Gender and hygiene: Could cleanliness be hurting girls?

January 26 2011

Little girls growing up in western society are expected to be neat and tidy – "all ribbon and curls" – and one researcher who studies science and gender differences thinks that emphasis may contribute to higher rates of certain diseases in adult women.

The link between increased hygiene and sanitation and higher rates of asthma, allergies and autoimmune disorders is known as the "hygiene hypothesis" and the link is well-documented. Yet the role of gender is rarely explored as part of this phenomenon.

Oregon State University philosopher Sharyn Clough thinks researchers need to dig deeper. In her new study, published in the journal *Social Science & Medicine*, she points out that women have higher rates of allergies and asthma, and many autoimmune disorders. However, there is no agreed-upon explanation for these patterns. Clough offers a new explanation.

Clough documents a variety of sociological and anthropological research showing that our society socializes young girls differently from young boys. In particular, she notes, girls are generally kept from getting dirty compared to boys.

"Girls tend to be dressed more in clothing that is not supposed to get dirty, girls tend to play indoors more than boys, and girl's playtime is more often supervised by parents," said Clough, adding that this is likely to result in girls staying cleaner. "There is a significant difference in the

types and amounts of germs that girls and boys are exposed to, and this might explain some of the health differences we find between women and men."

However, that doesn't mean that parents should let their daughters go out into the back yard and eat dirt, Clough points out.

"What I am proposing is new ways of looking at old studies," she said. "The hygiene hypothesis is well-supported, but what I am hoping is that the epidemiologists and clinicians go back and examine their data through the lens of gender."

The "hygiene hypothesis" links the recent rise in incidence of asthma, allergies, and autoimmune disorders such as Crohn's disease and rheumatoid arthritis, with particular geographical and environmental locations, in particular urban, industrialized nations. Many scholarly studies have noted that as countries become more industrial and urban, rates of these diseases rise. For instance, the rate of Crohn's disease is on the rise in India as sanitation improves and industrialization increases.

The Centers for Disease Control and Prevention has noted that asthma prevalence is higher among females (8.9 percent compared to 6.5 percent in males) and that women are more likely to die from asthma. The National Institutes of Health statistics show that autoimmune diseases strike women three times more than men.

A report by the Task Force on Gender, Multiple Sclerosis, and Autoimmunity shows that among people with multiple sclerosis and rheumatoid arthritis, the female to male ratio is between 2:1 and 3:1. With the disease lupus, nine times as many women are affected as men.

Clough is a philosopher of science and epistemology, with a particular focus on feminist theory and gender differences. The focus of her work

is to study scientific research and look for the implicit or hidden assumptions that guide that research.

She believes the link between hygiene, gender and disease is not just a fluke.

"We are just now beginning to learn about the complex relationship between bacteria and health," she said. "More than 90 percent of the cells in our body are microbial rather than human. It would seem that we have co-evolved with bacteria. We need to explore this relationship more, and not just in terms of eating 'pro-biotic' yogurt."

That's why Clough does not recommend that parents feed their daughters spoonfuls of dirt. Just one gram of ordinary uncontaminated soil contains 10 billion microbial cells, so the effects of ingesting dirt are unknown.

"We obviously do not yet know enough to differentiate between helpful and harmful bacteria," she said.

However, Clough said she can easily join in the chorus of voices of health experts who say that more outdoor time for kids is good – even if that means the kids get a little dirty.

"Getting everyone, both boys and girls, from an early age to be outdoors as much as possible is something I can get behind," she said.

Provided by Oregon State University