

GYNECA

Columbia Undergraduate Journal
of Gynecology and Women's Health

FEATURING

ARE
DOCTORS
HYSTER-
HAPPY?

IRON DEFICIENCY IN
FEMALE ENDURANCE
ATHLETES: A HEALTHY
DISPARITY

ENDOMETRIOSIS:
WHY MEDIA
REPRESENTATION
OF THE DISORDER IS
NECESSARY

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ABOUT US

Based at Columbia University in the City of New York, GYNECA is a biannual student publication focusing on all fields of gynecology and gender minority health that includes but is not limited to reproductive health, mental health, global health, family planning, breast/ovarian cancer, prenatal health, menstrual health, and medical sociology. GYNECA publishes both journalistic pieces and research on the basis of originality and timeliness. It focuses on giving undergraduate student researchers a voice and a platform to present their work. Instructions for authors interested in submitting for our Spring 2023 issue can be found online at www.gynecajournalcu.org.

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From the EDITORS

Dear Reader,

We are very excited to announce the inaugural issue of GYNECA, The Columbia Undergraduate Journal of Gynecology & Women's Health—thank you for taking the time to pick it up. This past year has been incredibly transformative, solidifying, and rewarding. From initializing the nation's first undergraduate-run scientific journal on this topic to publishing our first issue, we are proud to present the product of several months of perseverance and hard work.

Historically, the healthcare industry has fallen short in its representation of women and gender minorities, driving us to contribute to the intersection of medicine, social science, and gender studies via the founding of GYNECA. With this issue in particular, we hope to help fill the knowledge gap on the role that sex and gender differences play in health and disease through a journalistic lens. We feature opinion-driven editorials and personal essays from both GYNECA writers and the broader Columbia community. This issue symbolizes an important first step in our mission to diversify the discourse on healthcare by providing a platform for (1) under-researched and underrepresented groups in healthcare and (2) undergraduate student voices.

The publication of this journal would not be possible without the efforts of our editorial board, executive board, faculty advisors, friends, and supporters. Creating GYNECA has taught us that with hard work, motivation, and the right team, a single idea can transform into a powerful venture that tackles meaningful, complex issues. Behind each of these articles are the passion and dedication of writers, editors, and illustrators all of whom are deeply invested in gendered health inequalities. They are the heart and soul of this journal. Thank you for believing in GYNECA's potential.

In the Fall 2022 issue, you will find a host of different topics exploring gynecology and gender minority health. Over the course of the next eleven articles, we invite you to think about how gendered policies, perspectives, and attitudes influence how financial, socio-economic, and cultural barriers negatively alter health outcomes. Our first issue explores a wide range of disciplines from both global and local angles, including birth control policies in Egypt, maternal medicine disparities in the United States, and under-screened populations for cervical cancer in New York.

We are grateful for your readership and support for our journal. Ultimately, we hope these pieces not only teach you something new, but also encourage you to ponder and question how gender inequality is relevant in all facets of society. If you resonated with any of the pieces, wanted to thank a writer or illustrator, or may be interested in publishing with us in the future, please do not hesitate to reach out.

Sincerely,

Anisha Prakash
Founder & Editor-in-Chief



Ashley Liang
Editor-in-Chief



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Illustrated by Joyce Yang

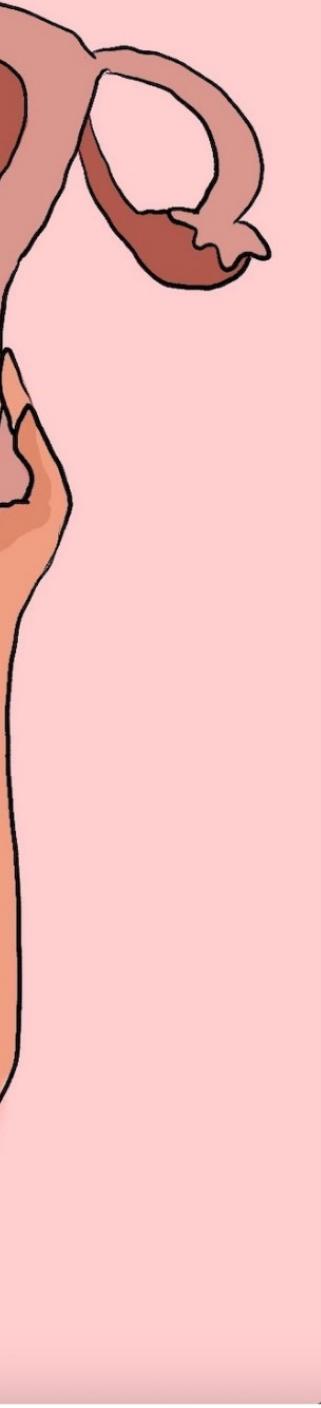
ARE US DOCTORS HYSTER-HAPPY?

Written by Seraphima Ogden, Edited by Emily Che and Sadie Rochman

Women in the United States are at a 45% risk of receiving a hysterectomy during their lifetime, placing the country at the global forefront of removing wombs [1]. Hysterectomies are

routine in the US, taking the crown for the second most commonly performed surgical procedure on women after cesarean section [2]. One in three women will receive a

hysterectomy by the time they reach the age of 60, representing a stark contrast to the rates of other countries, such as Italy, where one in six women, and France, where one in eighteen



women receive the procedure by this age [3].

It therefore comes into question why American doctors are so eager to get women onto the operating table. Only 10% of hysterectomies are prescribed for life-threatening conditions such as cervical or uterine cancer, leaving the remaining 90% of

women possibly receiving a major operation unnecessarily and without sufficient education on the potential long-term physical and emotional consequences of uterus removal [4]. These include a decline in cognitive function, and heightened risk for depression, cardiovascular disease, urinary incontinence, pelvic prolapse, and various forms of cancer [5]. In an anonymously written article published by The Lown Institute, a woman describes feeling “dead inside, as if [her] heart and soul had been removed” following, in her opinion, an unnecessary hysterectomy she had undergone for treatment of a benign mass on her ovary [6].

Women have long been deprived of medical autonomy. The concept of “female hysteria” dates back thousands of years and was diagnosed in the presence of a wide array of symptoms such as decreased libido, anxiety, and abdominal pain [7]. Anything from which women suffered could be lumped into this one all-encompassing disorder, that conveniently, attributed physical symptoms to the fault of the hysterical woman herself. Observations of female hysteria were first recorded in Ancient Egypt and sustained even to the 20th century, where one psychiatric hospital in Italy treated women by applying leeches to their abdomen [7]. Other treatments to which

hysteric females were subjected to include: forced orgasm, avoidance of all physical and intellectual activity, and, unsurprisingly, hysterectomy [8]. While “hysterical neurosis” was removed from the Diagnostic and Statistical Manual of Mental Disorders in 1980, this lack of understanding of and respect for female anatomy persists into the present day [10]. What benefits from this negligence now is the \$3 billion a year hysterectomy business [3].

Uterine fibroids account for one third of indications for hysterectomy [1]. These non-cancerous growths appear in the uterus and can cause heavy menstrual bleeding, lower back and pelvic pain, and increased urinary frequency [11]. However, the majority of uterine fibroids are asymptomatic. For approximately 75% of women, treatment is unnecessary, and the fibroids shrink and disappear on their own [5]. Other indications for hysterectomy, which often overlap, include abnormal uterine bleeding, which accounted for 41.7% of cases in a systematic review by Madueke-Laveaux, Elsharoud & Al-Hendy [5], and uterine prolapse, which accounted for 18.2% of cases; this occurs when the pelvic muscles weaken and the uterus sinks down into the vagina [2]. Endometriosis was the indication for hysterectomy in 30% of cases, which is a chronic disease characterized by the

growth of tissue outside of the uterus that is similar to the tissue that lines the uterus, often causing pain and infertility [12].

For reasons currently unknown, black women are more susceptible to uterine fibroids. In a study of just over 53,000 hysterectomies, of the 65.4% hysterectomies performed on black women, the primary diagnosis was uterine fibroids, in comparison to the 28.5% of hysterectomies performed on white women for the same diagnosis [13]. In this same study, it was found that black women were more likely to have complications during a hysterectomy, had a longer hospitalization, and three times more risk of an in-hospital mortality than their white counterparts. This trend is not restricted to hysterectomies. In Chicago, black women have higher breast-cancer related mortality rates and are more likely to have their cancer overlooked on mammogram screenings [14, 15]. Of the twelve hospitals in Chicago designated as providing quality cancer care, only two of these are located in the city's South Side, a predominantly black neighborhood [16]. What these statistics reveal is that black women are not receiving the access to the quality healthcare that they deserve. Thus, the potential of harm due to unnecessary hysterectomies is intensified for black women,

further highlighting the importance of questioning their frequent prescription in the United States.

While the negligence and laxity involved in the use of hysterectomies is important to highlight, it should also be noted that hysterectomies can improve quality of life and alleviate painful symptoms for many women. A study of 1299 women scheduled for hysterectomies in Maryland evaluated their symptoms prior to and 6, 12, 18, and 24 months post-hysterectomy; a significant reduction of all symptoms was indicated, including pelvic pain, activity limitation, abdominal bloating, vaginal bleeding, fatigue, and anxiety [17]. Advocates for hysterectomies insist that its efficacy as a treatment is rooted in the fact that it removes both the site of symptom production as well as the source of pathology; consequently, there is no chance for uterus-related illness, such as fibroids, to return [18].

It is important, however, to consider that the consequences of hysterectomy surpass the short-term. The long-term effects of hysterectomy are understudied, which is alarming considering that research has revealed a significant association between hysterectomies and an increased risk for cardiovascular disease, which is the leading cause of death in women globally

[19]. A cohort study conducted in Minnesota observed a significantly increased risk of cardiac arrhythmias, coronary artery disease, hyperlipidemia, hypertension, and obesity in women who underwent hysterectomies [20]. These risks are amplified for women under the age of 50, and even more for women under the age of 35 [20, 21]. It is hypothesized that this increased risk for younger women is due to the sharp decline in hormones that arrives prematurely with surgical menopause [22].

"This scarcity of research into the long-term consequences of hysterectomies represents a wider lack of regard for the uterus as a lifelong organ that sustains women's long-term physical, mental, and sexual health, as opposed to a baby-making chamber."

The uterus, however, is not the only organ that upholds the female reproductive system; the ovaries, which are crucial to sustaining women's health, may also be removed during a hysterectomy. The extent of organ removal is, in fact, what distinguishes the numerous forms of the surgery. A partial hysterectomy removes the uterus alone, while a total hysterectomy removes the uterus and cervix

[2]. A total hysterectomy with bilateral salpingo-oophorectomy removes the uterus, cervix, fallopian tubes, and both ovaries, and is commonly performed to decrease risk of ovarian cancer [23]. Nevertheless, the removal of the ovaries puts women at a greater risk of suffering conditions far more common than ovarian cancer, such as cardiovascular disease [21].

Despite the fact that partial and total hysterectomies leave the ovaries intact, about a third of the time, women under 50 experience premature ovarian failure as a result of trauma from the surgery and its interference with ovarian blood flow [21]. As a result, these women experience reduced fertility and irregular menstrual periods, as their estrogen plummets and the ovaries are unable to release eggs regularly [24]. While ovarian estrogen production does decrease significantly following menopause, the ovaries continue to produce androgens, which regulate libido and mood [23]. This might explain why some women experience a decrease in sexual desire, personality changes, and an increase in fatigue and depression following hysterectomy [4].

"Evidently, and contrary to popular belief, the ovaries are not useless after menopause."

This further highlights why the prescription of hysterectomies should be treated with extreme care.

There are alternative treatments available for the conditions that commonly indicate hysterectomy, such as myomectomy, an operation performed to remove fibroids whilst preserving the uterus. Abdominal myomectomies lead to less blood loss and post-surgical complications and infections than hysterectomies, and have a shorter healing time [4]. While fibroids may grow back following a myomectomy, we know that they only require treatment in approximately 25% of cases [5].

Fibroids and endometriosis can also be treated with drugs called GnRH agonists, which inhibit release of GnRH (gonadotropin-releasing hormone), ultimately leading to decreased estrogen production [25]. Furthermore, a process called myolysis has been developed to shrink fibroids, whereby a needle is inserted into the uterus via a laparoscope in order to destroy the blood vessels that supply them [3]. Recovery from hysterectomy can take up to six to eight weeks, whereas a woman can be back at work within the week after myolysis surgery [3]. Uterine artery embolization (UAE) is another treatment used to shrink fibroids by cutting off their blood supply, and has half the complication

rate of hysterectomy and myomectomy [25]. In fact, the overall hysterectomy rate within 3 months of receiving UAE is 1.5% [26].

Why, then, are doctors not resorting to these treatments instead? It might be due to the fact that gynecologists are not adequately trained to conduct myomectomies, myolysis, or UAE, and are unaware of the efficacy of GnRH agonists. In this case, they perform the only other surgery in their skill set: hysterectomy. Gynecologists are required to perform 85 hysterectomies during their training, yet there is no requirement for myomectomies [6]. Therefore, when confronted with a problem located in the female pelvic area, they simply resort to uterus removal, and continue to do so as their skill improves. This propensity for hysterectomy prescription may be exacerbated by a lack of education on their long-term negative effects.

The consequence of doctors being misinformed is that the patients are likely to be as well. If women are unaware of alternative treatments and believe that the procedure has few risks, they may be led into receiving a hysterectomy without their consent being truly informed. Women may also be less likely to assert themselves in a doctor's office if they have an inclination that a hysterectomy

may not be right for them, for fear of being deemed hysterical, just as our ancestors were. Of course there are doctors who seek not to discriminate against women, however, until the early 1990s, the majority of clinical research was conducted on men, so they may be providing dissatisfactory care without knowing it [27].

The US healthcare system is home to extreme gender bias. For instance, a study of emergency room waiting times in 2008 found that women waited for an average of 65 minutes to receive medication for their abdominal pain, in contrast to a wait time of 49 minutes for men [28]. Women are also less likely to receive bystander CPR than men and have lower survival rates when resuscitation is attempted [29]. This is likely to stem from a perception of women as fragile; we cannot escape being viewed as dainty little flowers even when our life is on the line [32]. Nevertheless, women are simultaneously expected to bear intense pain without complaints. It takes an average of 7.5 years for a woman to receive a diagnosis of endometriosis, and therefore she experiences 7.5 years of severe, chronic, monthly pain before learning what is causing it [30]. This is inexcusable.

The overprescription of hysterectomies is further evidence of how the US healthcare system is failing its

women. It ultimately reflects a perception of the female body as medically disposable, especially after childbirth and menopause. The loss of the uterus and ovaries is seen only as a loss of fertility to many, who disregard the importance of crucial hormones that regulate female health beyond childbirth. Who cares about the long-term consequences of hysterectomy if the woman has fulfilled her ultimate purpose of producing children? It is common to remove the ovaries to decrease risk of ovarian cancer, yet not as common to remove the prostate to decrease risk of prostate cancer [31].

"Why are our organs treated with less care?"

This article is not to imply that doctors are conducting hysterectomies with bad intentions. However, the lack of research and the adequate training in alternative treatments represents a deeper disregard for women in society, and specifically in the medical field. Women must be equally included in clinical trials, and medical schools should consider requiring that their students are trained in a wide range of treatments for women's health issues. The lack of respect for the female body that is often observed should not extend, in the current day, to the practices of medical professionals in the US.



Seraphima Ogden

Participating in the fight for women's rights is immensely important to me, and especially for those in underrepresented groups, whose voices are often diminished. In the article, I touch upon the disproportionate impact that the overprescription of hysterectomies has on black women, as well as women past childbearing age. It is therefore even more critical to seriously question this phenomenon and consider from where it arises, and what it reveals about the biases of the medical field.

I am super excited and grateful to be writing for GYNECA, and hope that with this article I can bring light to an issue that many people might not have been previously aware of.

WOMEN'S HEALTH IN A POST-REVOLUTIONARY EGYPT

Written by Zane Bekheet, Edited by Kylie Kendrick, Ramya Arumilli, and Mia Raneri

Personal note from the author

Perhaps earlier than most, the way I navigated through the world was heavily influenced by my identities due to their abnormal presence in Southern Ohio. Nobody around me was also a daughter to Egyptian immigrants, a woman of color, or a Muslim. My distinctions thus informed my passions, and my life trajectory created a person committed to women's healthcare and rights, particularly in the Middle East.

As a pre-med, I cannot deny that my attraction to the field was partly a result of the guilt of immigrant parent sacrifice, but my continued excitement for medicine comes from the potential for change. I hope to one day specialize in reproductive health and to innovate ways to bring the women of the Middle East resources, education, and a voice. Below you'll find a review of Women's Health in Egypt after the 2011 revolutions, and next semester stay tuned for a response article that dives into what Egypt handles well and what should be changed, and includes insight from Egyptian doctors in reproductive health. In this article, I will go over Egypt's general health policies, their progress in different sectors of

women's health, and how these individually lead to the main issues plaguing Egypt's healthcare systems.

Introduction

The timeline of women's rights in Egypt, like most countries, is largely affected by the political climate at the time. In the 1970's, when women's rights gained a large focus in international politics, Egyptian women joined international campaigns for women's rights, leading into the 1980s' Islamic feminism movement that grew through the 1990's and 2000's [1]. This development quickly deteriorated with the 2011 revolutions, as women became the targets of assaults on the streets and in the media. Immediately after the revolution under Mohammed Morsi's rule, women in Egypt suffered from an overwhelming failure to recognize issues such as reproductive rights, human trafficking, and marital rape [2]. Since the replacement of the government, progress has slowly been made in the fight for equal rights under Egyptian law and resources in women's health.

Egypt's Positive Performance in Sectors of Reproductive Health

To assess a country's status in

women's health and rights, topics like birth control, fertility, family planning, and care during pregnancy must be examined. That being said, after the revolutions, Egypt struggled to provide access to general healthcare, particularly in rural areas. In the South, 20% of the hospitals had no doctors and only 40% of necessary medicines were readily available [3]. These numbers quickly changed, as by 2013, 95% of Egyptians lived within 5 kilometers of a healthcare facility.

Birth Control

In 2017, the rapid population growth in Egypt was impossible for President Abdel Fattah al-Sisi to ignore and the situation called for programs to educate Egyptian citizens about birth control. Six thousand family planning clinics were established by the Ministry of Health and Population (MoHP) where women could receive free birth control and contraceptives [4]. Although the government claimed it would send out 12,000 family planning advocates to rural areas to spread word of these clinics, Egyptian officials failed to provide information on how this plan would be implemented [5].



Illustrated by Carmen Lopez

Fertility, Family Planning, and Pregnancy Care

The birth rate in Egypt has declined 1-2% every year since 2011, a sign of progress in reproductive rates. During the revolutions, Egypt had the highest birth rate of any Arab country- It currently stands at 3.171 births per woman, falling behind Yemen, Iraq, and Palestine [5]. Decreased birth rates are a good sign in developing countries because it equates with an increase of the working age population, fueling

economic improvement [6]. Family planning resources are essential to the continued decline of population growth. Combined with the contraceptive policies aforementioned, the MoHP is working to increase the number of working female physicians to better reach girls and women. The most pertinent struggle with these topics is not whether the government can currently provide the required resources for developing women's health, but how Egypt's people will respond.

Additionally, the United Nations Population Fund works in Egypt to progress family planning policies. Their mission works to provide contraceptives, improve access to reproductive health services, engage in awareness messaging, expand women's choices, and address social norms [7].

What Issues Remain?

Regardless of how many resources the government is able to provide, women's use of the services made available to them

was low before, during, and after the revolutions. A study done in 2019 showed that most women in Egypt had inaccurate knowledge regarding most subjects related to their rights [8]. This misinformation is mostly due to religious conservatism: women's health remains a taboo and information about STIs, female genital mutilation, contraception, and sexual consent is not discussed. Ordering sexual education for single adolescents is culturally unacceptable in most Muslim communities (8). Furthermore, most of the hospitals will only provide information on these subjects with proof of marriage [9]. This lack of information is dangerous as it leads to misconceptions and negative attitudes towards women's health.

Abortion

Abortion remains virtually inaccessible. In terms of abortion, Egypt is one of the most restrictive countries in the world. The only circumstance under which abortion is allowed is when there is a threat to the mother's life. Survivors of rape or incest can be punished by the law with imprisonment for seeking an abortion [10].

Female Genital Mutilation

Lastly, female genital mutilation remains an urgent issue despite its illegal status. Since this procedure is commonly done in

secret, especially in rural areas, data on this subject is difficult to obtain. Studies assume over 90% of women in Egypt have undergone some level of the practice [11].

Discussion

There are components of reproductive health Egypt handles well and clearly issues that remain. In order for Egypt to progress further,

"educational policies must be implemented and taken seriously to address the rampant misconceptions among Egyptian women regarding their health."

With education, solutions in other areas will follow. For example, in Malaysia, The Federation of Reproductive Health Associations conducted a pilot program on empowering reproductive and social health education elements in primary and secondary schools [12]. This resulted in productive discussions that educated both the young women and the teachers, and we see that education can remove social stigmas and ease religious conservatism. With this, one could assume laws on abortion and practicing female genital mutilation could one day ease. In the next article, I will be diving

into health education policies to suggest the best ways Egypt could improve citizen response, including gaining insight from could improve citizen response, including gaining insight from Egyptian doctors so we can get a first-hand perspective of patient care.



Zane Bekheet

Hello! I'm so excited for you to read my article! I am in Gyneca because I have always had a passion about women's health. I hope to one day be a reproductive endocrinologist. My background as a daughter of Egyptian immigrants motivates me every day to provide help and resources to women in the Middle East. I joined GYNECA because I was excited to have a place to discuss topics in women's health and rights.

IRON DEFICIENCY IN FEMALE ENDURANCE ATHLETES: A HEALTHY DISPARITY

Written by Erin Ahern, Edited by Sofia Cruz, Noelle Texeira, and Hannah Ramsey

While in high school, I struggled with iron deficiencies two separate times as a competitive long-distance runner. The first time, I was only sixteen, running forty miles a week and handling intense academic pressure. I had never been on the varsity team, but the previous season, I finally hit personal records in the 5k race. At the time, it was a really big deal to me. However, right after this hopefulness, toward the end of my following spring track season, I started to feel incredibly weak. After every run, even on slow recovery days, I would become lightheaded, and my leg muscles would start to numb. At the halfway point of workouts that were previously standard for me, I felt like my lungs were tightening, my breathing was becoming heavy, and that I might even pass out.

As summer approached, I chalked it up to heat exhaustion. It took a month of experiencing these symptoms before I talked to some of my teammates, who each suggested that I might be iron deficient. Two of my friends said that they experienced iron deficiencies before that took a serious toll on their bodies and training. Despite competitively running for three years at that point, I had never once heard

about iron deficiencies as a health problem that endurance athletes, especially female endurance athletes, encounter.

After confirming my symptoms with a quick Google search, as anyone does, I spoke to my coach and scheduled a doctor's appointment to determine once and for all what was happening with my body. At the appointment, the doctor ordered a blood panel to check my iron levels. When the lab results came back, I was shocked -- my ferritin level came back at 10 nanograms per milliliter (ng/mL). For context, a normal female ferritin range is 12 to 150 ng/mL, and even a low level within the "normal range" can indicate that a person needs more iron [1]. My results earned me the diagnosis of a serious clinical iron deficiency.

In order to appreciate the implications of my diagnosis, an understanding of the function of red blood cells and the role of iron in facilitating the oxygenation of tissues must be established. Firstly, ferritin is a protein that stores iron inside cells, so it is considered to be the body's iron stores [2]. While iron is the mineral necessary for making healthy red blood cells

(RBCs) since it functions to attract and bind oxygen molecules; these RBCs are responsible for carrying oxygen from the lungs to the rest of the body [3]. With my ferritin level at 10 ng/mL, my iron was essentially depleted. In witnessing how the low iron concentration in my blood translated to declining athletic endurance and performance, it can be concluded that my lightheadedness, muscle fatigue, and heavy breathing were a result of my body's tissues not being properly oxygenated due to the inability of my body to make RBC because of my iron deficiency. This was an incredibly scary thought for someone accustomed to regularly running forty miles a week. I feared that I may have unknowingly overtrained when I was iron deficient in ways that impacted other areas of my health, including my ability to feel good enough to be physically and mentally present at school as well as with friends and family.

After my first diagnosis, I began researching iron deficiencies, specifically in female runners. A distinction should be made between iron deficiency and iron deficiency anemia since the terms are commonly considered

the same rather than potentially separate conditions. Ferritin, as stated previously, is a protein that stores iron inside cells and releases it via controlled mechanisms [4]. When ferritin stores are low, the body is considered to be iron deficient; alternatively, anemia is a condition where the body does not have an adequate supply of red blood cells, which is caused by a lack of hemoglobin—the protein in red blood cells that stores and transports iron [5]. Anemia often features low serum ferritin levels as a key symptom, in addition to featuring low hemoglobin levels, though it is distinguished from pure iron deficiency in that a deficient number of RBCs is a key diagnostic criterion [5]. In other words, it is possible to have an iron deficiency without anemia by having low ferritin levels but also having a sufficient number of RBCs circulating throughout your blood. Since I had low ferritin but a healthy red blood cell count, I had an iron deficiency without anemia. On the other hand, people can have iron deficiency anemia, which is associated with both low ferritin and low hemoglobin levels.

Upon being diagnosed and doing more research on the condition, I noticed that many studies have exhibited that iron deficiencies are more common in female athletes than male athletes. A 2017 study at the University of Wisconsin-Madison on

collegiate athletes showed that

"30.9% of female athletes indicated iron deficiency without anemia, while only 2.9% of male athletes did [6]."

A study on adolescent endurance athletes dating back to 1987 noted that iron deficiency could be observed in 45% of female athletes, compared to only 17% of male athletes [7]. Moreover, a more recent (2021) scientific review article states that up to 52% of female athletes experience iron deficiency, with exercise-induced iron deficiency anemia most often found in athletes with heavy training loads [8]. Interestingly, I found that the frequency of iron deficiency in women and men has been thoroughly researched for more than two decades. If the subject of iron deficiency has been so heavily researched, why did I not know about the condition before I experienced it?

It was disheartening to realize that despite having been a competitive runner for over three years, I had not learned about iron deficiencies from my healthcare providers, coaches, mentors, and parents; instead, my friends and teammates brought it to my attention. Even if the frequency of iron deficiencies has been notably researched, my experience led me to the conclusion that the condition is not sufficiently

taught to or prevented in female endurance athletes who are most vulnerable to the condition.

* * *

The second time I was diagnosed with iron deficiency, I recognized my symptoms right away as an eighteen-year-old high school senior. During a snowy run in December, my teammates and I ran to a hill and back for a speed workout, but during the last mile of the cooldown, I could not keep up, despite trying as best as I could to maintain their pace. I felt as though I could not move my legs, and I was extremely out of breath. Fortunately, I made it back to the gym but soon became severely cold and shivery, something I had never experienced before. Immediately after that incident, I got my blood levels checked, and, as it turns out, I had ferritin levels of 11 ng/mL. The reason for this second spell of iron deficiency can likely be attributed to the rather unhelpful nutrition-based biology class that I had recently taken, which had included a unit about athletic nutrition. The class had informed me that athletes should eat digestible food, veering away from meat and fibrous vegetables at least an hour before a workout. Because I had track practice directly after lunch, I completely changed my eating habits and ended up reducing the protein content of my meals. Thus, a likely cause of my second iron deficiency was

the misinformation on sports nutrition that had been shared with me, ultimately leading to me further deprive my body of the nutrients that it needed to perform at its optimum capacity.

The importance of my experience receiving these nutritional recommendations draws attention to sociocultural drivers of disparities among health advice provided to female athletes versus male athletes. These disparities cannot be addressed without considering how the impact of diet culture affects women disproportionately to men; women have been socialized to be more aware of their food intake with pressure to attain a certain weight range, leading to more frequent body dissatisfaction and eating disorders [9]. A recent (2022) study showed that

"female athletes were more likely than male athletes to attempt diets during their training,"

such as carbohydrates restrictive, plant-based, or elimination diets [10]. Relatedly, a Washington Post article about iron deficiency described this unhealthy cycle of dieting in female athletes: "when athletes feel overtired from workouts, they often assume they need to lose weight — and in doing so they often deplete their iron stores even more" [11]. A

combination of an intense training schedule and aspects of malnutrition or disordered eating can have detrimental effects on female bodies and may lead to the development of conditions like iron deficiency more rapidly and with increasingly severe symptoms.

In the same vein, and perhaps more frightening, is the fact that the physiological causes behind more frequent female iron deficiencies are not given nearly as much attention in academic research. If you were to search for peer-reviewed studies on iron deficiencies in females, the first and most common answer you will see is that women lose more iron through heavy menstrual blood loss [12]. That is also the answer I found while looking up "iron deficiencies in women" on the internet for the first time at sixteen. Frankly, it did not add up to me.

When I first started competitively running at age fourteen, I lost my period for three months, a condition known as amenorrhea. Amenorrhea is the clinical term for a lack of a menstrual period, and it is commonly caused by over-exercising or poor nutrition [13]. It is highly typical for female runners to either gain irregularities in their menstrual cycle or lose their period altogether when they first start training; indeed, a 2006 study on high school athletes gathered

that 23.5% of their female participants experienced menstrual irregularities [14]. Understanding that amenorrhea is unfortunately common amongst female runners makes the explanation behind iron deficiencies linked to period blood loss all the more dissatisfying. This assumption sheds light on the numerous health issues that female endurance athletes face that are normalized and thus go unrecognized. More generally, it represents how women have historically experienced health issues that go unacknowledged or dismissed because the assumed causes are not thoroughly researched with the consideration and impact of other relevant health concerns; these brazen assumptions contribute to the delaying or termination of research on the female body in relation to specific conditions, such as iron deficiencies.

Furthermore, the female athlete's body is complex and uniquely distinct from a male athlete's body, which must be acknowledged and appreciated when discussing athletic health. Women's bodies fluctuate throughout their menstrual cycle, changing how they physically feel throughout the month. For example, during the luteal phase, which occurs right after ovulation, progesterone levels rise; progesterone is known to increase heart rate and

breathing rate, which would affect athletic performance (15). During ovulation and the luteal phases, women experience an increase in body temperature, which can also make exercise more difficult (15). In fact, there has been research that suggests that linking the menstrual cycle to training can be beneficial (16). Therefore, strength training may be best to focus on during the luteal and ovulation phases; whereas, hard exercise would be beneficial during the follicular phase with low hormone levels [15]. This sort of training encourages women to train with their bodies rather than fight against them. There must be more research on how female-specific endocrine physiology affects endurance athletes, and whether this might be a potential cause of iron deficiencies.

"Perhaps the most efficient and beneficial solution to female iron deficiencies and amenorrhea is adjusting training plans to center the female body."

My experience with iron deficiencies can be representative of the repercussions of a lack of education, discussion, and prevention surrounding health conditions in female runners. These widespread health issues must not be normalized, but rather taught to and talked through with female athletes. Women's health, including

menstruation, must be destigmatized so that athletes feel comfortable approaching coaches about their health concerns. Women must be centered in athletic research, elevating the female body as complex and powerful.



Erin Ahern

I am third-year student in Columbia College majoring in Biophysics. I love studying the sciences and want to pursue a career in healthcare. I have experience in clinical research through NYU Langone and basic research in a neuroscience lab at Columbia. Personal encounters with iron deficiencies spurred my interest in disparities in women's health. That is why I wanted my article to represent iron deficiencies as a case study for larger issues in how women's healthcare is researched and treated. I joined GYNECA to further research, increase awareness and create discussion around topics in women's health that often go unrecognized.



Illustrated by Carmen Lopez

WE NEED MORE MIDWIVES TO ADDRESS THE AMERICAN MATERNAL MORTALITY CRISIS

Written by Erin Donahue, Edited by Arya Adake, Raine Williams, and Aidyn Levin

The United States is the most dangerous high-income country in which to give birth. The maternal mortality rate in the United States is the highest among ten wealthy countries , Australia, Canada, France, Germany, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United Kingdom, according to a report from The Commonwealth Fund [1]. In 2018, the maternal mortality rate in the United States was twice as high as in France, with the next highest maternal mortality rate after the United States, and more than ten times as high as in New Zealand, with the lowest per capita maternal mortality [1]. The American maternal mortality rate was 23.8 per 100,000 live births in 2020, and for Black mothers, the rate was 55.3 in 2020, according to a report from the Centers for Disease Control [2]. The maternal mortality rate has been increasing since 2000, and an estimated ⅔ of maternal deaths are preventable, suggesting that morbidity can be decreased with improvements in healthcare [3].

Why is the maternal mortality rate so much higher for American mothers than for mothers in other industrialized countries? One hypothesis is that

the integration of midwifery care in other countries improves maternal outcomes and lowers the incidence of maternal mortality. In every country studied, except for the United States and Canada, midwives vastly outnumber Obstetrician-Gynecologists, and midwives provide the majority of care for pregnant people, with OB-GYNS performing Cesarean-sections (c-sections) and monitoring higher-risk pregnancies. Furthermore, in the U.S. there are only 4 midwives for every 1,000 live births, compared to 46 in New Zealand and 43 in the United Kingdom [4]. The United States and Canada also have the fewest number of providers (midwives and OB-GYNS), of all wealthy nations [5].

What is a Midwife?

In the United States there are three types of midwives. Certified Midwives (CMs) and Certified Nurse Midwives (CNMs) possess a graduate degree in midwifery accredited by the American Midwifery Certification Board (AMCB). According to the American College of Nurse Midwives, “Midwifery as practiced by CNMs and CMs encompasses the independent provision of

care during pregnancy, childbirth, and the postpartum period; sexual and reproductive health; gynecologic health; and family planning services, including preconception care. Midwives also provide primary care for individuals from adolescence throughout the lifespan as well as care for the healthy newborn during the first 28 days of life. Midwives provide care for all individuals who seek midwifery care, inclusive of all gender identities and sexual orientations [6].” CMs differ from CNMs in that they are not nurses (RNs) and are only recognized in five states and the District of Columbia. Certified Practical Midwives (CPMs) are not required to possess any specific degree and complete an apprenticeship for their certification. They do not have prescriptive authority and primarily operate in homes and birth centers. They are recognized in 35 states and the District of Columbia. The vast majority of American Midwives are CNMs possessing master’s or doctoral degrees; they are the focus of this article and will henceforth simply be referred to as “midwives.”

The midwifery model of care

differs from the medical model, practiced by OB-GYNs, in that it discourages the use of clinically unnecessary medical interventions, views pregnancy and childbirth as a natural phenomenon and not a medical condition, and emphasizes the relationship between the provider and the patient. According to the American College of Nurse Midwives (ACNM), the midwifery model “promotes a continuous and compassionate partnership, acknowledges a person's life experiences and knowledge, includes individualized methods of care and healing guided by the best evidence available, and involves therapeutic use of human presence and skillful communication.” In their mission statement, the ACNM also states “We honor the normalcy of women's lifecycle events. We believe in: watchful waiting and non-intervention in normal processes, appropriate use of interventions and technology for current or potential health problems, and consultation, collaboration and referral with other members of the health care team as needed to provide optimal health care [7].”

Why Midwives?

The World Health Organization recommends midwifery care as an evidence-based approach to reducing maternal mortality, and numerous studies have shown that it is comparable, or even

preferable, to care by an OB-GYN [8]. For low-risk pregnancies, the midwifery model is associated with lower maternal mortality and fewer stillbirths and preterm babies, fewer interventions including Cesarean-sections and instrument-assisted deliveries, and improved patient satisfaction, including decreased incidence of postpartum depression [9]. A study conducted in 2018 similarly compared birth outcomes for midwife and physician-attended births and found that midwives were associated with fewer birth interventions of all kinds and fewer birth complications such as preterm birth [10]. Notably, in this study, 16.3% of midwife-attended births necessitated c-sections compared to 30.5% of obstetrician-attended births [11]. A 2019 study of low-risk hospital births found that nulliparous patients (patients who have never given birth) had a 30% decrease in emergency c-sections and multiparous patients (patients who have previously given birth) had a 40% decrease in c-sections [12].

While increasingly routine in the United States, a Cesarean section is a major surgery and has a higher risk of complications compared to vaginal birth, as well as higher maternal and infant morbidity [13]. In addition to surgical complications including bleeding, infection, and complications from

anesthesia, there are increased risks for future pregnancies including uterine rupture, abnormal placentation, ectopic pregnancy, stillbirth, and preterm birth [14]. Mothers who undergo Cesarean may also require longer hospital stays and have temporarily limited mobility, which can cause difficulty when caring for a newborn and continuing daily activities. Moreover, babies delivered surgically do not have the benefit of exposure to vaginal bacteria, which is important for immune and gastrointestinal development. When born vaginally, babies expel fluid from their lungs as they pass through the birth canal, babies born via Cesarean can have breathing problems because they do not undergo this natural process [15]. Emerging evidence has also suggested c-sections may have long-term consequences for the infant, including higher incidence of asthma and obesity [16]. While not all c-sections are traumatic, numerous studies have found a correlation between unplanned c-sections and postpartum depression, as well as conditions such as Post Traumatic Stress Disorder [17,18]. In 2015 The World Health Organization concluded that Cesarean section rates higher than 10% were not associated with reductions in rates of maternal and newborn mortality [19]. The Cesarean rate in the United States is 31.8%, according to the Center for Disease Control

[20]. Although Cesarean sections are safer than vaginal birth in rare cases, when they are not medically necessary they increase risks for both the mother and baby.

Midwives play a vital role in reducing unnecessary interventions and promoting natural childbirth. Physician-led hospital births in the United States often default to interventions such as Electronic Fetal Monitoring (EFM), which is not necessary for uncomplicated, healthy pregnancies. EFM limits a mother's mobility during labor, is associated with increased use of Cesarean and operative vaginal delivery (which includes forceps or a vacuum device to remove the fetus), and routine use has not been proven to improve perinatal outcomes [21]. EFM is one example of a routine medical intervention that does not make birth safer, and in fact may increase risk to both mother and baby.

In Sweden, researchers studied interventions for pregnant patients with a fear of childbirth and found that patients treated by midwives reported more positive birth experiences [22]. A similar study in Norway found that midwives helped promote a positive birth experience for first time mothers: "Midwives have a pivotal role in helping to promote a normal birth and positive birth experience. The

women in the study considered the midwife's attitude and behavior essential to their ability to feel safe and cared for. The midwife's individualized and motivating

approach promotes the women's inner strength and belief in their own capability to handle the birth [23]."

If midwives are safe and effective, and potentially have better patient outcomes, why don't more patients use them? Unfortunately, access to midwifery services is severely limited in the United States. In addition to a shortage of midwives, nonhospital and midwife-attended births are not universally covered by private insurance. Moreover, many states limit the scope of practice for midwives; additional barriers include pay parity and low reimbursement rates for midwives.

For millennia women gave birth at home attended by skilled midwives-- women in their communities who were experts on childbirth. According to Witches, Midwives, and Nurses: A History of Women Healers in the 19th and 20th century, the burgeoning white male American medical authority professionalized healing, medicalized the natural phenomenon of childbirth, outlawed midwifery, and standardized physician-led hospital births [24]. Increasingly, women are seeking alternatives

and turning to midwives who reject the highly medicalized model of childcare. As birth becomes more dangerous every year in the United States,

"we are confronted with the reality that the over medicalization of childbirth is yielding deadly results."

For nearly 200 years, doctors have monopolized care of pregnant and laboring women, but the midwifery movement is offering an alternative: a safer, more natural, evidence-based model of care.



Erin Donahue

Hello readers! I am a sophomore at Barnard College studying Women's, Gender, & Sexuality Studies and Religion. I am passionate about birth justice and strive to become a certified nurse midwife.

FINANCIAL AND SOCIO-ECONOMIC/CULTURAL BARRIERS TO CERVICAL CANCER SCREENINGS IN NEW YORK

Written by Isha Karim, Edited by Abigail Hall, Naomi Lebowitz, and Hannah Ramsey

One of the most underscreened cancers in the United States, cervical cancer is just beginning greater awareness campaigns and scientific research in the last few years. Disparities in cervical cancer have been seen globally in countries such as India, and similarly wide morbidity rates by class occur in the United States as well, particularly in New York City, where cervical cancer morbidity remains stubbornly high [1]. While acknowledging this disparity in cervical cancer incidence is not new to academic discourse surrounding the disease, strategies to define “equity” in cervical cancer treatment remain ill-defined. For instance, Human papillomavirus (HPV) has been linked to cervical cancer, yet vaccination appointments can be difficult to access [2]. Thus, HPV vaccination, cervical cancer screening, and access to follow-up care greatly reduce mortality rates, yet structural limitations to healthcare access in New York City prevent such efforts from being realized [3].

Despite a narrowing between incidence and mortality rates, cervical cancer prevention is a relatively straightforward implementation from a clinical perspective [3]. The most

common cause of cervical cancer is infection with a virus, called human papillomavirus (HPV) [2]. Screening and vaccination programs aim to prevent or detect the human papillomavirus (HPV) infection that is the main cause of cervical cancer according to the CDC [2]. The availability and organization of cervical cancer prevention varies considerably. In some well-resourced countries both primary prevention methods, such as HPV vaccination, and secondary prevention methods, such as screenings and/or treatment of pre-cancerous lesions, are widely available and free to women, in others they are easily accessible to those who can pay for them or are insured [4]. HPV typically is passed through sexual transmission, which makes early vaccination crucial for preventing cervical cancer cases [4].

Since 1990, cervical cancer incidence rates have dramatically reduced by nearly 50% thanks to extensive education programs and health interventions [3]. Pap test screening for cervical cancer is widely integrated into basic women’s healthcare, although such care remains accessible with healthcare insurance. However, researchers have uncovered that

NYC ranks among the nation’s largest disparities in cervical cancer rates, where neighborhoods at the 10th percentile of the socioeconomic scale have cervical cancer rates of 11.2 cases per every 100,000 women in a given year [5]. Comparatively, cervical cancer rates in New York neighborhoods in the 90th percentile of the socioeconomic scale were 6.5 cases a year per every 100,000 women, closer to the national average of 7.0 cases [5]. Although cervical cancer incidence rates have consistently outpaced their mortality rates since 1976, 2019 reflected a decrease in incidence rates but the same mortality rate in Manhattan [6]. Essentially, although cervical cancer occurs less, a relatively same number of people die from the disease each year since 2019.

"New research has shown that there may be an association between neighborhood socioeconomic inequalities and cervical cancer incidence rates in New York City [5]."

While Cham et al. focus on incidence rates of cervical

cancer, mortality rates in Manhattan have consistently leveled around 1.6% since 2018 for all neighborhoods in Manhattan [6]. In a four year study from 2012 to 2016, a population-based, cross sectional study of women residing in New York City was conducted in order to link incidence rate from the New York State Cancer Registry with self-reported neighborhood-specific data from the US Census Bureau's American Community Survey [5]. The group defined their own socioeconomic status (SES) index for each delineated neighborhood using a weighted combination of crowding, real-estate values, poverty rates, incomes, educational attainment, and unemployment rates validated by the Agency for Healthcare Research and Quality.

Ultimately, Cham et al. showed that New York's lowest-SES neighborhoods, populated predominantly by Black and Hispanic residents, had cervical cancer incidence rates 73% higher than the mostly white populations of the city's highest-SES neighborhoods [5]. Such urban disparities even outpace similar phenomena in rural areas across the United States [5]. Although the study could not ascertain a causal relationship between neighborhood SES and cervical cancer incidence, it did bring forth observations on appropriate early detection

interventions clinicians can set up in these neighborhoods: consistent and affordable screening programs, HPV vaccination sites, and safe-sex education and access to adjacent resources. Outside clinical spaces, Cham et al. suggested social-determinant interventions as well: neighborhood and built environment, social/community support systems, education, economic stability, and cost-effective healthcare access for vulnerable populations.

However, creating pipelines to funnel these resources to low-SES neighborhoods has proven challenging. Despite the availability of cost-effective cervical cancer screening, disparities in cervical cancer incidence and mortality persist by poverty level, insurance status, race, and ethnicity throughout the nation but specifically in urban areas [7]. As such, placing greater emphasis on social-determinants of health as potential interventions may elicit greater turnout at screening locations in low-SES neighborhoods. While efforts in the Manhattan area are nascent, healthcare interventions in several countries have investigated the social determinants of cervical cancer incidence to the benefit of women in their respective communities. By employing an intersectional lens to social determinants, researchers have provided a richer understanding

of barriers to cervical cancer screenings in middle- and low-income countries [8]. Psychosocial factors (emotional wellness), cultural stigmas, and geographic locations were found to work in tandem against screening access, so the dismantling of interconnected socio-demographic variables affecting cervical cancer incidence can potentially alleviate morbidity rates [8].

Myth BUSTERS

MYTH

MENSTRUAL CYCLES SYNC UP WITH OTHER CYCLES.

There's little to no research that supports the claim that menstrual cycles sync up. This myth stems from a 1971 study, by Martha McClintok, which suggested that pheromones or other factors can influence and shift periods for women who live together. The results from this study have long been questioned, finding methodological errors as well as statistical errors in the analysis.

FACT

MYTH

YOU CAN'T GET PREGNANT WHILE ON YOUR PERIOD.

It's possible to get pregnant if you have unprotected sex during your period. While you are more likely to get pregnant right before and during ovulation, there is still a chance of getting pregnant during your period. The most effective way to prevent pregnancy is to use protection during sex.

FACT

MYTH

CRANBERRY JUICE PREVENTS/CURES A UTI.

Most studies show no effect from drinking cranberry juice in preventing a UTI. The studies that show some UTI prevention from drinking cranberry juice had a substantial number of participants drop out of the study, which suggests the amount of cranberry juice needed may be unsustainable. No studies have shown that cranberry juice helps with UTIs once it's already developed.

FACT

MYTH

REPRODUCTIVE HEALTH IS ONLY FOR CIS WOMEN.

In the context of sexual and reproductive health, referencing solely cisgender women excludes transgender and non-binary people who have sexual and reproductive health needs. Pregnancy is often presented as an experience for cisgender women, yet people of many genders can and do carry pregnancies (as well as have experience with contraception, abortion, prenatal care, etc.).

FACT

AN UNSEEN EPIDEMIC: SEX DIFFERENCES IN TRAUMATIC BRAIN INJURY

Written by Chinmayi Balusu, Edited by Kylie Kendrick, Paige McCullough, Lizzy Carpenter, and Aidyn Levin

During my first year at Columbia College, I joined a student-led advocacy organization on campus known as Columbia Synapse, which works to raise awareness about traumatic and acquired brain injuries among students and community members in New York City [1]. Elements of Columbia Synapse's mission resonated in my own experiences – as a soccer player and taekwondo competitor, I had several close calls with hits to the head. Several of my friends who were athletes had been officially diagnosed with concussions (the most common form of mild traumatic brain injury, or TBI for short) and forced to take time away from play [2].

Specifically, TBIs occur when an individual experiences a sudden blow or jolt to the head, whether in the context of sports, motor vehicle accidents, falls, or military-related injuries. TBIs are jarring incidents in an individual's life and can carry long-lasting impacts both physically and psychologically, with symptoms ranging from confusion, dizziness, loss of consciousness, blurred vision, fatigue, memory issues, mood changes, and headaches [3].

While I had gained initial

exposure to TBI through concussion recognition workshops for athletes, I had little experience with the brain injury research and advocacy landscape. However, I was able to explore further through the events that my teammates and I organized through Columbia Synapse. In September 2020, we hosted a virtual speaker panel titled "Domestic Violence During the COVID-19 Pandemic: Women, Intimate Partner Violence (IPV), and Brain Injury," which featured experts seeking to understand the obstacles faced by women who had experienced TBI as a result of intimate partner violence [4, 5, 6, 7].

"It was eye-opening to learn that the intersection of TBI with domestic violence was such a pressing public health issue yet it was not widely known."

IPV affects millions of women within the United States itself, and up to 75 percent of them may have experienced a TBI as a result [8].

Following the event, I was curious to learn more about how

sex differences influence the context through which an individual could experience a TBI or catalyze variations in post-TBI symptoms and outcomes. For example, as discussed in the speaker panel, women have an increased susceptibility to experiencing TBI as a result of intimate partner violence when compared to men. One study from researchers at the University of Waikato reported that women with TBI are likely to experience a larger symptom burden in the long term – even eight-plus years following a brain injury [9]. However, the scientific literature still contains a large gap – and the broader epidemiological and public health context of sex and gender differences is still understudied and invisible.

If we further explore the example from the Columbia Synapse event, we realize that during the initial lockdown restrictions of the COVID-19 pandemic, some women were at higher risk of experiencing IPV (and potentially blows to the head that constitutes TBI) as they were forced to stay at home with violent and abusive partners. Limited access to support from family, friends, clinicians, or social workers

during those times of crisis could delay medical and social support and harm long-term recovery from TBI as well.

Raising awareness and working to destigmatize discussions about IPV and beyond are essential early steps to drive change and bring attention to the issue [10]. Speaker events such as the one organized by Columbia Synapse are a starting point for opening up continuing conversations in our communities about sensitive topics like brain injury and partner violence.

"As students, we can act
as a bridge for catalyzing
change within our
families, social circles,
and broader educational
and geographic
communities."

Overall, further research and investigation are needed to understand how sex differences can impact women's experiences with and recovery from TBI. It is important that scientists, healthcare professionals, and advocates recognize and emphasize that the context of sex differences matters for TBI – because if we implement a one-size-fits-all approach to understanding the prevalence of TBI among men and women, we may inadvertently widen gaps and cause further harm, expanding the scope of this unseen epidemic.

ENDOMETRIOSIS: WHY MEDIA REPRESENTATION OF THE DISORDER IS NECESSARY

Written by Chandini Singla, Edited by Raine M. Williams, Emily Che, Noelle Texeira, and Maya Joseph

Sally Rooney's "Conversations with Friends" has inspired conversations around endometriosis, but what exactly is this disorder? And, why are Rooney's novel and subsequent TV series depictions of the disorder so important?

Endometriosis is a disorder where tissue grows outside the uterus, which causes chronic pain, atypical of menstrual cycle symptoms. According to Johns Hopkins Medicine, endometriosis affects between 2 and 10 percent of women in the United States [1]. The World Health Organization estimates that the disorder affects 190 million women who are of reproductive age across the world [2]. Common symptoms include tissue scarring, chronic pelvic pain, and infertility [3]. In order to diagnose endometriosis, physicians perform a laparoscopy, which involves examining tissue under a microscope and is necessary to determine the location and size of any abnormal growths [1].

Although the exact roots of endometriosis are multifactorial, there are several causes found across many people with the disorder. One is retrograde menstruation, where menstrual

blood during a period flows up into the pelvic cavity [2]. Another potential cause is cellular metaplasia, which involves cells changing form [2]. Endometriosis occurs when the endometrial tissue, or the uterine lining, grows on other pelvic organs outside of the uterus [4]. With this disorder, the tissue buildup disrupts the signals of hormones such as progesterone and estrogen [5]. Typically, the tissue builds up and sheds during a menstrual cycle. However, with endometriosis, the tissue grows outside of the uterus on other pelvic organs but still behaves according to hormonal changes, which results in pelvic bleeding [1]. A common and painful consequence of this process is known as an endometrioma, which occurs when blood becomes embedded in ovarian tissue and may require surgical removal [1]. The inflammation caused by the blood can cause pain, while the scar tissue that develops as a result also further contributes to the irritation associated with endometriosis [6]. Dr. Karolina Afors, a gynecologist based in London, explains that our understanding of endometriosis has been greatly inhibited by the disorders' historical underfunding and lack of

research [7]. Knowledge of the specific origins of endometriosis is still a place for further research and an understanding of geographical and time trends of endometriosis requires further scientific attention [8]. In addition to further scientific knowledge, we must also have increased media attention and community building.

The Endometriosis Foundation of America is an example of a community that revolves around uplifting those with endometriosis and sharing experiences. Featured on the foundation's website are participants' sharing of their stories in order to educate and inform others about endometriosis and remove mystery surrounding the disorder [9]. There are many personal experiences featured on the website highlighting the varied symptoms and paths to a diagnosis, in order to spread awareness about how the disorder impacts each person differently. The stories center around stopping the "cycle of shame" associated with the disorder as well as providing a platform to help others avoid a misdiagnosis or a delayed diagnosis [9]. Some examples of stories include medical

gaslighting, how the disorder affects relationships, and the financial burdens associated with the disorder.

"The Endometriosis Foundation of America does provide a space for people to share and connect with others through shared experiences with the disorder, but this space alone is not enough."

There have been relatively few media portrayals of endometriosis and even fewer portrayals of the intricacies of living with the disorder day to day. However, Rooney's "Conversations with Friends" places endometriosis at the center of the story of a main character, Frances. Leanne Welham and Lenny Abrahamson, directors of the show, share that they wanted to portray the fear involved with endometriosis. The visceral image of Frances curled up on the ground in excruciating pain is not seen often in mainstream media. The show makes sure to show endometriosis in its rawest and unfiltered form, separating it from just typical period pain by highlighting Frances' strained romantic and platonic relationships, hospital visits, and misdiagnoses of just menstrual abdominal or pelvic pain.

"Talking about menstruation is seen as taboo and without open discussions about the disorder, Frances and women all over the world are left to wonder if the pain they experience is typical."

"Conversations with Friends" reduces the stigma around seeking out help, which can have a lasting impact on how individuals approach conversations around reproductive and sexual health [7]. Having main characters in popular media can help raise awareness around endometriosis, a disorder that is often overlooked where people are called 'hysterical' or 'dramatic.' Conversations with Friends' media portrayal of the disorder encourages others to share their own experiences and be more vocal about their own symptoms in order to seek out and demand the necessary help and support.

Birth Control 101

27

Adapted from Planned Parenthood at Columbia, Verified by Dr. Lorraine Chrisomalis-Valasiadis

IMPLANT

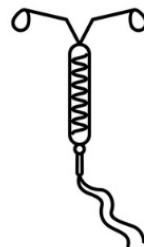


very small rod inserted under the skin of the upper arm that releases hormones to stop ovulation

4 years

Primary Healthcare Services

IUD



t-shaped device inserted into the uterus to prevent fertilization and stop ovulation

5-10 years

Primary Healthcare Services

INJECTION

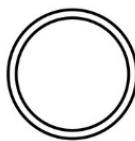


injection of the hormone progestin to stop ovulation

3 months

Primary Healthcare Services

RING

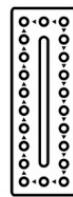


small, flexible piece of plastic that's inserted into the vagina and releases hormones to stop ovulation

1 month

Primary Healthcare Services

PILL

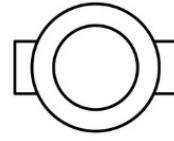


daily medication that releases hormones to stop ovulation

3 months

Primary Healthcare Services

PLAN B

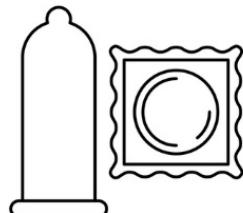


pill intended to stop ovulation, fertilization, and implantation if it has not already occurred

1 time use

Primary Healthcare Services

MALE CONDOM



latex covering for penis that prevents sperm from releasing into the vagina

1 time use

119 Reid Hall

FEMALE CONDOM

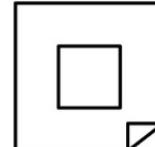


a latex barrier inserted into the vagina to prevent sperm from entering the vagina

1 time use

119 Reid Hall

PATCH



thin, beige piece of plastic that adheres to the skin and releases hormones into the bloodstream to stop ovulation

1 week

Primary Healthcare Services



Illustrated by Taylor Yingshi

A CHOICE A MOTHER SHOULD NOT HAVE TO MAKE: NEGLECT OR SURVIVAL

Written by Montaha Rahman, Edited by Sofia Cruz, Ramya Arumilli, Arya Adake, and Mia Raneri

"The next year without her is gonna suck," I said.

I was speaking to a coworker about a doctor I've grown close to after working at Columbia University's Fertility Center. The doctor was expected to give birth within the next three weeks.

"A year?"

"Doesn't she have to go on maternity leave?"

"Yes, but she'll be gone for three months at most."

"3 months? What is that going to do?"

"She is actually lucky because if it were me and you we would only get six weeks off."

"Why is it different for us?"

"We work under the same facility but we're employed by two different agencies."

My jaw dropped in shock. "That wouldn't be enough time to come back to work at all."

Despite having parental resources such as housing, food, and insurance assistance upon giving birth, the United States is

the world's only wealthy country that does not guarantee paid maternity leave. According to the World Population Review's assessment from 2022, the United States offers employees both the lowest compensation and quantity of time off of the Organization for Economic Cooperation and Development (OECD) - an international alliance of many of the world's most industrialized and wealthy countries [1]. For instance,

"the United States mandates a minimum of 0 weeks of paid leave,"

in contrast to nations like Croatia, which mandate at least 30 weeks [2]. An employer may choose to provide these benefits at their discretion, resulting in a significant quantitative disparity between expecting mothers in the workforce. To aid women struggling with getting proper maternity leave, New York enforced legislation regarding the matter: Family and Medical Leave Act (FMLA) and New York Paid Family Leave (NYPFL).

Employees may be eligible for up to eight weeks of paid leave under NYPFL whereas FMLA allows for up to 12 weeks of unpaid leave [3].

Lacking the time needed to recover after giving birth is overwhelming for expecting mothers, but also losing compensation during the recovery period can be immensely distressing. The lack of paid maternity leave has the largest impact on the working class with

"93 percent of low-wage workers having zero access to paid family leave"

according to the Center for Law and Social Policy [4]. The US needs to standardize this disparity in order to close this gap.

European countries are excellent examples of how having paid family leave benefits the parents, children, and employers. According to data retrieved by the Organization for Economic Cooperation and Development (OECD), birth givers in Estonia can be mandated to receive up to 86 weeks of paid leave. Followed by 70 weeks in Bulgaria and 68 weeks in Hungary [4].

"Providing birth givers with vast quantities of paid time off work to prioritize family care allows them to rehabilitate from a primarily unpleasant delivery experience that can take months to recover from."

According to postpartum complications from a study in Mayo Clinic, some of its physical concerns include excessive bleeding, infections/ sepsis, and hypertension [5]. Paid leave gives parents more time to build a supportive relationship with their new child and has proven to increase the probability of mothers returning to their pre-wage jobs full time. Paid leave is beneficial to employers as well, as those women who return increase employee morale and maintain a threshold of skilled workers.

Consequently, the US fell from 6th among OECD countries in female labor force participation in 1990 to 17th in 2010 since it has not kept up with other nations in adopting family-friendly policies including paid leave [2]. This hurts the economy more than actually providing them with paid maternity leave benefits. Additionally, the US is prone to increased unemployment rates by women without proper implementation of these laws.

However, I believe we neglect the impact that such a deficit has on working-class families.

Those who are financially well-off and well-educated have not been sufficiently harmed by the practice of unpaid leave [6]. But employees who rely largely on their own income may choose to return to work before fully recovering from either a normal mildly painless delivery experience or an excruciating one that came with many complications, resulting in an unhealthy mental, physical, and social state that makes them more vulnerable to exploitation. An alternative choice is to let go of their job completely as they don't have the advantage to work full/part time while handling familial responsibilities. These parents may even suffer from bankruptcy, as 25 percent of dual-income families and 13 percent of single-parent families do so after missing two or more weeks of work because they were sick [7]. This hurts our economy as more parents further rely on government assistance programs to partially suffice for their lost income [8].

Without maternity leave, not only are birthgivers affected but the children they are not able to take care of can experience emotional and social consequences brought on by the lack of a prenatal figure [9]. The absence of a parental figure is emotionally draining and can lead to behavior disorders compared to one with the consistent presence of parents in

their lives. Hyperactivity, aggression, depression, low self-esteem, substance abuse are all associated disorders that can impact such children and have long term consequences [9]. Children who are neglected due to their working parents' circumstances are less likely to succeed in other areas of their lives, especially education. During the formative years of childhood, working class parents are frequently preoccupied with their own employment to devote additional time to helping their children with their schoolwork, and they cannot afford to pay for an instructor or academic program to do so. In addition, parents may not have the means to afford a caretaker and will therefore have to travel with their kids to the workplace or other preoccupied zone so they could watch their children at the same time making the child restricted to primarily a workplace environment.

Paid maternity leave critics are concerned that paid time off may diminish employee commitment to their jobs, result in discrimination against women (who are more likely than men to take leave), and impose significant costs on employers [10]. However, it is clear that keeping things the way that they are causes the suffering of businesses, birth givers, and their children, and this calls for a change.

HYSTERIA IN WOMEN'S HEALTH HISTORY: A RESPONSE TO MAJORIE LEVINE-CLARK AND HER ESSAY ON ISAAC BAKER BROWN'S "I ALWAYS PREFER THE SCISSORS"

Written by Giovanna Napoleone, Edited by Naomi Lebowitz, Abigail Hall, and Sadie Rochman

A London journal first used the word “hysteria” in a medical context in 1801, catalyzing its use within English gynecology studies throughout the Victorian Era of the 1830s-1900s [1]. Isaac Baker Brown, a prominent surgeon of this time, was elected President of the Medical Society of London in 1865, and in March 1866, wrote a book *On The Curability of Certain Forms of Insanity, Epilepsy, Catalepsy, and Hysteria in Females*. Through this work, he became an authority figure on discourses about nervous diseases in women [2]. Ever since then, neurological disorders of women have wrongly been linked to female sex-organs, and emotionality was certified as a wholly female trait. This was mainly due to the Victorian image of female sexuality at the time, which attributed any ambiguous ailments a female experienced - to which there was not a clear physical cause - to their inherent emotional foundations [2]; This designation originated in male oversight of females who could not adhere to social norms of becoming married and reproducing [1]. By having an “illness-prone uterus” as a “determinant of female mental health,” hysteria was classified

as a disorder which joined the anatomy of a female to her psychology and ultimate identity within society [1]. Hysterical women were thought to be unable to reproduce properly, as well as have behavioral and emotional fits that manifested in many parts of a woman’s body [3]. However, no matter what shape or form this hysterical neurosis condition took place, by tying a female’s physiology to her role within society, male physicians influenced public perceptions of womanhood from a medical standpoint so early on that it has contributed to the creation of a patriarchal society - one that still haunts us in more subtle forms today.

As part of participating in a medical humanities workshop and university writing course during my first year at Columbia University, I could not help but notice that the majority of students in classroom environments I participated in to have these types of conversations with were amongst a majority of women. Having women as leading contributors to medical field environments instead of as patients was once a novelty; only recently has there begun to be more female physicians than

male in women's health specialties, including gynecology [4]. Thus, upon encountering Marjorie Levine-Clark's essay on Isaac Baker Brown's "I Always Prefer the Scissors," I was concerned at the bluntness of the manner in which the English gynecologist Isaac Baker Brown is shown to have discussed his past studies during the 1800s, documenting women as objects to be "unsexed," and "mentally disturbed" if they appeared "indifferent to the social influence of domestic life" [5]. As a result, I would like to discuss how Marjorie Levine-Clark's essay reveals the horrifying objectification of women, their bodies, and their identities within the history of medical practice.

Marjorie Levine-Clark is a Professor of History at the University of Colorado Denver, USA, where she investigates the social and economic systems involved in creating the hostile history between women and medicine. The claim of her essay is that Issac Baker Brown was one of many male physicians within the field to genderize neurological disorders, adding to a deep sense of women inferiority that existed during

his time period. To develop her argument, Clark emphasizes that her personal approach towards Baker Brown's surgical writings includes investigating the historical context in which Baker Brown's surgeries were conducted. For instance, Clark highlights the idea that Baker Brown held an overarching prejudice and preconception of gendered-based illnesses, which, as a result, led Brown to act inhumanly on women through surgical means. This, in turn, would perpetuate women's subjugation within society due to a cyclical medical system that acts in accordance with its social and political environment.

Thorough medical notes exemplify how Issac Baker Brown, an English gynecologist and surgeon, designates hysteria as a disease directly caused by a female's genitals; in order to produce a "cure" for these "hysterical" women, Baker Brown takes it upon himself to operate on those not educated about their own bodies [5]. This is a problem in of itself, as a woman being labeled as a "hysteric" was common in the English language during the 1800s, the word originating from the Greek word for uterus, "hystera." Male physicians at the time directly related a woman's femininity to her ability to produce logic and act conformingly, ignoring their individual identities in exchange for an easy explanation of why these women would not adhere

to expected social roles and structures. This is exemplified through patients such as Jean-Martin Charcot's famous Blanche, Augustine, and Geneviève "Medical Muses," who were psychoanalyzed in Paris at the Salpêtrière hospital during the nineteenth century. These institutionalized women were under observation for "cataplexy, insomnia, selected paralysis, headaches, and loss of appetite to delirium and many more [symptoms]," despite no concrete proof that these symptoms or behaviors could actually be attributed to the disease of hysteria [6].

"When I have decided that my patient is a fit subject for surgical treatment, I at once proceed to operate. The patient having been completely under the influence of chloroform, the clitoris is freely excised either by scissors or knife - I always prefer the scissors" [7]. Clark opens her argumentative essay with these provocative words by Baker Brown himself, which demonstrate his sense of superiority over women patients, his nonchalance, and his complete disregard for a woman patient's identity - reducing her to the very organ that makes her female rather than any other characteristic. Then, Clark utilizes this initial shock of the reader to fuel the fire as the reader learns more about Brown's connection to gender roles and discrimination in a

historical context.

According to Clark, Brown was operating at a time period when "medical ideas lent crucial support for what historians have labeled the ideology of separate spheres and the related ideology of domesticity" [5]. These "spheres" of domesticity refer to a traditional Victorian mentality that a woman's proper place was in the household as opposed to academia or the workplace. As a result, Clark points out that women often lacked an education during this time period, and with that education, medical literacy. This absence of medical literacy and access to accurate medical information about themselves only caused women to believe in their own incapabilities within society. By reiterating that a male physicians' misdiagnosis and treatment of illnesses as gender-associated were created as a means to deepen women's social inferiority, Clark hones in on the cyclic effect of a male dominated world on female health.

To further this, it is essential to recognize that females rely on medicine for a basic understanding of their own bodies and reproduction systems by the nature of a patriarchal, institutionalized system. Barely any women were doctors during this time period, and being educated on oneself by someone who doesn't identify with you forces social constructs upon a

person that may have not existed before. To help explain the social motives of men who genderize neurological illnesses in women, Clark quotes other women researchers who explain that

"women are dependent on the medical system for the most basic control over their own reproductivity,"

and, as a result, this tactic of having male doctors as leaders within women health care fields in the formative years of gynecology "was undoubtedly effective at keeping certain women in their place" [5]. Because health care systems often perpetuated a society that reinforced the emotional volatility of women through diagnoses of women with sex-related disorders, women were often uneducated in how to take care of their own bodies, and believed to be incapable of monitoring themselves due to their inherent psychological states. This, in turn, resulted in a society where women were not expected to take accountability for themselves - rather, that they should only concern themselves with occupations about motherhood instead of healthcare professions. By framing female physiology in the context of mental illness, male physicians helped legitimize and justify existing views about the inequality of women within social spheres through biology.

Thus, Baker Brown participates in a medical system that endangered a woman's ability to practice self-care as a result of her patriarchal society.

Although some physicians in London during the time rejected Brown's surgical practices, it is important to note that none disputed his claim that female neurological disorders were based on their physiology and genital dysfunction [2]. This is a testament to how powerful gendered views of psychiatric conditions can affect a population, both in the past and in modern day. To demonstrate this, although the term "hysteria" was officially deleted from the Diagnostic and Statistical Manual of Mental Disorders in 1980, there is much work to be done within the health care system when it comes to gendering and stigmatizing mental illness [8]: researchers still believe that sex and gender still plays a great role in how mental illness manifests in the population today. Although it is now more largely accepted that a variety of factors contribute to mental illness besides physiology such as socioeconomic status, trauma, and genetics, we must be careful in the terminology we use within institutions to classify these illnesses and prevent them from being stigmatized [9].

Today, hysteria isn't an officially classified disease, yet modern media and culture often blame

heightened emotions of political leaders and women in the workforce to a woman's hormones and menstrual cycles. It is because of perpetuated media harassment and language surrounding women in leadership positions about their bodies that, according to the American Psychology Association's Journal of Abnormal Psychology, women with anxiety disorders are more likely to internalize their feelings compared to men, and these rates have increased since the 1950s [10,11]. Moreover, when it comes to leadership within medicine, many females are now physicians, but only about 15.3% of health care system CEOs were women in 2021, and only 15.8% of health insurance company CEOs were women [12].

Texts like Clark's essay on Isaac Baker Brown are therefore necessary to analyze so that physicians can have a deeper understanding of what it is like for women in medicine as patients, and how we can improve care in the world for those who are not like ourselves. By highlighting the issues of genderization and femininity within doctor-patient relationships, Clark develops a timely piece for a society concerned about how our past systems can haunt us, especially when it comes to gender discrimination, education, and social infrastructure within the realm of practicing medicine.

Meet the TEAM

Ananya Raghavan, SEAS '25

Managing Editor

Ananya joined GYNECA because she thought its mission statement was powerful and she wanted to help spread meaningful discussion regarding gynecology and reproductive health on campus. She is also involved with the Biomedical

Engineer Society as a member. In her free time, she can be found drawing/painting or watching a good movie. She also has a mild sugar addiction so she can also be found in the pastry aisle of Westside Market. This semester, she worked with the journalism, editing, and national submissions committees at GYENCA. She is super proud of her team that tackled every challenge head-on. She is also super excited about GYNECA's first publication and all the creative articles and art that writers and artists contributed to.



Jonathan Bryson - Harvey, CC '24

Secretary

Jonathan joined Gyneca because he is passionate about healthcare equity. While working at a pharmacy and completing his EMT clinical rounds in a low-income community over the summer, he soon witnessed first-hand the

disparities in the healthcare system caused by differences in race, gender, and socioeconomic background. Being a pell grant recipient in a family of predominantly women, he has also learned about the barriers posed specifically against black women, preventing them from receiving adequate education on sexual health. Through his work in GYNECA, he hopes to make that information more accessible while fostering an environment for undergraduates to be able to fully represent themselves through their research while teaching and inspiring others.



Nicole Greco, CC '24

Managing Editor

Nicole is a junior at Columbia College majoring in Chemistry. She oversees the art, outreach, social media, and layout committees at GYNECA. This journal aims to increase visibility for health topics related to women and other gender minorities, which drove her to join when she arrived at Columbia. At GYNECA, she strives to honor the work of undergraduate students at Columbia University, as well as encourage dialogue about the shifting dynamics in this healthcare field. She looks forward to the publication of the first issue and new memories with the community of students in GYNECA!



Lucia Ruggiero, BC '24

Treasurer

Lucia joined GYNECA after completing an internship in Chicago that provided mammograms and cervical cancer screenings to uninsured women. She noticed a major gap in scientific literature that examined women's health

disparities through an equity lens. As soon as she learned about GYNECA, she knew she needed to join to be involved in narrowing the knowledge gap. Before being Treasurer, she was the Director of Outreach and planned events focused on careers in gynecology/obstetrics and the tampon tax. Outside of GYNECA, she gives tours as a Barnard Student Admissions Representative, is a part of Kappa Alpha Theta, and interns at a high fashion retail company.



Hreedi Dev, CC '24

Senior Scientific Editor

Hreedi is a junior at Columbia College studying biology on the pre-med track. She joined GYNECA to learn more about how we can bring more equity in medicine, particularly in the field of women's health. In GYNECA, she has helped edit and manage the scientific editing process for several articles as a senior scientific editor. She also conduct radiology research in Weill Cornell Medicine, where she has co-authored publications on COVID-19 and deep learning segmentations for a genetically-inherited polycystic kidney disease.



Tara Samsel, BC '23

Head of Layout

Tara is a senior studying Cellular & Molecular Biology on the pre-medical track. She started at GYNECA in Fall 2021 as an Executive Editor, working with other leadership to grow the new journal. This past year, she developed the look of our

inaugural issue with the help of her committee. She decided to join GYNECA because she has been passionate about spreading awareness for gender-minority health in order to reduce the stigma and knowledge gap. GYNECA presented the perfect opportunity to increase scientific accessibility on these important topics for a larger population. After conducting summer research at the Columbia University Fertility Center, she gained a deeper understanding of how vast women's health is and learned more from her GYNECA peers. Outside of GYNECA, she is a trained EMT, works for women's health companies, Allara Health and Caraway, bartends for Columbia Bartending Agency, and is involved in Greek Life.

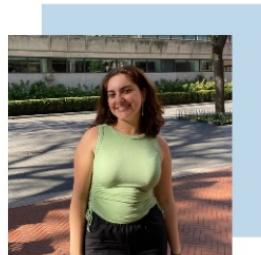


Elaje Lopez, CC '24

Senior Revision Editor

Elaje joined GYNECA because its mission lies at the junction of several of her interests, including writing, reproductive health research, and intersectional feminism. As a part of GYNECA, she served as a writer and published an article about

PMDD. She is now the senior revision editor, and she helps oversee our revision editors as they work with writers to develop their articles. Outside of GYNECA, she pursues her interests further through her job at the Columbia Writing Center as a peer fellow and her work volunteering at the NY Presbyterian Pediatric Emergency Department. She is also a part of Orchesis, a dance group on campus!

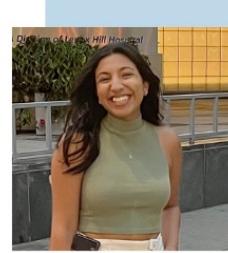


Aditi Malhotra, BC '24

Senior Scientific Editor

Aditi joined GYNECA because she was interested in editing scientific literature so that information relayed by the pieces can be easily understood by individuals who may not have a strong set of background knowledge pertinent to the field.

Through GYNECA, she has been lucky to be partnered with an extremely talented, collaborative, and efficient team of scientific editors; she is also thankful that she has been able to join hands with the larger editing team in general. Outside of GYNECA, she is involved in Columbia Bhangra, a South Asian dance team as well as Greek life on campus. She is so excited to continue working with the GYNECA family in the upcoming semester!



Elaine Su, BC '24

Co-Director of Web Development

Elaine Su is a junior studying Computer Science and Psychology at Barnard College of Columbia University. She currently oversees Web Development and has worked on designing and implementing the GYNECA website. She is passionate about equity in women's and other gender minorities' health and hopes to find ways to impact the field through increased education. In her free time, she loves to read memoirs, make fun designs in Figma, and play badminton.



Hope Trygstad, CC '26*Director of Social Media*

Hope joined GYNECA because she is interested in being involved in promoting awareness about women & gender minority health, even though she may not major in a very relevant field. She saw that there were openings for the social media team, and since she has

experience with PR and social media, she thought it would be a great way to get involved and apply her skills. So far this year the committee has maintained the Instagram, started a Twitter and Tiktok, and is working to build the club's online presence through those three platforms. She also plays club water polo and loves to embroider!

**Claire Looney, BC '24***Head of Journalism*

Claire is a junior at Barnard majoring in Chemistry on the pre-med track, from North Haven, CT. She originally joined GYNECA as a scientific review editor last school year because she really wanted to be involved in the early stages of creating a new

publication on our campus, especially since it is tackling such an under-addressed field. Now, as Head of Journalism, she oversees our in-house writers and helps them formulate topic proposals and adhere to important deadlines. She also works extensively with the Revision and Scientific Review committees throughout the article writing process. Outside of GYNECA and classes, she works on materials chemistry research and is a TA for two lab courses for the Barnard Chemistry Department. When she is not doing something STEM-related, she enjoys taking long walks in Riverside Park with a good book and attempting to find the best ramen in the City. She is so proud of everything all of GYNECA's members have achieved this semester, and cannot wait to see our first print issue!

**Jaia Wingard, CC '24***Outreach Coordinator*

Jaia joined GYNECA in order to be in a community of undergraduate students interested in Women's Health science and issues. She is involved in gastric cancer bench work research at the Columbia medical center, clinical research at Penn medicine for minimizing health disparities in cancer treatment in Philadelphia, and on the women's rowing team. She became interested in women's health after a summer internship that exposed her to ovarian cancer research. On top of the technical information, she started to learn about the disparities in the women's health field. At GYNECA, she organizes events in order to help undergraduates learn from women's health related professionals and researchers in the Columbia network. She also works to recruit submissions and reviewers for the journal.

**Montaha Rahman, CC '25***Co-Director of National Submissions*

Montaha joined GYNECA her freshman year as an E-Board member in hopes to connect with others inspired by women's health to create related events. Her work on national submissions consists of connecting to other undergraduate journals and researching ways to officially network and establish GYNECA's journal. Outside of school she chaperones at Columbia University's Fertility Clinic and aids in creating events for the Biomedical Engineering Society. She is excited to talk to undergraduates around the country and recruit submissions for GYNECA.



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