Coal-fired power plants (CFPP) represent a health risk to the exposed communities. A review of national and international scientific literature was made focused on the health effects on children and exposure to air emissions from CFPP. Twenty-one articles were included for full-text review, where effects on child health mainly related to the biomarkers presence of exposure and effect, perinatal, neurobehavioral and respiratory damages were measured. Exposure to CFPP emissions in pregnancy was associated with low birth weight and very low birth weight, shorter height, smaller head circumference (HC) diameter, and prematurity; the HC diameter increased in newborns after the CFPP closure. Lower coefficient of development (CD) and intelligence quotient (IQ) were found in children exposed to CFPP emissions compared with unexposed ones; CD increased when the plant was closed. On the other hand, living in areas with mercury emission sources (associated with CFPP and cement plants that work with coal) was associated with an increased risk of autism. In respiratory health, the articles were consistent with reporting lower pulmonary function in children living in areas exposed to coal combustion sources compared with groups of unexposed children. There is a great need to open the debate in Chile on the controllable risks faced by the child population as a result of power generation plants located in Chile.