Spring 5-8-2020

Comorbidity of Childhood Sexual Abuse and Infertility

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Honors Thesis

Submitted

In Partial Fulfillment

of the

Requirements of HON 420

Spring 2020

By

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This paper investigates the association between sexual abuse during childhood and female adult infertility. The initial purpose of this study is to determine if the two experiences share a correlational or causational relationship. Raw data on the incidence of childhood sexual abuse (CSA) is drawn from sources such as the World Health Organization and the Centers for Disease Control and Prevention (CDC). A number of peer-reviewed scientific articles provide information on subjects including the following: female infertility, genital abnormalities resulting from CSA, and techniques used in the clinical examination of victims of sexual abuse. A few case studies of survivors of CSA will highlight the lived experience of such an individual, ensuring that the personal nature of the traumatic events are not lost within the scientific narrative.

Keywords and phrases: honors thesis, undergraduate research, childhood sexual abuse, infertility, healthcare, gynecology

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ACKNOWLEDGEMENTS

Although this thesis is deemed my claim, it was by no means a product of solely my work. Dr. Lisa Day, my mentor deserves so much credit, both for the physical written thesis as well as my sanity throughout the process. I am immensely appreciative of her consistently positive attitude, even in the face of my frequent midnight email conversations. Dr. Day agreed to mentor me the very first time that we met. She had enough confidence in me and my claim to consent to guide a complete stranger. This unwavering belief ended up being the source of much of my motivation toward the project. She may not know this, but one of my ultimate goals was simply to make Dr. Day proud with this thesis. Oftentimes, I wish she and I had crossed paths earlier in my educational journey. I can only imagine the woman I would be had I been exposed to even more of her wisdom and constructive criticism.

Additionally, I want to thank Dr. Coleman for putting up with the chaos of me changing my thesis topic and mentor three times. He showed full support for all of my potential claims, for which I will be forever grateful.

The initial interest that eventually led to this thesis topic–CSA and infertility–comes from firsthand exposure to the field of adolescent gynecology. I owe many thanks to the two gynecologists at Cincinnati Children's Hospital whose care I have been under for several years. The connection to CSA also stems from my work as a sexual violence advocate with Ampersand Sexual Violence Resources Center of the Bluegrass, an

organization that serves seventeen counties of central Kentucky. In volunteering for this organization, I gained so much more than I could ever give back to the survivors we served. I developed a new perspective on empathy, from a supportive staff and through lessons on trauma-informed care. Plus, I was able to acknowledge and work to correct my own lack of knowledge on the lived-experience of a survivor of sexual violence. The magnitude of difference that I made as a mere volunteer exposed how powerful the actions of only a few individuals can be. I think this mentality, that of understanding one's individual power of influence, is applicable to copious life scenarios.

Lastly, I must of course thank my parents. Obviously, they should be thanked for physically raising me, making me the woman that I am today. More specifically, in terms of this thesis, they deserve an award for listening to me type and re-type my paper for months. They should be recognized as well for constantly asking how they could help with my thesis, and for not getting upset when my response was always a mildly frustrated, "You cannot." They were helping all along.

INTRODUCTION

The focus of this thesis project is childhood sexual abuse and its effect on adult reproductive health. Childhood sexual abuse seems to be on the rise. Coincidentally, so too does the incidence of infertility in females, or at least reporting rates seem to be higher for both of those experiences. The project goal is to determine if the relationship between sexual abuse at an early age and adult female infertility might be more than just correlational–that is, causational. It is also an objective to deduce what this research into the pair's relationship might mean for healthcare professionals and the public.

With this topic, the confirmation of a causal relationship may not be possible. However, the hope is that even if that is the case, my findings will still motivate more research and action on the subject. For instance, it may motivate a thorough re-examination of reproductive and female health—perhaps even one that includes care for adolescent females. Additionally, it may prompt medical institutions across the board to include more empathetically directed care, taking the form of additional training for health professionals or the addition of distinct individuals dedicated to the patient's mental and emotional health.

While they may not be common topics of conversation, both CSA and infertility hold a substantial global health prevalence. Globally, approximately 19.7% of women and 7.9% of men have suffered from sexual abuse before the age of 18 (Pereda 2009). In 2002, in the United States alone, roughly 150 million females and 73 million males of adolescent age had been sexually abused (Pereda 2009). The World Health Organization points out how hard it is to accurately determine the rate of CSA because it is largely a hidden problem (WHO 2002). Often, it is kept secret by victims who are ashamed or are

in danger if identified. WHO also categorizes CSA as a major public health problem, as outlined in the *WHO Clinical Guidelines for Responding to Children and Adolescents Who Have Been Sexually Abused* in 2017.

Infertility shares a similar worldwide prevalence as well, considered a global health issue by the WHO. In 2014, the Centers for Disease Control and Prevention released the National Public Health Action Plan for the Detection, Prevention, and Management of Infertility. From 2012 to 2015, there was even a 6% increase in the usage of fertility treatments (Direkvand-Moghadam 2014). Direkvand-Moghadam (2014) found through meta-analysis that about 10% of the world's population suffers from infertility, indicating this value is likely underestimated. With backing from the WHO and CDC—sources of immense credibility–the predominance of CSA and infertility is clearly expressed. Each being of global concern individually warrants the investigation of the comorbidity of the pair.

METHODS

The scholarly field interacts with my argument of comorbidity in a number of ways. Several studies support the connection between CSA and genital issues or abnormalities. Boynton-Jarrett (2011) postulates that exposure to physical and sexual abuse during childhood and adolescence will be associated with an incidence of uterine leiomyoma (fibroids). This association is surmised to be through influences on health behaviors or reproductive hormone regulation. 65% of the study participants with fibroids report childhood sexual or physical abuse, supporting a positive association between childhood abuse and risk of fibroids. This investigation provides affirmation to my claim of child molestation being connected to adult reproductive health ramifications.

If fibroids are found to cause reproductive health issues, they can be the link between that and CSA. Further investigation needs to be done to confirm or deny this indirect linkage.

Along similar lines, another potential connection between early life abuse and conceptive issues may be early menarche. Wise (2009) cites a positive association between sexual abuse and early menarche among a population of U.S. Black women. Focusing on a specific participant population—Black premenopausal women—bolsters the reliability of the study's results. Not only is the incidence of sexual abuse generally higher among these women, but a focused target population eliminates extra modifiers.

Along with fibroids and early menarche, another outcome of CSA includes genital abnormalities. Although many studies express genital abnormalities as a consequence of sexual abuse in childhood, the limitations of the clinical evaluation that identifies these irregularities still need to be addressed. Muram (1989) cites 46% of study participants—pre-pubertal girls from Shelby County in southwestern Tennessee—with abnormal genital findings indicating or strongly suggesting sexual abuse. As this value is lower than half of the participants, the clinical limitations are exposed. However, the very fact that injuries are sustained from sexual abuse warrants further investigation. It also postulates that such injuries may affect long-term conceptive health. This study even notes a definite increase in the incidence of CSA in the Shelby County area—from 279 incidents in 1982 to more than 1000 incidents in 1986. Seeing as this magnitude of increase occurs within the brief time of 4 years, the current incidence may be much greater. Should female infertility rates be found to rise in a similar fashion, a linkage between the two could very well be established.

In tying these genital abnormalities to adult female reproductive health, continued monitoring of both conditions is required. This is explored to some extent in studies like that of McCann (1992), analyzing the healing process and outcome of hymenal injuries in pre-pubertal and adolescent girls. McCann (1992) finds two markers in the healing process—petechiae and blood blisters—that approximate the age of hymenal injury. There is no doubt that these indicators will come in handy in hymenal examinations, but the many gaps in the remaining data call for more research on this subject. More than one follow-up examination would provide more insight into the full healing process into adulthood.

A potential indirect link between CSA and infertility with more concrete promise is that of endometriosis. Unlike the previously mentioned connections, endometriosis is known to connect to infertility. Fertility issues have been confirmed as one of the possible consequences of endometriosis. Approximately 30-50% of women with endometriosis are infertile (Buletti 2010). Harris (2018) confirms an association between early life physical or sexual abuse and endometriosis risk. Abuse severity, chronicity, and accumulation of types of abuse connect to increasing risk in a dose-response manner. Unfortunately, this is one of the few studies analyzing both endometriosis and CSA. Additionally, it is limited by the fact that the participants consist of mainly Caucasian middle-aged women, prohibiting much generalization. On the bright side, the study design spans over 24 years of follow-up on a large cohort, providing an ample participant pool. The cohort—the Nurses' Health Study II—also boasts high rates of response, detailed abuse history, and updates every two years. A significant association between early life abuse and endometriosis remains even after adjustment for factors including

lifestyle, race and ethnicity, reproductive factors, and abuse at any age. These strengths make the study's weaknesses more of a call for extended analysis rather than actual flaws themselves, especially considering the significant comorbidity of CSA, endometriosis, and infertility.

Most comorbidity investigations are concerned with physical consequences of CSA that can be obviously seen and plausibly linked to infertility. However, a smaller number of studies considers the specific biological pathways that produce these symptoms. The internal mechanisms may be harder to initially pick up on, yet understanding their effect on the body might prove crucial to offering relief to the patient. Jacobs (2015) explores the methods by which increased childhood adversity might affect adult fertility. Jacobs (2015) proposes that there is a mechanism that links childhood stressors, menstrual cycle disruption, and fertility difficulties. The study finds that as the number of adverse childhood experiences (ACEs) increases, so too does the risk of fertility difficulties and amenorrhea (the cessation of menstruation for at least three months). Specifically, for every additional adverse event that occurs, the risk of fertility issues increases by 6% and the risk for amenorrhea by 7%. From these percentages, amenorrhea may partially mediate the association between ACEs and fertility issues.

The particular pathway that Jacobs (2015) considers involves the hypothalamic-pituitary-adrenal (HPA) axis and gonadotropin-releasing hormone (GnRH). GnRH regulates menstrual function. The function and secretion of this hormone can be inhibited by hormones released from the HPA axis. Major stressors in childhood can chronically activate the HPA axis around puberty, causing menstrual cycle irregularities. Jacobs (2015) uses life history theory to show the influence of early life events on later

reproductive strategies. Basically, when a woman's ability to invest in new offspring deteriorates, reproductive suppression becomes advantageous. Stressors would fall under this umbrella of less than optimal reproductive conditions. Therefore, early life stressors may predispose individuals to both menstrual cycle irregularities and to adaptive suppression of fertility.

While Jacobs (2015) cites only a 11.9% incidence of difficulty conceiving, other statistics in the inquiry validate continuous probing of both CSA and fertility issues. For instance, out of all of the ACEs, sexual abuse and physical abuse have the strongest association with fertility issues. Plus, 41.4% (253) of participants experience irregular menstrual cycles, while 20.7% (126) suffer from periods of amenorrhea. Though the infertility incidence seems smaller, these larger occurrences of menstrual issues could still later result in fertility problems; once again demonstrating the need for long-term patient follow-up. In addition, lifetime fertility issues may be underestimated as a majority of study participants are not completely through their reproductive years yet. This seemingly possible association among childhood stressors (including CSA), menstrual cycle disruption, and difficulties with fertility suggests causation in addition to comorbidity. Such linkage may very well be the one that determines if the relationship between childhood sexual abuse and adult infertility is correlational or causational.

Other feasible biological mechanisms have been postulated as well. Allsworth (2011) assesses the role of glucocorticoids and follicle stimulating hormone in regards to their effects on ovarian function. Glucocorticoids can act on the hypothalamus, anterior pituitary gland, and ovaries. Elevated levels lead to HPA axis dysregulation. Hindering the function of the HPA axis tends to affect menstrual function. FSH is necessary for

follicular maturation and growth. High levels indicate ovarian decline, which leads to an early age of onset of menopause. Both glucocorticoids and FSH are elevated in times of great stress, which is often a recurrent symptom for survivors of sexual abuse.

An opportune location to spot any of the above mentioned afflictions is that of the gynecologist's office. However, quite consistently, gynecologists have failed to take into account just how many of their patients are survivors of CSA. Approximately 1 in every 5 women has experienced CSA (ACOG 2011); thus, it is quite plausible that most healthcare providers encounter multiple female patients who are survivors. A gynecologist is strategically placed to be capable of identifying abuse victims and then referring them to support services, thus allowing them to receive treatment according to their special needs. This knowledge could also allow the gynecologists to tailor their treatment of these individuals with greater sensitivity.

Two examples confirm the prevalence of CSA among gynecological patient populations. Peschers (2003) found that nearly 20% of 1,157 German women had encountered forced sexual activity, while Wijma (2003) determined that 17-33% of 4,729 Scandinavian patients had been sexually abused. Despite this prevalence of CSA, only 2-6% of Scandinavian and 0.5% of German women discussed the subject with their gynecologist, and only one woman reported that her gynecologist asked about a potential history of sexual abuse. The lack of conversation about or screening for past sexual abuse on the part of the physician is not a new trend. Testing a new therapy service for adults with a history of child abuse, Smith (1995) uncovered the discontent that individual patients felt when seeking help from health services. According to the survivors, doctors offered "no assistance" and "only prescribed medication" (Smith 1995,

p. 1177). They exhibited a "total unwillingness to accept that sexual abuse created long term problems," claiming they "will grow out of" their issues (Smith 1995, p. 1177). Smith (1995) concluded that traditional health services have clearly failed CSA survivors. As a result, Smith (1995) pushed for all doctors and nurses to become sensitive to the possibility of previous childhood abuse as an underlying obstacle for patients, but the need for change did not reflect a widespread agreement in the field.

RESULTS

The call for change in medical treatment has been answered in a few manners. A small number of studies has been conducted to assess the medical validation of sexual abuse. As the medical examination of survivors of childhood sexual abuse can often be uncomfortable and re-traumatizing, it is an opportune place to begin making adjustments. One relatively new aspect of the genital exam is the use of colposcopy. With this recent addition, Muram (1989) compares the effectiveness of colposcopy against a traditional systemic examination in terms of evaluating the vulva of sexually abused females. Unfortunately, the results of the two examination methods do not significantly differ. Of the 66 girls with findings specific for sexual abuse, 65 of them are diagnosed through a systematic physical exam alone. While this conclusion does not specifically advocate for the use of colposcopy, it does at least highlight the strength of the traditional clinical evaluation. This is quite important considering the majority of studies point out the many limitations of the physical examination. Plus, it can also be noted that colposcopy may be a valuable addition to the process when equipped with a camera attachment. The

photographs can be added to the medical record and even introduced as evidence should legal action be taken.

Much like colposcopy, the Foley catheter technique is also a potentially beneficial addition to the medical examination process. Once estrogen brings about changes to the genital mucosal surfaces, examination of the female genitalia becomes difficult. The hope of Persaud (1997) in his study of the Foley catheter is that its inflated balloon will put enough pressure on the hymen to stretch it out and allow for better viewing of the hymen edges. Additionally, Persaud (1997) postulates that the catheter procedure brings less pain upon the patient. Unfortunately, the study's 2 participants offer little statistical analysis. However, insight into the impact of the Foley catheter is still possible. In fact, a comparison of photographs from colposcopy and Foley catheter demonstrates its value. By colposcopy, patient 1 has a hymen with a scalloped and folded edge, giving a concern of multiple angulation. By Foley catheter, the same patient has a continuous hymen edge without any concerning narrowing of tissue. Essentially, the Foley catheter categorizes the hymen of patient 1 as consistent with normal-appearing genitalia. With further investigations, the Foley catheter can potentially improve the level of clarity in genital examinations of CSA survivors. Furthermore, the greater comfort of the procedure may even prompt more disclosure.

While both of these improvements prove beneficial in their direct relationship to the examination of a victim of sexual abuse, further steps can be taken to mimic increased comfort in routine gynecological checkups as well. A typical exam performed by a gynecologist has the potential to re-traumatize a CSA survivor too. Moreover, the failure to identify CSA victims—as is currently the case—leaves physicians vulnerable to legal

action and patients vulnerable to lack of adequate treatment. Thankfully, the American College of Obstetrics and Gynecology (ACOG) has finally caught onto the absence of special care for such a patient population. In 2011, ACOG released a committee opinion concerning adult manifestations of childhood sexual abuse. This document provides recommendations to be used by obstetrician-gynecologists to offer support to abuse survivors. While such physicians may not be specifically trained to treat CSA survivors, they can still offer empowering messages, counseling referrals, or empathic care during sensitive examinations. Additionally, ACOG "strongly recommends" that all women should be screened for a history of sexual abuse by their gynecologist. As many survivors are reluctant to initiate a discussion of the subject, instructions are outlined. Guidelines include making the question natural by routinely incorporating questions about possible sexual abuse; normalizing the experience by explaining how this query is asked of all patients; giving the patient control over the disclosure; determining if the incident has been previously reported or help sought; and postponing the examination until the patient is fully ready.

Sigurdardottir and Halldorsdottir (2012) exhibited many of the same inadequate responses from healthcare professionals. All of the participants were female survivors of CSA. They too sought ample help, yet were never offered any diagnosis or support. Physicians were quick to provide medication as a fix. One of the women recalled the events surrounding her history of childhood abuse to her doctor. The physician's response was that if "she wanted attention she should look for it at home, not from him" (Sigurdardottir & Halldorsdottir 2012, p. 427). This statement reflects how healthcare professionals have not come very far in treating survivors of CSA. In a follow-up case

study, Sigurdardottir and Halldorsdottir (2018) found that the lived experience of a CSA survivor reflected many of these same failures. Having found no study that examined a CSA survivor's life story as a holistic view of all the consequences, Sigurdardottir and Halldorsdottir (2018) delved further. Their study focused on Anne, a patient with a multitude of physical complications that represented her "screaming body," whereas the lack of trauma-informed care reflected the silence offered by medical personnel. Because of her abuse, Anne suffered from a number of physical consequences, including ovarian cysts, frequent urinary tract infections, ectopic pregnancies, cervical dysplasia, a hysterectomy, and ovarian cancer. All of these problems were unknown in her family medical history. In addition to numerous medically-confirmed maladies, further complications arose from the stress of the act of sexual abuse. Around age 12, Anne's stepfather began making sexual advances toward her. Not long after, she lost almost all of her sight and hearing for a while. Similarly, she noticed great personal stress was often followed by diagnosis of ovarian cysts and adhesions.

For all of the complications that Anne experienced and all the hospital visits she made, she was not met with adequate care. From childhood into adulthood, Anne was persistent in sharing her theory that her physical consequences were related to CSA. Sadly, the response she received was either in the form of medication or utter silence. One particular encounter with a physician summed up the gist of Anne's healthcare experience. When a surgeon recommended a full hysterectomy, Anne requested the removal of her ovaries as well, because they had been the cause of much pain since her childhood. The doctor agreed to do so only after heavy deliberation. Following the removal and biopsy of the ovaries, first stage cancer was detected. The doctor ended up

thanking Anne for “insisting and pushing [him] to do it” because “within two years [she] would have been gone” (Sigurdardottir & Halldorsdottir 2018, p. 10). The fact that an experienced physician had to thank a patient for essentially saving her own life highlights the extent of the shortcomings in healthcare.

As Anne is only one woman, her hardships cannot be generalized to all CSA survivors. However, her study offers some equally important contributions to the CSA narrative. Sigurdardottir and Halldorsdottir’s (2018) investigation is one of the few that follow a survivor throughout their lifetime. Many complications do not present until years after the actual act of abuse. Typically, the issue of infertility does not manifest until a woman is of at least childbearing age, which is usually several years after CSA. Similar to Boynton-Jarrett’s (2011) study on uterine fibroids, Sigurdardottir and Halldorsdottir’s (2018) examination also stressed the significance of emotional support in mediating long-term consequences of CSA. Despite receiving treatment from a great number of healthcare professionals, Anne did not begin to feel the slightest bit healed until she participated in a wellness program tailored to female survivors of CSA. While it is true that a CSA survivor usually requires care beyond a doctor’s office, the medical realm still plays a pivotal role in the recovery process. As CSA is a multi-faceted issue, a combinational and multi-disciplinary approach to therapeutic efforts works best. On this road to recovery, the public health sector is often the first stop, further defining its crucial role.

For quite some time, the healthcare industry failed to fulfill any responsibility to determine connections between a woman’s adult health and her childhood trauma. The silence that Anne encountered points out a systematic organizational problem in terms of

both the education and socialization of healthcare professionals. The practice of treating only the symptoms and not the underlying problem is apparent in many of the above mentioned studies. The common assumption has been to treat the mind and body separately. With such a mindset, if the physician does not find obvious objective—usually physical—evidence justifying the patient's suffering, the problem becomes classified as psychogenic (Ader 2001). However, this approach yields no solution, only adding to the patient's burden of pain. For instance, several of Anne's issues stemmed from stress. While this stress was linked to her battle with sexual abuse, it may not present itself as objective evidence in the eyes of the physician. Nonetheless, that does not warrant the dismissal of it altogether. If trauma-informed education were integrated into a physician's education, this and other similar dilemmas might be remedied.

From her less than enjoyable experience with healthcare, Anne's biggest complaint was the fact that she was never asked about CSA or sexual violence. She claims something as simple as putting an "X" somewhere to say she had suffered CSA would have been satisfactory. Not every victim self-identifies as being a CSA survivor until later in their healing process. Nevertheless, asking at least makes it a possibility, and makes the likelihood of further psychiatric or therapeutic referrals much greater. The struggles of all of these women—from 1995 to the present—call for substantial changes to how healthcare professionals should handle patients with special circumstances, like that of CSA. As suggested by Anne's case study, not all individuals will identify as a CSA survivor or disclose the matter during the initial patient history. In certain cases, a person may require more developed doctor-patient trust. Be that as it may, the alternative—not asking about sexual abuse at all—may give support to a common belief

among survivors that abuse neither matters nor has medical relevance. In such a case, the golden opportunity for intervention would be forever lost.

Much like gynecologists, nurses are also conveniently placed to identify warning signs or indicators of CSA. They are a part of the public health service, which is often one's first stop into the healthcare system. Gadda (2015) reviewed nurses' ability to recognize and attend to victims of childhood sexual exploitation (CSE) and points to the need for more training in the matter. CSE is a specific type of CSA, yet the two still share many of the same warning signs. Making health professionals more inquisitive about CSE will likely do the same for CSA as well. Pabis's (2011) review of pediatric nurses in Poland yielded similar results. The instance of encountering victims of childhood maltreatment was found to be high for the registered pediatric nurses studied. Unfortunately, a common barrier in effective treatment of these children was the nurses' low level of knowledge concerning the care of CSA victims. The huge responsibility that nurses have in interprofessional collaboration was highlighted by Pabis (2011) as well, emphasizing how nurses need broader theoretical and practical training in identifying abused children, helping them in a professional way, and collaborating with other professionals to manage the issue. Taking it a step further, the Pabis (2011) study is unique in pointing out the usefulness of comparing nurses' evaluation of abused children with that of other medical professionals. Although nurses may be some of the first to encounter a maltreated patient, they are certainly not the last. While it is true that nurses and gynecologists are ideally placed for the identification of CSA survivors, complete treatment of the multifaceted consequences of such abuse calls for the action of and collaboration among many professionals and across several clinical disciplines.

Along with this need for multi-dimensional collaboration, recent literature reviews of the medical and therapeutic options available to CSA survivors highlight additional recommendations for improving care. Nelson (2011) sought to improve the relationship between medical personnel and abuse victims through the identification of gaps in the knowledge surrounding this issue. A common problem found across publications in the review was that of "medically unexplained symptoms" (MUS). MUS is the name that Nelson gives to troubling physical symptoms with neither medical explanation nor distinct organic cause (Nelson 2011). An example could be the number of stress-related and CSA-associated problems experienced by Anne in Sigurdardottir and Halldorsdottir's (2018) case study. The difficulty encountered in deducing the origin and subsequent treatment of these medically unexplained symptoms helps identify methods of improving care for abuse victims. For instance, a lack of qualitative research is uncovered by Nelson's (2011) review. Qualitative data—from victims themselves—could very well support the design of sensitive interview styles for professionals like nurses, doctors, and gynecologists to utilize. Despite this lack of qualitative evidence, Nelson (2011) still finds a number of studies collecting quantitative statistics on CSA and its consequences, including a population of young adults known to have been sexually abused. The review identifies a need to track the long-term health consequences of this population. In terms of infertility, increased follow-up through a woman's reproductive years is crucial. Perhaps, a cohort might be organized from this population of CSA survivors, allowing for periodic health checks and tracking of conditions.

A similar review of therapies for adverse childhood experiences by Narang (2019) offers even more means of improvement. Considering all of the scientific literature

concerning ACEs allowed Narang (2019) to spot several fundamental flaws in therapy options. Across the board, an overemphasis on symptomatology and lack of developmental perspective is characteristic of CSA studies. This same theme has been evident in the studies of gynecological care of CSA survivors mentioned earlier, further demonstrating the need for change. Narang's (2019) review also touches on the inability to generalize the research data for CSA. Many studies focus on only one demographic group. For example, Wise (2009) investigated the prevalence of childhood abuse for black, pre-menopausal women. While this does help minimize modifiers or confounding variables, it also substantially limits the universalizability of the results. Along the same lines, the analysis of CSA, endometriosis, and infertility by Harris (2018) features a participant population of mostly middle-aged, Caucasian women. Both childhood sexual abuse and infertility are global issues. As a result, investigating their comorbidity requires a certain degree of generalization. Essentially, more research is needed on the socio-cultural relevance and appropriateness of existing and future CSA interventions. Unique to Narang's (2019) study—and extremely important—was the significance of identifying, designing, and evaluating interventions specifically for CSA survivors, separate from other forms of ACEs. Jacobs' (2015) earlier study proving that sexual abuse yields a different risk factor for fertility difficulties than other ACEs supports this as well.

In dealing with many of these gaps highlighted by Nelson (2011) and Narang (2019), the field of psychoneuroimmunology (PNI) holds much promise. PNI adopts a more holistic view of the patient, treating mind and body simultaneously. It explores the interface among behavior, the nervous system, immune system, and endocrine system.

Ader (2001) determined that the brain and the immune system share a bidirectional connection (Ader 2001). That is, each one regulates the other. One of the clearest examples of this lies in the lymphoid system. Lymphocytes bear receptors for a variety of hormones, making them responsive to a number of neural and endocrine signals. At the same time, a crucial part of immune response includes lymphocyte activation by antigens. Activated lymphocytes are capable of producing chemical substances for the brain to detect. Additionally, active immune cells might release cytokines, which Ader (2001) notes are another pathway through which the immune system communicates with the central nervous system. PNI has immense potential in the clinical setting—especially concerning CSA. For quite some time, professionals have adhered to the arbitrary boundaries of biomedical sciences. They have considered the physical (the body) and the psychological (the mind) to be separate, independent entities. This restricted outlook could contribute to the failings and misdiagnosis that many physicians are guilty of when faced with patients who have suffered through CSA. The consequences of CSA are multifaceted.

Many studies speculate that abuse-related problems are a result of psychiatric disorders. As a matter of fact, data from Sachs-Ericsson's (2009) review of adult complications of CSA shows that health problems, chronic pain, and psychiatric disorders are all sequelae of past abuse. The same study stresses just how many symptoms go undiagnosed in adult survivors of CSA. Sachs-Ericsson (2009) found much of this to be due to the fact that most healthcare facilities treat only one of these sequelae. Traditional therapy–what is available in most hospitals and psychiatric offices–tends to be more disorder-driven rather than trauma-informed. That is, the goal is

treating the symptoms, when the focus should be on the patient's life experiences–the trauma that caused the symptoms. This criticism was pinpointed in Narang's (2019) review of CSA literature as well. By exploring the effect that stress and emotional states have on immune function and precipitation of physical changes, PNI offers a potential alternative for this symptom-focused perspective. More specifically, the way that PNI acknowledges the interplay between numerous body systems could help validate the biological pathways mentioned earlier as probable mechanisms linking CSA and infertility.

While much of this thesis has highlighted the flaws in caring for CSA survivors, Rittenberg (2020) followed a patient who experienced trauma demonstrates the effectiveness of correcting some of these flaws. Rittenberg (2020) claims that the key to treating her patient was understanding the patient's past trauma. To accomplish such a task, Rittenberg (2020) made use of trauma-informed care with Angela–the pseudonym she gave her patient to maintain privacy. Medical procedures were thoroughly explained before being performed and frequent permission was asked of Angela prior to any treatment. Upon first meeting Angela, Rittenberg admitted feeling overwhelmed by the extent of her patient's challenges. Unprompted, Angela disclosed her history of sexual abuse. However, it is likely that this was caused by Rittenberg's empathetic approach. Unlike Sigurdardottir and Halldorsdottir's (2018) case study of Anne, where healthcare professionals were narrow-minded, Rittenberg (2020) realized that knowing the underlying cause of Angela's frequent hospital visits was fundamental to being able to help her. For instance, understanding the trauma exposed that Angela's insulin issues were actually self-induced. The hospital was her refuge from the abuse. Consequently,

she would purposefully skip insulin doses to get sick enough to be admitted to the hospital. Had Rittenberg not established a comfortable doctor-patient relationship, this very important fact would have probably remained unknown and Angela's health would have severely suffered. Also unique to this study was the use of a care team, consisting of a doctor (Rittenberg), violence advocate, lawyer, and specialists. The team minimized the need for Angela to retell her traumatic story. Plus, it gave all of the professional members someone to rely on if they ever felt challenged or ineffective. Rittenberg's (2020) work exemplifies the potential success that adjustments in current clinical care practices can achieve. It also reiterates how those adjustments should begin in undergraduate and graduate curriculum.

DISCUSSION

Concerning my initial claim of the connection between childhood sexual abuse and infertility, I find the scope of my thesis to be quite broadened by the end of my undergraduate research. The distinction as to if the connection between the two is correlational or causational is inconclusive. Through an analysis of scientific literature on CSA and infertility, the existence of a comorbidity is clearly demonstrated. However, I have discovered that proving a causal link in this particular case demands much deeper research, perhaps more than my undergraduate resources will allow. Furthermore, as anticipated in beginning this thesis, the literature offers ways to improve the clinical setting even beyond the narrow focus of CSA and infertility.

Ideally, I would have enjoyed more original contributions to the subject matter in the form of anecdotes from adolescent gynecologists and fertility specialists. Although correspondence with a gynecologist was achieved and a survey delivered, no response

was received. Somewhat ironically, the gynecologist's silence on the topic of CSA and infertility adds to the growing evidence in this thesis supporting the need for changes in healthcare training.

Despite the unclear conclusion that my claim has come to, the attention brought to childhood sexual abuse and infertility–and a number of other important topics–is still noteworthy. As repeatedly highlighted, CSA and infertility are both still misunderstood subjects. At the same time, the CDC and WHO confirm the global prevalence of the couple–as well as how both are likely underreported. Therefore, the conversation in regards to their comorbidity is far from over. In terms of my claim concerning infertility, increased follow-up through a woman's reproductive years is crucial. Interestingly enough, within the duration of my thesis research, I witnessed an increase in the instance and depth of analysis of CSA and infertility contained in scientific literature. The fact that growth was observed in such a short time–two academic semesters–provides much hope.

Even beyond trauma-informed care, handling a female survivor of CSA calls for an approach utilizing feminist phenomenology. Such an approach acknowledges the sociality of memory and trauma, and how both have effects beyond the individual. Trauma is often assumed to be the result of transgression against universal vulnerabilities (Cadwallader 2016). On the contrary, traumatic memory resides in a much larger context—a context of society, politics, and culture. Vulnerabilities, in turn, are constituted from a particular context. This is why trauma is more accurately a breach of bodily limitations that have been socially produced. As Cadwallader (2016) points out, one's embodiment is developed on the basis of fundamental sociality. Individual identity

is in a constant state of flux, depending on the people and situations encountered. Cadwallader (2016) explains that these previous experiences give rise to distinct bodily limitations. The unique origin of limitations explains why discomfort, violation, and suffering occur differently for different people (Cadwallader 2016). For instance, not all women experience sexual domination as a violation. The way that trauma manifests distinctively based on varying contexts calls for an acute empathetic understanding of each patient. That is, within trauma-informed care, professionals must understand the uniqueness of each trauma. In terms of CSA, the relationship between rape and female embodiment deserves much consideration. Cadwallader (2016) articulates how a survivor's experience is not solely a consequence of the act of rape, but an advance of it as well. Society already defines the female body as a guilty pre-victim. Basically, the primary protection from rape resides in the woman herself, through persistent vigilance and awareness of the threat of sexual assault. According to Cadwallader (2016), the female body is marked by society as "rapeable," even if it may be against the girl's or woman's will. This omnipresent feminine embodiment renders rape a responsibility of the survivor. Consequently, for optimal treatment of women in healthcare settings, catering trauma-informed care specifically to CSA survivors requires a fundamental change in the perception of both the context of traumatic memory and the current societal definition of the female body.

The scope of such a change extends well beyond the medical office. While several recommendations have been outlined regarding the care of CSA survivors in the healthcare setting, such trauma cannot be treated only pharmaceutically. Cadwallader (2016) cites how a heavy pharmaceutical approach turns rape into a medical problem

experienced by the survivor, burdening them with primary responsibility. This narrow pathological focus obscures the responsibility of the perpetrator as well as the responsibility of society. Rape becomes a pathology rather than a crime or injustice. As Cadwallader (2016) articulates, rape is already silenced in so many ways—police refusing reports, lawyers deeming cases too hard to win, judges not classifying the act as rape because of things like skinny jeans. This repeated silencing has made rape a private matter, a problem of only the survivor. However, the classification of CSA as a major public health problem (WHO 2017) expresses how this is clearly not the case. Cadwallader (2016) explains how this categorizing of rape as an individual matter reflects a failure to deal with the complexity of corporeality. Corporeality—simply the physical or bodily existence—is shaped by institutional, social, and political dynamics. The ultimate challenge is figuring out how our societal context can shape bodily memories in a way that enables a future without rape. This societal and perceptual change is a huge undertaking, yet necessary nonetheless. If care of survivors is continued without altering the societal perpetuation of rape, essentially only the symptoms of sexual assault are being treated.

CONCLUSION

The need for awareness and empathy in women's healthcare and other changes of equal magnitude that have been unearthed during my investigation of CSA and infertility have helped me realize how my claim extends past my resources and time as an undergraduate. Just as the conversation regarding the comorbidity of CSA and infertility is far from over, my contribution to that narrative is not ending anytime soon. I plan to continue exploring the subject matter in my future graduate studies. Part of what

prompted my initial claim was an interest in the field of adolescent gynecology. While caring for CSA survivors spans nearly all clinical disciplines, I wish to contribute to the conversations and investigations concentrated within obstetrics and gynecology. In my future as a gynecologist, I plan to take an active role in reversing the silence toward CSA victims that has been characteristic of the office for so long. Additionally, I aim to consciously include infertility as a part of the treatment equation. Much like ACOG (2011) recommends regular screening for CSA victims, I believe that a similar attitude toward the topic of fertility issues would prove beneficial. Beyond obstetrics and gynecology, I wish to push for more empathetic care across all health disciplines. In applying to medical schools, one of my requirements is an institution with a specific program centered on teaching proper empathetic patient care. Although the medical office provides wonderful health benefits, I find that care tends to lose its humanistic element. Analyzing literature on CSA and infertility only made this lack of empathy more apparent. Cadwallader's (2016) exploration of rape and the feminine embodiment exposed these gaps in trauma-informed care quite well. The way that trauma is being handled without consideration of societal context essentially eliminates the humanistic identity of the patient. It is very similar to how physicians tend to treat patients for symptoms rather than underlying causes. An individual's suffering comes from the mind, the body, and the soul. To properly meet a patient's needs and provide actual relief, one must be seen as a human. Much like the data on CSA and infertility is mostly quantitative and full of generalizations, so too is current medical literature. The healthcare field needs to think less of the universalizability of populations and more of the individuality of each patient.

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