Table 1: Epidemiological clinical studies.

Author, year of publication	Type of study Country, year	Participants Number of patients (n)	Type of OA and method of evaluation	Type of Pollutant and method to determine exposure	Available Results	Potential bias
Kanagawa, 2008 [15]	Cross- sectional From the Yucho patients: post mass poisoning in 1968 (contamination of oil) Western Japan, 2001-2004	n=501	"Arthralgia" Self-reported	PCB, PCQ, PCDF Serum concentration	Arthralgia correlated with PCB/PCQF and PCQ blood concentration Wald test between 4 and 10	Cross-sectional No precision of OA Questionnaire No comparison exposed/ non exposed (only correlation with blood concentration)
Guo, 1999 [14]	Cross- sectional From the Yucheng registry: post mass poisoning in 1979 (contamination of oil) Taiwan, 1993	n=795 cases n= 693 controls	"Arthritis" Self-reported	PCB Patients of a register (use of contaminated oil for cooking)	Arthritis in PCB/PCDF exposed vs non-exposed: OR = 4.1 (1.8-11.2) for men, 1.3 (0.8-2.3) for women	Cross-sectional No precision of OA Questionnaire

Anderson, 1978 [16]	Cross-sectional Consumption of contaminated produce (meat, milk, dairy products, eggs) USA, 1978	n=933 cases in Michigan: farmers, consumers of produce bought directly from farms n=228 controls in Wisconsin	Self-reported + physical examination joint pain, joint swelling, deformation	PCB Patients of a register (consumption of contaminated farm produce) Serum concentration	Arthritis in PCB exposed vs non-exposed: higher prevalence of musculo-skeletal symptoms, $\chi 2$ = 3.8, p = 0.05 Current degenerative arthritis under treatment : 10.3% in cases, 17% in controls, $\chi 2$ = 4.22, p < 0.05	Cross-sectional No precision of OA Questionnaire Young age of participants: OA ? No results about serum concentration
Lee, 2007 [17]	Cross- sectional NHANES USA, 1999-2002	n=116 OA n=414 arthritis n=1721 participants to blood sample for POP in NHANES	Self-reported NHANES standardized home interview + physical examination No precision of the OA site	POP : PCDD, PCDF, dioxin like PCB, nondioxin like PCB, OC pesticides Serum concentration	Arthritis in POP exposed vs non-exposed : statistical association only for 5/9 subtypes of PCB and ¼ subtype of OC pesticides Maximal aOR = 3.2 (1.5-6.7), p<0.01 for PCB; 3.1 (1.3-7.1) for OC pesticides Statistical association only in women RA: significant association; OA : no	Cross-sectional Questionnaire

					statistically significant association	
Innes, 2011 [18]	Cross- sectional Consumption of contaminated water USA, 2005-2006	n=3731 OA n=49 432 participants to C8 Health Project	Self-reported questionnaire No precision of the OA site	PFOA, PFOS serum concentration	OA in PFOA/PFOS exposed vs non-exposed : PFOA : fully aOR = 1.42 (1.26-1.59) p=0.00001 PFOS : fully aOR = 0.76 (0.68-0.85) p=0.00001	Cross-sectional Questionnaire
Uhl, 2013 [19]	Cross- sectional NHANES USA, 2003-2008	n=365 OA n=4102 participants with PFOA/PFOS serum concentration and OA status information in NHANES	Self-reported NHANES questionnaire	PFOA, PFOS serum concentration	OA in PFOA/PFOS exposed vs non-exposed : : PFOA : OR = 1.62 (1.10-2.39) p<0.05; fully aOR = 1.55 (0.99-2.43) Women 1.98 (1.24-3.19); men 0.82 (0.40-1.70) PFOS : OR = 2.16 (1.37-3.39) p<0.01; fully aOR = 1.77 (1.05-2.96) p<0.05	Cross-sectional Questionnaire

					Women 1.73 (0.97-3.10); men 1.56 (0.54-4.53)	
Kim, 2018 [20]	Cross- sectional KNHANES Korea, 2010-2012	n=2388 participants with lead serum concentration status	Knee OA Radiological examination	Lead Serum concentration	Knee OA in lead exposed vs non-exposed: aOR = 1.90 (1.09-3.32) in men, 1.81 (1.17-2.77) in women	Cross-sectional
Nelson, 2011 [21]	Cross- sectional Johnston County Osteoarthritis Project USA, 2003-2004	n=1669 participants with lead serum concentration status n=1635 knee rOA	Knee OA Radiological examination	Lead Serum concentration	Knee OA in lead exposed vs non-exposed: aOR = 1.20 (1.01-1.44), aOR of having bilateral knee OA = 1.32 (1.03-1.70)	Cross-sectional
Abo-Elmaaty, 2017 [22]	Cross- sectional Egypt, 2014-2015	n=90 knee OA	Knee OA Radiological examination	Lead Serum concentration	aOR for symptomatic knee OA = 1.16 (0.93-1.45). The higher the lead serum concentration is, the higher aOR is. Lead serum concentration is correlated with the	Small sample size Cross-sectional No healthy controls

Supplemental material

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					severity of knee OA either clinically and radiographically : WOMAC / lead level r= 0.403, p<0.001; KL scoring / lead level r=0.643, p<0.001	
Wang, 2010 [24]		n=3 knee OA n=2 immune humatism	Knee OA	BPA serum and synovial fluid concentration	Presence of BPA in serum of OA patients vs absence in serum of immune rheumatism patients	
Nelson, 2011 [23]	From Johnston County Osteoarthritis Project North California, USA 2003-2004	n=671 participants with lead serum concentration and biomarkers of joint tissue metabolism	Knee OA	Lead Serum concentration Serum and urine joint biomarkers	Biomarkers in lead exposed vs non-exposed : NTX: aOR = 1.45 (1.21-1.74) for women, 1.06 (0.95-1.18) for men; CTX: aOR = 1.28 (1.04-1.58) for women, 1.07 (0.97-1.18) for men; COMP : aOR = 0.96 (0.87-1.06) in women, 1.08 (1.00-1.18) in men	Biomarkers used are biomarkers of bone tissue also

| Yamamoto ,2018 (abstract) [25] | SAGE (World Health Organization Study on Global AGEing and Adult Health)

China, Ghana, India, Mexico, Russian federation, South Africa,

2007-2010 | n=NA | Arthritis | Air pollution cooking activities | Arthritis in household air pollution exposed vs non-exposed (electricity) :

aOR for gas/kerosene/paraffin = 1.73 (1.33-2.25), for coal/charcoal/wood = 1.73 (1.32-2.27), for agriculture/crop… = 2.00 (1.47-2.72) | All confounding factors probably not taken into account |

OA: osteoarthritis, rOA: radiologicOA, OR: odds ratio, aOR: adjusted odds ratio, PCB: polychlorinated biphenyls, PCQ: polychlorinated quarterphenyls, PCDF: polychlorinated dibenzofurans, PFOA: perfluorooctanoate, PFOS: perfluorooctane sulfonate, POP: persistent organic pollutants, PCDD: polychlorinated dibenzo-p-dioxins, PCDF:polychlorinated dibenzofurans, RA :rheumatoid arthritis, WOMAC: the Western Ontario and Mc Master Universities Osteoarthritis Index, KL: Kellgren-Lawrence, NA: not available, NTX: urinary cross-linked N telopeptide, CTX :C- telopeptide fragments, COMP: cartilage oligometric matrix protein.