

# “Endometriosis and Pelvic Pain: Epidemiological Evidence of the Relationship and Implications” (2005), by Arnaud Fauconnier and Charles Chapron

Arnaud Fauconnier and Charles Chapron published “Endometriosis and Pelvic Pain: Epidemiological Evidence of the Relationship and Implications,” henceforth “Endometriosis and Pelvic Pain,” in the journal *Human Reproduction Update* in 2005. In that article, the researchers studied the relationship between pelvic pain and endometriosis. Endometriosis is the growth of endometrium, or tissue that normally lines the inside of the uterus, outside of the uterus. The authors review medical studies in order to determine how much evidence exists that endometriosis causes chronic pelvic pain symptoms. Then, the authors describe specific relationships between different types of endometriotic lesions and pain symptoms. By establishing specific relationships between pain and endometriosis, “Endometriosis and Pelvic Pain” helped healthcare professionals diagnose and treat pelvic pain related to endometriosis.

When “Endometriosis and Pelvic Pain” was published, Fauconnier and Chapron were working in different hospitals in France. Both authors worked as physicians specialized in obstetrics, the study of childbirth and the care for those giving birth, and gynecology, the study of the function and diseases specific to the reproductive systems of females. In 2005, Fauconnier became a professor of gynecology and obstetrics at Versailles-Saint-Quentin University in Versailles, France. In 2008, he became the head of the department of gynecology and obstetrics at the Intercommunal Hospital Center in Poissy, France. In 2018, Fauconnier took the role of associate editor of the gynecological journal *Human Reproduction*. According to the Society of Endometriosis and Uterine Disorders, Chapron became a professor of obstetrics and gynecology at the Paris Descartes University in Paris, France in 1999. In 2005, Chapron was put in charge of the department of obstetrics and gynecology and reproductive medicine at Cochin University Hospital in Paris, France. In 2014, Chapron was promoted to vice dean and put in charge of medical projects at Paris Descartes University. Chapron has been a part of many groups devoted to studying endometriosis, including the American Association for Gynecologists Laparoscopists, headquartered in Cypress, California. As of 2019, Fauconnier and Chapron have both published hundreds of studies in gynecology and obstetrics and continue to practice medicine and conduct research.

In “Endometriosis and Pelvic Pain,” Fauconnier and Chapron compiled data from about thirty studies on endometriosis and pelvic pain in order to help healthcare professionals diagnose and treat pelvic pain. In 2005, most healthcare professionals and researchers acknowledged that there was a relationship between endometriosis and pelvic pain, pain that occurs in the lower part of the trunk of the body, beneath the abdomen and above the thighs. However, the healthcare professionals did not understand how endometriosis was related to pelvic pain. Researchers in 2005 could not make many definitive statements about pain related to endometriosis because women without endometriosis often reported pelvic pain, and some women with endometriosis did not report experiencing any pain at all. Fauconnier and Chapron summarized many kinds of studies in which women reported pelvic pain associated with endometriosis in order to find more specific ways to diagnose and treat pelvic pain potentially related to endometriosis. Fauconnier and Chapron wrote that their goal was to help healthcare professionals diagnose pelvic pain related to different kinds of endometriosis and to identify specific treatments that would reduce pain with more certainty.

“Endometriosis and Pelvic Pain” is divided into five sections. First, in the “Introduction,” Fauconnier and Chapron summarize what researchers and healthcare professionals know and do not know

about the relationship between endometriosis and chronic pelvic pain. The authors write that even though most healthcare professionals acknowledge that there is a relationship between endometriosis and pelvic pain, they do not understand how that relationship works. Next, in “Methodological Issues,” the authors outline their methods, a literature review, and describe multiple biases that can arise when using such methods. Then, in the section “Results of the Studies,” the authors present their findings in the form of tables that summarize components of each study, including how the researchers evaluated pain, what kinds of medical tests were conducted on patients, and whether or not patients reported certain types of pelvic pain. After, in the “Discussion” section, Fauconnier and Chapron describe the meanings of the results. The authors found that endometriosis was the cause of pelvic pain in more than half of confirmed cases of endometriosis. They also noted that women with deeply infiltrating endometriosis experienced pelvic pain much more often than women with less severe types of endometriosis. Lastly, in the “Implications” section, the authors describe how their results can help physicians diagnose and treat chronic pelvic pain in patients with endometriosis. The authors recommend that healthcare professionals use imaging techniques to diagnose specific kinds of endometriotic lesions, that they categorize pain based on specific symptoms and not general feelings of pain, and that specific treatments are used with specific cases of endometriosis.

In the section titled “Introduction,” Fauconnier and Chapron describe what researchers and healthcare professionals know and do not know about the relationship between chronic pelvic pain and endometriosis. Endometriosis is the growth of endometrium, or tissue that normally lines the inside of the uterus, outside of the uterus. The uterus is a muscular organ inside of the female pelvis. Healthcare professionals use the presence of endometriotic lesions, or areas of damaged tissue that can bleed, to diagnose patients with endometriosis. According to the authors, gynecologists, or physicians that treat patients with female reproductive organs, agree that a relationship between chronic pelvic pain and endometriosis exists. That chronic pelvic pain may include dysmenorrhea, painful menstrual cramps, and dyspareunia, painful sexual intercourse. The authors note that the relationship between pelvic pain and endometriosis is difficult to discern, because some women without endometriosis may experience pelvic pain, and some women with endometriosis may not experience pelvic pain. Another difficulty in discerning the relationship between pelvic pain and endometriosis is that there are different types of endometriotic lesions, and, according to the authors, there is no definitive connection between the types of lesion present and the severity of pain.

The authors describe three primary types of endometriotic lesions, which are superficial peritoneal endometriosis, cystic ovarian endometriosis, and deep infiltrating endometriosis. Superficial peritoneal endometriosis is when endometriotic lesions are on the pelvic organs and the membranes surrounding the pelvis. Cystic ovarian endometriosis is when endometriotic lesions look like cysts within the ovarian cortex, or the outermost layer of the ovary, and become attached to nearby pelvic structures. Deep infiltrating endometriosis is when large endometriotic lesions appear on ligaments of the uterus or rectovaginal fascia, which is the tissue that separates the vagina and rectum. Healthcare professionals can observe endometriotic lesions with laparoscopy, which is an invasive surgical procedure. During the procedure, a surgeon makes small incisions in the patient’s body and then passes a laparoscope, or a thin viewing tube, through the incisions and into the uterus. According to the authors, a healthcare professional who detects such lesions might suggest further surgical treatment for endometriosis. That treatment may be risky, especially in cases of deep infiltrating endometriosis. Fauconnier and Chapron propose that healthcare professionals should determine the ideal treatment for endometriosis as it relates to pain for every patient individually, especially because it is still unclear how pain symptoms relate to endometriosis and whether surgery will decrease that pain. The authors state that the purpose of their study is to, first, determine how much evidence exists that endometriosis causes chronic pelvic pain symptoms, and then, to describe specific relationships between different types of endometriotic lesions and pain symptoms.

In the next section of “Endometriosis and Pelvic Pain,” called “Methodological Issues,” Fauconnier and Chapron outline the methods they used. The authors conducted a literature search on Medline, an online database that contains scientific articles published in various academic journals. Specifically, they looked for studies published after 1980 which contained terms such as pelvic pain, dysmenorrhoea, dyspareunia, endometriosis, and treatment outcome. Fauconnier and Chapron read

the title and abstract of each study in order to determine the relevancy of the article to their own study. Once they have categorized the studies, the authors place the studies into tables and consider the data from all of the studies together. From all of this compiled data, the authors make generalizations about pain symptoms and types of endometriosis.

In the next part of “Methodological Issues,” Fauconnier and Chapron discuss the potential biases associated with their methods. The first potential bias was about variable definitions of chronic pelvic pain symptoms. For example, some studies did not include dysmenorrhoea and dyspareunia in their definitions of pelvic pain. The authors state that the inclusion of such pain symptoms in the definition of pelvic pain is important because such pain symptoms are prevalent in patients with endometriosis. The second potential bias was about how healthcare professionals diagnose endometriosis. Laparoscopy, a surgical procedure, is the primary method for diagnosing endometriosis. However, healthcare professionals use laparoscopy in cases pertaining to infertility, pelvic pain, and ovarian cysts, so the selected populations in studies is likely considerably different than the general population. Additionally, healthcare professionals often base the diagnosis of endometriosis on visual evidence, and so healthcare professionals might under- or over-diagnose endometriosis, especially when a patient has unusual kinds of endometriotic lesions.

The third potential bias was related to the four different kinds of comparative studies they reviewed and how they classified those studies: prevalence studies, case-control studies, correlation studies, and randomized controlled studies. The authors state that in prevalence studies, or studies which compare the frequency of endometriosis and pelvic pain, bias about non-specific symptoms of pelvic pain exist. The authors state that in case-control studies, which compare specific pain symptoms according to whether patients have endometriosis, the bias is less prevalent because there is usually a control group of patients without endometriosis. In correlation studies, which describe the locations and morphologies of endometriotic lesions in terms of pelvic pain, there are no control groups, but the authors of those studies compare the kinds of pain women with endometriosis experience based on type of endometriosis. Lastly, Fauconnier and Chapron indicate that randomized controlled studies that compared treatments of endometriosis can have biased findings due to the psychological effects of placebo, or the use of a substance that has no therapeutic effect but the study participants take anyway, and recurrence of the disease.

In the next section, called “Results of the Studies,” the authors share their results by interpreting their data, which they place in tables based on the type of study. Fauconnier and Chapron depict the findings of the prevalence studies utilized in their respective study in Table I. Specifically, Table I includes three studies that observed women with pelvic pain. In two of the three studies, endometriotic lesions were more prevalent in women with pelvic pain rather than in women without pelvic pain. However, researchers did not always use visual diagnosis or histological confirmation, which involves a researcher viewing tissues under a microscope, in those studies. In the third study, the frequency of endometriotic lesions in women with pelvic pain and women without pelvic pain was equal. Furthermore, in that study, researchers used histological confirmation of endometriotic lesions to determine endometriosis. In Table II, the researchers list the case-control studies that looked at chronic pelvic pain symptoms according to the presence or absence of endometriosis. About half of the studies in that table noted a relationship between dyspareunia and endometriosis, as well as non-menstrual pelvic pain and endometriosis, but about half of the studies did not. In Table III, Fauconnier and Chapron present the results of the correlation studies. They note that those studies demonstrate clearly that patients with deep infiltrating endometriosis, and particularly those with deeper lesions, were more likely to report chronic pelvic pain than patients with less severe lesions. In Table IV, the authors present the results of the randomized control studies. In those studies, researchers tested either medication or surgery to reduce the pain associated with endometriosis. Fauconnier and Chapron note that in the studies that tested different medications, over half of the women who took medication reported a reoccurrence of painful symptoms after they stopped taking the medication. The authors reported that in the studies about surgical interventions, women who were treated with surgery had less pain after six months when compared to women who had not been treated with surgery.

In the next section titled “Discussion,” Fauconnier and Chapron interpret the results they presented in the previous section. The authors state that the results of their literature review indicate that

endometriosis, for the most part, causes pelvic pain, but pelvic pain is not exclusively indicative of endometriosis. The authors found that, in accordance with the cross-control and correlation studies, approximately half of the women from the studies selected experienced pelvic pain as a result of endometriosis. The authors state that many of the cross-control and correlation studies proved unambiguously that women with endometriosis suffered from pelvic pain, and specifically, women with deep infiltrating endometriosis suffered from the most severe pain symptoms, including dysmenorrhoea and dyspareunia. Fauconnier and Chapron explain that such a correlation between deep infiltrating endometriosis and specific pain symptoms may be related to the infiltration of nerve fibers by the endometriotic lesions characteristic of deep infiltrating endometriosis. The authors describe that phenomenon because they found the location of endometriotic lesions of deep infiltrating endometriosis to be directly correlated to the presence and severity of pelvic pain. However, other types of endometriosis did not possess such a strong relationship with pelvic pain. Fauconnier and Chapron state that the relationship between pelvic pain and cystic ovarian endometriosis is unclear and requires further analysis for scientists and healthcare professionals to better understand it.

In the final section, “Implications,” the authors use the results of their study to make recommendations to physicians diagnosing endometriosis in patients experiencing chronic pelvic pain. For instance, Fauconnier and Chapron state that physicians should investigate women who have expressed pelvic pain associated with dysmenorrhoea and will receive laparoscopy due to infertility or ovarian cysts for endometriosis during laparoscopy. Specifically, the authors write that such pain symptoms may help surgeons detect the location of potential endometriotic lesions in the body. Additionally, the authors found that dysmenorrhoea and dyspareunia were associated with deep infiltrating endometriosis, which typically appear on rectovaginal fascia or uterosacral ligaments, which are structural tissues that connect the bottom of the spine to the cervix, the lower end of the uterus. The authors state that such pain symptoms can be factors related to endometriosis, which may help physicians diagnose endometriosis more easily.

Fauconnier and Chapron’s study contributed to knowledge about diagnosing and subsequent treating women with endometriosis. Since its publication, “Endometriosis and Pelvic Pain” has been cited by almost 500 other scientific studies. Some of those studies investigate the management of deeply infiltrating endometriosis through procedures such as surgery and long-term oral contraceptives based on symptoms of pelvic pain.

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