

# Uncovering evidence: Links between Environmental contaminants and Health disparities in women

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**ABSTRACT:** Over the years, industrial mishaps and military activities have resulted in inadvertent, large-scale, high-dose human exposure to endocrine-disrupting environmental pollutants. These historical experiences, together with laboratory investigations, imply that toxicants like dioxins and polychlorinated biphenyls have a deleterious impact on the reproductive system and may affect the development of gynecologic illnesses. Although high-level exposure to a single toxicant is uncommon, individuals in industrialised nations are constantly exposed to a complex mixture of artificial and naturally occurring endocrine disruptors, such as persistent

organic pollutants and heavy metals.

We did a literature analysis to uncover possible links between toxicant exposure and racial inequalities in women's health since minorities are more likely to reside in locations with documented environmental pollution. The body burden of environmental contaminants, especially when combined with inherent genetic variations, appears to contribute to previously observed racial disparities in women's health conditions such as breast cancer, endometriosis, polycystic ovarian syndrome, uterine fibroids, and premature birth, according to evidence in the literature.

**Key Words:** *women's health; environmental contaminants; pollution; health disparities; minorities.*

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## INTRODUCTION

The unexpected result of industrialisation has been the release of hundreds of synthetic chemicals into our environment without regard for potential detrimental effects on human health. Cigarette smoke, wildfires, volcanic eruptions, and the use of fossil fuels are all sources of environmental pollution. Naturally occurring heavy metals are also considered environmental pollutants when their quantities surpass typical background levels, as will be addressed more below.

Numerous studies have found that women of colour have a greater bodily load of environmental pollutants. Because several environmental contaminants have been associated to reproductive dysfunction, we conducted a literature analysis to answer the question: Does environmental contaminant exposure contribute to racial differences in women's health? We will talk about how environmental toxins may have a role in the development of breast cancer, endometriosis, fibroids, polycystic ovarian syndrome, and preterm birth.

Breast cancer, endometriosis, fibroids, polycystic ovarian syndrome, and preterm delivery are all risks. We selected to look at the relationship between toxicant exposure and these women's health issues since several of them are more common (fibroids, PCOS, and

preterm delivery) and or have higher mortality rates (breast cancer) in women of color. We opted to look at the link between toxicant exposure and endometriosis since traditionally; women of color have had a lower chance of receiving an accurate diagnosis.

Breast cancer, which is the uncontrolled multiplication of breast cells, commonly metastasizes to other regions of breast cancer, endometriosis, fibroids, polycystic ovarian syndrome, and other conditions. Breast cancer, which is caused by the uncontrolled multiplication of breast cells, commonly spreads to other parts of the body. Breast cancer affects women of all races, and roughly one in every ten women globally has been diagnosed with the disease. The endocrine system and steroid hormone response have a significant impact on breast cancer. Breast carcinomas that express oestrogen and progesterone receptors are classified as luminal tumours in 70-75 percent of cases. Luminal cancers are further subdivided into luminal A and luminal B. Luminal A cancers have oestrogen and progesterone receptors, whereas luminal B tumours have lower levels of these receptors but higher levels of HER2 (human epidermal growth factor receptor).

HER2 is a proto-oncogene that is routinely found on breast epithelial cells; however, cancer cells that express HER2 at a higher-than-normal

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level are designated HER2 positive and are often the most aggressive subtype. Triple-negative breast cancer is defined as breast cancer that lacks oestrogen receptors, progesterone receptors, and HER2. Importantly, because most breast cancer treatments target these receptors; triple-negative tumours are more difficult to treat than other subtypes. Although there is no substantial racial discrepancy in the prevalence of breast cancer, current research reveals that there are evident discrepancies in the kind and severity of breast cancer than women of color acquire compared to white women. Importantly, in the United States, both the kind of breast cancer and its stage at the time of diagnosis have a major influence on survival rates. When compared to white women, black women are diagnosed with breast cancer at a younger age (59 years old) (63 years old). Despite earlier detection, Black women are more likely than non-Hispanic white women to acquire triple-negative and/or metastatic breast cancer. Breast cancer incidence among Black women has grown 0.4 percent each year since 1975, but has stayed stable in white women for unknown causes. Genetic variations are well known to contribute to a woman's risk of developing breast cancer. Women with BRCA1/2 mutations are at a higher risk of developing breast cancer and are recognised to contribute to the family incidence of this illness in most, if not all, ethnicities. Beverly et al. observed that white women with breast cancer demonstrated a greater frequency of oestrogen and progesterone receptors compared to Black women with breast cancer—which may contribute to superior survival rates in white women since many breast cancer therapies target hormone receptors. This study summarises existing knowledge of the possible link between environmental toxin exposure and health inequalities in women. According to the research, exposure to environmental toxins increases the incidence of breast cancer, endometriosis, PCOS, uterine fibroids, and preterm delivery in women. According to reports, Black women have larger body loads of environmental pollutants than white women, and this unequal exposure may be connected to socioeconomic level, geographic location, profession, food choices, and personal care product choice.

Epidemiology also implies that higher exposure to environmental toxins in Black women may make this group more prone to breast cancer and uterine fibroids. Although multiple researches shows a link between EDC exposure and the development of endometriosis, PTB, and PCOS, there is a scarcity of studies that look at the relationship between race and environmental exposures. It should be mentioned that racial differences in illness diagnosis may potentially contribute to this knowledge gap. It's also worth noting that transgenerational processes linked to several of the disorders listed might increase a woman's vulnerability to sickness. As a result, a woman's mother or father's toxicant exposure history may enhance her susceptibility to illness; however, this may not immediately correlate to the woman's toxicant body burden at the time of diagnosis. Although multiple researches shows a link between EDC exposure and the development of endometriosis, PTB, and PCOS, there is a scarcity of studies that look at the relationship between race and environmental exposures. It should be mentioned that racial differences in illness diagnosis may potentially contribute to this knowledge gap. It's also worth noting that transgenerational processes linked to several of the disorders listed might increase a woman's vulnerability to sickness. As a result, a woman's mother or father's toxicant exposure history may enhance her susceptibility to illness; however, this may not immediately correlate to the woman's toxicant body burden at the time of diagnosis.