

Article title: Spatial Distribution and Birth Prevalence of Congenital Heart Disease in Iran: A Systematic Review and Hierarchical Bayesian Meta-analysis

Journal name: International Journal of Health Policy and Management (IJHPM)

Authors' information: Roghaye Farhadi Hassankiadeh¹, Annette Dobson², Somayeh Rahimi³, Abdollah Jalilian⁴, Volker J Schmid⁵, Behzad Mahaki^{1*}

¹Department of Biostatistics, School of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran.

²School of Public Health, University of Queensland, Brisbane, QLD, Australia.

³Department of Clinical Biochemistry, Kermanshah University of Medical Sciences, Kermanshah, Iran.

⁴Department of Statistics, Razi University, Kermanshah, Iran.

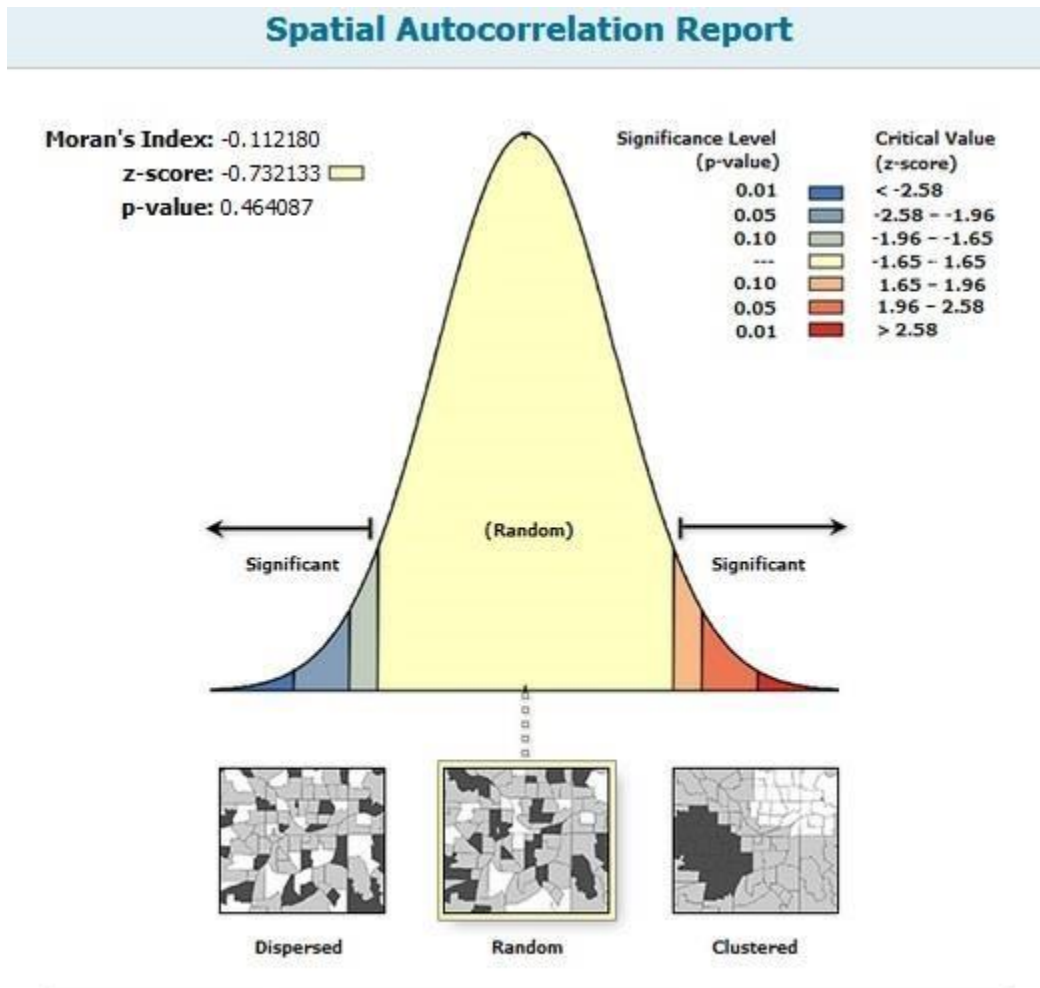
⁵Department of Statistics, Ludwig-Maximilians-University, Munich, Germany.

***Correspondence to:** Behzad Mahaki; Email: behzad.mahaki@gmail.com

Citation: Farhadi Hassankiadeh R, Dobson A, Rahimi S, Jalilian A, Schmid VJ, Mahaki B. Spatial distribution and birth prevalence of congenital heart disease in Iran: a systematic review and hierarchical Bayesian meta-analysis. Int J Health Policy Manag. 2024;13:7931. doi:[10.34172/ijhpm.2024.7931](https://doi.org/10.34172/ijhpm.2024.7931)

Supplementary file 5

Figure S1. Moran's diagram for the standardized prevalence of total CHD per 1000



Given the z-score of -0.732132899747, the pattern does not appear to be significantly different than random.

Global Moran's I Summary	
Moran's Index:	-0.112180
Expected Index:	-0.033333
Variance:	0.011598
z-score:	-0.732133
p-value:	0.464087

Figure S2. Forest plot displaying Odds and corresponding 95% credible interval Odds in reported subtypes of CHD studies (17 studies) in Iran

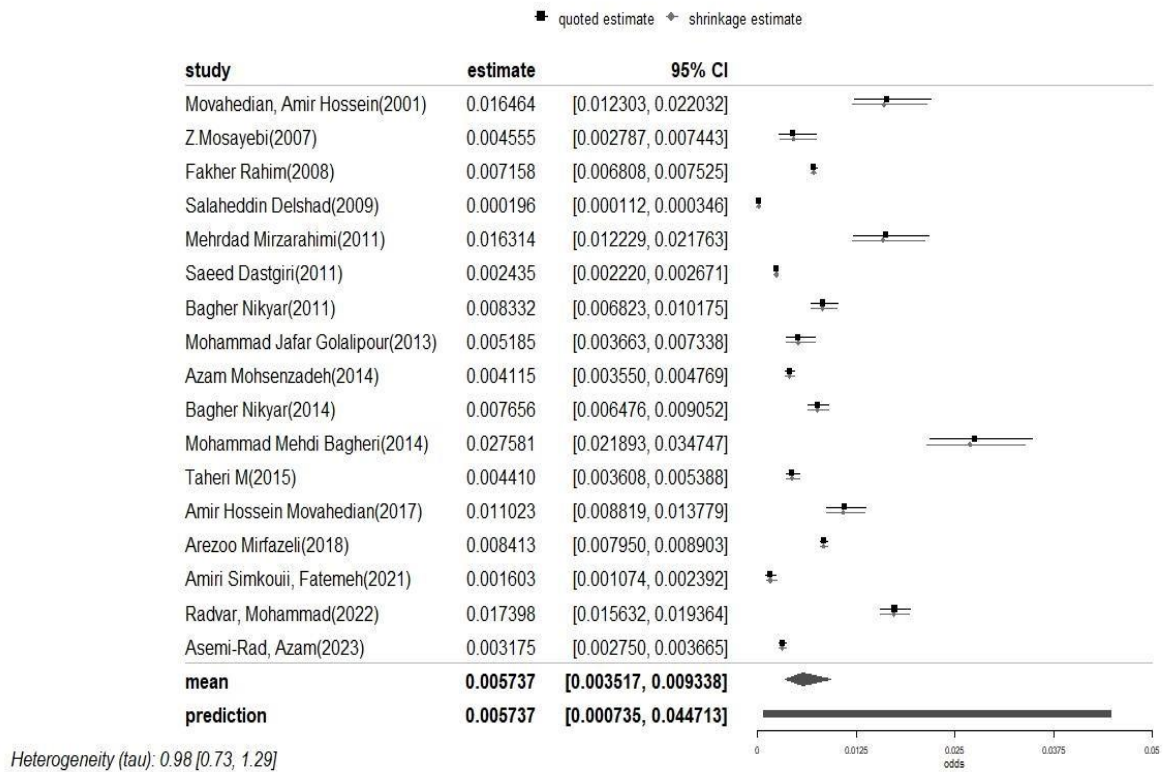


Figure S3. The red lines indicate (approximate) 2-dimensional credible regions, for the joint distribution, Blue lines illustrate the conditional mean effect (Log Odds) as a function of the heterogeneity τ (solid line) with conditional 95% confidence bounds (dashed lines). The green lines show marginal medians and the shortest 95% credible intervals for Log (Odds) and τ . A darker coloring denotes higher posterior density values.

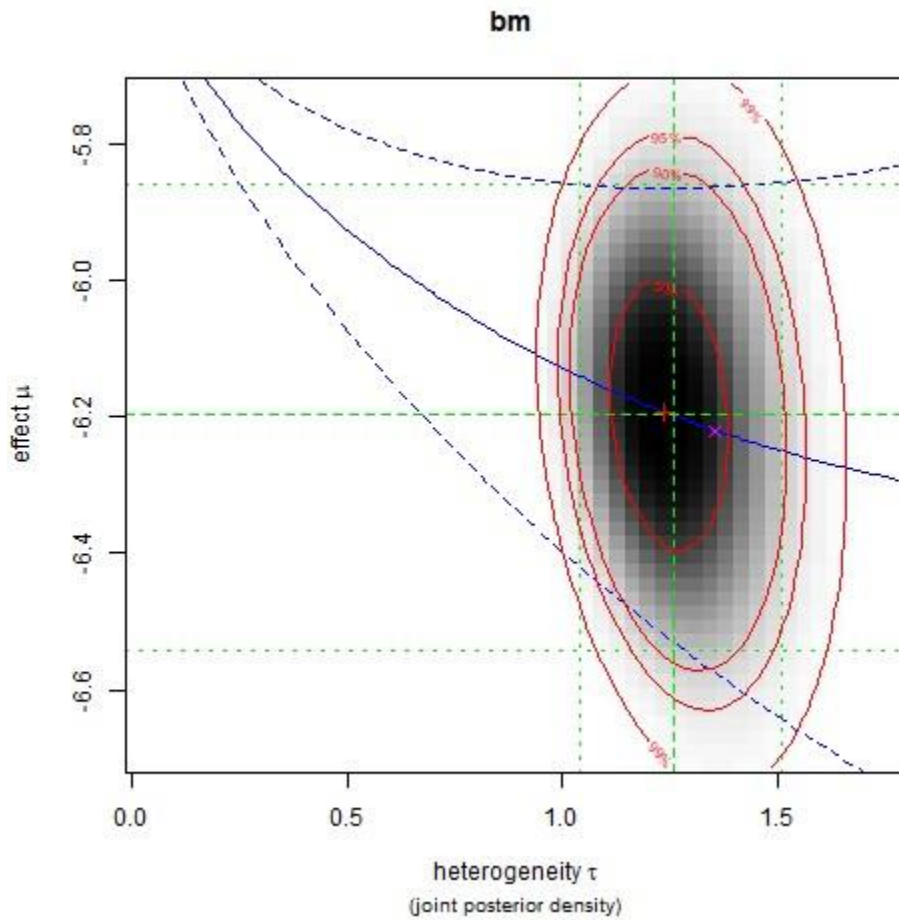


Figure S4. Funnel plot, showing effect estimates (log-odds) vs. their standard errors (σ)

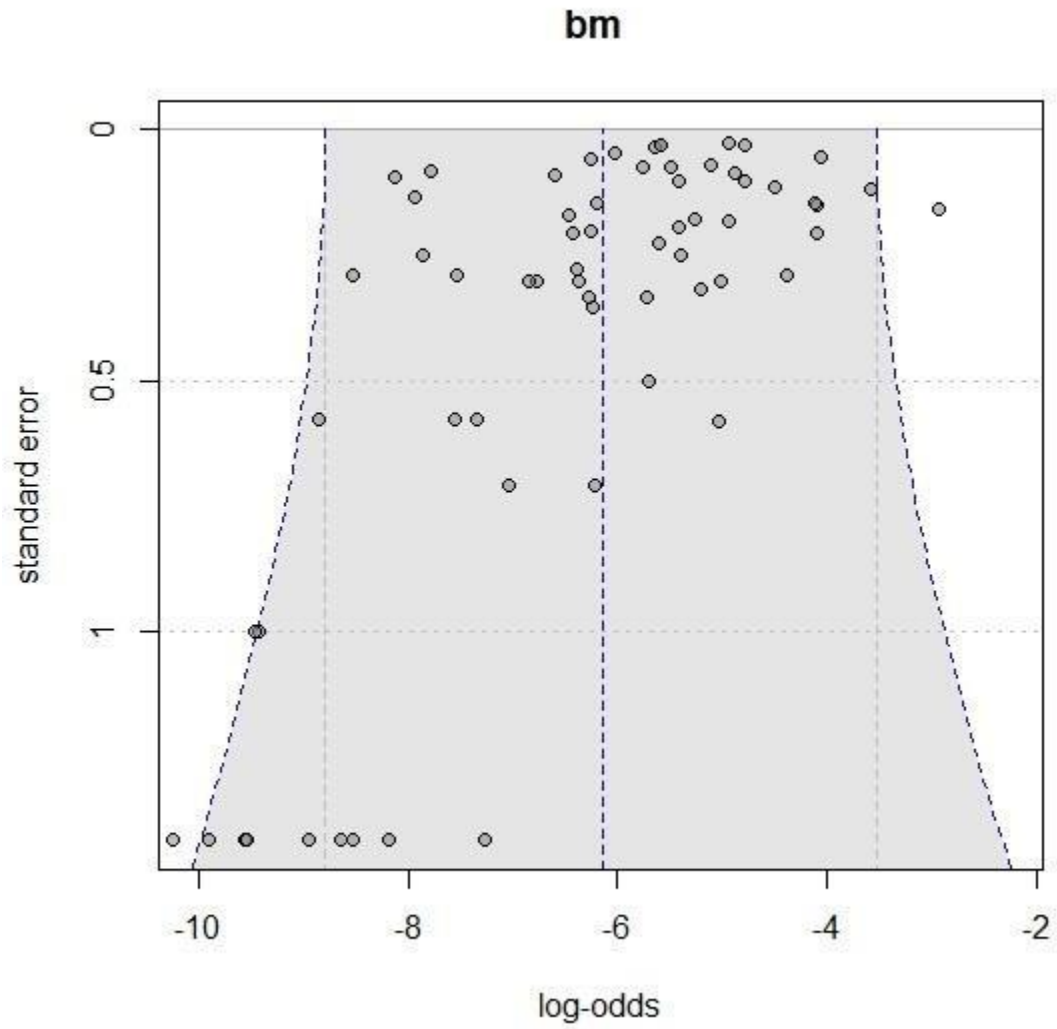


Table S4. Subgroup Analysis for Total and Specific CHD Subtype Birth Prevalence in Iran

variables	levels	Number of Studies	Total	Event	Percentage heterogeneity [I ²]	Pooled log odds [95% Credible interval]	Absolute heterogeneity test τ^2 [95% CI]
geographical regions	North	7	205702	1487	0.97	-5.26[-6.07,-4.7]	0.76[0.11,1.4]
	East	6	111295	292	0.83	-6.62[-7.30,-6.07]	0.57[0.23,1.05]
	West	16	1291947	3993	0.99	-6.05[-6.52,-5.60]	0.94[0.64,1.29]
	South	9	251055	1639	0.98	-5.35[-5.79,-4.95]	0.73[0.44,1.088]
	Center	23	385841	727	0.98	-6.161[-6.71,-5.63]	1.22[0.92,1.57]
length of follow up	<12 month	9	23147	15	0.27	-6.68[-7.60,-5.96]	0.47[0.000,1.078]
	12 to 24 months	26	409211	534	0.97	-6.26[-6.81,-5.72]	1.25[0.94,1.61]
	>24months	27	1729244	7305	0.997	-5.78[-6.41,-5.36]	1.17[0.84,1.55]
Gender	Male	12	2425970	720	0.99	-5.84[-6.51,-5.20]	1.10[0.75, 1.5]
	Female	12	2425970	585	0.98	-5.99[-6.64,-5.35]	1.07[0.74,1.46]
major subtypes of CHD	VSD	14	671259	417	0.97	-6.84[-7.48,-6.21]	1.16[0.83,1.56]
	ASD	13	816179	588	0.97	-7.09[-7.66,-6.56]	0.95[0.63,1.34]
	PDA	12	678413	395	0.92	-7.3[-7.80,-6.83]	0.77 [0.46, 1.17]

TOF	14	492763	235	0.91	-7.95 [-8.726,-7.2]	1.127[0.75,1.56]
PS	9	415838	55	0.64	-8.44[-9.01,-7.88]	0.68[0.32,1.12]
TGA	7	418678	50	0.81	-8.33[-9.23,-7.50]	1.17[0.70,1.69]
CoA	4	418678	79	0.80	-8.58[-9.42,-7.82]	0.95[0.55,1.42]
TR	4	418678	18	0.68	-9.03[-9.99,-8.11]	1.22[0.79,1.70]
AS	5	477763	16	0.23	-9.21[-9.84,-8.63]	0.46[0.00,1.02]
PA	4	477763	52	0.65	-8.94[-9.69,-8.25]	0.82[0.43,1.29]
MR	2	418678	4	0.075	-9.64[-10.36,-8.93]	0.34[0.00, 0.90]
PH	1	398737	1	0.056	-9.94[-10.76,-9.12]	0.33[0.00,0.91]
MVP	3	418678	3	0.053	-9.85[-10.58,-9.11]	0.30[0.00,0.85]
PFO	3	418678	3	0.053	-9.85[-10.58,-9.11]	0.30[0.00,0.85]
PR	1	398737	2	0.056	-9.94[-10.76,-9.13]	0.33[0.00,0.91]
HLHS	2	418678	11	0.40	-9.41[-10.32,-8.54]	0.88[0.41,1.41]
AVSD	4	477763	16	0.075	-9.73[-10.24,-9.20]	0.25[0.00,0.71]