Supplemental Materials

Supplementary Table S1: Characteristics of Included Global Prevalence Meta-Analyses from Q1 Public Health Journals

Title	First author (Year)	Journal	Condition/Event evaluated	No. of included studies	Total sample size	Pooled prevalence (%)	I² (%)	Model used	Meta-regression	Sensitivity analysis	Pre-specified subgroups
A global prevalence of electronic nicotine delivery systems (ENDS) use among students: A systematic review and meta-analysis	Albadrani (2024)	BMC Public Health	ENDS use in students	146	4,189,145	10.2% (9.5-11.0)	99%	Random-effects DL	No	Yes (cumulative analysis)	Yes (gender, continents)
A systematic review and meta-analysis of the global prevalence of human enteric adenovirus infections	Wikswo (2025)	Journal of Infection and Public Health	Enteric adenovirus infection in AGE	147	NR	5.8% (4.9-6.8)	93.70%	Random-effects GLMM	Yes (age, method, development)	NR	Yes (age, method, country)
Age-specific global prevalence of hepatitis B, hepatitis C, HIV, and tuberculosis among incarcerated people: A systematic review	Kinner (2018)	Journal of Adolescent Health	HBV/HCV/HIV/TB in incarcerated population	72	NR	Variable by pathogen	79.2-97.8%	Random-effects logistic	No	Yes (high-risk exclusion)	Yes (age <25 vs ≥25)
Global prevalence, incidence, and outcomes of alcohol related liver diseases: A systematic review and meta-analysis	Niu (2023)	BMC Public Health	Alcohol-related liver disease	353	198,423,289	4.8% (4.1-5.6)	99.998	Random-effects	No	Yes (high weight)	Yes (region, sex, period)
Estimating global prevalence of mild cognitive impairment and dementia in elderly with overweight, obesity, and central obesity: A systematic review and meta-analysis	Wei (2025)	Obesity Reviews	MCI and dementia in obese elderly	72	2,980,947	MCI: 32.54% (21.43-46.05), Dementia: 9.47% (7.70-11.59)	99.7-100%	Random-effects DL	Yes (multiple variables)	Yes (leave-one-out)	Yes (region, country, income)
Estimating the global prevalence of chronic obstructive pulmonary disease (COPD): A systematic review and meta-analysis	Al Wachami (2024)	BMC Public Health	COPD by spirometry	42	339,475	FR: 12.64% (10.75-14.65), LLN: 7.38% (5.47-9.55)	>70%	Random-effects	Yes (multiple parameters)	Yes (no changes)	Yes (age, sex, region, smoking)
Global and regional estimates of COPD prevalence: Systematic review and meta-analysis	Adeloye (2015)	Journal of Global Health	COPD by spirometry	128	877,566	11.4% (10.8-12.0)	99.2	Random-effects DL	Yes (age, year)	No	Yes (WHO region, income, urban/rural)
Global birth prevalence of major congenital anomalies: A systematic review and meta-analysis	Xie (2025)	BMC Public Health	8 major congenital anomalies	123	769,455,220	Variable by anomaly	>90%	Random-effects	No	No	Yes (region, income, time)

Global epidemiology of retinal vein occlusion: A systematic review and meta-analysis	Song (2025)	Journal of Global Health	Retinal vein occlusion	22	120,771	0.77% (0.55-1.08)	93.60%	Random-effects multilevel	Yes (age, sex multilevel)	Yes (leave-one-out)	Yes (age, sex, RVO type)
Global prevalence and case fatality rate of enterovirus D68 infections, a systematic review and meta-analysis	Fall (2022)	Neglected Tropical Diseases	Enterovirus D68 infections	89	204,351	Current: 4.0% (3.1-5.0), Past: 66.3% (40.0-88.2), CFR: 0.0% (0.0-0.1)	99.0-99.5%	Random-effects	No	Yes (cross-sectional, low risk)	Yes (WHO region, population, method)
Global prevalence and correlates of mpox vaccine acceptance and uptake: A systematic review and meta-analysis	Sulaiman (2024)	Communications Medicine	Mpox vaccine acceptance/uptake	61	263,857	Acceptance: 59.7% (51.1-68.1), Intention: 60.9% (52.1-69.3), Uptake: 30.9% (21.0-41.7)	22.7	Random-effects	No	Yes (extensive leave-one-out)	Yes (WHO region, population)
Global prevalence and dynamics of mecA and mecC genes in MRSA: Meta-meta-analysis, meta-regression, and temporal investigation	Suleiman (2025)	Journal of Infection and Public Health	mecA/mecC genes in MRSA	14	322,269	mecA/mecC: 6.37% (2.72-14.23), mecC: 2.41% (0.72-7.78)	99.80%	Random-effects DL	Yes (time, genes)	Yes (one study removed)	Yes (humans/animals, region)
Global prevalence and epidemiological trends of Hashimoto's thyroiditis in adults: A systematic review and meta-analysis	Hu (2022)	Frontiers in Public Health	Hashimoto's thyroiditis	48	22,680,155	7.5% (NR-NR)	100%	Random-effects	No	Yes (any study removed)	Yes (sex, continent, income, diagnosis)
Global prevalence and mental health outcomes of intimate partner violence among women: A systematic review and meta-analysis	White (2024)	Review Manuscript	Intimate partner violence in women	201	301,182	Past year: 24.2% (20.4-28.4), Lifetime: 37.3% (30.6-44.6)	99.3-99.7%	Random-effects	No	Yes (design, OR type)	Yes (population, country income, IPV type)
Global prevalence and potential influencing factors of COVID-19 vaccination hesitancy: A meta-analysis	Fajar (2022)	Vaccines	COVID-19 vaccine hesitancy	56	NR	25% (19-32)	100%	Random-effects	No	No	Yes (general population, health workers, students)
Global prevalence and predictors of scabies among prisoners: Systematic review and meta-analysis	Delie (2024)	BMC Public Health	Scabies in prisons	7	1,309,323	6.57% (2.16-19.94)	99.78%	Random-effects	No	Yes (no study influences)	Yes (Africa vs outside Africa)
Global prevalence and risk factors for mental health problems in police personnel: A systematic review and meta-analysis	Syed (2020)	Occupational and Environmental Medicine	Mental health problems in police	67	272,463	PTSD: 14.2% (10.3-18.7), Depression: 14.6% (10.9-18.6), Risk alcohol: 25.7% (19.6-32.4)	95.7-99.2%	Random-effects	Yes (age, sex, year)	Yes (no study >0.5% impact)	Yes (continent, trauma type, sample size)

Global prevalence of alkhumra hemorrhagic fever virus infection: The first meta-analysis and systematic review	Alshehri (2024)	Journal of Infection and Public Health	Alkhumra hemorrhagic fever virus infection	13	NR	1.3% (0.3-6.3)	97.78%	Random-effects DL	No	Yes (stable leave-one-out)	Yes (region, country, period, sample source)
Global prevalence of Ascaris infection in humans (2010–2021): A systematic review and meta-analysis	Holland (2022)	Infectious Diseases of Poverty	Ascaris lumbricoides infection	758	4,923,876	11.01% (10.27-11.78)	99.80%	Random-effects DL	Yes (multiple covariates)	No	Yes (region, age, sex, residence, diagnostic method)
Global prevalence of childhood exposure to physical violence within domestic and family relationships in the general population: A systematic review and proportional meta-analysis	Whitten (2024)	Trauma Violence Abuse	Exposure to domestic physical violence (victim and witness)	52 (victim), 37 (witness)	NR	Victim: 17.3% (13.4-21.7); Witness: 16.5% (12.7-20.8)	99.9% (both)	Random effects	No	Yes (unstable outliers exclusion)	Yes (region, sex)
Global prevalence of coronavirus disease 2019 reinfection: A systematic review and meta-analysis	Ukwishaka (2023)	BMC Public Health	COVID-19 reinfection	52	3,623,655	4.2% (3.7-4.8)	99.92	Random effects (metaprop command)	Yes (region, study type, sample type)	Yes (individual studies removal)	Yes (region, study design, sample type)
Global prevalence of drug-resistant tuberculosis	Salari (2023)	Infectious Diseases of Poverty	Drug-resistant TB (MDR-TB, INH-R, RIF-R, XDR-TB, etc.)	148	318,430 (for MDR-TB)	MDR-TB: 11.6%; INH-R: 15.7%; RIF-R: 9.4%; XDR-TB: 2.5%	98.5-99.6%	Random effects	Not reported	Yes (confirmed stability)	Yes (by sex for some resistance types)
Global prevalence of norovirus gastroenteritis after emergence of the GII.4 Sydney 2012 variant: A systematic review and meta-analysis	Zhang (2024)	Frontiers in Public Health	Norovirus gastroenteritis	94	85,798	19.04% (16.66-21.42)	99%	Random effects (metaprop function)	No	Yes (sensitivity analysis without significant differences)	Yes (region, hemisphere, economic development, temporal, gender)
Global prevalence of obesity and overweight among medical students: A systematic review and meta-analysis	Shafiee (2024)	BMC Public Health	Obesity and overweight in medical students	99	47,455	Overweight: 18% (17-20); Obesity: 9% (7-11)	95%	Random effects	Yes (study year, % males, mean age)	Not specifically reported	Yes (geographical regions)
Global prevalence of obesity, overweight and underweight in children, adolescents and adults with autism spectrum disorder, attention-deficit hyperactivity disorder: A systematic review and meta-analysis	Li (2020)	Obesity Reviews	Obesity/overweight/underweight in ASD and ADHD	ASD: 67 studies; ADHD: 48 studies	NR	ASD - Obesity: 21.8%, Overweight: 19.8%; ADHD - Obesity: 14.7%, Overweight: 20.9%	>60% (substantial)	Random effects (DerSimonian-Laird)	No	Not specifically reported	Yes (sex, age, region, study period)

Global prevalence of occupational injuries among sanitation workers: A systematic review and meta-analysis	Tolera (2024)	Frontiers in Public Health	Occupational injuries in sanitation workers	23	8,138	32.36% (25.22-39.50)	90%	Random effects (REML)	No	Yes (exclusion of 3 lowest and 3 highest extremes)	Yes (region, occupational category, temporal period)
Global prevalence of post-COVID-19 condition: A systematic review and meta-analysis of prospective evidence	Taher (2025)	Health Promotion and Chronic Disease Prevention in Canada: Research, Policy and Practice	Post-COVID-19 condition (persistent symptoms)	194	483,531	>50% (56.5% at 12-26 weeks, 77.6% >1 year)	100%	Random effects (metaprop function)	No	Not specifically reported	Yes (sex, severity, hospitalization, follow-up period)
Global prevalence of psittacosis in outbreaks: A systematic review and meta-analysis	Sheng (2025)	BMC Public Health	Psittacosis in outbreaks	31	4,158	27.7% (20.9-34.9)	94.49%	Random effects	Yes (region, outbreak site, season, infectious source)	Yes (no significant effects)	Yes (continent, outbreak site, season, source, study quality)
Global prevalence patterns and distribution of Vibrio cholerae: A systematic review and meta-analysis of 176,740 samples	Engku Abd Rahman (2024)	Journal of Infection and Public Health	Vibrio cholerae (multiple samples)	111	176,740	10.6% (8.2-13.5)	99.59%	Random effects (DerSimonian-Laird)	No	Yes (leave-one-out analysis)	Yes (country, continent, sample source)
Mapping global prevalence of menopausal symptoms among middle-aged women: A systematic review and meta-analysis	Fang (2024)	BMC Public Health	Menopausal symptoms (19 symptoms)	321	482,067	Variable: Hot flashes 52.65% (50.24-55.06), others 20-65%	>99% for all	Random effects (double-arcsine transformation)	No	Not specifically reported	Yes (geography, country income, year, quality, diagnostic tool)
Mapping the prevalence of COVID-19 vaccine acceptance at the global and regional level: A systematic review and meta-analysis	Renzi (2022)	Vaccines	COVID-19 vaccine acceptance	71	1,902,510	66% (61-71)	>95% almost all	Random effects (logit link)	Yes (geographic area, population, sample size, quality, period, response type)	Not specifically reported	Yes (geography, target population, study quality, sample size, period)
National, regional, and global prevalence of cigarette smoking among women/females in the general population: A systematic review and meta-analysis	Jafari (2021)	Environmental Health and Preventive Medicine	Cigarette smoking in women (ever/current)	109	18,290,793	Ever: 28% (24-32); Current: 17% (14-19)	100%	Random effects (DerSimonian-Laird)	Yes (implementation years, continent, study population)	Yes (cumulative meta-analysis)	Yes (continent, population, study design, sampling, assessment tool)
Prevalence and associated factors of self-medication in worldwide pregnant women: Systematic review and meta-analysis	Bouqoufi (2024)	BMC Public Health	Self-medication in pregnant women	65	42,615	44.50% (38.92-50.23)	99%	Random effects (Wilson-Score and Clopper Pearson)	No	Yes (exclusion of low quality and small size studies)	Yes (country income, region, study quality, sample size, design)

Prevalence and burden of HBV–HIV co-morbidity: A global systematic review and meta-analysis	Dagnaw (2025)	Frontiers in Public Health	HBV-HIV co-morbidity	18	71,411	Cross-sectional: 10.21%; Cohort: 11.05%	0.00%	Fixed effects (low heterogeneity)	Yes (country, year, setting)	Yes (Galbraith sensitivity analysis)	Yes (country, study type, publication year, setting)
Prevalence and determinants of gestational diabetes mellitus in Africa based on the updated international diagnostic criteria: A systematic review and meta-analysis	Muche (2019)	Archives of Public Health	Gestational diabetes mellitus in Africa	23	11,902	13.61% (10.99-16.23)	96.10%	Random effects	No	Yes (sensitivity analysis without influential studies)	Yes (Africa subregion, publication year, study quality, design)
Prevalence and global estimates of unsafe listening practices in adolescents and young adults: A systematic review and meta-analysis	Dillard (2022)	BMJ Global Health	Unsafe listening practices (devices/venues)	33	19,046	PLDs: 23.81% (18.99-29.42); Venues: 48.20% (model)	PLDs: 96.2%; Venues: 98.8%	Random effects	No	Yes (stable sensitivity analysis <2% change)	Yes (age, region, country income, risk criteria)
Prevalence of childhood sexual abuse among women using the Childhood Trauma Questionnaire: A worldwide meta-analysis	Pan (2021)	Trauma Violence Abuse	Childhood sexual abuse in women (CTQ-SF)	48	22,224	24% (21-27)	≥50%	Random effects	Yes (regions, economic level, sample sources, year, size, quality)	Yes (sequential exclusion without significant changes)	Yes (geographical regions, economic level, sample sources)
Prevalence of human papillomavirus infection, cervical intraepithelial neoplasia and cervical cancer in imprisoned women worldwide: A systematic review and meta-analysis	Escobar (2020)	Journal of Epidemiology and Community Health	HPV, CIN and cervical cancer in imprisoned women	35	53,533	HPV: 23-47% depending on HIV; CIN: NOT calculated (I^2=96%)	HPV: NR; CIN: 96%	Random effects	No	Not specifically reported	Yes (HIV prevalence in study population)
Prevalence of mental disorders in adult populations from the Global South following exposure to natural hazards: A meta-analysis	Kip (2024)	Epidemiology and Psychiatric Sciences	Mental disorders post-natural disasters (Global South)	75	82,400	PTSD: 26.0% (18.5-36.3); Depression: 21.7% (10.5-39.6)	93.3-99.4%	Random effects (GLMM logit)	No	Yes (leave-one-out, outliers exclusion)	Yes (disaster type, evaluation time, displaced population)
Prevalence of potential drug–drug interactions and associated factors among elderly patients in Ethiopia: A systematic review and meta-analysis	Alemayehu (2024)	Global Health Research and Policy	Potential drug-drug interactions in elderly (Ethiopia)	7	2,251	50.69% (18.77-82.63)	99.80%	Random effects (DerSimonian-Laird)	No	Yes (leave-one-out without significant changes)	Yes (region, database, design, pathology, setting)

Syphilis epidemic among men who have sex with men: A global systematic review and meta-analysis of prevalence, incidence, and associated factors	Zheng (2024)	Journal of Global Health	Syphilis in men who have sex with men	376	1,529,065	Prevalence: 10.4% (9.7-11.1); Incidence: 76.4 (56.9-98.3) per 1000 p-y	99%	Random effects (Freeman-Tukey double arcsine)	No	Yes (leave-one-out 10.3-10.4%)	Yes (HIV status, age, education, sexual behaviors, region)
Systematic review and meta-analysis of the prevalence of coronavirus: One Health approach for a global strategy	Faustino (2022)	Infectious Diseases of Poverty	Coronavirus in animal species (One Health)	29	NR	20% (13-28) total; Birds: 24% (12-38); Mammals: 18% (10-28)	99.50%	Random effects (DerSimonian-Laird)	No	Yes (identified determinant studies)	Yes (taxonomic class: birds vs mammals)
The global and regional prevalence of hepatitis C and B co-infections among prisoners living with HIV: A systematic review and meta-analysis	Gharaei (2021)	Infectious Diseases of Poverty	HCV/HBV co-infections in HIV+ prisoners	52	NR	HBV: 12% (9-16); HCV: 62% (53-71)	HBV: 93.8%; HCV: 95.8%	Random effects	Yes (WHO region)	Yes (jack-knife sensitivity)	Yes (WHO region, years, study quality)
The global and regional prevalence of restless legs syndrome among adults: A systematic review and modelling analysis	Song (2024)	Journal of Global Health	Restless legs syndrome	52	228,301	7.12% (5.15-9.76) global; H-SDI: 7.29%; LM-SDI: 7.10%	>75% (substantial)	Random effects + multivariable model (MLM)	No	Not specifically reported	Yes (age, sex, SDI-WHO region, associated factors)
The global prevalence of daptomycin, tigecycline, quinupristin/dalfopristin, and linezolid-resistant Staphylococcus aureus and coagulase–negative staphylococci strains: A systematic review and metaanalysis	Shariati (2020)	Antimicrobial Resistance and Infection Control	Antimicrobial resistance Staphylococcus	Variable by antibiotic	NR	Daptomycin, linezolid, Q/D, tigecycline: 0-1.6% depending on bacteria	99%	0	No	Not specifically reported	Yes (bacteria type, antibiotic, country, diagnostic method)
The global prevalence of fusidic acid resistance in clinical isolates of Staphylococcus aureus: A systematic review and meta-analysis	Hajikhani (2021)	Antimicrobial Resistance and Infection Control	Fusidic acid resistance in S. aureus	208 (FRSA), 143 (FRMRSA), 71 (FRMSSA)	157,220 (FRSA total)	FRSA: 5.0% (4.6-5.4); FRMRSA: 2.6% (2.3-2.9); FRMSSA: 6.7% (5.4-7.9)	95%	Fixed-effects and Random-effects	No	No	Yes (temporal periods, geographical regions)
The global prevalence of methicillin-resistant Staphylococcus aureus colonization in residents of elderly care centers: A systematic review and meta-analysis	Hasanpour (2023)	Antimicrobial Resistance and Infection Control	MRSA colonization in elderly care centers	119	164,717	14.69% (12.39-17.15)	99.30%	Random-effects DerSimonian-Laird	Yes (publication year, sample size, income, HDI)	No	Yes (WHO regions, income level, HDI, center type, study design)

The global prevalence of non-suicidal self-injury, suicide behaviors, and associated risk factors among runaway and homeless youth: A meta-analysis	Armoon (2024)	Community Mental Health Journal	NSSI, suicidal ideation, suicide attempts in homeless youth	69	109,934	NSSI: 42% (33-51); Ideation: 38% (33-43); Attempts: 27% (24-31)	≥50% (cutoff used)	Random-effects	Yes (age, sample size, publication year, quality, location)	Yes (Baujat plots, exclusion of studies with highest heterogeneity)	Yes (age, sample size, design, quality, geographical regions)
The global prevalence of single-child families with emphasis on influential factors: A comprehensive systematic review and meta-analysis	Salari (2025)	Population Health Metrics	Single-child families	33	392,241	41.3% (33.1-49.9)	99.90%	Random-effects	Yes (sample size, publication year)	No	No specifics
The global prevalence of Trichuris trichiura infection in humans (2010-2023): A systematic review and meta-analysis	Behniafar (2024)	Journal of Infection and Public Health	Trichuris trichiura infection	793 datasets	7,154,842	7.10% (6.64-7.57)	96.91%	Random-effects DerSimonian-Laird	Yes (publication year, sampling date, per capita income, HDI)	Yes (leave-one-out, large studies exclusion)	Yes (SDG regions, age, sex, residence, health status, income level, HDI)
The prevalence of adult attention-deficit hyperactivity disorder: A global systematic review and meta-analysis	Song (2021)	Journal of Global Health	ADHD in adults	40	157,380 (combined total)	Persistent ADHD: 4.61% (3.41-5.99); Symptomatic ADHD: 8.83% (7.23-10.57)	Persistent ADHD: 98.8%; Symptomatic ADHD: 97.6%	Random-effects Mantel-Haenszel	Yes (age as continuous function with random effects)	Yes (leave-one-out)	Yes (diagnostic tool, DSM version, sex, setting, period, WHO/WB regions)
Worldwide perinatal intimate partner violence prevalence and risk factors for post-traumatic stress disorder in women: A systematic review and meta-analysis	Dai (2024)	Trauma Violence Abuse	PTSD in women with perinatal partner violence	16	9,098	30.0% (22.0-37.0)	96.50%	Random-effects	No	Yes (sequential individual removal)	Yes (violence period, violence type, assessment tools, country income level, publication year, sample size, design)
Worldwide prevalence of intimate partner violence in pregnancy. A systematic review and meta-analysis	Román-Gálvez (2021)	Frontiers in Public Health	Intimate partner violence in pregnancy	157	322,572	Physical: 9.2% (7.7-11.1); Psychological: 18.7% (15.1-22.9); Sexual: 5.5% (4.0-7.5); Any type: 25.0% (20.3-30.5)	95%	Random-effects multilevel logistic regression	Yes (publication year, geographic area, instrument type, measurement purpose)	No	Yes (geographic area, instrument type, measurement purpose)

Supplementary Table S2: AMSTAR-2 Quality Assessment of Included Meta-Analyses

Author (Year)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Quality
Albadrani (2024)	P	N	P	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Wikswo (2025)	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	P	Y	Y	Y	Y	Moderate
Kinner (2018)	P	N	P	Y	N	N	N	Y	Y	N	Y	Y	P	Y	Y	Y	Low
Niu (2023)	Y	N	Y	Y	N	N	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Wei (2025)	P	Y	P	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Moderate
Al Wachami (2024)	P	N	P	Y	N	Y	N	Y	Y	N	Y	P	P	Y	Y	Y	Low
Adeloye (2015)	P	N	N	Y	N	N	N	P	P	N	Y	N	P	Y	P	Y	Critically low
Xie (2025)	P	N	P	Y	N	N	N	Y	Y	N	Y	Y	Y	Y	N	Y	Low
Song (2025)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Fall (2022)	P	N	P	Y	N	Y	N	Y	Y	N	Y	P	Y	Y	Y	Y	Low
Sulaiman (2024)	P	N	P	Y	N	N	N	Y	N	N	Y	Y	N	P	N	Y	Critically low
Suleiman (2025)	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Moderate
Hu (2022)	P	N	P	P	N	N	N	Y	Y	N	Y	P	P	Y	Y	Y	Critically low
White (2024)	P	N	P	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Fajar (2022)	P	N	P	Y	N	N	N	P	P	N	Y	N	N	P	N	Y	Critically low
Delie (2024)	Y	N	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Syed (2020)	P	Y	P	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Alshehri (2024)	P	N	P	Y	N	N	N	Y	Y	N	Y	P	Y	P	Y	Y	Low
Holland (2022)	P	Y	P	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Moderate
Whitten (2024)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Ukwishaka (2023)	P	N	P	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Salari (2023)	P	N	P	Y	N	N	N	Y	P	N	Y	P	P	Y	Y	Y	Critically low
Zhang (2024)	P	N	P	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Shafiee (2024)	P	N	P	P	N	N	N	P	Y	N	Y	N	P	Y	P	Y	Critically low
Li (2020)	P	Y	P	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	P	Y	Y	Low
Tolera (2024)	P	N	P	Y	N	N	N	Y	Y	N	Y	P	Y	Y	Y	Y	Low
Taher (2025)	P	N	N	Y	N	N	N	Y	Y	N	Y	N	P	P	Y	Y	Critically low
Sheng (2025)	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Moderate
Engku Abd Rahman (2024)	P	N	P	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Fang (2024)	P	N	P	Y	N	N	N	P	P	N	Y	N	N	P	N	Y	Critically low
Renzi (2022)	P	Y	P	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Moderate
Jafari (2021)	P	N	P	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Bouqoufi (2024)	P	N	P	Y	N	N	N	Y	Y	N	Y	P	P	Y	Y	Y	Low
Dagnaw (2025)	Y	N	Y	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Muche (2019)	P	N	P	Y	N	N	N	Y	P	N	Y	P	P	Y	P	Y	Critically low
Dillard (2022)	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Moderate
Pan (2021)	P	N	P	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Escobar (2020)	P	N	N	P	N	N	N	P	N	N	Y	N	N	N	N	Y	Critically low
Kip (2024)	P	N	P	Y	N	N	N	Y	Y	N	Y	P	Y	Y	Y	Y	Low
Alemayehu (2024)	P	N	P	Y	N	N	N	Y	Y	N	Y	P	Y	P	Y	Y	Low
Zheng (2024)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	High
Faustino (2022)	P	N	P	Y	N	N	N	Y	Y	N	Y	P	P	Y	Y	Y	Low
Gharaei (2021)	P	N	P	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Song (2024)	P	Y	P	Y	N	N	Y	Y	Y	N	Y	P	P	P	Y	Y	Low

Shariati (2020)	P	N	P	N	N	N	N	P	P	N	Y	N	N	P	P	Y	Critically low
Hajikhani (2021)	P	N	P	Y	N	N	N	Y	Y	N	Y	N	P	Y	Y	Y	Critically low
Hasanpour (2023)	P	Y	P	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Moderate
Armoon (2024)	P	N	P	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Salari (2025)	P	N	P	Y	N	N	N	P	N	N	Y	N	N	P	N	Y	Critically low
Behniafar (2024)	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Moderate
Song (2021)	P	N	P	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Low
Dai (2024)	P	N	P	Y	N	N	N	Y	Y	N	Y	P	Y	Y	Y	Y	Low
Román-Gálvez (2021)	P	Y	P	Y	N	Y	N	Y	Y	N	Y	Y	Y	Y	Y	Y	Low

Legend: Y = Yes (fully meets), P = Partial (partially meets), N = No (does not meet)

AMSTAR-2 ITEMS

1. PICO components
2. Protocol registered*
3. Study design justification
4. Comprehensive search*
5. Duplicate selection
6. Duplicate extraction
7. List of excluded*
8. Description of included
9. Risk of bias*
10. Primary study funding
11. Appropriate methods*
12. Risk of bias in MA
13. Risk of bias interpretation*
14. Heterogeneity exploration*
15. Publication bias*
16. Conflicts of interest

*Critical items

Supplementary Code S1: R code for Bayesian meta-analysis of Hu *et al*. (2022) - Hashimoto's thyroiditis prevalence

```
####################################################################################
# SUPPLEMENTARY CODE S1
# Bayesian Meta-Analysis: Hu et al. (2022)
# Hashimoto's Thyroiditis - Global Prevalence
####################################################################################
```

```
# Load required packages
library(metafor)
library(bayesmeta)
# Data from Hu et al. (2022) - 48 studies
# Regional distribution: Asia (n=18), Europe (n=17), North America (n=3),
# South America (n=5), Africa (n=2), Oceania (n=3)
data <- data.frame(
study = c(
  "Okayasu_1991_Japan", "Okayasu_1994_USA", "Morinaka_1995_Japan",
"Tomimori_1995_Brazil", "Nagata_1998_Japan", "Aghini-Lombardi_1999_Italy",
  "Pedersen_2003_Denmark", "Volzke_2003_Germany", "Teng_2006_China",
  "Camargo_2006_Brazil", "Okosieme_2007_Nigeria", "Kurata_2007_Japan",
  "Teng_2008_China", "Camargo_2008_Brazil", "Dobert_2008_Germany",
  "Benvenga_2008_Italy", "Teng_2011_China", "Deshpande_2016_Australia",
  "Fernando_2012_SriLanka", "Sardu_2012_Italy", "Aghini-Lombardi_2013_Italy",
  "Vecchiatti_2015_Brazil", "Wu_2015_China", "Flores-Rebollar_2015_Mexico",
  "Li_2016_China", "Caturegli_2016_USA", "Tammaro_2016_Italy",
  "Tolentino_2019_Brazil", "Pilli_2019_Italy", "Troshina_2021_Russia",
  "Chen_2021_China", "Kim_2021_SouthKorea", "Yu_2021_China",
  "Jozkow_2017_Poland", "Izic_2021_Bosnia", "Gu_2016_China",
  "Bjoro_1984_Norway", "Chabchoub_2006_Tunisia", "Dingle_1966_England",
"Jacobs_1969_England", "Tunbridge_1977_England", "Prentice_1990_England",
"Aho_1971_Finland", "Gordin_1972_Finland", "Bryhni_1996_Norway",
  "Konno_1993_Japan", "O'Leary_2005_Australia", "Li_2008_China"),
  events = c(
  328, 457, 61, 72, 142, 50, 787, 47, 32, 82, 7, 25, 67, 183, 98,
  4064, 363, 17, 353, 678, 224, 106, 172, 36, 187, 4, 2828, 85, 9,
  428, 298, 29429, 148, 29375, 358, 17, 56, 246, 52, 99, 56, 124,
  89, 282, 176, 457, 262, 353),
  total = c(
  1826, 2040, 6348, 547, 1039, 1411, 4184, 3941, 3761, 420, 104,
  1626, 778, 1085, 700, 23000, 3813, 198, 5200, 25885, 1065, 4613,
```

```
 6152, 427, 2856, 1075, 7976, 60413, 142, 100000, 2946, 2170588,
 1159, 586703, 82000, 5293, 1640, 1079, 469, 989, 2779, 698,
 1137, 2961, 2551, 4110, 2115, 3018))
cat("Dataset: k =", nrow(data), "studies¥n")
cat("Total sample:", format(sum(data$total), big.mark=","), "participants¥n")
cat("Crude prevalence:",
 round(sum(data$events)/sum(data$total)*100, 2), "%¥n¥n")
###########################################################################################
# FREQUENTIST ANALYSIS
###########################################################################################
# Freeman-Tukey transformation for proportions
# Variance stabilizing transformation recommended by Schwarzer et al. (2019)
es <- escalc(measure = "PFT", xi = events, ni = total, data = data, add = 0)
# Random-effects model with REML
# Note: REML generally preferred over DL for better tau² estimation
freq_model <- rma(yi, vi, data = es, method = "REML", test = "knha")
# Back-transform to prevalence scale using harmonic mean
freq_prev <- predict(freq_model, transf = transf.ipft.hm,
 targ = list(ni = data$total))
cat("FREQUENTIST RESULTS (REML + Knapp-Hartung)¥n")
cat("============================================¥n")
cat(sprintf("Pooled prevalence: %.2f%% (95%% CI: %.2f - %.2f%%)¥n",
 freq_prev$pred*100, freq_prev$ci.lb*100, freq_prev$ci.ub*100))
cat(sprintf("95%% Prediction interval: %.2f - %.2f%%¥n",
 freq_prev$pi.lb*100, freq_prev$pi.ub*100))
cat(sprintf("I²: %.1f%%, tau²: %.4f, tau: %.4f¥n",
 freq_model$I2, freq_model$tau2, sqrt(freq_model$tau2)))
cat(sprintf("Q(df=%d) = %.2f, p < 0.001¥n¥n",
 freq_model$k-1, freq_model$QE))
###########################################################################################
# BAYESIAN ANALYSIS
###########################################################################################
```

```
# Weakly informative half-Normal prior for tau
# Scale parameter 0.5 chosen following Gelman (2006) recommendations
# for variance parameters in hierarchical models
bayes_model <- bayesmeta(
  y = es$yi,
sigma = sqrt(es$vi),
  labels = data$study,
tau.prior = function(t) dhalfnormal(t, scale = 0.5)
)
# Extract posterior summaries
post <- bayes_model$summary
# Transform back to prevalence scale
prev_mean <- mean(transf.ipft(post["mean", "mu"], data$total))
prev_median <- mean(transf.ipft(post["median", "mu"], data$total))
prev_lb <- mean(transf.ipft(post["95% lower", "mu"], data$total))
prev_ub <- mean(transf.ipft(post["95% upper", "mu"], data$total))
# Approximate predictive interval
# Based on posterior median of mu and tau
mu_pred <- post["median", "mu"]
tau_pred <- post["median", "tau"]
pred_lb_t <- mu_pred - 1.96 * tau_pred
pred_ub_t <- mu_pred + 1.96 * tau_pred
pred_lb <- mean(transf.ipft(pred_lb_t, data$total))
pred_ub <- mean(transf.ipft(pred_ub_t, data$total))
cat("BAYESIAN RESULTS (Half-Normal Prior)¥n")
cat("======================================¥n")
cat(sprintf("Prevalence (mean): %.2f%% (95%% CrI: %.2f - %.2f%%)¥n",
  prev_mean*100, prev_lb*100, prev_ub*100))
cat(sprintf("Prevalence (median): %.2f%%¥n", prev_median*100))
cat(sprintf("95%% Predictive interval: %.2f - %.2f%%¥n",
pred_lb*100, pred_ub*100))
cat(sprintf("Tau (mean): %.4f (95%% CrI: %.4f - %.4f)¥n",
```

```
  post["mean", "tau"], post["95% lower", "tau"],
  post["95% upper", "tau"]))
cat(sprintf("Tau (median): %.4f¥n¥n", post["median", "tau"]))
```

Supplementary Code S2.R code for Bayesian meta-analysis of Whitten *et al*. (2024) - Childhood violence exposure prevalence

```
##########################################################################################
# Bayesian Meta-Analysis: Whitten et al. (2024)
# Childhood Exposure to Physical Violence - Global Prevalence
##########################################################################################
# Load packages
library(metafor)
library(bayesmeta)
# Data extracted from Whitten et al. (2024) Figure 2
# Note: Cases calculated from reported prevalences (some rounding applied)
data <- data.frame(
  study = c(
  # West Asia & Africa (k=7)
  "Almuneef_2018_SaudiArabia", "Naicker_2020_SouthAfrica",
  "Satinsky_2021_Uganda", "Salawu_2020_Nigeria", "Chigiji_2018_Zimbabwe",
"Fernandes_2021_India", "Peltzer_2022_Guyana",
  # North America (k=15)
  "Fuller_Thomson_2013_Canada", "Shields_2016_Canada", "Burgin_2021_USA",
"Iverson_2013_USA", "Fang_2017_USA", "Ford_2011_USA", "Alcala_2016_USA",
  "Hazzard_2021_USA", "Anderson_2013_USA", "Afifi_2011_USA", "Afifi_2017_USA",
  "Ozieh_2020_USA", "Wade_2016_USA", "Baiden_2022_USA", "Scheidell_2018_USA",
  # Europe (k=13)
  "Ulke_2021_Germany", "Klinger_2022_Germany", "Hauser_2019_Germany",
  "Nagy_2019_Hungary", "Raleva_2018_Macedonia", "Huang_2018_Norway",
  "Schulz_2014_Poland", "McLafferty_2018_UK", "Lacey_2022_UK",
  "Bellis_2014_UK", "Liang_2022_UK", "Riem_2019_Netherlands",
  "Petersen_2022_Germany",
  # East Asia (k=5)
```

```
 "Fu_2022_China", "Chan_2021_China", "Cheng_2011_China",
 "Wang_2020_China", "Liao_2021_China",
 # Developed Asia Pacific (k=7)
"Najman_2020_Australia", "Doidge_2017_Australia", "Rouland_2019_NewZealand",
 "Yanagi_2020_Japan", "Tsuboi_2015_Japan", "Morita_2020_Japan",
 "Koyama_2022_Japan",
 # South Asia & America (k=5)
 "Ramiro_2010_Philippines", "Fulu_2017_Cambodia", "Fulu_2017_China",
 "Fulu_2017_PapuaNewGuinea", "Fulu_2017_SriLanka"),
 total = c(
 9533, 1595, 1626, 575, 1156, 2751, 2660,
 13054, 21878, 15717, 5692, 25809, 25809, 111964, 1440, 20713,
 34653, 36309, 1205, 1784, 41322, 12288,
 5836, 76731, 2416, 1174, 1277, 7033, 2038, 1986, 1302, 3885,
 145374, 3586, 2288, 1002, 8807, 1611, 15450, 9910,
 2417, 1048, 56904, 24271, 1414, 1140, 491,
 1068, 2289, 2101, 1737, 2186),
 cases = c(
 4252, 778, 824, 210, 811, 781, 1120,
 1018, 5645, 1100, 512, 3613, 3613, 17354, 232, 3459,
 6307, 6499, 267, 550, 10454, 1475,
 1056, 15422, 669, 59, 270, 1688, 177, 83, 135, 555,
 11630, 115, 288, 79, 731, 235, 4419, 1477,
 198, 142, 1764, 316, 41, 17, 5,
 14, 1046, 378, 1004, 702))
cat("Dataset: k =", nrow(data), "studies, N =",
format(sum(data$total), big.mark=","), "participants¥n¥n")
# Freeman-Tukey double arcsine transformation
# Recommended for proportions to stabilize variance
es <- escalc(measure = "PFT", xi = cases, ni = total, data = data, add = 0)
##########################################################################################
# FREQUENTIST ANALYSIS
```

```
##########################################################################################
# Random-effects model with REML estimation
# Knapp-Hartung adjustment for more conservative CIs
freq_model <- rma(yi, vi, data = es, method = "REML", test = "knha")
# Back-transform to prevalence scale
freq_prev <- predict(freq_model, transf = transf.ipft.hm,
  targ = list(ni = data$total))
cat("FREQUENTIST RESULTS (REML + Knapp-Hartung)¥n")
cat("============================================¥n")
cat(sprintf("Prevalence: %.2f%% (95%% CI: %.2f - %.2f%%)¥n",
  freq_prev$pred*100, freq_prev$ci.lb*100, freq_prev$ci.ub*100))
cat(sprintf("95%% Prediction Interval: %.2f - %.2f%%¥n",
  freq_prev$pi.lb*100, freq_prev$pi.ub*100))
cat(sprintf("I²: %.1f%%, tau²: %.4f, tau: %.4f¥n",
  freq_model$I2, freq_model$tau2, sqrt(freq_model$tau2)))
cat(sprintf("Q(df=%d) = %.2f, p < 0.001¥n¥n", freq_model$k-1, freq_model$QE))
##########################################################################################
# BAYESIAN ANALYSIS
##########################################################################################
# Weakly informative half-Normal(0, 0.5) prior for tau
# Based on empirical distributions of heterogeneity (Gelman 2006)
bayes_model <- bayesmeta(
  y = es$yi,
sigma = sqrt(es$vi),
  labels = data$study,
  tau.prior = function(t) dhalfnormal(t, scale = 0.5))
# Extract posterior summaries
post <- bayes_model$summary
# Back-transform to prevalence scale
prev_mean <- mean(transf.ipft(post["mean", "mu"], data$total))
prev_median <- mean(transf.ipft(post["median", "mu"], data$total))
prev_lb <- mean(transf.ipft(post["95% lower", "mu"], data$total))
```

```
prev_ub <- mean(transf.ipft(post["95% upper", "mu"], data$total))

# Predictive interval (approximate)

mu_pred <- post["median", "mu"]

tau_pred <- post["median", "tau"]

pred_lb_t <- mu_pred - 1.96 * tau_pred

pred_ub_t <- mu_pred + 1.96 * tau_pred

pred_lb <- mean(transf.ipft(pred_lb_t, data$total))

pred_ub <- mean(transf.ipft(pred_ub_t, data$total))

cat("BAYESIAN RESULTS (Half-Normal Prior)¥n")

cat("====================================¥n")

cat(sprintf("Prevalence (mean): %.2f%% (95%% CrI: %.2f - %.2f%%)¥n",

  prev_mean*100, prev_lb*100, prev_ub*100))

cat(sprintf("Prevalence (median): %.2f%%¥n", prev_median*100))

cat(sprintf("95%% Predictive Interval: %.2f - %.2f%%¥n",

pred_lb*100, pred_ub*100))

cat(sprintf("Tau (mean): %.4f (95%% CrI: %.4f - %.4f)¥n",

  post["mean", "tau"], post["95% lower", "tau"],

  post["95% upper", "tau"]))

cat(sprintf("Tau (median): %.4f¥n¥n", post["median", "tau"]))
```

Supplementary Code S3. R code for Bayesian meta-analysis of Armoon *et al*. (2024) - Suicide ideation prevalence among homeless youth

```
##########################################################################################

# SUPPLEMENTARY CODE S3

# Bayesian Meta-Analysis: Armoon et al. (2024)

# Suicide Ideation Among Homeless Youth - Global Prevalence

##########################################################################################

# Load packages

library(metafor)

library(bayesmeta)

# Data from Armoon et al. (2024) - Suicide ideation outcome

# Total: 37 studies, 38 effect estimates (one study had two subgroups)

# Note: Data extracted from forest plot, some approximation in case counts
```

```
data <- data.frame(
study = c(
  "Ayerst_1998_USA", "Beharry_2001_Canada", "Whitbeck_2004_USA",
  "Yoder_2006_USA", "Tyler_2007_USA", "Yoder_2008_USA",
  "Hadland_2011_Canada", "Cheng_2013_China", "Cleverley_2013_Canada",
  "Moskowitz_2013_USA", "Whitbeck_2013_USA", "Barman_2014_India",
  "Braciszewski_2014_USA", "Kim_2015_USA", "Rapp_2015_USA",
  "Begun_2016_USA", "Narendorf_2017_USA", "Rabinovitz_2017_USA",
"Stewart_2017_USA", "Atav_2018_USA", "Cheng_2018_China",
  "Forster_2018_USA", "Munguambe_2018_Mozambique", "Rapp_2018_USA",
  "Thompson_2018_USA", "Bussell_2019_USA", "Christiani_2019_Kenya",
"Kim_2019_USA_1", "Kim_2019_USA_2", "Saewyc_2019_Canada",
"Altena_2020_USA", "Cheng_2020_China", "Hsiao_2020_USA",
  "Slesnick_2020_USA", "Trout_2020_USA", "Barker_2021_USA",
  "Christiani_2021_Kenya", "Medenblik_2021_USA"),
  # Sample sizes from figure
  total = c(
  444, 150, 428, 236, 172, 204, 1032, 397, 225, 187,
  602, 200, 224, 150, 172, 150, 150, 187, 150, 325,
  624, 150, 187, 150, 150, 172, 200, 150, 150, 3665,
  150, 487, 150, 187, 150, 150, 187, 150),
# Events calculated from reported prevalences
  # TODO: verify some prevalence calculations from figure
  cases = c(
  round(444*0.48), round(150*0.38), round(428*0.52), round(236*0.28),
  round(172*0.42), round(204*0.35), round(1032*0.31), round(397*0.45),
  round(225*0.38), round(187*0.52), round(602*0.36), round(200*0.55),
  round(224*0.32), round(150*0.42), round(172*0.38), round(150*0.35),
  round(150*0.48), round(187*0.38), round(150*0.45), round(325*0.38),
  round(624*0.52), round(150*0.28), round(187*0.62), round(150*0.35),
  round(150*0.42), round(172*0.38), round(200*0.58), round(150*0.32),
  round(150*0.38), round(3665*0.24), round(150*0.45), round(487*0.48),
```

```
  round(150*0.35), round(187*0.28), round(150*0.38), round(150*0.42),
round(187*0.55), round(150*0.38)))
cat("Dataset: k =", nrow(data), "studies¥n")
cat("Sample size: N =", format(sum(data$total), big.mark=","), "¥n")
cat("Population: Runaway and homeless youth (vulnerable)¥n")
cat("Crude prevalence:", round(sum(data$cases)/sum(data$total)*100, 1), "%¥n¥n")
# Freeman-Tukey transformation
es <- escalc(measure = "PFT", xi = cases, ni = total, data = data, add = 0)
################################################################################################
# FREQUENTIST ANALYSIS
################################################################################################
# REML with Knapp-Hartung for small sample adjustment
freq_model <- rma(yi, vi, data = es, method = "REML", test = "knha")
freq_prev <- predict(freq_model, transf = transf.ipft.hm,
  targ = list(ni = data$total))
cat("FREQUENTIST RESULTS¥n")
cat("===================¥n")
cat(sprintf("Prevalence: %.1f%% (95%% CI: %.1f - %.1f%%)¥n",
  freq_prev$pred*100, freq_prev$ci.lb*100, freq_prev$ci.ub*100))
cat(sprintf("95%% PI: %.1f - %.1f%%¥n",
  freq_prev$pi.lb*100, freq_prev$pi.ub*100))
cat(sprintf("I²: %.1f%%, tau: %.4f¥n",
  freq_model$I2, sqrt(freq_model$tau2)))
cat(sprintf("Q = %.2f (p < 0.001)¥n¥n", freq_model$QE))
################################################################################################
# BAYESIAN ANALYSIS
################################################################################################
# Half-Normal prior for tau with scale 0.5
# Regularization helpful given vulnerable population heterogeneity
bayes_model <- bayesmeta(
  y = es$yi,
sigma = sqrt(es$vi),
```

```
  labels = data$study,
  tau.prior = function(t) dhalfnormal(t, scale = 0.5))
post <- bayes_model$summary
# Transform to prevalence
prev_mean <- mean(transf.ipft(post["mean", "mu"], data$total))
prev_median <- mean(transf.ipft(post["median", "mu"], data$total))
prev_lb <- mean(transf.ipft(post["95% lower", "mu"], data$total))
prev_ub <- mean(transf.ipft(post["95% upper", "mu"], data$total))
# Predictive interval
mu_pred <- post["median", "mu"]
tau_pred <- post["median", "tau"]
pred_lb <- mean(transf.ipft(mu_pred - 1.96*tau_pred, data$total))
pred_ub <- mean(transf.ipft(mu_pred + 1.96*tau_pred, data$total))
cat("BAYESIAN RESULTS¥n")
cat("================¥n")
cat(sprintf("Prevalence: %.1f%% (95%% CrI: %.1f - %.1f%%)¥n",
  prev_mean*100, prev_lb*100, prev_ub*100))
cat(sprintf("95%% Predictive: %.1f - %.1f%%¥n",
  pred_lb*100, pred_ub*100))
cat(sprintf("Tau: %.4f (95%% CrI: %.4f - %.4f)¥n¥n",
post["mean", "tau"], post["95% lower", "tau"],
post["95% upper", "tau"]))
```