Prevalence of Childhood Mental Disorders in High-Income Countries:

A Systematic Review and Meta-Analysis to Inform Policymaking

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Appendix A: MOOSE and PRISMA Checklists

MOOSE CHECKLIST		PRISMA CHECKLIST	
✓	**Criteria and description**	✓	**Criteria and description**
		✓	Title
		✓	Abstract
	Reporting of background should include:		**Introduction**
✓	Problem definition	✓	Rationale
N/A	Hypothesis statement	✓	Objectives
✓	Description of study outcomes		
✓	Type of exposure or intervention used		
✓	Type of study designs used		
✓	Study population		
	Reporting of search strategy should include:		**Methods**
		✓	Protocol and registration
		✓	Eligibility criteria
✓	Qualifications of searchers (e.g., librarians and investigators)		
✓	Search strategy, including time period included in the synthesis and keywords	✓	Search
✓	Databases and registries searched	✓	Information sources
✓	Search software used, name and version, including special features (e.g., explosion)		
✓	Use of hand searching (e.g., reference lists of obtained articles)		
✓	List of citations located and those excluded, including justifications		
✓	Description of any contact with authors		
✓	Method of addressing articles published in languages other than English		
✓	Method of handling abstracts and unpublished studies		
	Reporting of methods should include:		
✓	Description of relevance or appropriateness of studies assembled for assessing the hypothesis to be tested	✓	Study selection
✓	Rationale for the selection and coding of data (e.g., sound clinical principles or convenience)		
✓	Documentation of how data were classified and coded (e.g., multiple raters, blinding and interrater reliability)	✓	Data collection process
		✓	Data items
		✓	Summary measures
		✓	Risk of bias across studies
N/A	Assessment of confounding		
✓	Assessment of study quality, including blinding of quality assessors; stratification or regression on possible predictors of study results	✓	Risk of bias in individual studies
✓	Assessment of heterogeneity	✓	Synthesis of results
✓	Description of statistical methods in sufficient detail to be replicated		
		✓	Additional analyses
✓	Provision of appropriate tables and graphics		

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	Reporting of results should include:		**Results**
		✓	Study selection
✓	Graph summarizing individual study estimates and overall estimate	✓	Results of individual studies
✓	Table giving descriptive information for each study included	✓	Study characteristics
		✓	Synthesis of results
		✓	Risk of bias within studies
N/A	Results of sensitivity testing	✓	Additional analysis
✓	Indication of statistical uncertainty of findings		
	Reporting of discussion should include:		**Discussion**
✓	Quantitative assessment of bias	✓	Risk of bias across studies
✓	Justification for exclusion		
✓	Assessment of quality of included studies		
	Reporting of conclusions should include:		
✓	Strengths and weaknesses	✓	Summary of evidence
✓	Potential biases in the review process (e.g., publication bias)	✓	Limitations
✓	Consideration of alternative explanations for observed results	✓	Conclusions
✓	Generalization of the conclusions Appropriate for the data presented and within the domain of the literature review.		
✓	Guidelines for future research		
✓	Disclosure of funding source	✓	Funding

N/A Not applicable

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Appendix B: Search Strategy

MEDLINE

Step	Terms	Hits
1	*Mental Disorders/ep	14,099
2	(exp Child/ or exp Adolescent/) not Adult/	1,441,419
3	exp Epidemiology/ or exp Prevalence/ or exp Incidence/ or exp Health Surveys/	970,538
4	(epidemiolog$ or survey$ or population or community or represent$ or stratifi$ or probability).mp.	4,720,463
5	1 and 2 and 3 and 4	1,001
6	limit 5 to (yr="1990–current" and journal article and humans)	1,266

PsycINFO

Step	Terms	Hits
1	SU *Mental Disorders	146,392
2	AG (Childhood OR Adolescence OR Young Adulthood) NOT AG (Thirties or Middle Age or Aged)	754,918
3	SU (Epidemiology) OR KW (epidemiolog* OR prevalence OR incidence OR health survey)	68,227
4	AB (epidemiolog* or survey* or population or community or represent* or stratifi* or probability)	1,039,360
5	1 and 2 and 3 and 4	1,136
6	limit 5 to (Publication Year: 1990–2021; Peer Reviewed; Population Group: Human; Document Type: Journal Article; Exclude Dissertations)	891

EMBASE

Step	Terms	Hits
1	'Mental Disorders'/exp/mj (subheading: epidemiology)	81,540
2	AG (Childhood OR Adolescen*) NOT AG (Thirties or 'Middle Aged' or Aged) (limit to preschool child, school child or adolescent)	1,513,745
3	exp Epidemiology OR KW (epidemiolog* OR prevalence OR incidence OR health survey)	3,237,705
4	AB (epidemiolog* or survey* or population or community or represent* or stratifi* or probability)	4,216,831
5	1 and 2 and 3 and 4	1,846
6	limit 5 to (Publication Year: 1990–2021; Publication Type: Article; Index Term: Human)	1,602

Note: First and second authors (J.L.B. and D.Y.) conducted all searches.

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Appendix C: Study Inclusion Criteria

1	Focused on children ≤18 years or reported separately on children if adults were included.
2	Published in a peer-reviewed journal between January 1990 and February 2021.
3	Population was drawn from a high-income country (by World Bank standards).
4	Sample was representative of a national or regional population.*
5	Used probabilistic sampling to select respondents from a reliable frame.†
6	Clear descriptions of participant characteristics, study settings and methods provided.
7	Mental disorder diagnoses including impairment were based on DSM-IV and later editions or ICD-10 and later editions.
8	Diagnostic measures were reliable and valid.
9	Prevalence reported, or sufficient information was provided to estimate prevalence.
10	Prevalence for three or more individual disorders, and overall prevalence of any disorder reported.

* Regional populations were those covering/representing a province, state or other large geographic area.

† Sampling frame comprised all possible units (e.g., individuals, schools or households) within a target population.

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Appendix D: Included Studies

s1. Kessler RC, Avenevoli S, Costello J, *et al*. Severity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication Adolescent Supplement. *Arch Gen Psychiatry* 2012;69:381–389. doi:10.1001/archgenpsychiatry.2011.1603

s2. Canino G, Shrout PE, Rubio-Stipec M, *et al*. The DSM-IV rates of child and adolescent disorders in Puerto Rico: Prevalence, correlates, service use, and the effects of impairment. *Arch Gen Psychiatry* 2004;61:85–93. doi:10.1001/archpsyc.61.1.85

s3. Chen YL, Chen WJ, Lin KC, *et al*. Prevalence of DSM-5 mental disorders in a nationally representative sample of children in Taiwan: Methodology and main findings. *Epidemiol Psychiatr Sci* 2020;29:1–9. doi:10.1017/S2045796018000793

s4. Costello EJ, Mustillo S, Erkanli A, *et al*. Prevalence and development of psychiatric disorders in childhood and adolescence. *Arch Gen Psychiatry* 2003;60:837–44. doi:10.1001/archpsyc.60.8.837

s5. Elberling H, Linneberg A, Rask CU, *et al*. Psychiatric disorders in Danish children aged 5–7 years: A general population study of prevalence and risk factors from the Copenhagen Child Cohort (CCC 2000). *Nord J Psychiatry* 2016;70:146–55. doi:10.3109/08039488.2015.1070199

s6. Farbstein I, Mansbach-Kleinfeld I, Levinson D, *et al*. Prevalence and correlates of mental disorders in Israeli adolescents: Results from a national mental health survey. *J Child Psychol Psychiatry* 2010;51:630–9. doi:10.1111/j.1469-7610.2009.02188.x

s7. Ford T, Goodman R, Meltzer H. The British Child and Adolescent Mental Health Survey 1999: The prevalence of DSM-IV disorders. *J Am Acad Child Adolesc Psychiatry* 2003;42:1203–11. doi:10.1097/00004583-200310000-00011

s8. Georgiades K, Duncan L, Wang L, *et al*. Six-month prevalence of mental disorders and service contacts among children and youth in Ontario: Evidence from the 2014 Ontario Child Health Study. *Can J Psychiatry* 2019;64:246–55. doi:10.1177/0706743719830024

s9. Heiervang E, Stormark KM, Lundervold AJ, *et al*. Psychiatric disorders in Norwegian 8- to 10-year-olds: An epidemiological survey of prevalence, risk factors, and service use. *J Am Acad Child Adolesc Psychiatry* 2007;46:438–47. doi:10.1097/chi.0b013e31803062bf

s10. Kessler RC, Avenevoli S, Costello EJ, *et al*. Prevalence, persistence, and sociodemographic correlates of DSM-IV disorders in the National Comorbidity Survey Replication Adolescent Supplement. *Arch Gen Psychiatry* 2012;69:372–80. doi:10.1001/archgenpsychiatry.2011.160

s11. Lawrence D, Hafekost J, Johnson SE, *et al*. Key findings from the second Australian Child and Adolescent Survey of Mental Health and Wellbeing. *Aust N Z J Psychiatry* 2016;50:876–86. doi:10.1177/0004867415617836

s12. Lesinskiene S, Girdzijauskiene S, Gintiliene G, *et al*. Epidemiological study of child and adolescent psychiatric disorders in Lithuania. *BMC Public Health* 2018;18:1–8. doi:10.1186/s12889-018-5436-3

s13. Merikangas KR, He JP, Brody D, *et al*. Prevalence and treatment of mental disorders among US children in the 2001-2004 NHANES. *Pediatrics* 2010;125:75–81. doi:10.1542/peds.2008-2598

s14. Park S, Kim BN, Cho SC, *et al*. Prevalence, correlates, and comorbidities of DSM-IV psychiatric disorders in children in Seoul, Korea. *Asia Pac J Public Health* 2015;27:1942–51. doi:10.1177/1010539513475656

s15. Vicente B, Saldivia S, de la Barra F, *et al*. Prevalence of child and adolescent mental disorders in Chile: A community epidemiological study. *J Child Psychol Psychiatry* 2012;53:1026–35. doi:10.1111/j.1469-7610.2012.02566.x

Appendix E: Risk of Bias Quality Assessment Tool

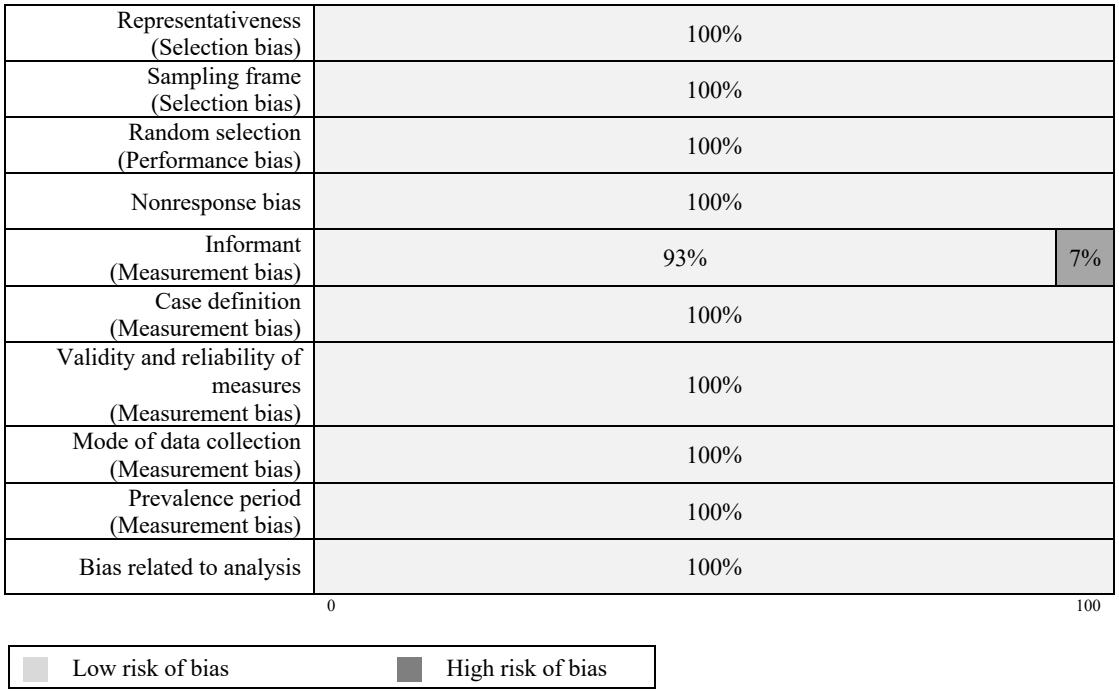
Quality Assessment Checklist for Prevalence Studies (adapted from Hoy *et al*., 2012)[1]

Name of author(s) and date:
Study/Survey Name:

Risk of bias item	Risk of bias levels	Score
External validity (Selection bias)		
1. Was the study's target population a close representation of the regional or national population in relation to relevant variables?	**Yes (LOW RISK):** The study's target population was a close representation of the regional or national population.	0
	No (HIGH RISK): The study's target population was clearly NOT a close representation of the regional or national population.	1
2. Was the sampling frame a true or close representation of the target population?	**Yes (LOW RISK):** The sampling frame was a true or close representation of the target population.	0
	No (HIGH RISK): The sampling frame was NOT a true or close representation of the target population.	1
3. Was some form of random selection used to select the sample, OR was a census undertaken?	**Yes (LOW RISK):** A census was undertaken, OR, some form of random selection was used to select the sample (e.g. simple random sampling, stratified random sampling, cluster sampling, systematic sampling).	0
	No (HIGH RISK): A census was NOT undertaken, AND some form of random selection was NOT used to select the sample.	1
External validity (Nonresponse bias)		
4. Was the likelihood of nonresponse bias minimal?	**Yes (LOW RISK):** The response rate for the study was ≥75%, OR, an analysis was performed that showed no significant difference in relevant demographic characteristics between responders and non-responders	0
	No (HIGH RISK): The response rate was <75%, and if any analysis comparing responders and non-responders was done, it showed a significant difference in relevant demographic characteristics between responders and non-responders.	1
Internal validity (Measurement bias)		
5. Was the informant(s) appropriate for the data collected?	**Yes (LOW RISK):** All data were collected from appropriate informant(s).	0
	No (HIGH RISK): In majority of instances, data were collected from a proxy.	1
6. Was an acceptable case definition used in the study?	**Yes (LOW RISK):** An acceptable case definition was used.	0
	No (HIGH RISK): An acceptable case definition was NOT used.	1
7. Was the study instrument that measured the parameter of interest shown to have validity and reliability?	**Yes (LOW RISK):** The study instrument had been shown to have reliability and validity (if this was necessary), e.g. test-re-test, piloting, validation in a previous study, etc.	0
	No (HIGH RISK): The study instrument had NOT been shown to have reliability or validity (if this was necessary).	1
8. Was the same mode of data collection used for all subjects?	**Yes (LOW RISK):** The same mode of data collection was used for all subjects.	0
	No (HIGH RISK): The same mode of data collection was NOT used for all subjects.	1
9. Was the length of the shortest prevalence period for the parameter of interest appropriate?	**Yes (LOW RISK):** The shortest prevalence period for the parameter of interest was appropriate (e.g. point prevalence, one-week prevalence, one-year prevalence).	0
	No (HIGH RISK): The shortest prevalence period for the parameter of interest was not appropriate (e.g. lifetime prevalence).	1
Internal validity (Bias related to analysis)		
10. Were the numerator(s) and denominator(s) for the parameter of interest appropriate?	**Yes (LOW RISK):** The paper presented appropriate numerator(s) AND denominator(s) for the parameter of interest (e.g. the prevalence of low back pain).	0
	No (HIGH RISK): The paper did present numerator(s) AND denominator(s) for the parameter of interest but one or more of these were inappropriate.	1
Summary on the overall risk of study	**Low risk:** Further research is very unlikely to change our confidence in the estimate	0–3
	Moderate risk: Further research is likely to have an important impact on our confidence in the estimate and may change the estimate.	4–6
	High risk: Further research is very likely to have an important impact on our confidence in the estimate and is likely to change the estimate.	7–10

1. Hoy D, Brooks P, Woolf A, Blyth F, March L, Bain C, *et al*. Assessing risk of bias in prevalence studies: modification of an existing tool and evidence of interrater agreement. *J Clin Epidemiol*. 2012;65:934-939.

Risk of Bias: Summary of Results



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Appendix F: Excluded Studies

Non-representative sample (n=39)

1. Al-Modayfer, O., & Alatiq, Y. (2015). A pilot study on the prevalence of psychiatric disorders among Saudi children and adolescents: A sample from a selected community in Riyadh City. *Arab Journal of Psychiatry, 26*(2), 184-192.
2. Angold, A., Erkanli, A., Farmer, E. M., Fairbank, J. A., Burns, B. J., Keeler, G., & Costello, E. J. (2002). Psychiatric disorder, impairment, and service use in rural African American and white youth. *Archives of General Psychiatry, 59*(10), 893-901.
3. Bufferd, S. J., Dougherty, L. R., Carlson, G. A., Rose, S., & Klein, D. N. (2012). Psychiatric disorders in preschoolers: Continuity from ages 3 to 6. *The American Journal of Psychiatry, 169*(11), 1157-1164.
4. Canals, J., Domenech, E., Carbajo, G., & Blade, J. (1997). Prevalence of DSM-III-R and ICD-10 psychiatric disorders in a Spanish population of 18-year-olds. *Acta Psychiatrica Scandinavica, 96*(4), 287-294.
5. Canals, J., Voltas, N., Hernández-Martínez, C., Cosi, S., & Arija, V. (2019). Prevalence of DSM-5 anxiety disorders, comorbidity, and persistence of symptoms in Spanish early adolescents. *European Child & Adolescent Psychiatry, 28*, 131–143.
6. Carter, A. S., Wagmiller, R. J., Gray, S. A., McCarthy, K. J., Horwitz, S. M., & Briggs-Gowan, M. J. (2010). Prevalence of DSM-IV disorder in a representative, healthy birth cohort at school entry: sociodemographic risks and social adaptation. *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(7), 686-698.
7. Coughlan, H., Tiedt, L., Clarke, M., Kelleher, I., Tabish, J., Molloy, C., . . . Cannon, M. (2014). Prevalence of DSM-IV mental disorders, deliberate self-harm and suicidal ideation in early adolescence: an Irish population-based study. *Journal of Adolescence, 37*(1), 1-9.
8. Cuffe, S. P., McKeown, R. E., Addy, C. L., & Garrison, C. Z. (2005). Family and psychosocial risk factors in a longitudinal epidemiological study of adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(2), 121-129.
9. Daeem, R., Mansbach-Kleinfeld, I., Farbstein, I., Goodman, R., Elias, R., Ifrah, A., . . . Apter, A. (2019). Correlates of mental disorders among minority Arab adolescents in Israel: Results from the Galilee Study. *Israel Journal of Health Policy Research, 8*(1).
10. Danielson, M. L., Bitso, R. H., Holbrook, J. R., Charania, S. N., Claussen, A. H., McKeown, R., E., … Flory, K. (2020). Community-based prevalence of externalizing and internalizing disorders among school-aged children and adolescents in four geographically dispersed school districts in the United States. *Child Psychiatry & Human Development.* doi:10.1007/s10578-020-01027-z
11. Dimigen, G., Del Priore, C., Butler, S., Evans, S., Ferguson, L., & Swan, M. (1999). Psychiatric disorder among children at time of entering local authority care: Questionnaire survey. *BMJ, 319*(7211), 675.
12. Eapen, V., al-Gazali, L., Bin-Othman, S., & Abou-Saleh, M. (1998). Mental health problems among schoolchildren in United Arab Emirates: Prevalence and risk factors. *Journal of the American Academy of Child & Adolescent Psychiatry, 37*(8), 880-886.
13. Eapen, V., Jakka, M. E., & Abou-Saleh, M. T. (2003). Children with psychiatric disorders: The A1 Ain Community Psychiatric Survey. *Canadian Journal of Psychiatry, 48*(6), 402-407.
14. Essau, C. A., Conradt, J., & Petermann, F. (2000). Frequency, comorbidity, and psychosocial impairment of depressive disorders in adolescents. *Journal of Adolescent Research, 15*(4), 470-481.
15. Esser, G., Schmidt, M. H., & Woerner, W. (1990). Epidemiology and course of psychiatric disorders in school-age children: Results of a longitudinal study. *Journal of Child Psychology & Psychiatry & Allied Disciplines, 31*(2), 243-263.
16. Faravelli, C., Lo Sauro, C., Castellini, G., Ricca, V., & Pallanti, S. (2009). Prevalence and correlates of mental disorders in a school-survey sample. *Clinical Practice and Epidemiology in Mental Health, 5*.
17. Frigerio, A., Rucci, P., Goodman, R., Ammaniti, M., Carlet, O., Cavolina, P., . . . Molteni, M. (2009). Prevalence and correlates of mental disorders among adolescents in Italy: The PrISMA study. *European Child and Adolescent Psychiatry, 18*(4), 217-226.
18. Gårdvik, K. S., Rygg, M., Torgersen, T., Lydersen, S., & Indredavik, M. S. (2020). Psychiatric morbidity, somatic comorbidity and substance use in an adolescent psychiatric population at 3-year follow-up. *European Child & Adolescent Psychiatry.* doi.org/10.1007/s00787-020-01602-8
19. Gau, S. S. F., Chong, M. Y., Chen, T. H. H., & Cheng, A. T. A. (2005). A 3-year panel study of mental disorders among adolescents in Taiwan. *American Journal of Psychiatry, 162*(7), 1344-1350.

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20. Goodman, R., Ford, T., Richards, H., Gatward, R., & Meltzer, H. (2000). The development and well-being assessment: Description and initial validation of an integrated assessment of child and adolescent psychopathology. *Journal of Child Psychology and Psychiatry, 41*(5), 645–655.
21. Griesler, P. C., Hu, M. C., Schaffran, C., & Kandel, D. B. (2008). Comorbidity of psychiatric disorders and nicotine dependence among adolescents: findings from a prospective, longitudinal study. *Journal of the American Academy of Child & Adolescent Psychiatry, 47*(11), 1340-1350.
22. Gudmundsson, O. O., Magnusson, P., Saemundsen, E., Lauth, B., Baldursson, G., Skarphedinsson, G., & Fombonne, E. (2013). Psychiatric disorders in an urban sample of preschool children. *Child and Adolescent Mental Health, 18*(4), 210-217.
23. Harley, M. E., Connor, D., Clarke, M. C., Kelleher, I., Coughlan, H., Lynch, F., . . . Cannon, M. (2015). Prevalence of mental disorder among young adults in Ireland: A population based study. *Irish Journal of Psychological Medicine, 32*(Spec Iss1), 79-91.
24. Lavigne, J. V., Lebailly, S. A., Hopkins, J., Gouze, K. R., & Binns, H. J. (2009). The prevalence of ADHD, ODD, depression, and anxiety in a community sample of 4-year-olds. *Journal of Clinical Child and Adolescent Psychology, 38*(3), 315-328.
25. Leung, P. W., Hung, S. F., Ho, T. P., Lee, C. C., Liu, W. S., Tang, C. P., & Kwong, S. L. (2008). Prevalence of DSM-IV disorders in Chinese adolescents and the effects of an impairment criterion: a pilot community study in Hong Kong. *European Child & Adolescent Psychiatry, 17*(7), 452-461.
26. Loperfido, E., & Rigon, G. (1994). Valutazione epicritica di una ricerca di prevalenza dei disturbi psichiatrici nella popolazione dell'obbligo scolastico = Final appraisal about a prevalence research regarding the psychiatric disorders in a compulsory school population (aged 6 to 12). *Giornale di Neuropsichiatria dell'Età Evolutiva, 14*(1), 17-25.
27. Melfsen, S., Walitza, S., & Warnke, A. (2006). The extent of social anxiety in combination with mental disorders. *European Child & Adolescent Psychiatry, 15*(2), 111-117.
28. Meyer, J. M., Silberg, J. L., Simonoff, E., Kendler, K. S., & Hewitt, J. K. (1996). The Virginia Twin-Family Study of Adolescent Behavioral Development: Assessing sample biases in demographic correlates of psychopathology. *Psychological Medicine, 26*(6), 1119-1133.
29. Morita, H., Suzuki, M., Suzuki, S., & Kamoshita, S. (1993). Psychiatric disorders in Japanese secondary school children. *Journal of Child Psychology & Psychiatry & Allied Disciplines, 34*(3), 317-332.
30. Nesvag, R., Bramness, J. G., Handal, M., Hartz, I., Hjellvik, V., & Skurtveit, S. (2018). The incidence, psychiatric co-morbidity and pharmacological treatment of severe mental disorders in children and adolescents. *European Psychiatry, 49*, 16-22.
31. Petersen, D. J., Bilenberg, N., Hoerder, K., & Gillberg, C. (2006). The population prevalence of child psychiatric disorders in Danish 8- to 9-year-old children. *European Child & Adolescent Psychiatry, 15*(2), 71-78.
32. Rijlaarsdam, J., Stevens, G. W., van der Ende, J., Hofman, A., Jaddoe, V. W., Verhulst, F. C., & Tiemeier, H. (2015). Prevalence of DSM-IV disorders in a population-based sample of 5- to 8-year-old children: the impact of impairment criteria. *European Child & Adolescent Psychiatry, 24*(11), 1339-1348.
33. Roberts, R. E., Roberts, C. R., & Xing, Y. (2007b). Rates of DSM-IV psychiatric disorders among adolescents in a large metropolitan area. *Journal of Psychiatric Research, 41*(11), 959-967.
34. Roberts, N., Stuart, H., & Lam, M. (2008). High school mental health survey: Assessment of a mental health screen. *Canadian Journal of Psychiatry, 53*(5), 314-322.
35. Seidler, Z. E., Rice, S. M., Dhillon, H. M., Cotton, S. M., Telford, N. R., McEachran, J., … Rickwood, D. J. (2020). Patterns of youth mental health service use and discontinuation: Population data from Australia's headspace model of care. *Psychiatric Services, 77*(11), 1104–1113.
36. Suzuki, M., Suzuki, S., & Morita, H. (1990). Epidemiological survey of psychiatric disorders of Japanese school children. Part 2. Prevalence of psychiatric disorders in school children. *[Nippon kōshū eisei zasshi] Japanese Journal of Public Health, 37*(3), 146-152.
37. Toledo, V., De La Barra, F., Lopez, C., George, M., & Rodriguez, J. (1997). Psychiatric diagnosis in a cohort of first grade basic course children from the Western area of Santiago de Chile. *Revista Chilena de Neuro-Psiquiatria, 35*(1), 17-24.
38. Wichstrøm, L., Berg-Nielsen, T. S., Angold, A., Egger, H. L., Solheim, E., & Sveen, T. H. (2012). Prevalence of psychiatric disorders in preschoolers. *Journal of Child Psychology and sPsychiatry and Allied Disciplines, 53*(6), 695-705.

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39. Yoo, H. I., Cho, S. C., Kim, B. N., Kim, S. Y., Shin, M. S., & Hong, K. E. (2005). Psychiatric morbidity of second and third grade primary school children in Korea. *Child Psychiatry & Human Development, 36*(2), 215-225.

No relevant diagnoses reported (n=37)

1. Al Gelban, K. S. (2009). Prevalence of psychological symptoms in Saudi secondary school girls in Abha, Saudi Arabia. *Annals of Saudi Medicine, 29*(4), 275-279.
2. Baranne, M. L., & Falissard, B. (2018). Global burden of mental disorders among children aged 5–14 years. *Child and Adolescent Psychiatry and Mental Health, 12*.
3. Basterra, V. (2016). [Percentage of psychoemotional problems in Spanish children and adolescents. Differences between 2006 and 2012]. *Medicina Clinica, 147*(9), 393-396.
4. Bjereld, Y., Daneback, K., Gunnarsdottir, H., & Petzold, M. (2015). Mental health problems and social resource factors among bullied children in the Nordic countries: A population based cross-sectional study. *Child Psychiatry & Human Development, 46*(2), 281-288.
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Not focused on children (n=17)

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Not an original study or survey (n=16)

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Did not report overall prevalence and/or ≥ three diagnostic groups (n=6)

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Diagnostic interview not reliable or validated (n=5)

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Not high-income country (n=3)

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Not peer-reviewed (n=2)

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Reported lifetime diagnoses only (n=1)

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Appendix G: Meta-regression on the Effects of Potential Moderators on Overall Heterogeneity for Any Childhood Mental Disorder

Table S1: Meta-regression on effects of potential moderators on overall heterogeneity for any childhood mental disorder

Moderator	Overall p-value*	Variable†	Rate difference estimation	
			Mean difference‡ (95% CI)	p-value§
Significant moderators				
Overall study design	0.027	One-stage	Reference	
		Two-stage	-0.057 (-0.09, -0.008)	0.027
Study location (Continent)	0.009	North America	Reference	
		Asia	0.016 (-0.061, 0.13)	0.728
		Europe	-0.09 (-0.127, -0.025)	0.012
		Oceania	-0.032 (-0.114, 0.132)	0.631
		South America	0.055 (-0.073, 0.269)	0.494
Diagnostic standard	0.048	DSM-IV(TR)	Reference	
		ICD-10	-0.041 (-0.079, 0.024)	0.182
		DSM-5	0.123 (-0.002, 0.311)	0.056
Diagnostic measure	<0.001	DAWBA	Reference	
		CAPA	0.046 (-0.007, 0.124)	0.099
		CIDI	-0.012 (-0.043, 0.038)	0.586
		DISC-IV	0.07 (0.031, 0.118)	<0.001
		MINI-KID	0.109 (0.036, 0.213)	<0.001
		K-SADS-E	0.163 (0.073, 0.281)	<0.001
Informants	<0.001	Parent, child	Reference	
		Parent only	0.067 (0.022, 0.122)	0.002
		Child only	0.093 (0.039, 0.16)	<0.001
		Parent, child, teacher	-0.007 (-0.042, 0.04)	0.723
		Parent, teacher	-0.058 (-0.078, -0.03)	<0.001
Diagnostic algorithm for reporting/combining data from informants	<0.001	Clinical judgement	Reference	
		One source (child or parent only)¶	0.104 (0.05, 0.172)	<0.001
		OR rule	0.03 (-0.007, 0.08)	0.121
Timeframes for assessing symptoms and impairment	0.003	12 months	Reference	
		≤6 months	0.049 (-0.017, 0.138)	0.164
		1–12 months	-0.052 (-0.081, -0.011)	0.018
Non-significant moderators				
Sampling area	0.356	National	Reference	
		Regional	0.027 (-0.025, 0.103)	0.356
Data collection years	0.252	≤year 2010	Reference	
		>year 2010	0.032 (-0.019, 0.105)	0.252

Sampling frame	0.185	Households	Reference	
		National registry	-0.065 (-0.106, 0.007)	0.071
		Schools	-0.026 (-0.071, 0.04)	0.391
Child age	0.342	All ages (e.g., 4–18)	Reference	
		Children	-0.044 (-0.086, 0.019)	0.15
		Adolescents	-0.028 (-0.078, 0.048)	0.418
Child sex	0.56	All	Reference	
		Boy	0.005 (-0.047, 0.081)	0.876
		Girl	-0.026 (-0.067, 0.037)	0.369

***** An overall p-value of <0.05 for the moderator indicates a significant source of heterogeneity.
† The variable with the greatest number of studies was selected as a reference variable.
‡ A positive mean difference indicates a higher prevalence in comparison to the reference variable; a negative mean difference indicates a lower prevalence.
§ A p-value of <0.05 for a variable indicates a significant difference in prevalence estimates in comparison to the reference variable.
¶ Separating the variable according to "child only" and "parent only" still yielded significant effects (p<0.001 for each variable).
CAPA, Child and Adolescent Psychiatric Assessment; CIDI, Composite International Diagnostic Interview; Structured; DAWBA, Development and Well-Being Assessment; DISC-IV, Diagnostic Interview Schedule for Children; DSM, Diagnostic and Statistical Manual of Mental Disorders; ICD, International Statistical Classification of Diseases and Related Health Problems; K-SADS-E, Kiddie Schedule for Affective Disorders and Schizophrenia-Epidemiological; MINI-KID, Mini-International Neuropsychiatric Interview for Children and Adolescents

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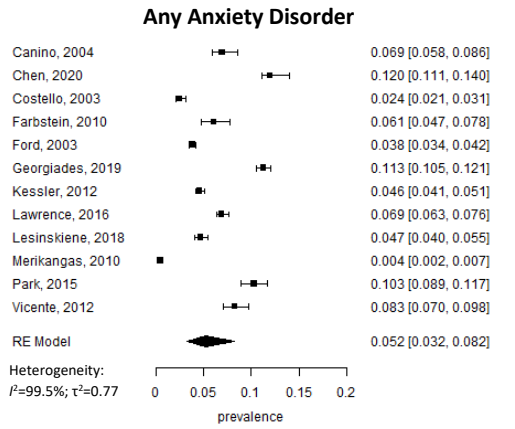
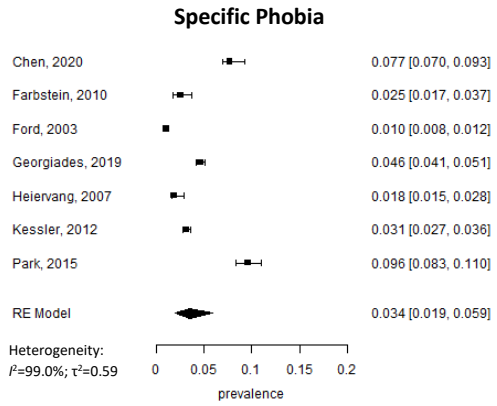
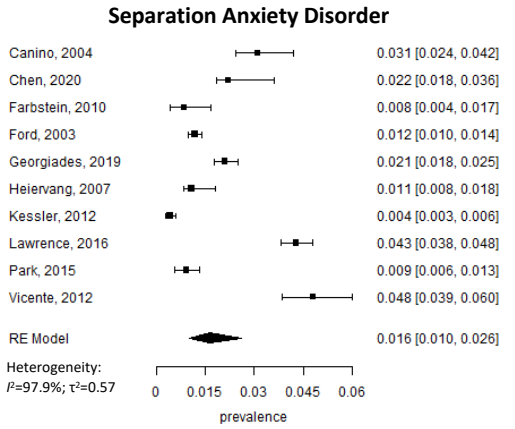
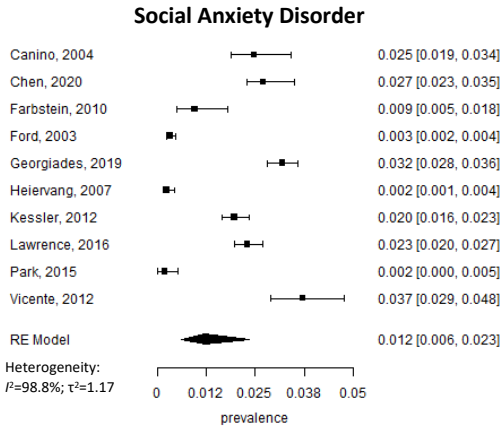
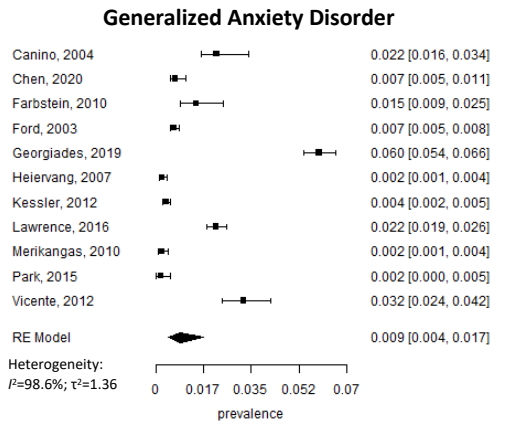
Appendix H: Forest Plots for Prevalence of Individual Disorders and Disorder Groups

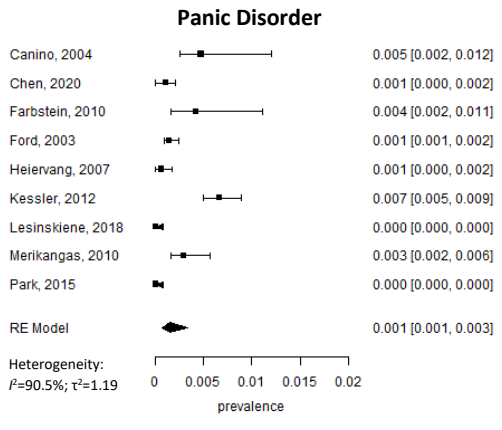












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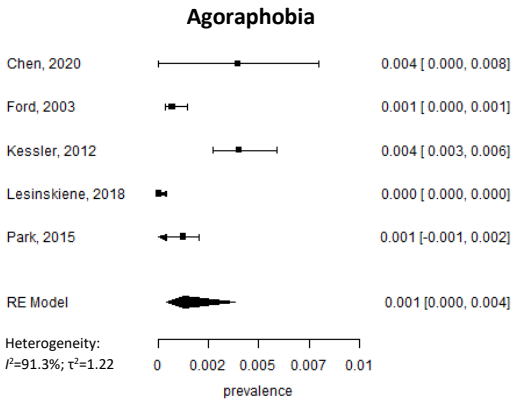

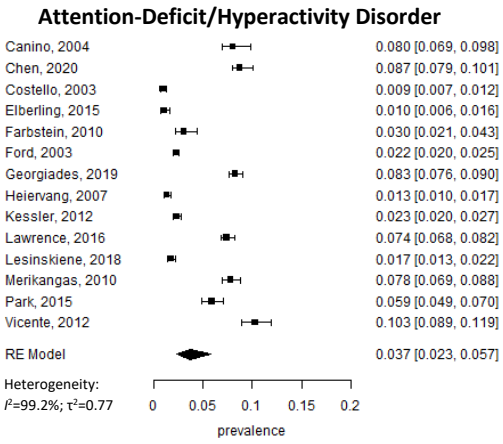

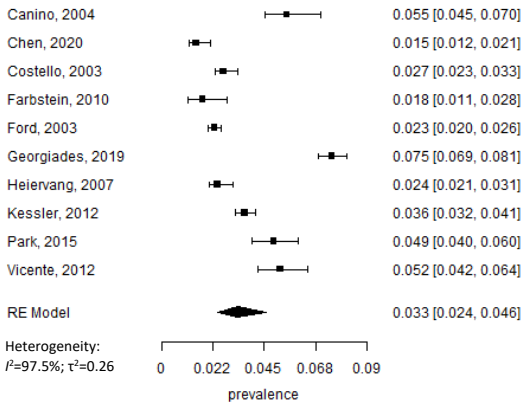

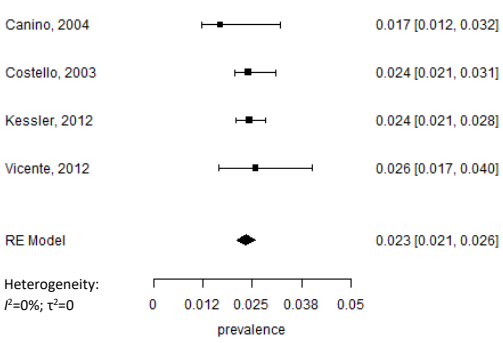

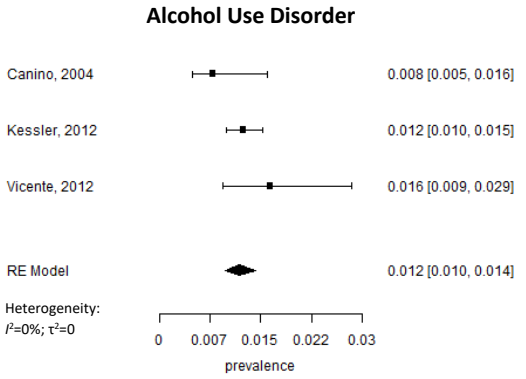

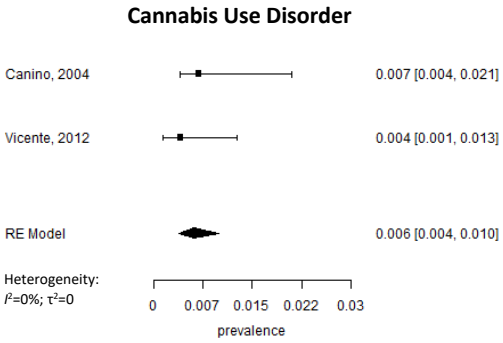

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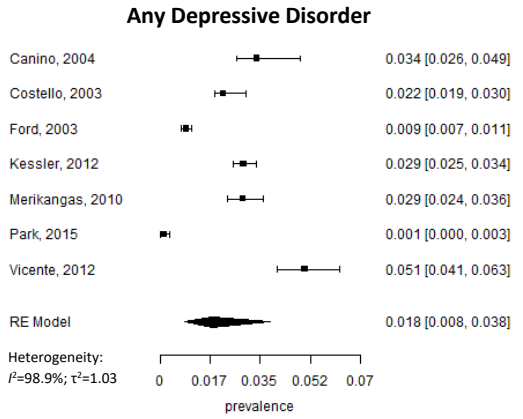

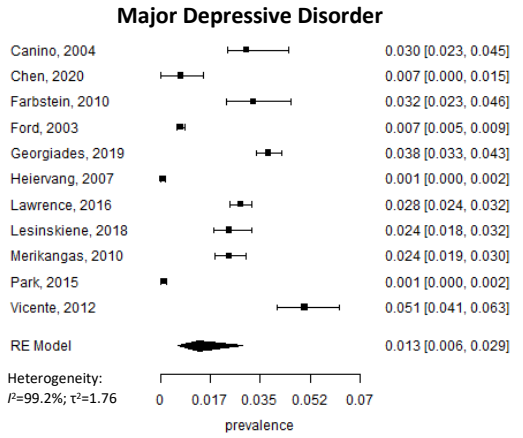

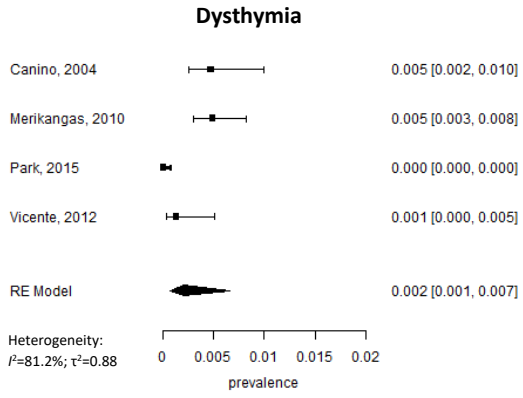

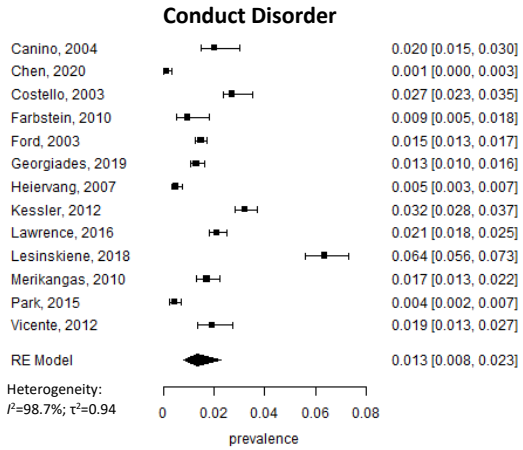

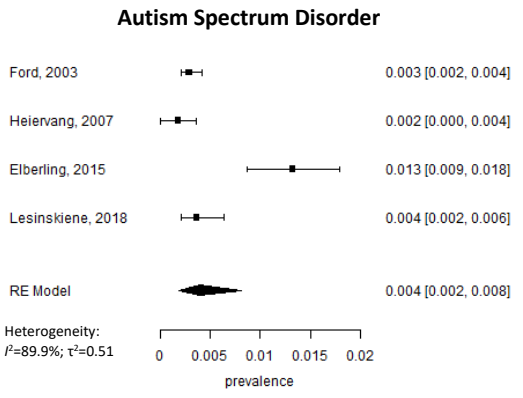

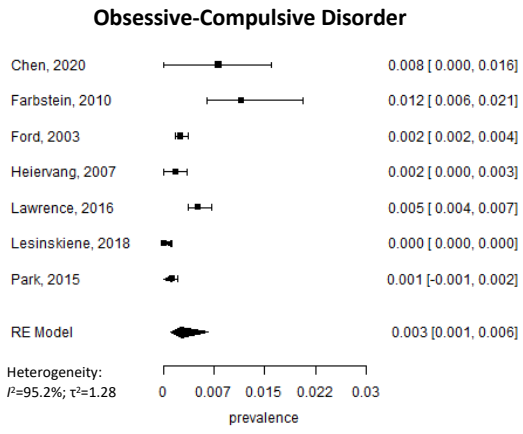

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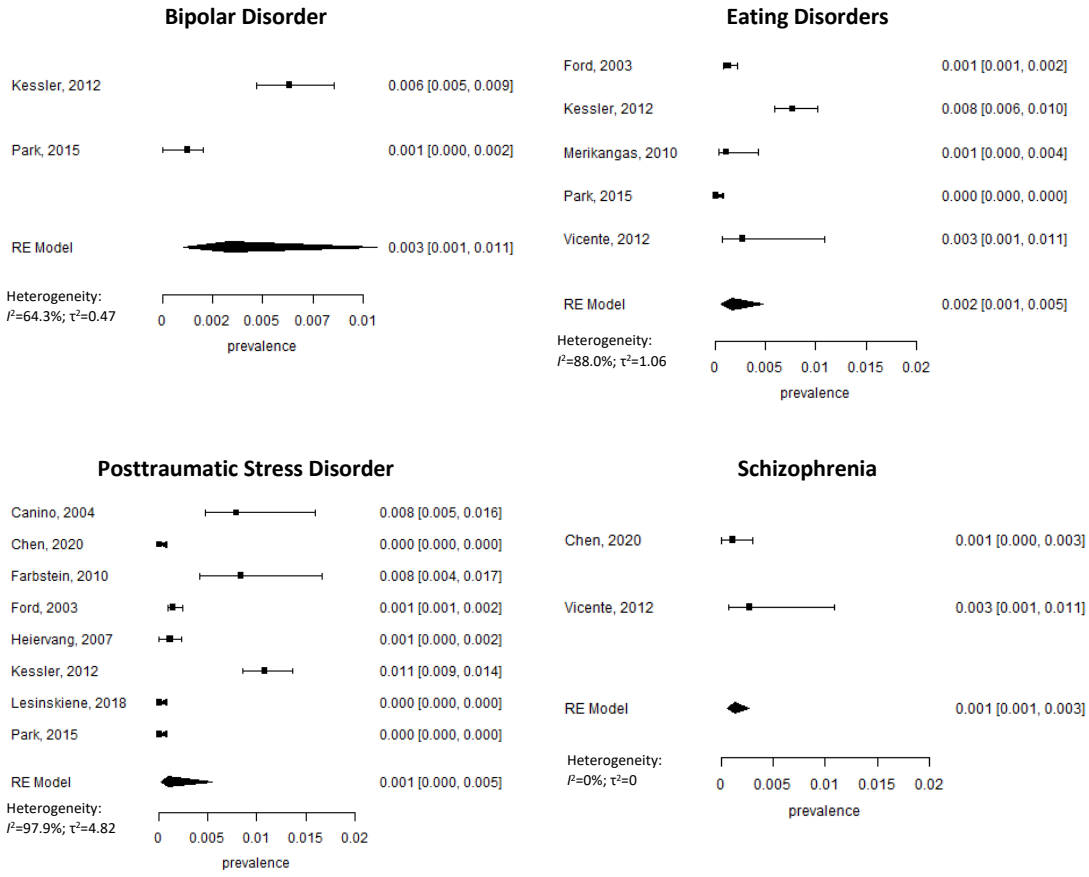

Note: Forest plots for individual disorders and categories of disorders included the prevalence estimates and the corresponding 95% confidence intervals.

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