Carbon dioxide (CO_2) is toxic to humans at high concentrations, creating a condition known as hypercapnia, which can result in death. Even at more moderate CO_2 concentrations, studies find that breathing air with elevated CO_2 can have a negative impact on a person's reasoning and mental abilities. There is a growing body of scientific evidence pointing to CO_2 as a pollutant with direct detrimental impacts on the cognitive functioning of humans in schools and offices, where concentrations of CO_2 are often highest.

One study has even argued that modestly elevated concentrations of atmospheric CO_2 can cause acidosis (more acidic blood) in humans, leading to symptoms like restlessness and mild hypertension, and eventually sleepiness and confusion. Another study has found that elevated CO_2 can cause people's decision-making performance to fall to scores considered marginal and even dysfunctional.

Studies find that the negative impacts of CO_2 exposure increase in severity as the concentration of CO_2 increases in the atmosphere. CO_2 levels are typically higher in enclosed spaces with insufficient ventilation, and this can result in a reduced attention span and a lower test performance. Current atmospheric CO_2 levels are about 410 parts per million (ppm), up from a preindustrial value of 280 ppm, and this number is constantly increasing, primarily due to the burning of fossil fuels (coal, oil, and gas). By the end of the century, the atmospheric CO_2 concentration could be as high as 1,000 ppm, making it impossible to get a "breath of fresh air".

Within enclosed spaces, CO_2 is even more concentrated than it is in the atmosphere because the exhaled gas from breathing contributes to the concentration. This is especially worrying as city-dwellers spend approximately 90% of their days indoors. Some outdoor urban areas have reported CO_2 concentrations as high as 500 ppm. According to one study, "atmospheric carbon dioxide concentrations are reaching levels never experienced by Homo sapiens" and "future carbon emissions will increase indoor concentrations to levels harmful to human cognition."

According to the National Oceanic and Atmospheric Administration, "Human activities have a tremendous impact on the carbon cycle. Burning fossil fuels, changing land use, and using limestone to make concrete all transfer significant quantities of carbon into the atmosphere. As a result, the amount of carbon dioxide in the atmosphere is rapidly rising; it is already considerably greater than at any time in the last 800,000 years." Scientists warn that if humans continue emitting CO_2 into the atmosphere at current rates, it will become increasingly difficult to manage the negative health and mental effects of elevated CO_2.

It is possible that, as CO_2 levels continue to increase, the diminishment of human cognitive abilities will also become more pronounced. One study concludes that the best way to prevent this hidden consequence of increasing atmospheric CO_2 is to reduce fossil-fuel emissions.