

FLUORIDE & IQ STUDIES

SIGNIFICANT NEGATIVE RELATIONSHIP

Assessment type: Raven's Matrices or variation

1. Chen, Y., Han, F., Zhou, Z., Zhang, H., Jiao, X., Zhang, S., Huang, M., Chang, T., & Dong, Y. (2008). Research on the intellectual development of children in high fluoride areas. *Fluoride*, 41(2):120–124.
2. Cui, Y., Zhang, B., Ma, J., Wang, Y., Zhao, L., Hou, C., Yu, J., Zhao, Y., Zhang, Z., Nie, J., Gao, T., Zhou, G., & Liu, H. (2018). Dopamine receptor D2 gene polymorphism, urine fluoride, and intelligence impairment of children in China: A school-based cross-sectional study. *Ecotoxicology and Environmental Safety*, 165:270-277.
3. Das, K., & Mondal, N.K. (2016). Dental Fluorosis And Urinary Fluoride Concentration As A Reflection Of Fluoride Exposure And Its Impact On IQ Level And BMI Of Children Of Laxmisagar, Simlapal Block Of Bankura District, W.B., India. *Environmental Monitoring and Assessment*, 188(4):218.
4. Ding, Y., Yanhui, G., Sun, H., Han, H., Wang, W., Ji, X., Liu, X., & Sun, D. (2011). The relationships between low levels of urine fluoride on children's intelligence, dental fluorosis in endemic fluorosis areas in Hulunbuir, Inner Mongolia, China. *Journal of Hazardous Materials*, 186(2-3):1942-1946.
5. Khan, S.A., Singh, R.K., Navit, S., Chadha, D., Johri, N., Navit, P., Sharma, A., & Bahuguna R. (2015). Relationship Between Dental Fluorosis And Intelligence Quotient Of School Going Children In And Around Lucknow District: A Cross-sectional Study. *Journal of Clinical & Diagnostic Research*, 9(11):ZC10-15.
6. Kundu, H., Basavaraj, P., Singla, A., Gupta, R., Singh, K., & Jain, S. (2015). Effect of fluoride in drinking water on children's intelligence in high and low fluoride areas of Delhi. *Journal of the Indian Association of Public Health Dentistry*, 13(2):116-121.
7. Li, F., Chen, X., Huang, R., & Xie, Y. (2009). The impact of endemic fluorosis caused by the burning of coal on the development of intelligence in children. *Journal of Environmental Health*, 26(4):838-40.
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9. Lin, F.F., Aihaiti, Zhao, H.X., Lin, J., Jiang, J.Y., Malmaiti, & Aiken (1991). The relationship of a low-iodine and high-fluoride environment to subclinical cretinism in Xinjiang. *Endemic Disease Bulletin*, 6(2):62-67.
10. Lu, Y., Sun, Z.R., Wu, L.N., Wang, X., Lu, W., & Liu, S.S. (2000). Effect of high-fluoride water on intelligence of children. *Fluoride* 33(2):74-78.
11. Mondal, D., Dutta, G., & Gupta, S. (2016). Inferring The Fluoride Hydrogeochemistry And Effect Of Consuming Fluoride-contaminated Drinking Water On Human Health In Some Endemic Areas Of Birbhum District, West Bengal. *Environmental Geochemistry and Health*, 38(2):557-76.
12. Pang, H., Yu, L., Lai, X., Chen, Q. (2018). Relation Between Intelligence and COMT Gene Polymorphism in Children Aged 8-12 in the Endemic Fluorosis Area and Non-Endemic Fluorosis Area. *Chinese Journal of Control of Endemic Diseases*, 32(2):151-152.
13. Pourselami, H.R., Horri, A., Khoramian, S., & Garrusi, B. (2011). Intelligence quotient of 7 to 9 year-old children from an area with high fluoride in drinking water. *Journal of Dentistry and Oral Hygiene*, 3(4):61-64.
14. Pratap, S., Singh, C., Sandeep, T., Vikas, G., Mukesh, T., & Anurag, T. (2013). A correlation between Serum Vitamin, Acetylcholinesterase Activity and IQ in children with excessive endemic fluoride exposure in Rajasthan, India. *International Research Journal of Medical Sciences*, 1(3), 12-16.
15. Qin, L., Huo, S., Chen, R., Chang, Y., & Zhao, M. (2008). Using the Raven's standard progressive matrices to determine the effects of the level of fluoride in drinking water on the intellectual ability of school-age children. *Fluoride*, 41(2):115–119.
16. Razdan, P., Patthi, B., Kumar, J.K., Agnihotri, N., Chaudhan, P., & Prasad, M. (2017). Effect of fluoride concentration in drinking water on intelligence quotient of 12–14-year-old children in Mathura District: A cross-sectional study. *Journal of International Society of Preventive & Community Dentistry*, 7(5):252-258.
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19. Seraj, B., Shahrabi, M., Shadfar, M., Ahmadi, R., Fallahzadeh, M., Eslamli, H.F., & Kharazifard, M.J. (2012). Effect of high water fluoride concentration on the intellectual development of children in Makoo/Iran. *Journal of Dentistry, Tehran University of Medical Sciences*, 9(3): 221-29.

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21. Shivaprakash, P.K., Ohri, K., & Noorani, H. (2011). Relation between dental fluorosis and intelligence quotient in school children of Bagalkot district. *J Indian Soc Pedod Prev Dent*. 29(2):117-20.
22. Singh, V.P., Chauhan, D.S., Tripathi, S., Kumar, S., Gaur, V., Tiwari, M., & Tomar, A. (2014). A correlation between serum vitamin, acetylcholinesterase activity and IQ in children with excessive endemic fluoride exposure in Rajasthan, India. *European Academic Journal*, 2(4):5857-5869.
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24. Wang, M., Liu, L., Li, H., Li, Y., Liu, H., Hou, C., Zeng, Q., Li, P., Zhao, Q., Dong, L., Zhou, G., Yu, X., Liu, L., Guan, Q., Zhang, S., & Wang, A. (2019). Thyroid function, intelligence, and low-moderate fluoride exposure among Chinese school-age children. *Environment International*, 134:105229.
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Assessment type: Wechsler Intelligence Scale or variation

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Assessment type: Other

43. Guo, X., Wang, R., Cheng, C., Wei, W., Tang, L., Wang, Q., Tang, D., Liu, G., He, G., & Li, S. (2008). A preliminary investigation of the IQs of 7-13 year old children from an area with coal burning-related fluoride poisoning. *Fluoride*, 41(2):125-128.
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NO RELATIONSHIP/ **NON-SIGNIFICANT**

Assessment type: Raven's Matrices or variation

1. **Eswar P, Nagesh L, Devaraj CG. (2011). Intelligent quotients of 12-14 year old school children in a high and low fluoride village in India. *Fluoride* 44:168-72.
2. **Fan, Z., Dai, H., Bai, A., Li, P., Ro, L., Li, G., Zhang, C., & Li, X. (2007). The effect of high fluoride exposure on the level of intelligence in children. *Journal of Environmental Health*, 24(10):802-03.
3. He, M.Z. & Zhang, C.N. (2010). Investigation of children's intelligence quotient and dental fluorosis in drinking water-type of endemic fluorosis area in Pucheng county Shaanxi province before and after drinking water change. *Chinese Journal of Endemiology*, 29(5):547-48.
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6. Li, X., Hou, G., Yu, B., Yuan, C., Liu, Y., Zhang, L., & Hao, Z. (2010). Investigation and Analysis of Children's IQ and Dental Fluorosis in a High Fluoride Area. *Chinese Journal of Pest Control*, 26(3):230-31.
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Assessment type: Wechsler Intelligence Scale or variation

10. Broadbent, J.M, Thomson, W.M., Ramrakha, S., Moffitt, T.E., Zeng, J., Foster Page, L.A., & Poulton, R. (2015). Community Water Fluoridation And Intelligence: Prospective Study In New Zealand. *American Journal of Public Health*, 105(1):72-76.
11. Calderon, J., Blenda, M., Marielena, N., Leticia, C., Deogracias, O.M, & Diaz-Barriga, F. (2000). Influence of fluoride exposure on reaction time and visuospatial organization in children. *Epidemiology*, 11(4): S153.
12. Spittle, B., Ferguson, D., & Bouwer, C. (1998). Intelligence And Fluoride Exposure In New Zealand Children. *Fluoride*, 31(3):S13.

Assessment type: Other

13. Hu Y. & Yu Z. (1989). Research on the intellectual ability of 6-14 year old students in an area with endemic fluoride poisoning. Collection of papers and abstracts of 4th China Fluoride Research Association, Article in Chinese; translation by Julian Brooke, 3/30/07, courtesy of the Fluoride Action Network., 6:73.
14. **Yang, Y., Wang, X., Guo, X., & Hu, P. (2008). The effects of high levels of fluoride and iodine on intellectual ability and the metabolism of fluoride and iodine. *Fluoride*, 41(4):336-339.

Meta Studies China – IQ

1. Tang, Q., Du, J., Ma, H. et al. *Biol Trace Elem Res* (2008). Fluoride and Children's Intelligence: A Meta-analysis. *Biological Trace Element Research*, 126(1-3): 115-120.
2. Choi, A. L., Sun, G., Zhang, Y., & Grandjean, P. (2012). Developmental fluoride neurotoxicity: a systematic review and meta-analysis. *Environmental health perspectives*, 120(10), 1362–1368.

ADHD in Developed Countries

1. Malin, A. J., & Till, C. (2015). Exposure to fluoridated water and attention deficit hyperactivity disorder prevalence among children and adolescents in the United States: an ecological association. *Environmental health: a global access science source*, 14, 17.
2. Perrot, K.W (2018). Fluoridation and attention deficit hyperactivity disorder - a critique of Malin and Till (2015). *British Dental Journal*, 223(11):819-822
3. Barberio, A.M., Quiñonez .C, Hosein, F.S and McLaren L(2017). Fluoride exposure and reported learning disability diagnosis among Canadian children: Implications for community water fluoridation. *Canadian Journal of Public Health*, 108(3): e229-e239

Autism

Strunecka, A., & Strunecky, O. (2019). Chronic Fluoride Exposure and the Risk of Autism Spectrum Disorder. *International journal of environmental research and public health*, 16(18), 3431.
doi:10.3390/ijerph16183431

Pubertal Development

Liu, Y., Téllez-Rojo, M., Hu, H., Sánchez, B. N., Martínez-Mier, E. A., Basu, N., ... Peterson, K. E. (2019). Fluoride exposure and pubertal development in children living in Mexico City. *Environmental health : a global access science source*, 18(1), 26.