hair remov*”, “pubi* hair AND injur*, “genital hair AND injur*”, “pubi* hair AND infection”, “genital hair AND infection,” “pubi* hair AND sexually transmitted infection,” “genital hair AND sexually transmitted infection,” “pubi*hair AND STI” and “genital hair AND STI.” The medical subject heading (MeSH) terms for these searches were applied. To capture grey literature, Web of Science was searched for conference abstracts and proceedings, and a hand search was done online of sexual health organizations, national and international governmental organizations, and accredited medical and nursing organizations using the terms “pubic hair removal and sexually transmitted infection,” and “genital hair removal and sexually transmitted infection.” All studies that have reported findings of STIs were included for consideration into the final review.

Condition or Domain Being Studied:

Characteristics of genital hair modification or removal including partial or total hair removal, frequency of hair modification or removal, and method of modification or removal in association with the prevalence or incidence of cutaneous and/or secretory STIs.

Interventions & Exposures:

Reports of partial or total genital hair removal, method of genital hair modification or removal, and incidence or prevalence of cutaneous and/or secretory STIs

Types of Studies Included:

All studies that were published in English and reported on genital hair removal or modification and the incidence or prevalence of cutaneous and/or secretory STIs were included.

Types of Studies Excluded:

Studies that were not published in English, single case reports and Letters to the Editor were excluded.

Main Outcome:

Genital hair modification- all definitions of genital hair modification were included.

Measurement of effect size, p value(s), any analyses of effect measure modification, risk rations, incidence rate ratios and odds ratios with associated confidence intervals were reported.

Data Management:

Citations from the literature search were uploaded to Zotero, a reference management program. Once de-duplicated, the literature search results were then transferred into Rayyan, an internet-based program that facilitates data management across multiple reviewers for systematic reviews.

Selection Process:

AM and BH screened each title/abstract for eligibility into the review. Conflicts were resolved collaboratively between AM, BH and CL. A Preferred Reporting Items for Systematic Reviews and MetaAnalysis (PRISMA) diagram was generated that outlines the quantitative results of the literature search, study identification, screening process, and ultimate inclusion or exclusion for meta-analysis (Appendix 2).

Data Extraction Process:

AM and BH independently extracted data from the selected studies and separately entered the data in a standardized table. The individual results were then collaboratively combined to ensure consistency and agreement about the final data collection. The following data from the selected studies was extracted: author(s), year published, journal, study design, geographical location of the study, sample size, participant demographic data, genital hair modification or removal data, prevalence of STIs including cutaneous and secretory STIs, statistical technique, confounder adjustment, measurement of effect size, confidence intervals, p value(s), analyses of effect measure modification, and author conclusions.

Strategy for Data Synthesis:

Narrative synthesis was done to examine the variation in outcomes between the studies using the narrative synthesis method outlined by Popay, et al (Popay, 2006). In addition to examining the overall association between genital hair removal and STIs, analysis of the heterogeneity of the association between genital hair removal and STIs by type of anatomy, type of hair removal and type of STI was performed. After the narrative synthesis, the data was analyzed to determine if a meta-analysis could be performed, and it was determined that there was insufficient data to perform this step.

Quality Assessment Analysis

AM and BH each assessed the quality of each study using the National Institutes of Health National Heart, Lung and Blood Institute's Quality Assessment Tool for Observational Cohort or Cross-Sectional Studies (National Heart, Lung, and Blood Institute, 2001). Further, AM analyzed each study for threats to validity using Shadish, Cook & Campbell's groupings, which include threats to statistical conclusion validity, threats to internal validity, threats to construct validity and threats to external validity (Shadish et al., 2002).

Keywords:

Pubic hair removal, genital hair removal, sexually transmitted infections, STIs

Chapter 4
Results

A total of 1,551 studies were identified from the literature search. Citations were into Rayaan, a data management system for systematic reviews. Fifty-one duplicates and non-English citations were removed. One thousand three hundred and sixty-nine citations were independently screened at the title/abstract level and compared for consistency. One thousand three hundred and twenty-nine studies were excluded for relevancy. The remaining 40 citations were retrieved for full-text review and uploaded into Covidence, another data management system for systematic reviews. The first two authors screened these studies and 33 were excluded for the following reasons: 16 were either non-original research, letters to the editor or single case studies, 16 identified a different outcome than the research question for this study and one was excluded because the full text was published in a language other than English. Seven studies met all the inclusion criteria and were included for this review (Armstrong & Wilson, 2006; Beksinska et al., 2020; Castronovo et al., 2012; Dholakia et al., 2014; Gaither et al., 2020; Osterberg et al., 2017b).

As planned in Chapter 3, The first two authors independently extracted the following data from the selected studies: author(s), year published, journal, study design, geographical location of the study, sample size, participant demographic data, genital hair modification or removal data, prevalence of STIs including cutaneous and secretory STIs, statistical technique, confounder adjustment, measurement of effect size, confidence intervals, p value(s), analyses of effect measure modification, and author conclusions. The extracted data was compared, and conflicts were resolved collaboratively. The studies were then assessed for quality using the National Institutes of Health National Heart, Lung and Blood Institute's Quality Assessment Tool

for Observational Cohort or Cross-Sectional Studies (National Heart, Lung, and Blood Institute, 2001). The assessment evaluations were compared, and conflicts were resolved collaboratively. Selected results of the data extraction can be found in Table 1.

Narrative Synthesis

Analyzing this literature through the lens of validity is helpful to understand the impact of the work and the research conclusions. Shadish, Cook & Campbell detail four areas within quantitative research where threats to validity exist. These include threats to statistical conclusion validity, threats to internal validity, threats to construct validity and threats to external validity (Shadish et al., 2002). Table 2 breaks down each study via these categories and Figure 1 is a Venn diagram that denotes where each study lies within the four groups. It should be noted that none of the studies are experimental and therefore cannot be evaluated on validity threats that are based on an experimental intervention, which relatively weakens all the findings from the outset. The Armstrong & Wilson study found a statistically significant decrease of pubic lice and a significant increase of chlamydia and gonorrhea over a 6-year period among the patients in their genitourinary clinic, and although they posit that this was linked to genital hair removal, no hair removal data was collected. Therefore, this study does not contain enough information to be analyzed by threats to validity and is placed outside of the diagram. The Castronovo et al. study has threats across all validity categories and the Luster et al. study has threats in 3 of 4 categories. Together, the findings from these two studies should be considered carefully, including the lack of association that the Luster et al. team found between genital hair removal and chlamydia/gonorrhea infections. In particular, the

Castronovo study found 61 viral infections of the pubis among 80,000 patients examined, which represented 0.08% of the total patients examined. This finding is so low as to negate its significance. The Luster study sample was homogenous across race (72.5% white) and 99% of the sample removed their genital hair. Without a control group to compare to, the authors chose to differentiate the sample into those that removed completely and frequently as compared to those that did not. This comparison is not the same as comparing hair removers from non-hair removers and their results only represent findings among young, white women who lived on a university campus.

The two studies associated with the University of California, San Francisco team have stronger methodologies and have significantly fewer threats in only 2 of the 4 categories. The Osterberg et al. study is strengthened by the large number of participants and the survey distribution method which provided a diverse sample of respondents; however, the survey was unvalidated and relied on participant's retrospective self-reports of STIs and genital hair removal practices, which were not able to be confirmed. The Gaither et al. study results are strengthened by their use of provider confirmed genital hair removal and laboratory confirmed STI diagnoses, but weakened by the homogeneity of the study participants, both in sexual preferences and gender, and type of practice where the data was collected- an urban public health practice that specialized in the management of STIs. It is important to note, however, that both found a positive relationship between genital hair removal and the prevalence of STIs.

The two strongest studies in this review are those by Dholakia et al. and Beksinska et al. They have been placed outside of the Venn diagram because they have minimal or absent threats to validity, and thus have likely produced the most reliable data to date regarding the

association between genital hair removal and STIs. Interestingly, their findings are opposed. While the data in the Dholakia study supports that genital hair removal decreases pubic lice infestations, the Beksinska study supports that removal increases the prevalence of gonorrhea and chlamydia in women. It is notable that the health outcomes from these three types of infections are not equivalent, with the bacterial infections being more common and causing significantly more morbidity and mortality than lice infestations, and this morbidity and mortality disproportionately effects women (Chambers et al., 2018; Fu et al., 2022; Gorgos et al., 2008; Kreisel et al., 2021; Y. Li et al., 2023; Patel et al., 2021). Thus, the potential health benefits from fewer pubic lice infestations in the absence of genital hair are not commensurate with the known harms of chlamydia and gonorrhea infections, should they be easier to acquire without genital hair. This data does not support recommending genital hair removal as a STI risk reduction practice.

Discussion

While this review can make limited conclusions about causality between genital hair removal and STI prevalence, the studies included are excellent historical time markers for the adoption of the practice and contribute to the larger body of literature regarding genital hair removal motivations and beliefs. From this larger data set, it has been repeatedly shown that genital hair removal is an established and common practice among people in Westernized cultures and is rooted in deeply held socially constructed beliefs about gender and sexual expression as opposed to evidence that it is necessary or healthy (Boroughs et al., 2005; Braun et al., 2013; Braun & Wilkinson, 2001; DeMaria et al., 2016; Fahs, 2011, 2019, 2022; Fahs &

Delgado, 2011; Labre, 2002; Tiggemann et al., 2008; Toerien et al., 2005; Toerien & Wilkinson, 2003). What has become problematic however, is that over the last ten years, more people have espoused a belief that genital hair is inherently unhygienic and its presence contributes to unhealthy genitals (Attieh et al., 2016; Boroughs et al., 2005; Braun et al., 2013; Crann et al., 2018; Crann & Jenkins, 2017; DeMaria et al., 2016; Fudge & Byers, 2017; Jenkins et al., 2018; A. Y. Li & Braun, 2017; Obst et al., 2019; Rowen et al., 2016; Stone et al., 2016; Terry & Braun, 2013). There is no evidence that this is true. Instead there is evidence that the majority of genital hair removers will experience adverse health consequences from hair removal, including pain, injuries like cuts and lacerations, significant burns and multiple other dermatological sequalae including contact dermatitis and folliculitis and now, there is an added possibility of increased STIs (Butler, Smith, Collazo, et al., 2015; DeMaria et al., 2014b; Gaither et al., 2015; Rouzi et al., 2018; M. D. Truesdale et al., 2017). It is notable that people are not discussing genital hair removal complications with their health care providers or seeking care for complications, unless they deem them extreme, and more troublingly, report removing their genital hair *because* they are going to see a health care provider (DeMaria et al., 2014b; Glass et al., 2012b; Rowen et al., 2016; Swain et al., 2016). Additionally, health care providers are infrequently inquiring about genital hair removal with one study reporting that providers addressed genital hair removal practices in less than 4% of health encounters (DeMaria et al., 2014). This highlights a significant communication gap between providers and patients, one that may be both contributing to adverse health outcomes and is an area of exciting possibility when considering future research.

Chapter 5
Discussion

This dissertation aimed to explain the socio-cultural history behind genital hair removal and to analyze the published literature that has examined genital hair removal in relation to sexually transmitted infections. The theories of Intersectionality and Norm-Oriented Collective Behavior were used as a framework to explain the behavior's adoption, specifically from a feminist perspective. After accomplishing this doctoral work, new insights and conclusions have arisen and should be detailed, including that this theoretical framework, while appropriate for explaining the reasons why the practice was accepted, it is not the most appropriate choice for future research now that genital hair removal is a normalized practice in our culture.

Discovering that genital hair removal has century-old roots in the gendered, socially constructed practice of voluntary female axillary hair removal was unexpected and interesting. Further, identifying the events that occurred through the subsequent decades that led to genital hair removal including the legalization of pornography, the removal of genital hair by actors in sexually explicit films, the consumption of sexually explicit media on the internet by young, white males, and the class-based adoption of the practice by white women was fascinating. Analyzing the genital hair removal literature through this newly detailed historical and sociological lens has illuminated one of the significant findings from this work, which is that the reported motivations behind genital hair removal are homogenizing around a belief that it is a necessary aspect of genital hygiene, particularly for women. During the first decade of the practice, women endorsed that they removed their genital hair primarily to appear feminine and sexually attractive to men, not because it was required for health (Braun et al., 2013; DeMaria & Berenson, 2013; Fahs & Delgado, 2011; Terry & Braun, 2013; Tiggemann & Hodgson,

2008; Toerien & Wilkinson, 2004) Yet, since then, there has been a steady and marked increase in the number of women who endorse removal for hygiene purposes, so much so, that women are now reporting that genital hairlessness is both compulsory for health and representative of the normal state of the female body (Caron, 2022; DeMaria et al., 2016, 2021; Fudge & Byers, 2017; Jenkins et al., 2018; Mezin-Sarbu & Wohlrab, 2023; Stone et al., 2016).

To explain the significance of this, a return to our cultural history is helpful here, specifically examining the period after the World Wars, when the white patriarchy again sensed a threat to its power. Like the post-Civil War era, the Great Wars advanced racial, gender and socioeconomic equality by allowing women and people of color to engage in areas of society that were previously precluded to them (Ferrara, 2022; Rose, 2018). For the first time, women and non-white people were employed in occupations previously only afforded to white men; jobs that provided an independent income and offered a means of upward class mobility (Ferrara, 2022; Rose, 2018). The geographic absence caused by deployment and subsequent deaths of many young men significantly decreased the birth rate and caused concern as the number of available male heirs for wealth transfer decreased (Edlund & Kopczuk, 2009; Grabill, 1944; Langbein, 1988). Lastly, the rise of communism and fascism coupled with Hitler's genocide in Europe and Russia initiated another major wave of immigration to America, stressing the economy and urban infrastructure, as it had at the turn of the century (Carlson, 1985; Reimers, 1981).

By the late 1940s, those in power were so concerned about these social changes that they flooded the media with messages that failure to return to pre-war gender and racial roles had placed society in danger of collapse (Goss, 2017; Seigal, 2012) Familiar anti-feminist themes

arose that accused women of being unpatriotic and unfeminine if they did not return to the domestic domain to produce children (Tarrant, 1996). The lower classes, people of color and immigrants were again depicted as dirty, dangerous, and diluting American stock, in the same way as they had been forty years before (Dilworth & Gardner, 2019; Lee, 2021). Over the next decade, as these powerful messages infiltrated the culture and school desegregation began after the landmark *Board v. Brown* case in 1954, white families left urban areas for newly created suburbs, Jim Crow laws were reinforced, and intense scrutiny and persecution of immigrants began with the rise of McCarthyism (Lee, 2021; Schrecker, 1998). As upper- and middle-class women were pushed back to the home, the Baby Boom occurred, and the media again encouraged that appropriate women should focus their time and energy on their marriages and motherhood.

It was during this period of female suppression that the concept of a female-specific genital hygiene regimen was constructed within the auspices of overall female body work. Marketed as a show of appropriate femininity and as a crucial duty to perform for men within marriage, producers flooded the market with intervaginal and vulvar female genital hygiene products that targeted vaginal discharge and odor (Brumberg, 1993; Dengel, 1943; Hope, 1982). As with voluntary axillary body hair removal, white upper- and middle-class women rapidly began participating in the new practice without regard to the validity of the initial claim that their genitals required a different kind of hygiene because they were inherently unclean (Brumberg, 1993; Dengel, 1943). The subsequent lucrative economic structure that formed around the production of these products incentivized never calling into question the need to engage in the behavior, and notably, 80 years later, close to 6 billion dollars of revenue is

generated annually from the sale of female-specific genital hygiene products (Jenkins et al., 2018). Thus, as women began voluntarily removing their genital hair in response to the new sexual expectations of men, it was from within the social context that the appropriate female body is hairless *and* requires a specific genital hygiene regimen. It was easy for the hygiene product industry to recognize the genital hair removal trend as another opportunity to increase sales by decoupling the practice from heterosexual sexual readiness and suggesting instead that it was a newly required aspect of the female-specific genital hygiene routine.

However, unlike voluntary axillary, leg and inguinal hair removal, which has not been shown to increase female mortality, the practice of product-driven hygiene regimens has been repeatedly shown to cause vaginal microbiome disruption that leads to the development of BV, which as detailed in Chapter 1, is an independent risk factor for the acquisition of STIs (Adriane, S.B., 2017; Bautista, C.T. et al., 2016; Brotman, Ghanem, et al., 2008; Brotman, Klbanoff, et al., 2008; Brown, J.M. et al., 2013; Y. Chen et al., 2017; Galbarczyk et al., 2023; Geynisman-Tan et al., 2021; Jenkins et al., 2018; Sabo, M.C. et al., 2019; Zhang, J. et al., 2004). After substantial research done in the 1980s and 90s showed an association between intervaginal hygiene and BV, many evidence-based guidelines and guideline producing agencies added language advising against the practice (*A Guide to Taking a Sexual History*, 2022; *How to Prevent Sexually Transmitted Infections (STIs)*, 2023; *Sexually Transmitted Infections*, 2022a; *Sexually Transmitted Infections*, 2022b; *Sexually Transmitted Infections (STIs) Prevention*, 2023; *Vaginitis*, 2023; Centers for Disease Control, 2021, p. 9; Kimberlin et al., 2021; Lewis & Laurent, 2020; Muzny et al., 2022; Workowski, K.A. et al., 2021; Zhang et al., 1997).

However, while intervaginal hygiene practices have significantly decreased since that time, the prevalence of BV continues to hover close to 30%, suggesting that intervaginal hygiene is not the only cause of vaginal microbiome disruption (Adriane, S.B., 2017; Bautista, C.T. et al., 2016; Chandra et al., 2005; Martino et al., 2004; Muzny et al., 2022; Peebles et al., 2019). Newer research has supported that vulvar genital hygiene practices also increase the incidence of BV, particularly when a commercially-produced product or products are used (Y. Chen et al., 2017; Crann et al., 2018; Fashemi, B. et al., 2013; Jenkins et al., 2018; Jenkins & O'Doherty, 2021). Specifically examining genital hair removal, more recent studies have linked removal to vaginal microbiome alterations and recurrent UTIs (Galbarczyk et al., 2023; Geynisman-Tan et al., 2021). Since genital hair removal is now a normalized component of female genital hygiene regimens, the cumulative negative health effects from the practice of female specific genital hygiene are likely to worsen over time.

Therefore, even when taking into consideration the significant decrease in pubic lice infestations over the last 25 years, there is more evidence that genital hair removal is contributing to negative health outcomes in women and it should not be recommended (K. S. Chen & Yesudian, 2013; Dholakia et al., 2014; Patel et al., 2021). Further, the evidence supports healthcare providers should be actively assessing for genital hair removal as a part of an evidence-based sexual health visit, particularly if there is an increased patient risk for STIs or vaginal infections. Yet, as discussed, there is little attention paid to genital hair removal in current medical and nursing practice, nor are there evidence-based clinical guidelines that address genital hair removal. Given the voracity of the genital hygiene belief, it has become obvious that powerful messages from respected and rigorous sources will be required to

convince people that there are harms associated with the practice, but the effort required to do so would be worthwhile if the health of women and their sexual partners improved. Thinking about how I can be a part of this work and beginning to formulate my plan to do so has been exciting and will be discussed in the following section.

Future Research

My ideas fall into three broad categories: historical, gender focused sociological research, clinical interventional research in primary care, and the creation and adoption of new clinical guidelines. However, before any of these areas can be approached, a new theoretical framework must be found. The Theory of Collective Behavior has been helpful in explaining why genital hair removal became a normalized practice in our culture, but now that it has, a new framework is needed to understand how people move *away* from normalized behavior, particularly a behavior that is associated with a fundamental social identity, like gender. I believe the answer lies within theories of behavior change, likely from overlapping sociological, psychological and health promotion perspectives. Once identified, I am confident that it will inform how meaningful genital hair research inquiries can be generated.

From the historical and gender-studies aspect, I would like to keep exploring gender roles and their expression in Western culture from a feminist perspective. The health of women effects the health of all people. Reducing the number of STIs and vaginal infections in women will also improve the health of their sexual partners and children. Furthering the knowledge about how our current socially constructed gender roles are contributing to sexual health

outcomes will better inform the types of clinical interventions that will ultimately produce sustained behavior change.

This research has also confirmed that an unexplored, but potentially very rich environment to deploy clinical interventions regarding genital hair removal is in outpatient primary and urgent care settings. These sites are where most women seek care for acute and chronic vaginal problems, as well as receiving preventative well-woman care. Among the types of providers doing this type of work, advanced practice nurses are specifically trained to include patient education and knowledge sharing as aspects of holistic healthcare and are in an ideal position to recommend behavioral changes and track their effects over time. Primary care settings also offer the potential for relatively easy longitudinal prospective data collection as patients often remain in the same practice for years. I envision collaborating with a team of practicing primary care providers and seasoned clinical researchers to design a clinical intervention study that maximizes the nursing-specific tenets of education and health promotion. Because of the network I have been fortunate enough to develop throughout Massachusetts over the last twenty years of my career, I have contacts in multiple different types of primary care settings, including community health, private practice, and hospital-based outpatient clinics. Having the ability to sample from the many different types of patients across these diverse settings would certainly benefit future work.

Looking at this issue from a broader public health perspective, the dissemination of the genital hair removal evidence into spaces where sexual health clinical guidelines are produced would also serve to increase awareness of the topic. Specifically, within the CDC STD Treatment Guidelines, one of the most utilized clinical resources for sexual health recommendations, there

is a guide to taking a sexual and genital health history. It recommends that providers use the "5 P's" framework to conduct the health history interview (*A Guide to Taking a Sexual History*, 2022). The second "P" stands for "Practices" and the suggested questions were designed to assess pregnancy and STI acquisition risk via the patient's sexual activity. However, it does not currently have any language around genital hygiene or genital hair removal practices. I advocate that there is sufficient evidence to support the augmentation of these guidelines to add standardized history questions about genital hygiene and hair removal practices to provide additional infection risk information. Further, for patients whose answers indicate higher risk or for those who already have a history of vaginal infections or STIs, education can be given that promotes genital hair removal practice change with the goal to assess, over time, if the rates of BV and STIs change. Many of the CDC STI Treatment Guideline authors are also faculty members in one of eight regional CDC funded STD Prevention Training Centers that make up the National Network of Prevention Training Centers (NNPTC). The Ratelle STD/HIV Prevention Center, where I have a faculty member since 2008, is the New England regional Center. Connecting with my colleagues within the NNPTC network could allow me the opportunity to present the findings from this doctoral research to the people responsible for the clinical guidelines and influence the contents of them. A summary table of these possible research inquiries is included below.

Summary Table

Post-Doctoral Research Interests	**Topic Area**	**Research Setting**	**Research Goal**
History and Gender Studies from the Feminist Perspective	Gender roles, social norms, social change, behavior change, gender equality	Academic	To produce knowledge about how society and culture affect women's health
Primary Care Clinical Interventional Research	Infectious disease, preventative care, patient education	Outpatient clinical settings	To produce knowledge about BV and STI rates after intervening on genital hair removal and genital hygiene practices
Sexual Health Policy	Clinical guidelines	Public Health	To produce evidence-based sexual health policy that incorporates the known evidence about genital hair removal and genital hygiene practices with the assessment of infection risk

Conclusion

The results of this doctoral work have contributed new knowledge about the nature of genital hair removal practices, including why most people believe that genital hair removal is hygienic. The systematic review provided evidence that genital hair removal may be associated with increased rates of STIs, particularly in women and should not be recommended as a healthy practice.

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Appendix A

UNIVERSITY of York
Centre for Reviews and Dissemination

Systematic review

*Fields that have an **asterisk (*)** next to them means that they **must be answered. Word limits** are provided for each section. You will be unable to submit the form if the word limits are exceeded for any section. Registrant means the person filling out the form*.

This record cannot be edited because it has been marked as out of scope

2. Original language title.

For reviews in languages other than English, give the title in the original language. This will be displayed with the English language title. English

3. * Anticipated or actual start date.

Give the date the systematic review started or is expected to start.

01/09/2022

4. * Anticipated completion date.

Give the date by which the review is expected to be completed.

31/12/2023

5 [1 change]. * Stage of review at time of this submission.

This field uses answers to initial screening questions. It cannot be edited until after registration.

Tick the boxes to show which review tasks have been started and which have been completed.

Update this field each time any amendments are made to a published record.

The review has not yet started: No

Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	No
Risk of bias (quality) assessment	Yes	No
Data analysis	No	No

Provide any other relevant information about the stage of the review here.

7. * Named contact email.

Give the electronic email address of the named contact.

9. Named contact phone number.

Give the telephone number for the named contact, including international dialling code.

11. * Review team members and their organisational affiliations.

Give the personal details and the organisational affiliations of each member of the review team. Affiliation refers to groups or organisations to which review team members belong.
NOTE: email and country now MUST be entered for each person, unless you are amending a published record.

Ms. Alison Marshall. Boston College School of Nursing
Mr. Brian Harrington. Boston College
School of Nursing Dr Christopher Lee.
Boston College School of Nursing

13. * Conflicts of interest.

List actual or perceived conflicts of interest (financial or academic).
None

14. Collaborators.

Give the name and affiliation of any individuals or organizations who are working on the review but who are not listed as review team members. **NOTE: email and country must be completed for each person, unless you are amending a published record.**

Dr Erika Sabbath. Boston College School of Social Work Ms Wanda Anderson. Boston College Library

16. * Searches.

State the sources that will be searched (e.g. Medline). Give the search dates, and any restrictions (e.g. language or publication date). Do NOT enter the full search strategy (it may be provided as a link or attachment below.)

PubMed, EMBASE, CINAHL, PsycINFO, Cochrane Review and Web of Science databases will be searched for literature reporting on any health outcomes associated with genital hair modification or removal. To capture grey literature, Web of Science will be searched for conference abstracts and proceedings, and a hand search will be done online of sexual health organizations, national and international governmental organizations, and accredited medical and nursing organizations using the terms “pubic hair removal and sexually transmitted infection,” and “genital hair removal and sexually transmitted infection.” Filters will be placed on the search to include only literature published in English and studies published before 12/31/2022.

18. * Condition or domain being studied.

Give a short description of the disease, condition or healthcare domain being studied in your systematic review.

Characteristics of genital hair modification or removal including: partial or total hair removal, frequency of hair modification or removal, and method of modification or removal in association with the prevalence or incidence of cutaneous and/or secretory STIs

20. * Intervention(s), exposure(s).

Give full and clear descriptions or definitions of the interventions or the exposures to be reviewed. The preferred format includes details of both inclusion and exclusion criteria.

--Reports of genital hair modification or removal or total genital hair removal

Excluded exposure data:

22. * Types of study to be included.

Give details of the study designs (e.g. RCT) that are eligible for inclusion in the review. The preferred format includes both inclusion and exclusion criteria. If there are no restrictions on the types of study, this should be stated.

Studies to be included:

Those whose full text is unavailable in English, single case reports and letters to the editor

24. * Main outcome(s).

Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurements are made, if these are part of the review inclusion criteria.

--Genital hair modification or removal. All definitions of genital hair modification will be included.

Measurement of effect size, p value(s), any analyses of effect measure modification, risk ratios, incidence rate ratios and odds ratios with associated confidence intervals will be reported.

26. * Data extraction (selection and coding).

Describe how studies will be selected for inclusion. State what data will be extracted or obtained. State how this will be done and recorded.

Data Management: Citations from the literature search will be uploaded to Zotero, a reference management program. Once de-duplicated, the literature search results will be uploaded into Rayyan, an internet-based program that facilitates Selection Process: AM and BH will screen each title/abstract and each screened full-text article for eligibility data management across multiple reviewers for systematic reviews.

into the review. CL will resolve any conflicts. A Preferred Reporting Items for Systematic Reviews and MetaAnalysis (PRISMA) diagram will be generated that highlights the quantitative results of the literature search, study identification, screening process, and ultimate inclusion or exclusion for meta-analysis.

Data Collection/Extraction Process: AM and BH will independently extract data from the selected studies and enter the data in a standardized table. The two tables will be combined and collaboration between the authors will occur to ensure consistency and agreement about data collection decisions. CL will resolve any conflicts.

We will extract data from all studies on the following variables:

--Study method/characteristics:

--Geographical location of study

--Participant demographic data

--Exposure: modification or removal of genital hair

--Data analysis methods: statistical technique, confounder adjustment

--Author conclusions

28. * Strategy for data synthesis.

Describe the methods you plan to use to synthesise data. This but should be and describe how the proposed approach will be applied to your data. If meta-analysis is planned, describe the models to be used, methods to explore statistical heterogeneity, and software package to be used.

Narrative synthesis will be done to examine the variation in outcomes between the studies using the narrative synthesis method outlined by Popay et al (Popay, J. et al., 2006). In addition to examining the overall association between genital hair removal and STIs, heterogeneity of the association between genital hair removal After the narrative synthesis, if the data from the included studies are suitable a meta-analysis will bend STIs by type of anatomy, type of hair removal and type of STI will be included. Study specific odds ratio (OR) estimate will be pooled using a fixed-effects model if no significant heterogeneity exists, otherwise a random-effects model can be replaced. The extent of heterogeneity across studies will be checked="checked" value="1" using the ?² test and the I² test with p = 0.10 or I² 50% indicating significant heterogeneity.

30. * Type and method of review.

Select the type of review, review method and health area from the lists below.

Type of review

Cost effectiveness

No

Diagnostic

No

Epidemiologic

No

Individual patient data (IPD) meta-analysis

No

Intervention

No

Living systematic review

No

Meta-analysis

No

Methodology

No

Narrative synthesis

No

Network meta-analysis

No

Pre-clinical

No

Prevention

No

Prognostic

No

Prospective meta-analysis (PMA)

No

Review of reviews

No

Service delivery

No

Synthesis of qualitative studies

No
Systematic review

Yes

Other

No

Health area of the review

Alcohol/substance misuse/abuse

No

Blood and immune system

No

Cancer

No

Cardiovascular

No

Care of the elderly

No

Child health

No

Complementary therapies

No

COVID-19

No

Crime and justice

No

Dental

No

Digestive system

No

Ear, nose and throat

No

Education

No

Endocrine and metabolic disorders

No

Eye disorders

No
General interest

No

Genetics

No

Health inequalities/health equity

No

Infections and infestations

Yes

International development

No

Mental health and behavioural conditions

No

Musculoskeletal

No

Neurological

No

Nursing

No

Obstetrics and gynaecology

No

Oral health

No

Palliative care

No

Perioperative care

No

Physiotherapy

No

Pregnancy and childbirth

No

Public health (including social determinants of health)

No

Rehabilitation

No

Respiratory disorders

No

Service delivery

No

Skin disorders

No

Social care

No

Surgery

No

Tropical Medicine

No

Urological

No

Wounds, injuries and accidents

No

Violence and abuse

No

32. * Country.

Select the country in which the review is being carried out. For multi-national collaborations select all the countries involved.

34. Reference and/or URL for published protocol.

If the protocol for this review is published provide details (authors, title and journal details, preferably in Vancouver format)

Add web link to the published protocol.

Or, upload your published protocol here in pdf format. Note that the upload will be publicly accessible.

No I do not make this file publicly available until the review is complete

Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

36. Keywords.

Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords help PROSPERO users find your review (keywords do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

37. Details of any existing review of the same topic by the same authors.

If you are registering an update of an existing review give details of the earlier versions and include a full bibliographic reference, if available.

38. * Current review status.

Update review status when the review is completed and when it is published. New registrations must be ongoing so this field is not editable for initial submission.

Please provide anticipated publication date

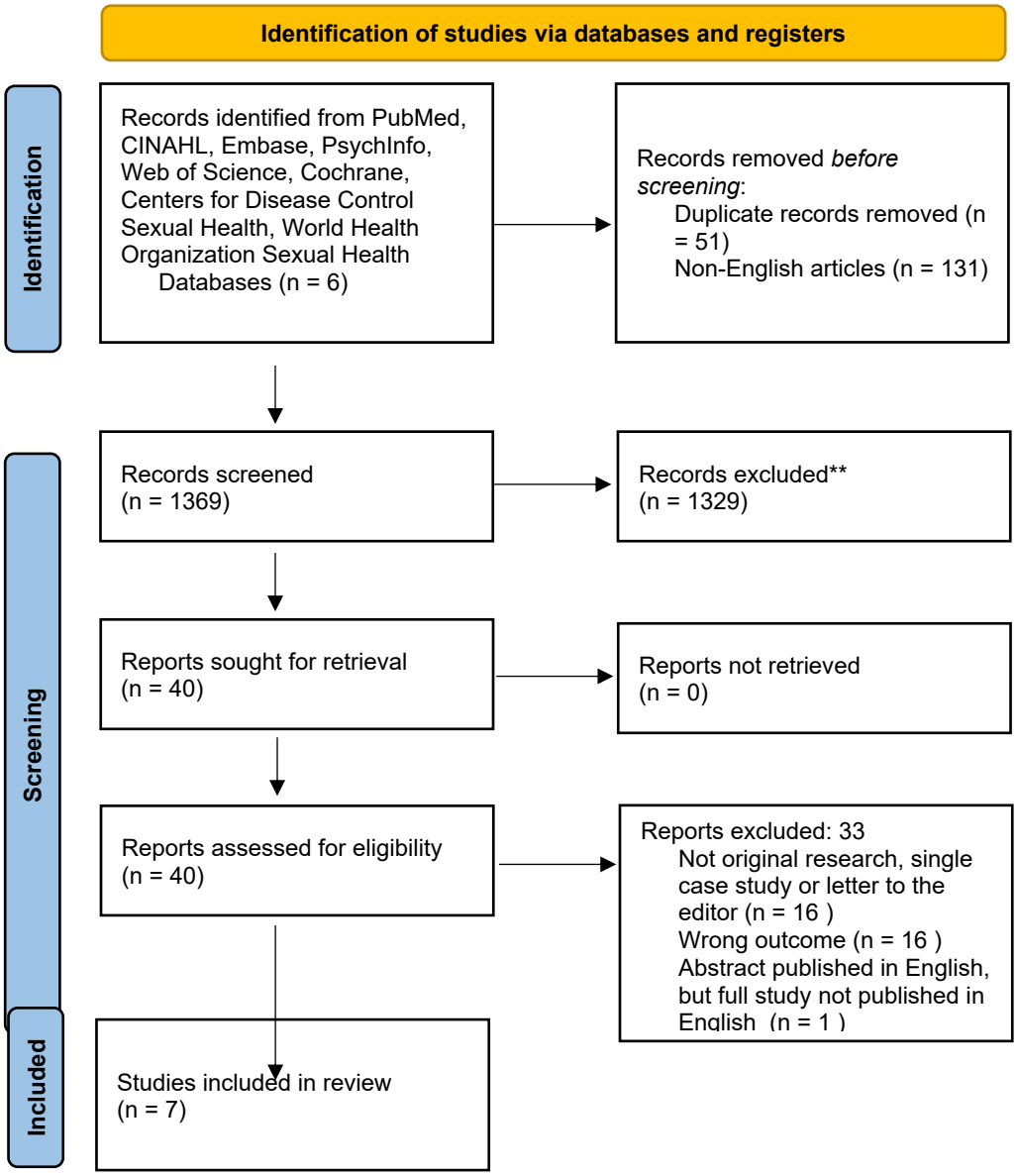
Review Ongoing

40. Details of final report/publication(s) or preprints if available.

Leave empty until publication details are available OR you have a link to a preprint (NOTE: this field is not editable for initial submission). List authors, title and journal details preferably in Vancouver format.

Give the link to the published review or preprint.

Appendix B



From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

Table 1

Study Title	Author & Publication Date	Study Design	Total Participants	Gender	Prevalence/Incidence of Genital Hair Removal (all types)	STI Prevalence/Incidence	Reported Significance	Risk of Bias Assessment
Did the "Brazilian" Kill the Pubic Louse	Armstrong & Wilson 2006	Prevalence Study	NR	NR	NR	• Significantly decrease in pubic lice from 1997-2003 • Significantly increase in chlamydia from 1997-2003 • Significant increase in gonorrhea	• P < 0.0004 • P < 0.0001 • P < 0.0001	Poor
Viral Infections of the Pubis	Castronovo, C. et al. 2012	Prevalence Study	61	43 men 18 women	17/44 men = 39% 13/18 women = 72%	• 41/61 patients had molluscum contagiousum (MC) = 71% • 7/61 patients had condyloma acuminata (CA) = 11% • 7/61 patients had MC + CA = 11% • 3/61 patients had HSV infection = 4.8%	NR	Poor
Pubic Lice: An Endangered Species?	Dholakia, S. et al. 2014	Prevalence Study	2124	24% male 76% female	2003- 43.62% 2013- 87.55%	• Incidence of pubic lice 2003 = 1.82%, • Incidence of pubic lice 2013 = 0.07%	P < 0.001	Good
Correlation Between Pubic Hair Grooming and STIs: Results from A Nationally Representative Probability Sample	Osterberg, E. C. et al. 2017	Cross-Sectional Study	7580	1414 male = 73% 538 female = 28%	Total = 74% Men = 66% Women = 84%	• Greater proportion of groomers reported a STI than non-groomers • Significant for HPV, syphilis, HSV, HIV, pubic lice and chlamydia	• P < 0.01 • HPV P < 0.01 • Syphilis P = 0.05 • HSV P < 0.01 • HIV P = 0.04 • Pubic lice P < 0.01 • Chlamydia P < 0.01	Fair

Association between Pubic Hair Grooming and Prevalent Sexually Transmitted Infection Among Female University Students	Luster, J. et al. 2019	Prevalence Study	214	214 female = 100%	209 = 98.1%	• No evidence of an association between extreme pubic hair grooming and gonorrhea or chlamydial infection	• NR	Fair
Pubic Hair Grooming and Sexually Transmitted Infections: A Clinic-Based Cross-Sectional Survey	Gaither, T.W. et al. 2020	Cross-Sectional Study	314	198 male = 77% 54 Female = 21% 3 Transgender = 1%	257/314 = 82%	• No significant associations between groomers and all STI transmissions • Anal groomers 3.0x more likely to have a rectal STI	• P = 0.40 • P = 0.006	Fair
Pubic Hair Grooming Practices in KwaZulu-Natal, South Africa: Prevalence, Side Effects and Association with Sexually Transmitted Infections	Beksinska, M. et al. 2020	Cross-Sectional Study	1211	1211 female = 100%	705/1211 = 58.2%	• Significant prevalence of chlamydia, gonorrhea or both in genital hair removers 173/705 = 24.5 %	• P = 0.03	Good

Table 2

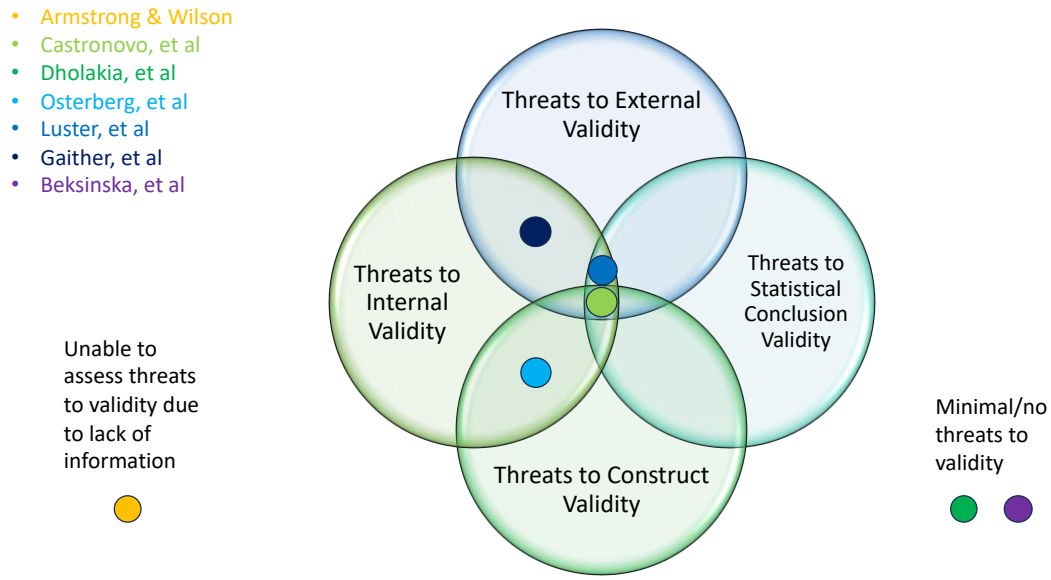
Validity measure	Armstrong & Wilson	Castronovo, et. al	Dholakia, et al.	Osterberg, et al.	Luster, et al.	Gaither, et al.	Beksinska, et al.
Low Statistical Power	N/A	Yes: 61/80,000 (0.08%) of participants with VIPs	No	No	Yes: small sample size, wide confidence intervals	No	No
Violated Assumptions of Statistical Tests	N/A	No	No	No	No	No	No
Fishing and the Error Rate Problem	N/A	No	No	No	No	No	No
Unreliability of Measures	No	Yes: Measurement of genital hair removal and VIPs not standardized	No	No	No	No	No
Restriction of Range	No	No	No	No	No	No	No
Unreliability of Treatment Implementation	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Extraneous Variance in the Experimental Setting	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heterogeneity of Units	N/A	N/A	No	No	No	No	No
Inaccurate Effect Size	N/A	No	No	No	No	No	No

Ambiguous Temporal Precedence	Yes: Because genital hair removal was not measured, cannot determine sequence of cause and effect	Yes: timing of genital hair removal not measured	No	Yes: timing of genital hair removal vs STI acquisition not explicated	No	Yes: timing of genital hair removal vs STI acquisition not explicated	No
Selection Process	Yes: chart review from a specialty practice	Yes: respondent characteristics not explicated	Yes: Type of practice & patients not explicated	No	Yes: homogenous sample, self-seeking STI testing	Yes: relatively homogenous sample, clinical practice setting and stated purpose	No
History	N/A	N/A	N/A	N/A	N/A	N/A	No
Maturation	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Regression	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Attrition	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Testing	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Instrumentation	Yes: genital hair removal data was not collected	Yes: genital hair removal and VIP identification not standardized	No	No	No	No	No
Additive and Interactive Effects of	Yes: Ambiguous Temporal Precedence, Selection	Yes: Ambiguous Temporal Precedence, Selection	No	No	No	Yes- ambiguous temporal precedence	No

Threats to Internal Validity	Process, & Instrumentation	Process, & Instrumentation				& Selection process	
Inadequate Explication of Constructs	No	Yes: genital hair removal was not explicated/ standardized	No	No	No	No	No
Construct Confounding	N/A	Yes: genital hair removal not explicated/ standardized, definition of VIPs not explicated	No	No	No	No	No
Mono Operation Bias	N/A	N/A	No	No	No	No	No
Mono Method Bias	Yes: chart review only	Unclear- data collection process was not explicated	No	Yes: self-report survey	No	No	No
Confounding Constructs with Levels of Constructs	N/A	N/A	No	No	No	No	No
Treatment Sensitive Factorial Structure	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Reactive Self-Report Changes	N/A	N/A	N/A	No	N/A	N/A	N/A
Reactivity to the Experimental Situation	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Experimenter Expectancies	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Novelty and Disruption Effects	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compensatory Equalization	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compensatory Rivalry	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Resentful Demoralization	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Treatment Diffusion	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Interaction of the Causal Relationship with Units	Yes: Genital hair removal data not collected	Yes: Genital hair removal measurement not explicated	No	N/A	Yes: Participants self-selected for STI testing vs all clinic patients	Yes: Practice setting and participant population	No
Interaction of the Causal Relationship Over Treatment Variations	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Interaction of the Causal Relationship with Outcomes	Yes: Genital hair removal data not collected	Yes: Genital hair removal measurement not explicated	N/A	N/A	Yes: only GC/chlamydia were assessed, not other STIs	No	No
Interactions of the Causal Relationship with Settings	Yes: specialty practice	Yes: specialty practice	Unclear: type of practice & patient population not explicated	N/A	Yes: homogeneity of participants, university setting	Yes: clinical practice setting, participant population	Possibly: not generalizable outside of South Africa
Context Dependent Mediation	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Figure 1


Armstrong & Wilson
Castronovo, et al
Dholakia, et al
Osterberg, et al
Luster, et al
Gaither, et al
Beksinska, et al
Threats to External Validity
Threats to Internal Validity
Threats to Statistical Conclusion Validity
Threats to Construct Validity
Unable to assess threats to validity due to lack of information
Minimal/no threats to validity