Supplemental Material 1.Search strategy and results from each database (Last search August 22, 2018)

PubMed hits:178

(adhd OR adhd OR attention deficit disorder with hyperactivity OR minimal brain disorder OR syndrome hyperkinetic OR hyperkinetic syndrome OR hyperactivity disorder OR hyperactive child syndrome OR childhood hyperkinetic syndrome OR attention deficit hyperactivity disorders OR attention deficit hyperactivity disorder OR adhd attention deficit hyperactivity disorder OR addh OR overactive child syndrome OR attention deficit hyperkinetic disorder OR hyperkinetic disorder OR attention deficit disorder hyperactivity OR attention deficit disorder hyperactivity OR child attention deficit disorder OR hyperkinetic syndromes OR syndromes hyperkinetic OR hyperkinetic syndrome childhood) AND (neurofeedback OR neuro feedback OR "EEG biofeedback" OR neuro therapy OR neurotherapy OR SCP OR "slow cortical potentials") AND (Methylphenidate* OR methylphenidate* OR Ritalin OR ritalin)

Web of Science :120

TOPIC: (adhd OR adhd OR attention deficit disorder with hyperactivity OR minimal brain disorder OR syndrome hyperkinetic OR hyperkinetic syndrome OR hyperactivity disorder OR hyperactive child syndrome OR childhood hyperkinetic syndrome OR attention deficit hyperactivity disorders OR attention deficit hyperactivity disorder OR adhd attention deficit hyperactivity disorder OR addh OR overactive child syndrome OR attention deficit hyperkinetic disorder OR hyperkinetic disorder OR attention deficit disorder hyperactivity OR attention deficit disorder hyperactivity OR child attention deficit disorder OR hyperkinetic syndromes OR syndromes hyperkinetic OR hyperkinetic syndrome childhood) AND (neurofeedback OR neuro feedback OR "EEG biofeedback" OR neuro therapy OR neurotherapy OR SCP OR "slow cortical potentials") AND (Methylphenidate* OR methylphenidate* OR Ritalin OR ritalin)

OVID medline :33

(adhd OR adhd OR attention deficit disorder with hyperactivity OR minimal brain disorder OR syndrome hyperkinetic OR hyperkinetic syndrome OR hyperactivity disorder OR hyperactive child syndrome OR childhood hyperkinetic syndrome OR attention deficit hyperactivity disorders OR attention deficit hyperactivity disorder OR adhd attention deficit hyperactivity disorder OR addh OR overactive child syndrome OR attention deficit hyperkinetic disorder OR hyperkinetic disorder OR attention deficit disorder hyperactivity OR attention deficit disorder hyperactivity OR child attention deficit disorder OR hyperkinetic syndromes OR syndromes hyperkinetic OR hyperkinetic syndrome childhood) AND (neurofeedback OR neuro feedback OR "EEG biofeedback" OR neuro therapy OR neurotherapy OR SCP OR "slow cortical potentials") AND (Methylphenidate* OR methylphenidate* OR Ritalin OR ritalin)

ERIC:3

(adhd OR adhd OR attention deficit disorder with hyperactivity OR minimal brain disorder OR syndrome hyperkinetic OR hyperkinetic syndrome OR hyperactivity disorder OR hyperactive child syndrome OR childhood hyperkinetic syndrome OR attention deficit hyperactivity disorders OR attention deficit hyperactivity disorder OR adhd attention deficit hyperactivity disorder OR addh OR overactive child syndrome OR attention deficit hyperkinetic disorder OR hyperkinetic disorder OR attention deficit disorder hyperactivity OR attention deficit disorder hyperactivity OR child attention deficit disorder OR hyperkinetic syndromes OR syndromes hyperkinetic OR hyperkinetic syndrome childhood) AND (neurofeedback OR neuro feedback OR "EEG biofeedback" OR neuro therapy OR neurotherapy OR SCP OR "slow cortical potentials") AND (Methylphenidate* OR methylphenidate* OR Ritalin OR ritalin)

CNKI 149

Chongqing VIP 24

Wanfang 19

Clincaltrials.gov, clinicaltrialsregister.eu, and osf.io 11

Records after duplicates removed 392

Supplemental Material 2 List of excluded studies

Studies Excluded	Reason(s) for exclusion
Ahmann, P. A., Waltonen, S. J., Olson, K. A., Theye, F. W., Van Erem, A. J., &LaPlant, R. J. (1993). Placebo-controlled evaluation of Ritalin side effects. *Pediatrics, 91*(6), 1101-1106.	No neurofeedback group as per protocol, only methylphenidate
Ali Nazari, M., &Berquin, P. (2010). *Effect of electrical activity feedback on cognition*.	No M SD data
Buchmann, J., Gierow, W., Weber, S., Hoeppner, J., Klauer, T., Benecke, R., . . . Wolters, A. (2007). Restoration of disturbed intracortical motor inhibition and facilitation in attention deficit hyperactivity disorder children by methylphenidate. *Biol Psychiatry, 62*(9), 963-969. doi:10.1016/j.biopsych.2007.05.010	No neurofeedback group as per protocol, only methylphenidate
Chen G, Zhang K. Evaluation of Neurofeedback therapy for children with attention deficit hyperactivity disorder. *Journal of Clinical Rehabilitative Tissue Engineering Research.* 2008;12(30):5969-5972.	Review
Chen G, Xie W, Zhong K. Review of neurofeedback in the treatment of attention deficit hyperactivity disorder in children. *Journal of Mianyang Teachers University.* 2013;32(02):76-80+98.	review
Christiansen, H., Reh, V., Schmidt, M. H., & Rief, W. (2014). Slow cortical potential neurofeedback and self-management training in outpatient care for children with ADHD: study protocol and first preliminary results of a randomized controlled trial. *Front Hum Neurosci, 8*. doi:10.3389/fnhum.2014.00943	Just a protocol
Cortese, S., D'Acunto, G., Konofal, E., Masi, G., & Vitiello, B. (2017). New Formulations of Methylphenidate for the Treatment of Attention-Deficit/Hyperactivity Disorder: Pharmacokinetics, Efficacy, and Tolerability. *CNS Drugs, 31*(2), 149-160. doi:10.1007/s40263-017-0409-0	Review, no empirical data
Cortese, S., Panei, P., Arcieri, R., Germinario, E. A., Capuano, A., Margari, L., . . . Curatolo, P. (2015). Safety of Methylphenidate and Atomoxetine in Children with Attention-Deficit/Hyperactivity Disorder (ADHD): Data from the Italian National ADHD Registry. *CNS Drugs, 29*(10), 865-877. doi:10.1007/s40263-015-0266-7	Meta-analysis, no empirical data
de Sonneville, L. M., Njiokiktjien, C., & Hilhorst, R. C. (1991). Methylphenidate-induced changes in ADDH information processors. *J Child Psychol Psychiatry, 32*(2), 285-295.	No neurofeedback group as per protocol, only methylphenidate
deBeus, R. J., & Kaiser, D. A. (2011). *Neurofeedback with Children with Attention Deficit Hyperactivity Disorder: A Randomized Double-Blind Placebo-Controlled Study*.	No methylphenidate group
Dura-Trave, T., Yoldi-Petri, M. E., Gallinas-Victoriano, F., &Zardoya-Santos, P. (2012). Effects of osmotic-release methylphenidate on height and weight in children with attention-deficit hyperactivity disorder (ADHD) following up to four years of treatment. *J Child Neurol, 27*(5), 604-609. doi:10.1177/0883073811422752	No methylphenidate group as per protocol, only neurofeedback

Flisiak-Antonijczuk, H., Adamowska, S., Chladzinska-Kiejna, S., Kalinowski, R., & Adamowski, T. (2015). Treatment of ADHD: comparison of EEG-biofeedback and methylphenidate. *Archives of Psychiatry and Psychotherapy, 17*(4), 31-38.	Not randomized and no data
Fox, D. J., Tharp, D. F., & Fox, L. C. (2005). Neurofeedback: an alternative and efficacious treatment for Attention Deficit Hyperactivity Disorder. *Applied Psychophysiology & Biofeedback, 30*(4), 365-373.	Review
Fuchs, T., Birbaumer, N., Lutzenberger, W., Gruzelier, J. H., & Kaiser, J. (2003). Neurofeedback treatment for attention-deficit/hyperactivity disorder in children: A comparison with methylphenidate. *Appl Psychophysiol Biofeedback, 28*(1), 1-12. doi:10.1023/a:1022353731579	Not randomized
Gevensleben, H., Holl, B., Albrecht, B., Schlamp, D., Kratz, O., Studer, P., . . . Heinrich, H. (2010). Neurofeedback training in children with ADHD: 6-month follow-up of a randomised controlled trial. *Eur Child Adolesc Psychiatry, 19*(9), 715-724. doi:10.1007/s00787-010-0109-5	No methylphenidate group as per protocol, only neurofeedback
Gevensleben, H., Moll, G. H., & Heinrich, H. (2010). Neurofeedback training in children with ADHD: behavioral and neurophysiological effects. *Zeitschrift Fur Kinder-Und Jugendpsychiatrie Und Psychotherapie, 38*(6), 409-420. doi:10.1024/1422-4917/a000070	No methylphenidate group as per protocol, only neurofeedback
Huang H, Zhang W, Fu J, Xu L, Yan L. The role of psychological behavior intervention in children with attention deficit hyperactivity disorder after Neurobiofeedback therapy. *Journal of Medical Postgraduates.* 2008;21(02):223-224.	No methylphenidate group as per protocol, only neurofeedback
Hodgson, K., Hutchinson, A. D., & Denson, L. (2014). Nonpharmacological Treatments for ADHD A Meta-Analytic Review. *Journal of Attention Disorders, 18*(4), 275-282. doi:10.1177/1087054712444732	Meta-analysis
Holtmann, M., Stadler, C., Leins, U., Strehl, U., Birbaumer, N., & Poustka, F. (2004). [Neurofeedback for the treatment of attention-deficit/hyperactivity disorder (ADHD) in childhood and adolescence]. *Zeitschrift fur Kinder und Jugendpsychiatrie und Psychotherapie, 32*(3), 187-200.	review
Lan G. *Meta-analysis of the effects of domestic attention deficit hyperactivity disorder intervention*, Northeast Normal University; 2007	Meta-analysis
Lansbergen, M. M., van Dongen-Boomsma, M., Buitelaar, J. K., & Slaats-Willemse, D. (2011). ADHD and EEG-neurofeedback: a double-blind randomized placebo-controlled feasibility study. *Journal of Neural Transmission, 118*(2), 275-284. doi:10.1007/s00702-010-0524-2	No methylphenidate group as per protocol, only neurofeedback
Leins, U., Goth, G., Hinterberger, T., Klinger, C., Rumpf, N., &Strehl, U. (2007). Neurofeedback for children with ADHD: A comparison of SCP and Theta/Beta protocols. *Appl Psychophysiol Biofeedback, 32*(2), 73-88. doi:10.1007/s10484-007-9031-0	No methylphenidate group as per protocol, only neurofeedback
Leitner, Y., Barak, R., Giladi, N., Peretz, C., Eshel, R., Gruendlinger, L., &Hausdorff, J. M. (2007). Gait in attention deficit hyperactivity disorder : effects of methylphenidate and dual tasking. *J Neurol, 254*(10), 1330-1338. doi:10.1007/s00415-006-0522-3	No methylphenidate group as per protocol, only neurofeedback
Leitner, Y., Doniger, G. M., Barak, R., Simon, E. S., &Hausdorff, J. M. (2007). A novel multidomain computerized cognitive assessment for	No methylphenidate group as per

attention-deficit hyperactivity disorder: evidence for widespread and circumscribed cognitive deficits. *J Child Neurol, 22*(3), 264-276. doi:10.1177/0883073807299859	protocol, only neurofeedback
Levesque, J., Beauregard, M., &Mensour, B. (2006). Effect of neurofeedback training on the neural substrates of selective attention in children with attention-deficit/hyperactivity disorder: A functional magnetic resonance imaging study. *Neurosci Lett, 394*(3), 216-221. doi:10.1016/j.neulet.2005.10.100	No methylphenidate group as per protocol, only neurofeedback
Li J, Hu X. Efficacy analysis of Neurofeedback and Ritalin in the treatment of chinldren with attention deficit hyperactivity disorder. *Journal of Public Health and Preventive Medicine.* 2012;23(04):111-112.	No neurofeedback vs methylphate
Li L. Advances in research on electroencephalographic biofeedback therapy for attention deficit hyperactivity disorder. *Chinese Journal of Behavioral Medical Science.* 2005;14(03):93-95.	review
Li, L., Yang, L., Zhuo, C.-j., & Wang, Y.-F. (2013). A randomised controlled trial of combined EEG feedback and methylphenidate therapy for the treatment of ADHD. *Swiss Medical Weekly, 143*. doi:10.4414/smw.2013.13838	Combined EEG feedback and methylphenidate therapy
Lubar, J. F., Swartwood, M. O., Swartwood, J. N., &Odonnell, P. H. (1995). EVALUATION OF THE EFFECTIVENESS OF EEG NEUROFEEDBACK TRAINING FOR ADHD IN A CLINICAL SETTING AS MEASURED BY CHANGES IN TOVA SCORES, BEHAVIORAL RATINGS, AND WISC-R PERFORMANCE. *Biofeedback Self Regul, 20*(1), 83-99. doi:10.1007/bf01712768	No methylphenidate group as per protocol, only neurofeedback
Lv B, Liu Y, Huang B, Li H, Deng X. Clinical Observation on 31 Cases of Children with Attentional Hyperactivity Deficit Treated by Neurofeedback. *Journal of Youjiang Medical College.* 2006(04):633-634.	NO M SD,just OR
Jiang L, Chen D, Su Y. Changes of IVA-CPT before and after Neurofeedback therapy in children with ADHD. *Chinese Journal of Child Health Care.* 2007(05):468-470.	Only one group ,no MPH group
Jiang R, Wang Y. The Effect of EEG Feedback on Cognitive Function of Children with ADHD *Chinese Mental Health Journal.* 2002;13(07):462-464+453.	review
Micoulaud-Franchi, J. A., Bat-Pitault, F., Cermolacce, M., & Vion-Dury, J. (2011). Neurofeedback for attention-deficit/hyperactivity disorder: From efficacy to neurophysiology specificity effect. *Annales Medico-Psychologiques, 169*(3), 200-208. doi:10.1016/j.amp.2011.02.007	No methylphenidate group as per protocol, only neurofeedback
Millichap, J. G., Millichap, J. J., & Stack, C. V. (2011). Utility of the electroencephalogram in attention deficit hyperactivity disorder. *Clin EEG Neurosci, 42*(3), 180-184. doi:10.1177/155005941104200307	review
Monastra, V. J., Monastra, D. M., & George, S. (2002). The effects of stimulant therapy, EEG biofeedback, and parenting style on the primary symptoms of attention-deficit/hyperactivity disorder. *Applied Psychophysiology & Biofeedback, 27*(4), 231-249.	Incomplete data
Ogrim G, Hestad KA. Effects of neurofeedback versus stimulant medication in attention-deficit/hyperactivity disorder: a randomized pilot study. J Child Adolesc Psychopharmacol. 2013;23(7):448-457.	Medicine group not purê methylphenidate, with

	dextroamphetamine, or a placebo
Papavasiliou, A. S., Nikaina, I., Rizou, I., &Alexandrou, S. (2007). Effects of psycho-educational training and stimulant medication on visual perceptual skills in children with attention deficit hyperactivity disorder. *Neuropsychiatr Dis Treat, 3*(6), 949-954.	No neurofeedback group as per protocol, only methylphenidate
Razoki B. Neurofeedback versus psychostimulants in the treatment of children and adolescents with attention-deficit/hyperactivity disorder: a systematic review. *Neuropsychiatric disease and treatment.* 2018;14:2905-2913.	systematic review
Rossiter, T. (2004a). The effectiveness of neurofeedback and stimulant drugs in treating AD/HD: Part I. Review of methodological issues. *Appl Psychophysiol Biofeedback, 29*(2), 95-112. doi:10.1023/B:APBI.0000026636.13180.b6	review
Rossiter, T. (2004b). The effectiveness of neurofeedback and stimulant drugs in treating AD/HD: Part II. Replication. *Appl Psychophysiol Biofeedback, 29*(4), 233-243. doi:10.1007/s10484-004-0383-4	review
Rossiter TR, La Vaque TJ. A comparison of eeg biofeedback and psychostimulants in treating attention deficit/hyperactivity disorders. Journal of Neurotherapy. 1995;1(1):48-59.	Not randomized,Med group not onlymethylphenidate
Shouse, M. N., & Lubar, J. F. (1979). OPERANT-CONDITIONING OF EEG RHYTHMS AND RITALIN IN THE TREATMENT OF HYPERKINESIS. *Biofeedback Self Regul, 4*(4), 299-312. doi:10.1007/bf00998960	No RCT
Socanski, D., Aurlien, D., Herigstad, A., Thomsen, P. H., & Larsen, T. K. (2015). Attention deficit/hyperactivity disorder and interictal epileptiform discharges: it is safe to use methylphenidate? *Seizure, 25*, 80-83. doi:10.1016/j.seizure.2015.01.002	No neurofeedback group as per protocol, only methylphenidate
Stankus, T. (2008). Can the Brain Be Trained? Comparing the Literature on the Use of EEG Biofeedback/Neurofeedback as an Alternative or Complementary Therapy for Attention Deficit Hyperactivity Disorder (ADHD). *Behavioral & Social Sciences Librarian, 26*(4), 20-56.	review
Sunohara, G. A., Voros, J. G., Malone, M. A., & Taylor, M. J. (1997). Effects of methylphenidate in children with attention deficit hyperactivity disorder: a comparison of event-related potentials between medication responders and non-responders. *Int J Psychophysiol, 27*(1), 9-14.	No neurofeedback group as per protocol, only methylphenidate
Tang W, Tong J, Xu M. Effect of methylphenidate controlled release combined with Neurofeedback on children with attention deficit hyperactivity disorder. *Modern Practical Medicine.* 2014;21(6):708-710.	No NF only group
Van Doren, J., Arns, M., Heinrich, H., Vollebregt, M. A., Strehl, U., & K Loo, S. (2018). Sustained effects of neurofeedback in ADHD: a systematic review and meta-analysis. *Eur Child Adolesc Psychiatry*. doi:10.1007/s00787-018-1121-4	Review and meta analysis
Wang R. *Prostecdtive Efficacy and Influence of Combination of EEG Biofeedback and Stimulant Medication Treatment on Cognitive of Child with Attention Deficit/Hyperactivity Disorder*, Hebei Medical University; 2007.	No neurofeedback vs methylphate
Yao H, Chen Y, Kang R, Zhao S, Ding D. A comparative study of methylphenidate combined with EEG biofeedback in the treatment	No MPH only group,just NF and

of attention deficit hyperactivity disorder with specific dyslexia. *Journal of Clinical Psychiatry.* 2010(6):393-394.	NF+MPH
Zhang F. Advances in Neurofeedback therapy for children with attention deficit hyperactivity disorder. *Chinese Journal of Practical Pediatrics.* 2002;27(12):756-758	review
Zhao R, He X, Zhang Y. Therapeutic effect of EEG biofeedback on children with attention deficit hyperactivity disorder. *Sichuan Medkal Journal.* 2009;30(12):1950-1951.	Noenoughdata

Supplemental Material 3 List of included studies

Author	References(s)
Chen (2007)	Chen, P., Zhang, F., & Ye, M. (2007). Study on the effectiveness of EEG biofeedback on attention deficit hyperactivity disorder. *Maternal and Child Health Care of China, 22*(18), 2517-2519.
Chen (2009)	Chen, Y. (2009). *Clinical features of children with different subtypes of ADHD and therapeutic effects of OROS-MPH.*Jinan University,
Chen (2011)	Chen, Y., Kang, R., Zhao, S., & Ding, D. (2011). A comparative study on the efficacy of methylphenidate and Neurofeedback in the treatment of attention deficit hyperactivity disorder in children. *Practical Preventive Medicine, 18*(10), 1956-1957.
Du(2014)	Du, W., Cui, L., Wang, P., Qi, H., Zhang, J., & Dong, J. (2014). Comparison of EEG Biofeedback and Ritalin in Treating Children with Different Subtypes of Attention Deficit Hyperactivity Disorder. *The Journal of Practical Medicine, 30*(16), 2645-2647.
Duric (2017)	Duric, N. S., Assmus, J., Gundersen, D., DuricGolos, A., &Elgen, I. B. (2017). Multimodal treatment in children and adolescents with attention-deficit/hyperactivity disorder: a 6-month follow-up. *Nord J Psychiatry, 71*(5), 386-394. doi:10.1080/08039488.2017.1305446 Duric, N. S., Asmus, J., &Elgen, I. B. (2014). Self-reported efficacy of neurofeedback treatment in a clinical randomized controlled study of ADHD children and adolescents. *Neuropsychiatric Disease and Treatment Vol 10 2014, ArtID 1645-1654, 10*. Duric, N. S., Assmus, J., Gundersen, D., &Elgen, I. B. (2012). Neurofeedback for the treatment of children and adolescents with ADHD: a randomized and controlled clinical trial using parental reports. *BMC Psychiatry, 12*, 107. doi:10.1186/1471-244x-12-107
Fan(2012)	Fan, Q. (2012). EEG biofeedback in the treatment of children with attention deficit hyperactivity disorder a clinical study. *China Practical Medical, 7*(36), 18-19.
Gelade (2018)	Gelade, K., Janssen, T. W. P., Bink, M., Twisk, J. W. R., van Mourik, R., Maras, A., &Oosterlaan, J. (2018). A 6-month follow-up of an RCT on behavioral and neurocognitive effects of neurofeedback in children with ADHD. *Eur Child Adolesc Psychiatry, 27*(5), 581-593. doi:10.1007/s00787-017-1072-1 Gelade, K., Bink, M., Janssen, T. W. P., van Mourik, R., Maras, A., &Oosterlaan, J. (2017). An RCT into the effects of neurofeedback on neurocognitive functioning compared to stimulant medication and physical activity in children with ADHD. *European Child and Adolescent Psychiatry, 26*(4), 457-468. doi:http://dx.doi.org/10.1007/s00787-016-0902-x Gelade, K., Janssen, T. W. P., Bink, M., Van Mourik, R., Maras, A., &Oosterlaan, J. (2016). Behavioral effects of neurofeedback compared to stimulants and physical activity in attention-deficit/hyperactivity disorder: A randomized controlled trial. *Journal of Clinical Psychiatry, 77*(10), e1270-e1277. doi:http://dx.doi.org/10.4088/JCP.15m10149 Janssen, T. W., Bink, M., Gelade, K., Mourik, R., Maras, A., &Oosterlaan, J. (2016). A randomized controlled trial into the effects of neurofeedback, methylphenidate, and physical activity on EEG power spectra in children with ADHD. *Journal of Child Psychology and Psychiatry, 57*(5), 633-644.

	doi:http://dx.doi.org/10.1111/jcpp.12517 Janssen, T. W., Bink, M., Gelade, K., van Mourik, R., Maras, A., &Oosterlaan, J. (2016). A Randomized Controlled Trial Investigating the Effects of Neurofeedback, Methylphenidate, and Physical Activity on Event-Related Potentials in Children with Attention-Deficit/Hyperactivity Disorder. *Journal of Child & Adolescent Psychopharmacology, 26*(4), 344-353. doi:https://dx.doi.org/10.1089/cap.2015.0144 Janssen, T. W. P., Bink, M., Weeda, W. D., Gelade, K., van Mourik, R., Maras, A., &Oosterlaan, J. (2017). Learning curves of theta/beta neurofeedback in children with ADHD. *Eur Child Adolesc Psychiatry, 26*(5), 573-582. doi:10.1007/s00787-016-0920-8
Ji (2009)	Ji, Y., Kuang, G., Xie, J., Xia, Y., &Heng, Z. (2009). Comparative Study on Neurofeedback and Methylphenidate in the Treatment of Different Subtypes of Attention Deficit Hyperactivity Disorder. *Chinese Journal of Child Health Care, 17*(05), 573-575.
Kong (2007)	Kong, D., Huo, J., Fu, H., Liu, J., Qiu, S., Zhang, Y., & Yuan, H. (2007). Controlled Study on Long- term Effect of EEG Biofeedback on ADHD. *Journa l of M edical Forum, 28*(02), 20-22. Kong, D. (2008). *Cognitive Behavior Interventionon Children with ADHD.* , Southwest University, Retrieved from www.wanfangdata.com.cn/details/detail.do?_type=degree&id=Y1263853
Li (2001)	Li, X., Wang, Y., & Shu, L. (2001). A controlled study on the effectiveness of EEG biofeedback on attention deficit hyperactivity disorder. *chinese journal of psychiatry, 34*(3), 168-171. Zhang, Y., Li, X., & Wang, Y. (2003). Changes in Attention Variables in Follow-up Study of Neurofeedback Treatment for Attention Deficit Hyperactivity Disorder. *Chinese Journal of Pediatrics, 41*(11), 56-57.
Meisel (2013)	Meisel, V., Servera, M., Garcia-Banda, G., Cardo, E., & Moreno, I. (2013). Neurofeedback and standard pharmacological intervention in ADHD: a randomized controlled trial with six-month follow-up. *BiolPsychol, 94*(1), 12-21. doi:10.1016/j.biopsycho.2013.04.015
Moreno (2015)	Moreno-Garcia, I., Delgado-Pardo, G., Camacho-Vara de Rey, C., Meneres-Sancho, S., &Servera-Barcelo, M. (2015). Neurofeedback, pharmacological treatment and behavioral therapy in hyperactivity: Multilevel analysis of treatment effects on electroencephalography. *International Journal of Clinical and Health Psychology, 15*(3), 217-225. doi:10.1016/j.ijchp.2015.04.003
Sudnawa (2018)	Sudnawa, K. K., Chirdkiatgumchai, V., Ruangdaraganon, N., Khongkhatithum, C., Udomsubpayakul, U., Jirayucharoensak, S., &Israsena, P. (2018). Effectiveness of Neurofeedback Versus Medication in Treatment of ADHD. *Pediatr Int*. doi:10.1111/ped.13641
Tang (2017)	Tang, M., Tan, Q., Huang, W., Tan, C., & Xiang, Z. (2017). Effect of Ritalin on cognitive function of children with ADHD. *Journal of International Psychiatry, 44*(02), 240-242.
Yang (2016)	Yang, X. (2016). EEG biofeedback and methylphenidate treatment in different subtypes of attention deficit hyperactivity disorder Comparative Study. *For all Health, 10*(09), 72-73.
Zhang (2006)	Zhang, F., Zhang, J., &Jin, X. (2006). Effect of electroencephalogram biofeedback on behavioral problems of children with attention deficit hyperactivity disorder *Chinese Journal of Clinical Rehabilitation, 10*(10), 74-76.

	Zhang, F., Zhang, J., & Shen, X. (2006). A comparative study on the effect of Neurofeedback on attention quality in children with attention deficit hyperactivity disorder. *Chinese Journal of Physical Medicine and Rehabilitation, 28*(04), 270-273.
Zhou (2012)	Zhou, G., Zhou, Y., Fang, C., Hhuang, C., Sun, X., Sun, Y., . . . Zhu, X. (2012). To observe the different efficacy of three kinds of treatments for children with attention deficit hyperactivity disorder （ADHD）. *China Modern Doctor, 50*(17), 60-63.
Zuo(2009)	Zuo, C., Shen, S., Chai, L., Zhang, L., & Yan, L. (2009). Clinical observation of biofeedback therapy for the treatment of attention deficit hyperactivity disorder. *Shandong Medicine, 49*(43), 88-89.

Supplemental Material 4 Rating for each item of the Cochrane Collaboration risk of bias tool (ROB)

Study	Random sequence generation	Allocation concealment	Blinding of participants and personnel. Assessments should be made for each main outcome (or class of outcomes).	Blinding of outcome assessment. Assessments should be made for each main outcome (or class of outcomes).	Incomplete outcome data. Assessments should be made for each main outcome (or class of outcomes)	Selective reporting	Other sources of bias
Chen(2007)	Low	High	High	High	Unclear	Low	Low
Chen(2009)	Low	High	High	High	Unclear	Low	Low
Chen(2011)	Low	High	High	High	Unclear	Low	Low
Du(2014)	Low	High	High	High	High	Low	Low
Duric(2017)	Low	High	High	High	High	Low	Low
Fan(2012)	High	High	High	High	High	Low	Low
Gelade(2017)	Low	Unclear	High	Low	High	Low	Low
Ji(2009)	Low	High	High	High	High	Low	Low
Kong(2007)	Low	High	High	High	High	Low	Low
Li(2001)	Low	High	High	High	High	Low	Low
Meisel(2014)	Low	High	High	High	High	Low	Low
Moreno(2017)	Low	High	High	Low	Low	Low	Low
Sudnawa(2018)	Low	High	High	High	High	Low	Low
Tang(2017)	Low	High	High	High	High	Low	Low
Yang(2016)	Low	High	High	High	High	Low	Low
Zhang(2006)	Low	High	High	High	High	Low	Low
Zhou(2012)	High	High	High	High	High	Low	Low
Zuo(2009)	Low	High	High	High	High	Low	Low

Supplemental Figure 1 **Prisma chart for the study selection progress.**

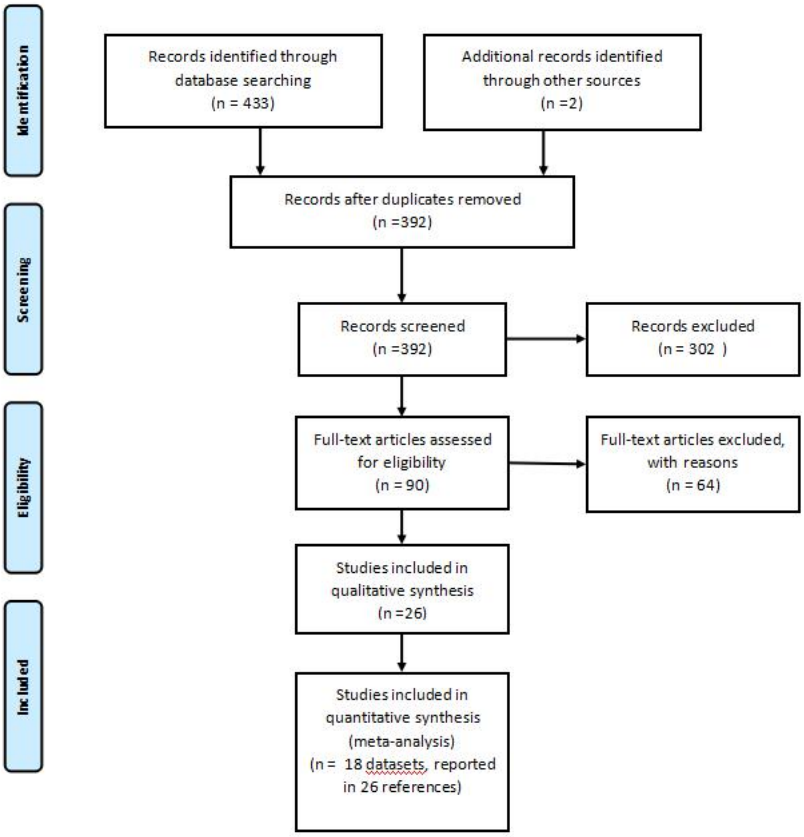
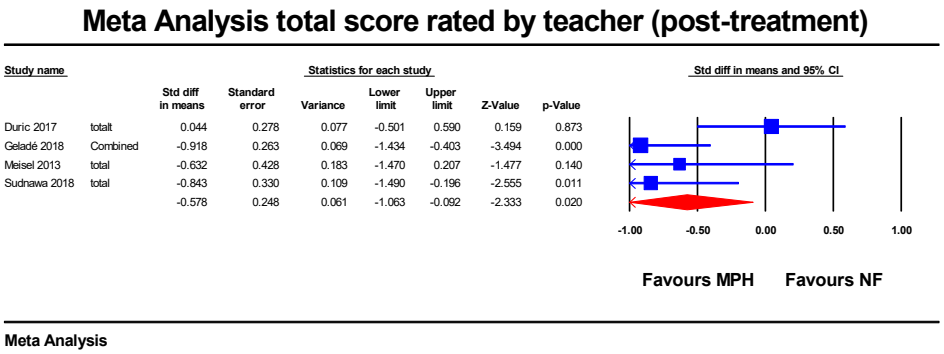
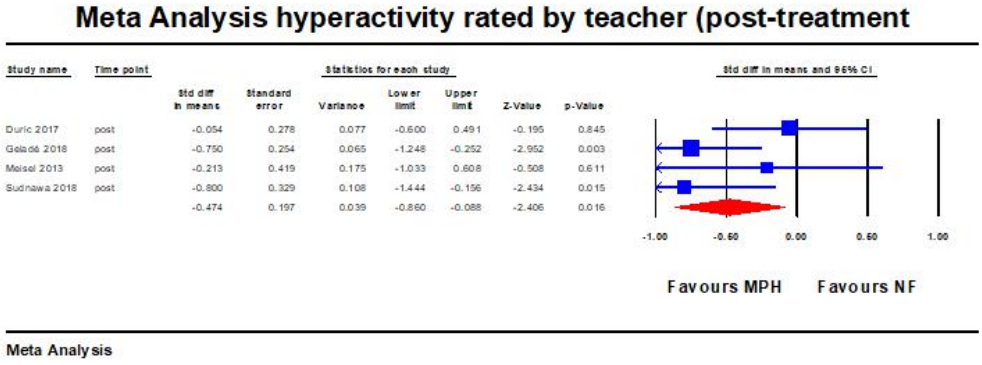


Fig.1. Prisma chart for the study selection progress.

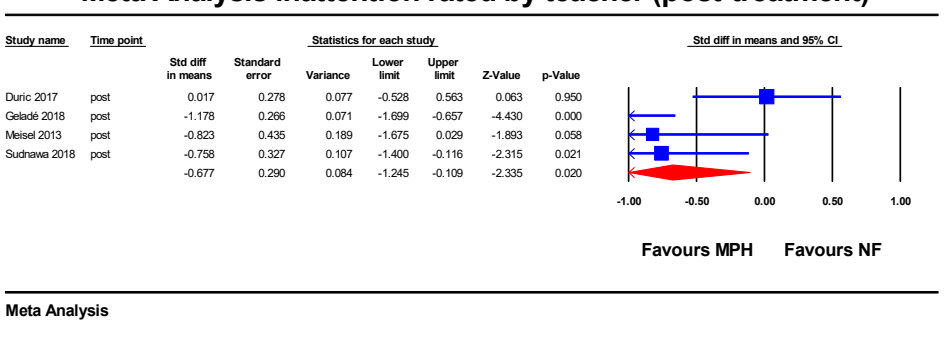
Supplemental Figure 2　Forest plots of Meta analysis（rated by teachers,post-treatment）



Suppl. Fig.2-1: Total score change rated by teacher(post-treatment), SMD:　-0.578, CI [-1.063; -0.092], I^2: 59.126 Egger: p=.890

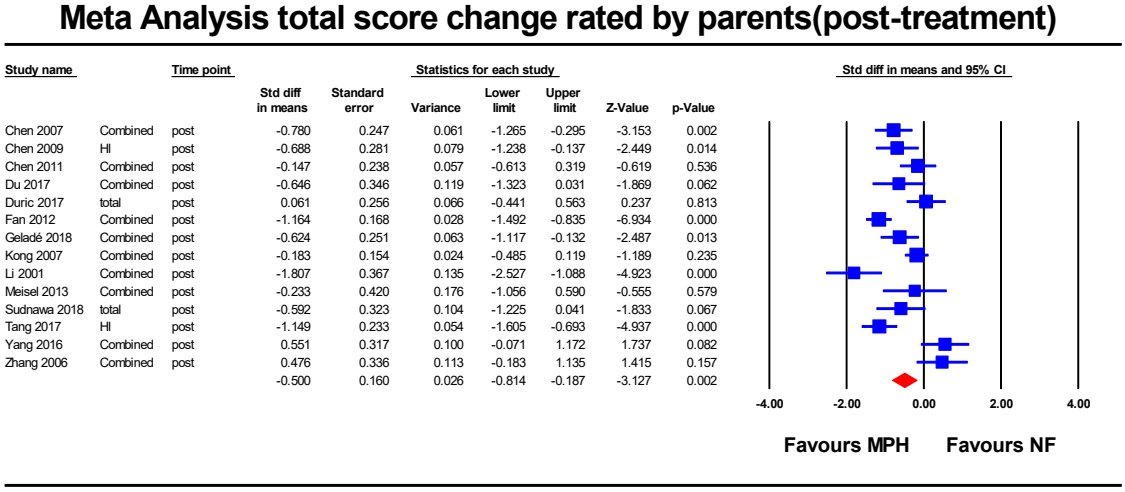


Suppl. Figure 2-2: Hyperactivity score change rated by teacher(post-treatment), SMD:　-0.474, CI [-0.860; -0.088], I^2: 37.818 Egger: p=.784

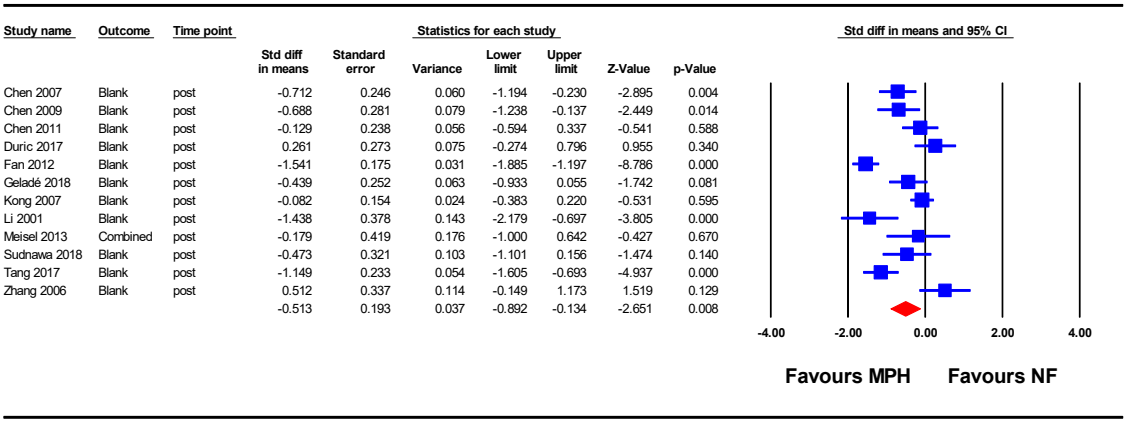


Suppl. Figure 2-3: Inattention score change rated by teacher(post-treatment), SMD:　-0.677, CI [-1.245; −0.109], I^2: 0.000 Egger: p=.927

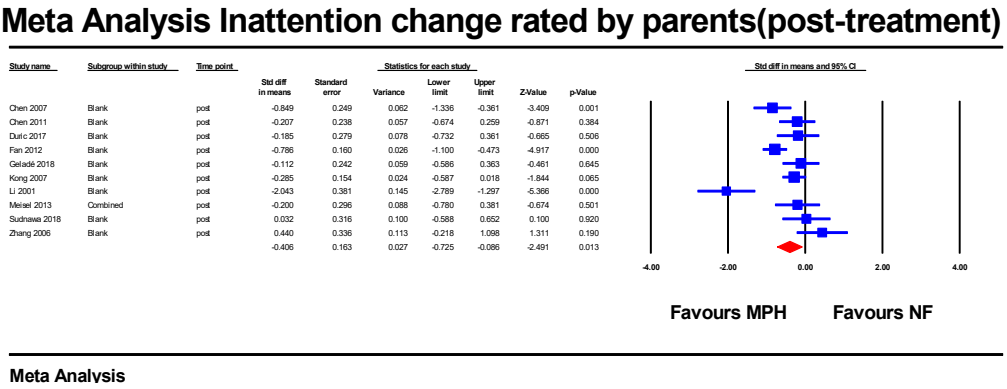
Supplemental Figure 3 Forest plots of Meta analysis（rated by parents,post-treatment）



Suppl. Figure 3-1: Total score change rated by parents(post-treatment), SMD: -0.500, CI [-0.814; -0.187], I^2: 81.187 Egger: p=.676

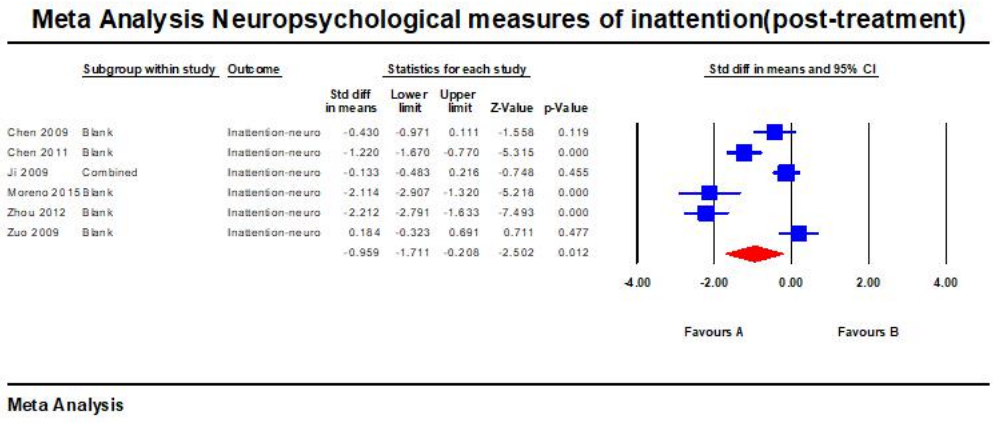


Suppl. Figure 3-2: HI change rated by parents(post-treatment), SMD: -0.513, CI [-0.892; -0.134], I^2: 85.702 Egger: p=.661

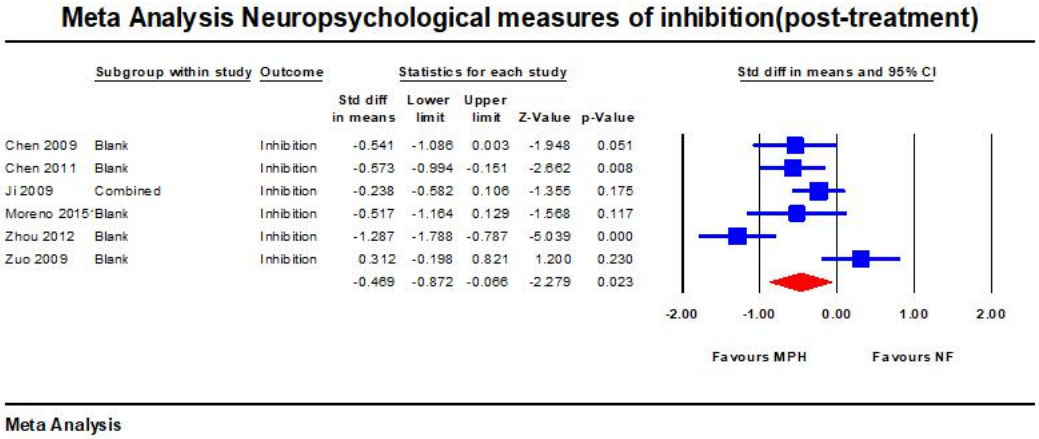


Suppl. Figure 3-3: Inattention rated by parents(post-treatment), SMD: -0.406, CI [-0.725; 0.086], I^2: 77.176Egger: p=.863

Supplemental Figure 4　Forest plots of Meta analysis（neuropsychological measures,post-treatment）

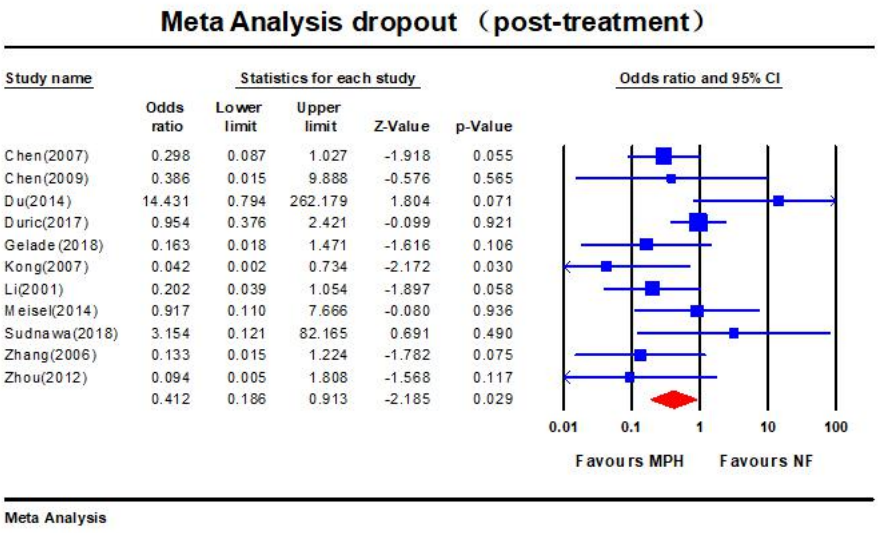


Suppl. Figure 4-1: Neuropsychological measures of inattention change (post-treatment), SMD: -0.959, CI [-1.711; -0.208], I^2: 92.451 Egger: p=.182



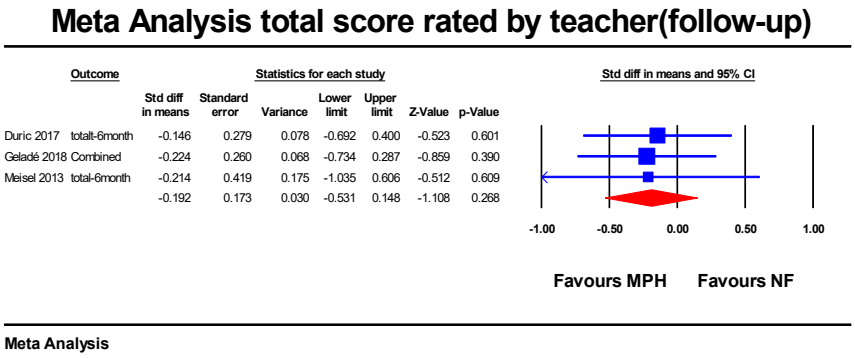
Suppl. Figure 4-2: Neuropsychological measures of inhibition change (post-treatment), SMD: -0.469, CI [-0.872; -0.066], I^2: 76.484 Egger: p=.709

Supplemental Material 5 Forest plots of Meta analysis（dropout）

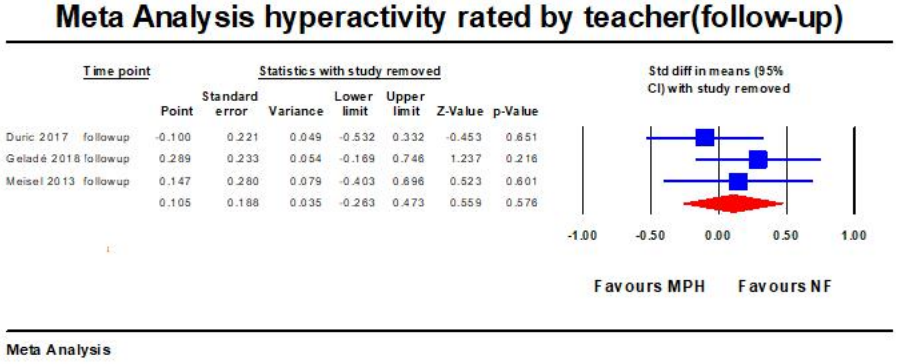


Suppl. Figure 5: Dropout (post-treatment), OR: 0.412, CI [0.186; 0.913], I^2:=40.495 Egger: p=.621

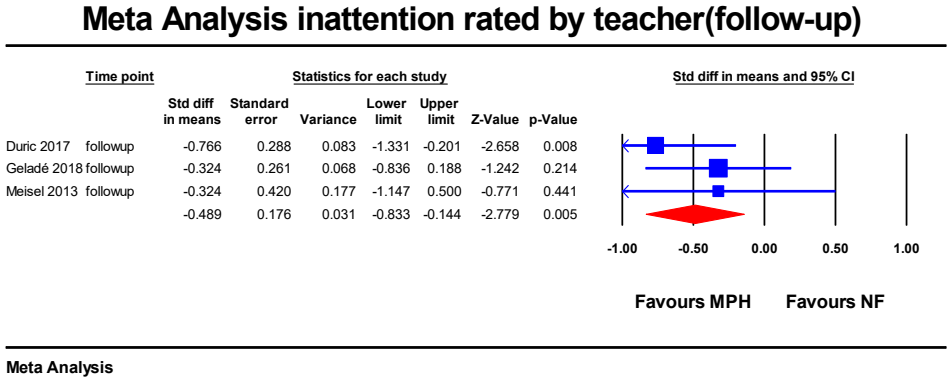
Supplemental Figure 6　Forest plots of Meta analysis（rated by teachers,follow-up）



Suppl. Figure 6-1: Total score change rated by teacher(follow-up), SMD:　-0.192, CI [-0.531; 0.148], I²: 0.000 Egger: p=.914

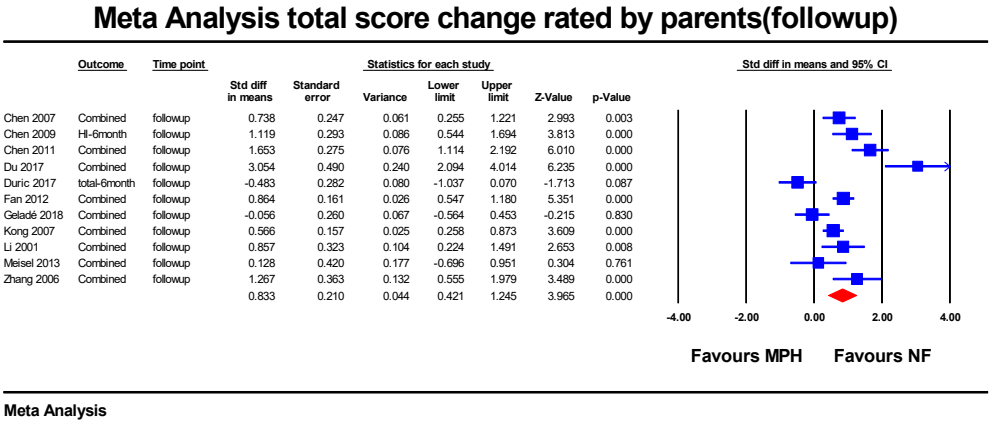


Suppl. Figure 6-2: Hyperactivity score change rated by teacher(follow up), SMD:　0.105, CI [-0.263; 0.473], I²: 12.565 Egger: p=.475

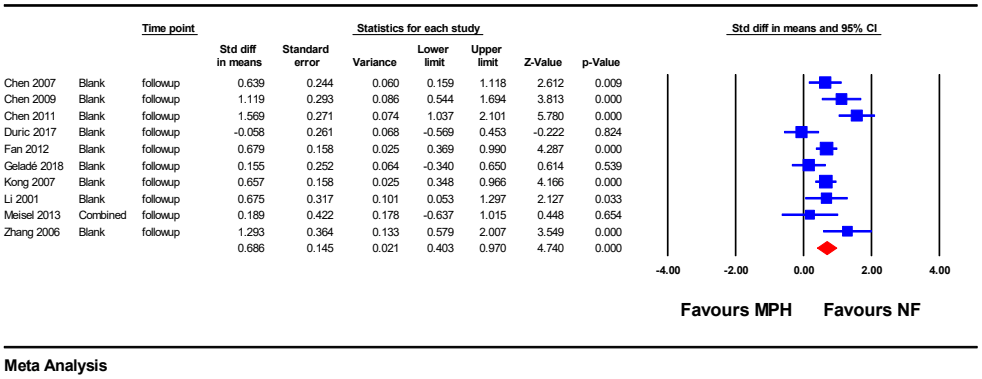


Suppl. Figure 6-3: Inattention score change rated by teacher(follow-up), SMD:　-0.489, CI [-0.833; -0.144], I²: 0.005 Egger: p=.905

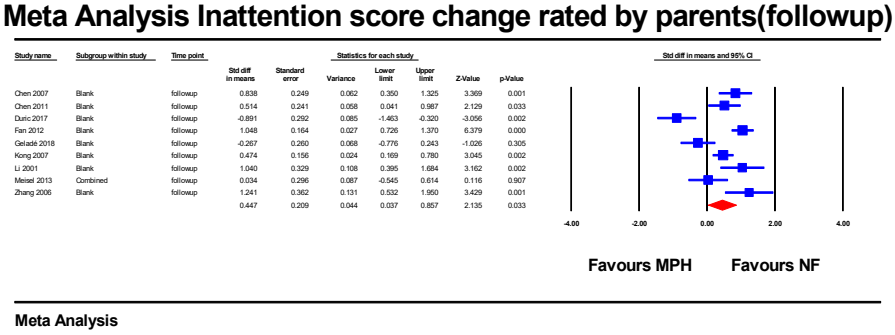
Supplemental Figure 7　Forest plots of Meta analysis（rated by parents,follow-up）



Suppl. Figure 7-1: Total score change rated by parents(followup), SMD:　0.833, CI [0.421; 1.245], I^2: 85.582 Egger: p=.446

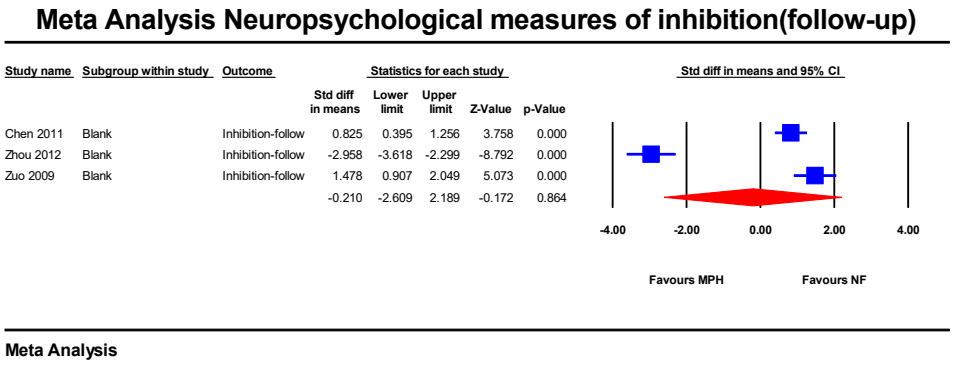


Suppl. Figure 7-2: HI change rated by parents(follow-up), SMD:　0.686, CI [0.403; 0.970], I^2: 69.508Egger: p=.814

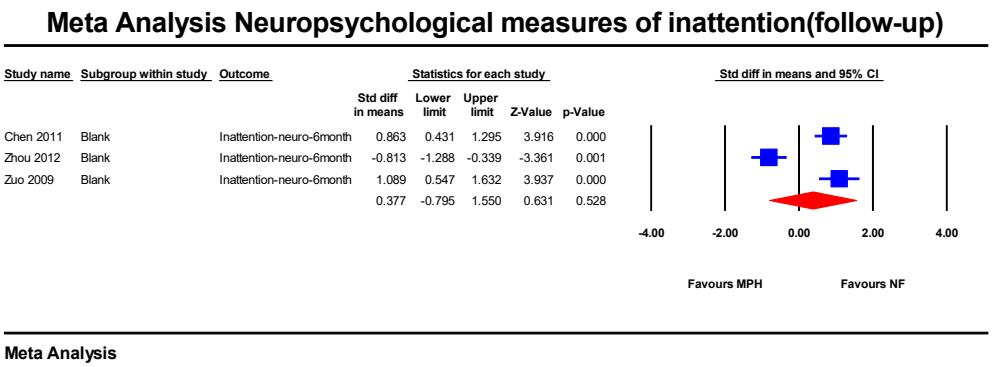


Suppl. Figure 7-3: Inattention rated by parents(followup), SMD:　0.447, CI [0.037; 0.857], I^2: 85.126Egger: p=.505

Supplemental Figure 8　Forest plots of Meta analysis（neuropsychological measures,post-treatment）



Suppl. Figure 8-1: Neuropsychological measures of inhibition change (follow-up), SMD: -0.210, CI [-2.609; 2.189], I^2: 98.268 Egger: p=.543



Suppl. Figure 8-2: Neuropsychological measures of inattention change (follow-up), SMD: 0.377, CI [-0.795; 1.550], I^2: 94.393 Egger: p=.928

Supplemental Table 1. Descriptive table of the studies included in the meta-analysis.

First author(year)	NF(standard))				MPH					Treatment time	Foll-up	Assessment instrument	outcome	Diagnosis of ADHD	country	rater
	Age	N	male	Drop out	Age	N	male	Drop out	treatment							
Chen (2007)	6-13	43	NR	4	6-13	43	NR	11	5mg/day	3month	2month	Conner-parent	HI IA	DSM-IV	China	P
Chen (2009)	9.16 ± 2.09	25	80	0	9.38 ± 2.16	30	79.31	1	18-54mg/day	6 weeks	2 month	IV A-CPT IOWA conners	FRCQ FAQ	DSM-Ⅲ-R	China	P
Chen (2011)	7.6± 1.5	45	77.8	NR	7.5± 1.7	36	80	NR	10mg/day, Monday to Friday	6month	3month	Conner-parent IVA- CPT	HI IA FRCQ FAQ	DSM-IV	China	P
Du(2014)	6-14	60	NR	6	6-14	60	NR	0	5mg/day	3-4month	6 month	SNAP-IV	Total score	DSM-IV	China	P
Duric (2017)	11.4± 3.1	42	73	12	10.9 ± 2.4	44	87	13	1mg/kg/day;range:20-60 mg	3month	6month	Barkley (teacher)	TS HI IA	ICD-10	Norway	T/P
Fan(2012)	6-13	89	NR	NR	6-13	80	NR	NR	5mg/d-20mg/day	3month	3month	Conner-parent	HI IA	DSM-IV	China	P
Gelade (2018)	9.8± 1.9	39	72.7	1	9.0± 1.2	36	75.0	5	5-20mg/day	130-12weeks	6month	SWAN	HI IA	DSM-IV	Netherlands	T/P
Ji(2009)	8.75 ± 1.66	69	76.8	NR	9.19 ± 1.72	63	76.2	NR	>5mg/day	3-4month	NR	IVA-CPT	FRCQ FAQ	DSM-IV	China	NA
Kong (2007)	8.6±1.2	90	75.6	0	8.4± 1.4	90	74.4	10	5mg/day and constantly adjusted	3month	6month	Conner-parent TOVA1	HI IA IQ omissions	DSM-IV	China	P

													RT variation			
Li (2001)	8-13	28	NR	2	8-13	29	NR	8	initial dose 5mg/mg and constantly adjusted	3-4month	1—3month	Conner-parent	HI IA	DSM-III	China	P
Meisel (2013)	9.5±1.8	14	50	2	8.9±1.5	13	54.55	2	1mg/kg/day	2month	2month	ADHD RS-IV	TS HI IA	DSM-IV	Spain	T/P
Moreno (2015)	9.21±1.9	19	79	NR	9.21±2.2	19	79	NR	immediate, intermediate release, or osmotic controlled release oral system, OROS	20 weeks	NR	IVA/CPT	IVA/CPT	ADHD RS-IV	Spain	NA
Sudnawa (2018)	8.4± 1.6	20	90	1	9.0 ± 1.5	20	90	0	5-20mg/d	12weeks3	NR	VADTRS	HI IA tT	NR	Thailand	T/P
Tang(2017)	8.64 ± 1.54	43	55.8	NR	8.75 ± 1.51	43	53.4	NR	5mg/day	3month	NR	Conner-parent	HI IA	ICD-10	China	P
Yang(2016)	Child	63	NR	NR	Child	63	NR	NR	5mg/	6 month	NR	SNAP-IV	Total score	DSM-IV	China	P
Zhang (2006)	6.5-11.9	21	79.5	1	6.5-11.9	22	79.5	6	5mg/day	3-4month	3month	Conner-parent	HI IA	DSM-IV	China	P
Zhou (2012)	8.4± 1.7	38	78.9	0	9.1 ± 1.5	36	77.8	4	18-36mg/day	6 month	NR	IVA-CPT	FRCQ FAQ	DSM-IV	China	NA

Zuo(2009)	8.4±2.3	30	NR	NR	8.4±2.3	30	NR	NR	0.1-0.61mg/kg/day	2month	3month	IVA-CPT	FRCQ FAQ	DSM-Ⅲ-R	China	NA

Supplemental Table 2. Summary of the results rated by teachers

Timepoint	Outcome	Type of analysis	N Studies	N Subjects	SMD	Lower limit	Upper limit	P	Heterogeneity				Egger's Test publication Bias	
									Q	df	p	I^2	t	p
Post treatment	Total score		4	228	-0.578	-1.063	-0.092	0.020	7.14	3	0.062	59.126	0.155	0.890
	Hyperactivity/ impulsivity		4	228	-0.474	-0.860	-0.088	0.016	4.825	3	0.156	37.818	0.311	0.784
	Inattention		4	228	-0.677	-1.245	-0.109	0.020	9.951	3	0.019	69.852	0.103	0.927
Follow up	Total score		3	198	-0.192	-0.531	0.148	0.268	0.045	2	0.978	0.000	0.134	0.914
	Hyperactivity/ impulsivity		3	188	0.105	-0.263	0.473	0.576	2.287	2	0.319	12.565	0.078	0.475
	Inattention		3	188	-0.489	-0.833	-0.144	0.005	1.475	2	0.478	0.000	0.149	0.905

Supplemental Table 3. Summary of the results rated by parents

Timepoint	Outcome	Type of analysis	N Studies	N Subjects	SMD	Lower limit	Upper limit	P	Heterogeneity				Egger's Test publication Bias	
									Q	df	p	I^2	t	p
Post treatment	ADHD symptoms COMBINED OR inattention OR hyperactivity/ impulsivity	all	14	1231	-0.500	-0.814	-0.187	0.002	69.102	13	0.000	81.187	0.428	0.676
		Conners scales only	8	757	-0.674	-1.103	-0.245	0.002	49.051	7	0.000	85.729	0.221	0.832

		ICD/DSM only	13	1191	-0.493	-0.827	-0.160	0.004	69.068	12	0.000	82.626	0.442	0.666
		Funded only	5	445	-0.633	-1.226	-0.040	0.037	18.146	4	0.001	77.957	0.800	0.482
		>30 only	7	797	-0.600	-0.986	-0.214	0.002	35.664	4	0.000	83.176	0.045	0.965
	Hyperactivity/ impulsivity	all	12	985	-0.513	-0.892	-0.134	0.008	76.932	11	0.000	85.702	0.451	0.661
		Conners scales only	8	757	-0.655	-1.152	-0.157	0.010	65.179	7	0.000	89.260	0.003	0.997
		ICD/DSM only	11	945	-0.516	-0.923	-0.108	0.013	76.856	10	0.000	86.989	0.418	0.685
		Funded only	4	199	-0.426	-1.095	0.243	0.212	13.585	3	0.004	77.917	0.648	0.582
		>30 only	6	677	-0.566	-1.151	0.019	0.058	59.794	5	0.000	91.638	0.244	0.818
	Inattention	all	10	844	-0.406	-0.705	0.086	0.013	39.342	9	0.000	77.176	0.177	0.863
		Conners scales only	6	616	-0.593	-1.061	-0.125	0.013	32.696	5	0.000	84.708	0.374	0.727
		ICD/DSM only	9	804	-0.449	-0.788	-0.110	0.007	37.269	8	0.000	78.534	0.038	0.970
		Funded only	4	199	-0.596	-1.358	0.167	0.126	21.049	3	0.058	85.748	2.990	0.095
		>30	5	591	-0.476	-0.761	-0.190	0.001	9.879	4	0.043	59.511	0.302	0.782
Follow up	ADHD symptoms COMBINED OR inattention OR hyperactivity/ impulsivity	All	11	989	0.833	0.421	1.245	0.000	69.360	10	0.000	85.582	0.792	0.446
		in English	3	198	-0.187	-0.528	0.154	0.283	1.921	2	0.383	0.000	0.490	0.709
		in Chinese	8	791	1.158	0.771	1.545	0.000	33.181	7	0.000	78.903	2.959	0.025
		conners scales only	7	671	0.958	0.684	1.233	0.000	14.057	6	0.029	57.316	1.852	0.123
		ICD/DSM only	11	989	0.833	0.421	1.245	0.000	69.360	10	0.000	85.582	0.792	0.446

		Funded only	5	289	0.649	-0.334	1.633	0.196	44.329	4	0.000	90.977	2.092	0.127
		>30 only	5	591	0.916	0.521	1.310	0.000	11.973	3	0.007	74.943	1.422	0.290
	Hyperactivity/ impulsivity	all	10	859	0.686	0.403	0.970	0.000	29.516	9	0.001	69.508	0.241	0.814
		in English	3	188	0.073	-0.253	0.400	0.660	0.433	2	0.805	0.000	0.430	0.741
		in Chinese	7	671	0.893	0.631	1.154	0.000	12.951	6	0.044	53.672	1.801	0.131
		conners scales only	7	671	0.89	0.63	1.15	0.000	12.95	6	0.044	53.67	1.801	0.131
		ICD/DSMonly	10	859	0.686	0.403	0.970	0.000	29.516	9	0.001	69.508	0.241	0.814
		Funded only	4	199	0.207	-0.096	0.509	0.181	3.249	3	0.355	7.675	0.586	0.617
		>30	5	591	0.690	0.293	1.088	0.001	18.781	4	0.001	78.702	0.155	0.886
	Inattention	all	9	804	0.447	0.037	0.857	0.033	53.785	8	0.000	85.126	0.701	0.505
		in English	3	188	-0.373	-0.889	0.143	0.157	5.224	2	0.073	61.713	0.126	0.919
		in Chinese	6	616	0.809	0.547	1.070	0.000	10.024	5	0.075	50.118	0.879	0.428
		conners scales only	6	616	0.809	0.547	1.070	0.000	10.024	5	0.075	50.118	0.879	0.428
		ICD/DSM only	9	804	0.447	0.037	0.857	0.033	53.785	8	0.000	85.126	0.701	0.505
		Funded only	3	159	−0.033	-0.774	0.707	0.930	19.994	3	0.000	84.995	1.181	0.358
		>30	5	591	0.424	−0.120	0.968	0.127	35.163	4	0.000	88.624	1.238	0.303

Supplemental Table 4. Summary of the results of Neuropsychological measures

	Outcome	Type of analysis	N Studies	N Subjects	SMD	Lower limit	Upper limit	P	Heterogeneity				Egger's Test publication Bias	
									Q	df	p	I^2	t	p
Post-treatment	Neuropsychological measures of inattention	all	6	440	-0.959	-1.711	-0.208	0.012	66.237	5	0.000	92.451	1.612	0.182
		in Chinese	5	402	-0.752	-1.525	0.022	0.057	53.478	4	0.000	92.520	0.998	0.391
		>30	4	347	-0.833	-1.800	0.133	0.091	52.932	3	0.000	94.332	1.058	0.400
	Neuropsychological measures of inhibition	all	6	440	-0.469	-0.872	-0.066	0.023	21.262	5	0.001	76.484	0.399	0.709
		in Chinese	5	402	-0.462	-0.930	0.007	0.053	21.204	4	0.000	81.136	0.370	0.735
		>30	4	347	-0.444	-1.023	0.135	0.133	85.737	3	0.000	85.737	0.276	0.807
Followup	Neuropsychological measures of	all	3	224	0.377	-0.795	1.550	0.528	35.670	2	0.000	94.393	0.113	0.928

	inattention													
	Neuropsychological measures of inhibition	all	3	224	-0.210	-2.609	2.189	0.864	115.443	2	0.000	98.268	0.870	0.543

Supplemental Table 5. Summary of the results of dropout analyses

Type of analysis	N Studies	N Subjects	OR	Lower limit	Upper limit	P	Heterogeneity				Egger's Test publication Bias	
							Q	df	p	I^2	t	p
dropouts	11	843	0.412	0.186	0.913	0.029	16.805	10	0.079	40.495	0.511	0.621