THE JOURNAL OF CLINICAL PSYCHIATRY

Supplementary Material

Article Title: Tobacco Use Before, at, and After First-Episode of Psychosis—a Systematic Meta-Analysis

Author(s): Nicholas Myles, MBBS; Hannah D. Newall, MBBS; Jackie Curtis, MBBS, FRANZCP; Olav Nielssen, MBBS, MCrim, PhD, FRANZCP; David Shiers, MBChB, MRCP; and Matthew Large, BSc (Med), MBBS, FRANZCP

Citation: J Clin Psychiatry 2012:73

DOI Number: 10.4088/JCP.11r07222

List of Supplementary Material for the article

Disclaimer

This Supplementary Material has been provided by the author(s) as an enhancement to the published article. It has been approved by peer review; however, it has undergone neither editing nor formatting by in-house editorial staff. The material is presented in the manner supplied by the author.

Supplementary eTable 1: study comparisons

Table 1 – characteristics of the studies included in the meta-analyses					
Study	Used in meta-analysis	Setting	Age range	Measure of psychosis	Measure of tobacco
Ates et al (2008)	Rates	Haydarpasa Training Hospital, Istanbul, Turkey	Unspecified	DSM-IV	Clinical interview
Baeza et al (2009)	Rates, course	Unspecified psychiatry departments across Spain	9-17	K-SADS-PL DSM-IV	K-SADS-PL
Baker et al (2007)	Initiation	Recruited as part of quit program in Newcastle, Australia	18-64	ICD-9	Clinical interview
Barrigon et al (2010)	Rates	Unspecified psychiatry departments in Grenada and Jaen, Spain	18-57	SCID-I DSM-IV	Clinical Interview

Beratis et al (2001)	Initiation	University of Patras Medical School, Greece	16-75	DSM-IV	Clinical interview
Berk et al (2010)	Rates	Early Psychosis Prevention and Intervention Centre Melbourne, Australia	15-30	RPMIP DSM-IV	Fagerstrom Tolerance Questionnaire
Brewer et al (2001)	Rates, odds, course	Early Psychosis Prevention and Intervention Centre Melbourne, Australia	16-30	RPMIP DSM-III	Clinical interview
Compton et al (2009)	Rates	2 psychiatric clinics in Atlanta, USA	18-40	SCID-I DSM-IV	Clinical interview
Compton (unpublished)	Rates	2 psychiatric clinics in Atlanta, USA	18-40	SCID-I DSM-IV	Clinical interview
Curtis et al (2011)	Rates	Outpatient First-Episode Psychosis clinic in Sydney, Australia	16-27	SCID-I DSM-IV	Structured monitoring form
Di Forti et al (2009)	Rates, odds	South London division of Mental	18-65	SCAN ICD-10	Clinical interview

		Health, UK			
Fawzi et al (2007)	Initiation	Psychiatric clinic, Zagazig University Hospital, Egypt	Unspecified	ICD-10	Fagerstrom tolerance questionnaire
Fernandez-Egea et al (2009)	Rates	Psychiatric clinic at Hospital of Barcelona, Spain	Unspecified	SCID-I DSM-IV	Dartmouth Assessment of Lifestyle Inventory
Goff et al (1992)	Initiation	Psychiatric clinic, Massachusetts General Hospital, USA	23-64	DSM-III SCID-I	Clinical interview
Harrison et al (2008)	Rates, course	West London First-Episode Psychosis Study, UK	16-50	DSM-IV	Substance Use Rating Scale
Hides et al (2009)	Rates	Early Psychosis Prevention and Intervention Centre Melbourne, Australia	15-29	SCID-I DSM-IV	ASSIST
Hilti et al (2010)	Rates	Psychiatry Service of Aargau, Switzerland	18-32	DIA-X DSM-IV and ICD-10	Unspecified
Kelly & McCreadie (1999)	Initiation	Nithsdale census	Unspecified	DSM-III	Health and lifestyle

		data, Scotland			survey
Kobayashi et al (2010)	Rates	Random sample of discharge data from all psychiatric hospitals across Japan	Unspecified	DSM-III	Note review
Kopala et al (1993)	Rates, odds	Unspecified psychiatric inpatient unit, Vancouver, Canada	18-45	Present State Examination DSM-III	Unspecified
Kotov et al (2010)	Rates, course	12 inpatient psychiatric units across New York State, USA	15-58	SCID-I DSM-III	National Household Survey on Drug Abuse Interview
Luty et al (2002)	Course	Six hospitals across west Scotland	Unspecified	DSM-IV	Scotland census questionnaire
Ma et al (2010)	Initiation	Inpatient units of 5 psychiatric hospitals in Chengdu and Chongqing, China	Unspecified	DSM-IV SCID-I	Fagerstrom tolerance questionnaire
McCreadie et al (2000)	Rates	Six hospitals across west Scotland	Unspecified	DSM-IV	Unspecified

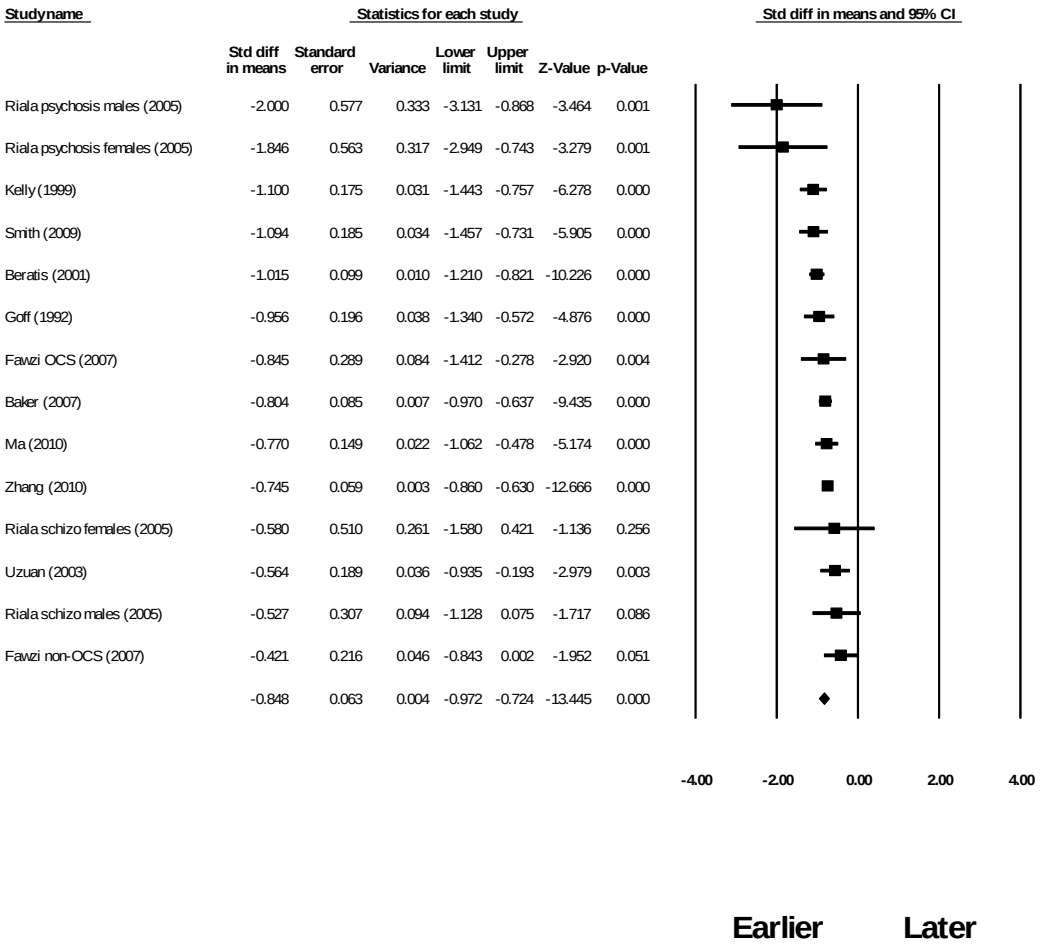
McEvoy et al (1999)	Rates	Unspecified psychiatric unit in North Carolina, USA	Unspecified	Unspecified	Unspecified
Perez-Iglesias et al (2009)	Rates	Marques de Valdecilla University Hospital Canatbria, Spain	15-60	SCID-I	Unspecified
Riala et al (2005)	Initiation	North Finland Birth Cohort	Unspecified	DSM-III	Patient questionnaire
Reddy et al (2003)	Rates	University of Pittsburgh Medical Centre, USA	Unspecified	SCID-I DSM-IV	Clinical interview
Reddy et al (2004)	Rates, odds	University of Pittsburgh Medical Centre, USA	Unspecified	SCID-I DSM-III	Clinical interview Cotine assay
Samele et al (2007)	Rates, odds	South London division of Mental Health, UK	16-65	DSM-IV	HAL2 questionnaire
Sengupta et al (2008)	Rates, odds	Psychiatric Department Louis H Lafontaine Hospital,	Unspecified	SCID-I DSM-IV	Unspecified

		Montreal Canada			
Smesny et al (2005)	Rates, odds	Department of Psychiatry University of Jena, Germany and Early Psychosis Prevention and Intervention Centre Melbourne, Australia	Unspecified	SCID-I DSM-IV	Unspecified
Smesny et al (2007)	Rates, odds	Department of Child and Adolescent Psychiatry, University of Jena, Germany	14-21	SCID-I DSM-IV	Clinical interview
Smith et al (2009)	Rates, course, initiation	Early Psychosis program in South Vancouver, Canada	14-37	SCID-I DSM-IV	Fagerstrom Tolerance Questionnaire
Smith et al (2010)	Rates	Unspecified	Unspecified	Unspecified	Unspecified
Strassnig et al (2007)	Rates, odds	Western Psychiatric Institute, University of Pittsburgh Medical Centre, USA	18-50	SCID-I DSM-IV	Unspecified

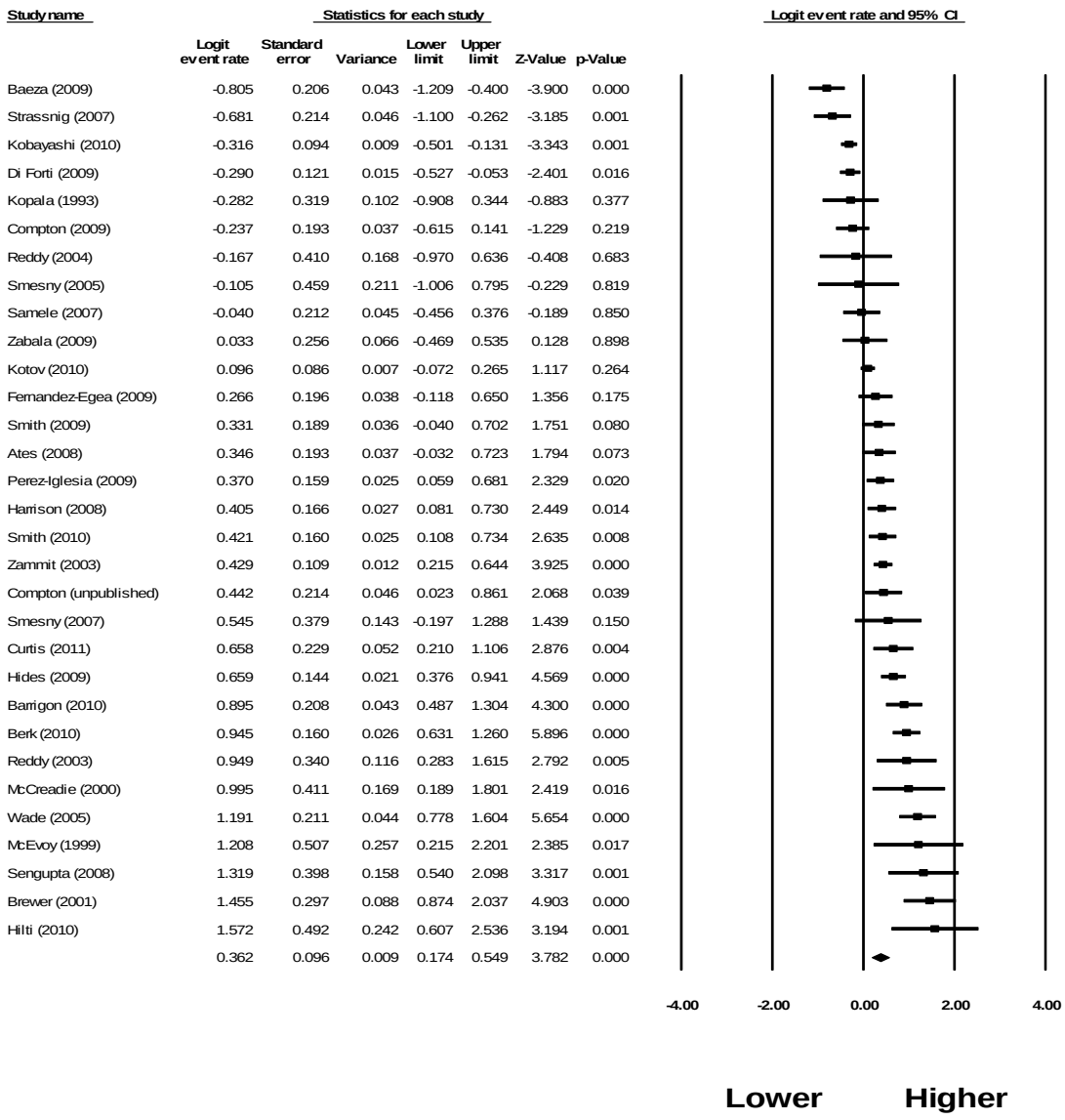
Uzun et al (2003)	Initiation	Outpatient psychiatric unit, Gulhane School of Medicine, Turkey	18-75	DSM-IV SCID-I	Clinical interview
Wade et al (2005)	Rates, course	Early Psychosis Prevention and Intervention Centre Melbourne, Australia	Unspecified	RPMIP DSM-IV	Clinical interview
Zabala et al (2009)	Rates	Various psychiatric facilities in Northern Spain	Unspecified	SCID-I DSM-IV	Clinical interview
Zammit et al (2003)	Rates	Swedish conscript census	Unspecified	ICD-8	Clinical interview
Zhang et al (2010)	Initiation	Hui-Long-Guan Hospital, Beijing, China	25-75	DSM-IV	Clinical interview CO breath test

Abbreviations: Diagnostic and Statistical Manual of Mental Disorders (DSM), Structured Clinical Interview for DSM Disorders (SCID), Royal Park Multidiagnostic Instrument for Psychosis (RPMIP), International Classification for Disease (ICD), Schedule for Affective and Schizophrenia for School-Age Children – Present and Lifetime Version (K-SADS-PL), Alcohol Smoking and Substance Involvement Screening Test (ASSIST), Expert System for Diagnosing Mental Disorders (DIA-X), Health and Lifestyle Questionnaire 2 (HAL2).

Supplementary eFigure 1: *Meta-analysis of initiation of tobacco use* forest plot

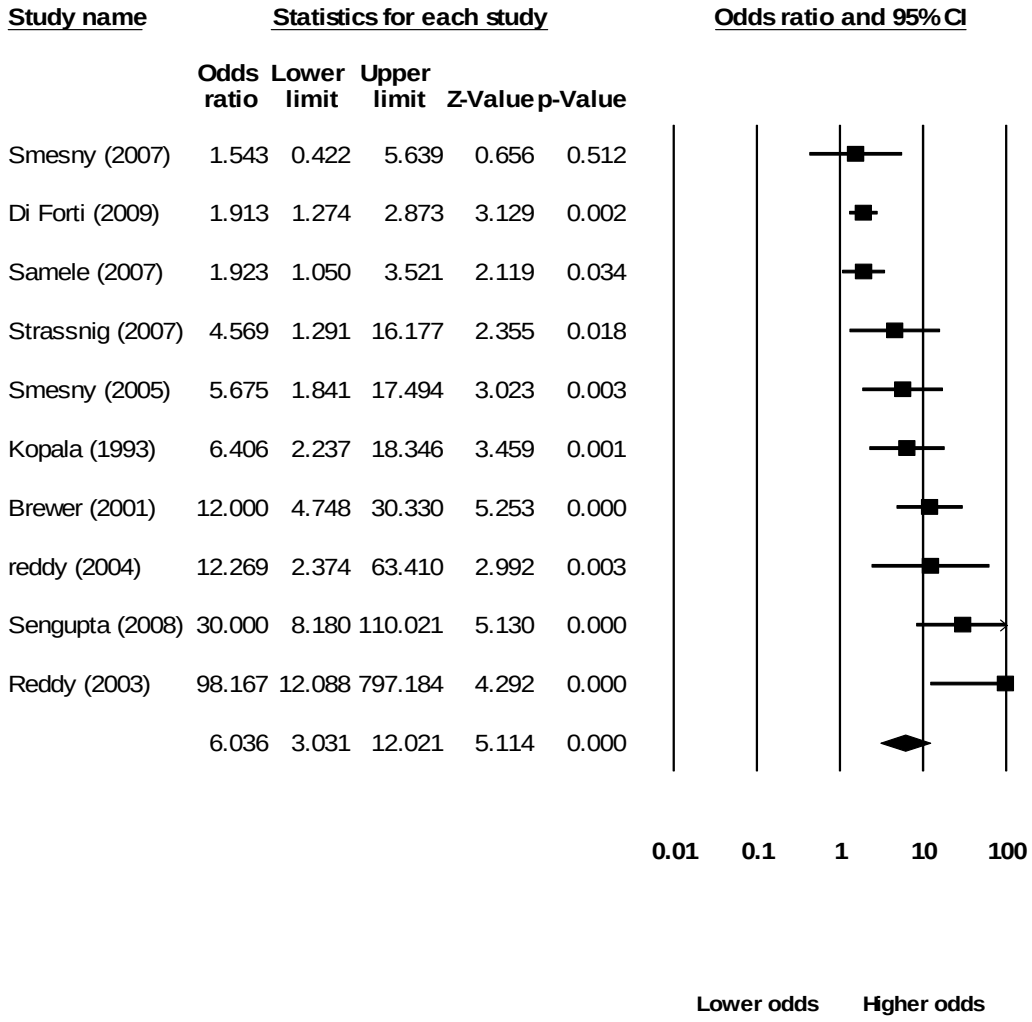


Supplementary eFigure 2: *Meta-analysis of prevalence of tobacco use* forest plot

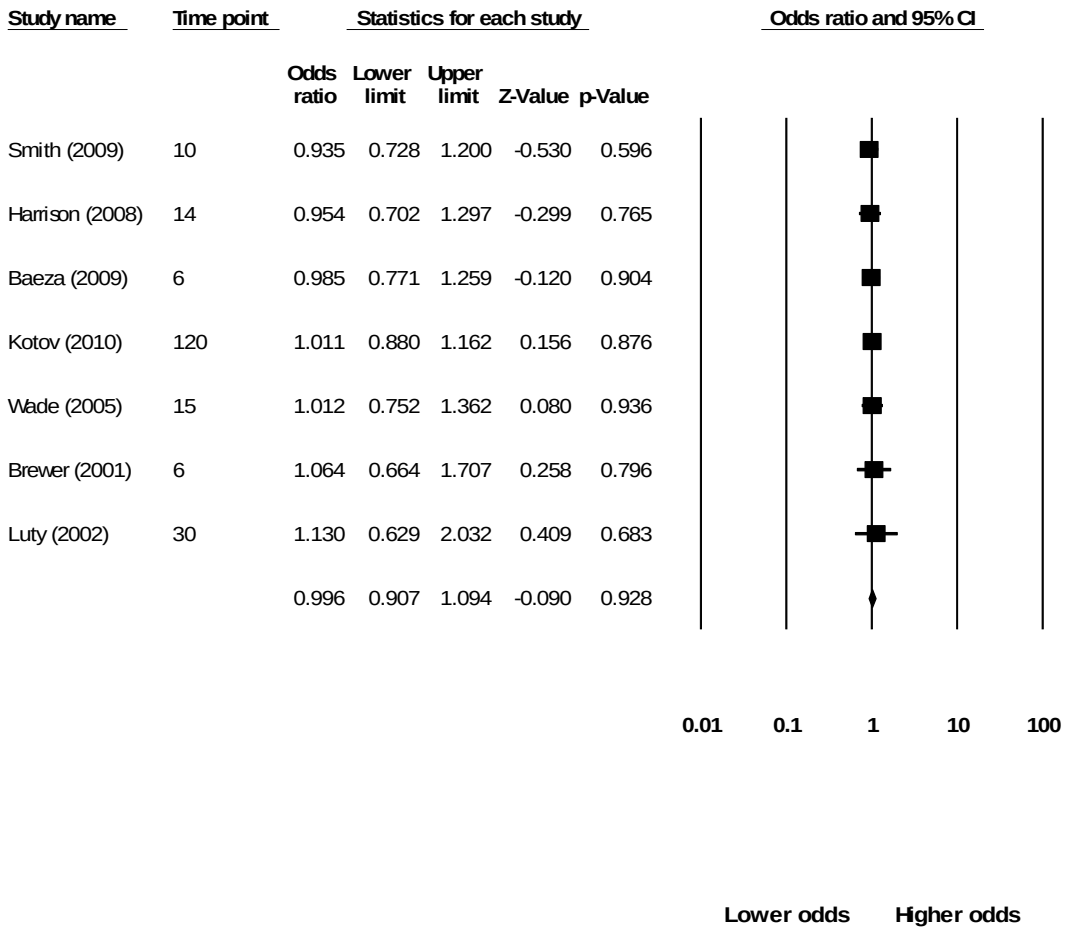


Study name	Logit event rate	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Baeza (2009)	-0.805	0.206	0.043	-1.209	-0.400	-3.900	0.000
Strassnig (2007)	-0.681	0.214	0.046	-1.100	-0.262	-3.185	0.001
Kobayashi (2010)	-0.316	0.094	0.009	-0.501	-0.131	-3.343	0.001
Di Forti (2009)	-0.290	0.121	0.015	-0.527	-0.053	-2.401	0.016
Kopala (1993)	-0.282	0.319	0.102	-0.908	0.344	-0.883	0.377
Compton (2009)	-0.237	0.193	0.037	-0.615	0.141	-1.229	0.219
Reddy (2004)	-0.167	0.410	0.168	-0.970	0.636	-0.408	0.683
Smesny (2005)	-0.105	0.459	0.211	-1.006	0.795	-0.229	0.819
Samele (2007)	-0.040	0.212	0.045	-0.456	0.376	-0.189	0.850
Zabala (2009)	0.033	0.256	0.066	-0.469	0.535	0.128	0.898
Kotov (2010)	0.096	0.086	0.007	-0.072	0.265	1.117	0.264
Fernandez-Egea (2009)	0.266	0.196	0.038	-0.118	0.650	1.356	0.175
Smith (2009)	0.331	0.189	0.036	-0.040	0.702	1.751	0.080
Ates (2008)	0.346	0.193	0.037	-0.032	0.723	1.794	0.073
Perez-Iglesia (2009)	0.370	0.159	0.025	0.059	0.681	2.329	0.020
Harrison (2008)	0.405	0.166	0.027	0.081	0.730	2.449	0.014
Smith (2010)	0.421	0.160	0.025	0.108	0.734	2.635	0.008
Zammit (2003)	0.429	0.109	0.012	0.215	0.644	3.925	0.000
Compton (unpublished)	0.442	0.214	0.046	0.023	0.861	2.068	0.039
Smesny (2007)	0.545	0.379	0.143	-0.197	1.288	1.439	0.150
Curtis (2011)	0.658	0.229	0.052	0.210	1.106	2.876	0.004
Hides (2009)	0.659	0.144	0.021	0.376	0.941	4.569	0.000
Barrigon (2010)	0.895	0.208	0.043	0.487	1.304	4.300	0.000
Berk (2010)	0.945	0.160	0.026	0.631	1.260	5.896	0.000
Reddy (2003)	0.949	0.340	0.116	0.283	1.615	2.792	0.005
McCreadie (2000)	0.995	0.411	0.169	0.189	1.801	2.419	0.016
Wade (2005)	1.191	0.211	0.044	0.778	1.604	5.654	0.000
McEvoy (1999)	1.208	0.507	0.257	0.215	2.201	2.385	0.017
Sengupta (2008)	1.319	0.398	0.158	0.540	2.098	3.317	0.001
Brewer (2001)	1.455	0.297	0.088	0.874	2.037	4.903	0.000
Hilti (2010)	1.572	0.492	0.242	0.607	2.536	3.194	0.001
	0.362	0.096	0.009	0.174	0.549	3.782	0.000

Supplementary eFigure 3: *Meta-analysis of odds of tobacco use* forest plot



Supplementary eFigure 4: *Meta-analysis of course of tobacco use* forest plot



Supplementary eReferences

Ates, M. A., Algul, A., Gecici, O., Semiz, U. B., Noyan, O., Basoglu, C., et al., 2008. Substance use in the early adult male with first episode psychosis. Neurol Psychiatry Brain Res. 15 (2) 93-98.

Baeza, I., Graell, M., Moreno, D., Castro-Fornieles, J., Parellada, M., Gonzalez-Pinto, A., et al., 2009. Cannabis use in children and adolescents with first episode psychosis: Influence on psychopathology and short-term outcome (cafeps study). Schizophr Res. 113(2-3) 129-137.

Baker, A., Richmond, R., Haile, M., Lewin, T. J., Carr, V. J., Taylor, R. L., et al., 2007. Characteristics of smokers with a psychotic disorder and implications for smoking interventions. Psychiatry Res. 150(2):141-52.

Barrigon, M. L., Gurpegui, M., Ruiz-Veguilla, M., Diaz, F. J., Anguita, M., Sarramea, F., et al.. 2010. Temporal relationship of first-episode non-affective psychosis with cannabis use: A clinical verification of an epidemiological hypothesis. J Psychiatric Res. 44(7) 413-420.

Beratis, S., Katrivanou, A., & Gourzis, P., 2001. Factors affecting smoking in schizophrenia. Compr Psychiatry. 42(5):393-402.

Berk, M., Henry, L. P., Elkins, K. S., Harrigan, S. M., Harris, M. G., Herrman, H., et al., 2010. The impact of smoking on clinical outcomes after first episode psychosis: Longer-term outcome findings from the eppic 800 follow-up study. J Dual Diagnosis. 6 (3-4) 212-234.

Brewer, W. J., Pantelis, C., Anderson, V., Velakoulis, D., Singh, B., Copolov, D. L., et al., 2001. Stability of olfactory identification deficits in neuroleptic-naive patients with first-episode psychosis. Am Psychiatry. 158(1) 107-115.

Compton, M. T., Kelley, M. E., Ramsay, C. E., Pringle, M., Goulding, S. M., Esterberg, M. L., et al., 2009. Association of pre-onset cannabis, alcohol, and tobacco use with age at onset of prodome and age at onset of psychosis in first-episode patients. Am J Psychiatry. 166(11) 1251-1257.

Curtis, J., Henry, C., Watkins, A., Newall, H., Samaras, K., & Ward, P., 2011. Metabolic abnormalities in an early psychosis service: A retrospective, naturalistic, cross-sectional study. Early Intervention in Psychiatry. 5 108-114.

Di Forti, M., Morgan, C., Dazzan, P., Pariante, C., Mondelli, V., Marques, T. R., et al., 2009. High-potency cannabis and the risk of psychosis. Br J Psychiatry. 195(6) 488-491.

Fawzi, M. H., Fawzi, M. M., & Khedr, H. H., 2007. Tobacco smoking in egyptian schizophrenia patients with and without obsessive-compulsive symptoms. Schizophr Res. 95(1-3) 236-46.

Fernandez-Egea, E., Bernardo, M., Heaphy, C. M., Griffith, J. K., Parellada, E., Esmatjes, E., et al., 2009. Telomere length and pulse pressure in newly diagnosed, antipsychotic-naive patients with nonaffective psychosis. Schizophr Bull. 35(2) 437-442.

Goff, D. C., Henderson, D. C., & Amico, E., 1992. Cigarette smoking in schizophrenia: Relationship to psychopathology and medication side effects. Am J Psychiatry. 149(9):1189-94, 1992 Sep.

Harrison, I., Joyce, E. M., Mutsatsa, S. H., Hutton, S. B., Huddy, V., Kapasi, M., et al., 2008. Naturalistic follow-up of co-morbid substance use in schizophrenia: The west london first-episode study. Psychol Med. 38(1) 79-88.

Hides, L., Cotton, S. M., Berger, G., Gleeson, J., O'Donnell, C., Proffitt, T., et al.,2009. The reliability and validity of the alcohol, smoking and substance involvement screening test (assist) in first-episode psychosis. Addictive Behaviors. 34(10) 821-825.

Hilti, C. C., Delko, T., Orosz, A. T., Thomann, K., Ludewig, S., Geyer, M. A., et al., 2010. Sustained attention and planning deficits but intact attentional set-shifting in neuroleptic-naive first-episode schizophrenia patients. Neuropsychobiol. 61(2) 79-86.

Kelly, C., & McCreadie, R. G., 1999. Smoking habits, current symptoms, and premorbid characteristics of schizophrenic patients in nithsdale, scotland. Am J Psychiatry. 156(11):1751-7.

Kobayashi, M., Ito, H., Okumura, Y., Mayahara, K., Matsumoto, Y., & Hirakawa, J., 2010. Hospital readmission in first-time admitted patients with schizophrenia: Smoking patients had higher hospital readmission rate than non-smoking patients. Int J Psychiatry Med. 40(3) 247-257.

Kopala, L. C., Clark, C., & Hurwitz, T., 1993. Olfactory deficits in neuroleptic naive patients with schizophrenia. Schizophr Res. 8(3) 245-250.

Kotov, R., Guey, L. T., Bromet, E. J., & Schwartz, J. E., 2010. Smoking in schizophrenia: Diagnostic specificity, symptom correlates, and illness severity. Schizophr Bull. 36(1) 173-181.

Luty, J., Kelly, C., & McCreadie, R. G., 2002. Smoking habits, body mass index and risk of heart disease: Prospective 2 1/2-year follow-up of first episode schizophrenic patients. J Substance Use. 7 (1) 15-18.

Ma, X., Li, C., Meng, H., Du, L., Wang, Q., Wang, Y., et al., 2010. Premorbid tobacco smoking is associated with later age at onset in schizophrenia. Psychiatry Res. 178(3):461-6.

McCreadie, R., & Scottish Schizophrenia Res, G., 2000. Smoking habits and plasma lipid peroxide and vitamin e levels in never-treated first-episode patients with schizophrenia. Br J Psychiatry. 176 290-293.

McEvoy, J. P., & Brown, S., 1999. Smoking in first-episode patients with schizophrenia. Am J Psychiatry. 156(7) 1120-1121.

Perez-Iglesias, R., Mata, I., Pelayo-Teran, J. M., Amado, J. A., Garcia-Unzueta, M. T., Berja, A., et al., 2009. Glucose and lipid disturbances after 1 year of antipsychotic treatment in a drug-naive population. Schizophr Res. 107 (2-3) 115-121.

Reddy, R., Keshavan, M., & Yao, J. K., 2003. Reduced plasma antioxidants in first-episode patients with schizophrenia. Schizophr Res. 62(3) 205-212.

Reddy, R. D., Keshavan, M. S., & Yao, J. K., 2004. Reduced red blood cell membrane essential polyunsaturated fatty acids in first episode schizophrenia at neuroleptic-naive baseline. Schizophr Bull. 30(4) 901-911.

Riala, K., Hakko, H., Isohanni, M., Pouta, A., & Rasanen, P., 2005. Is initiation of smoking associated with the prodromal phase of schizophrenia? J Psychiatry Neurosci. 30(1):26-32.

Samele, C., Patel, M., Boydell, J., Leese, M., Wessely, S., & Murray, R., 2007. Physical illness and lifestyle risk factors in people with their first presentation of psychosis. Soc Psychiatry Psychiatr Epidemiol. 42(2) 117-124.

Sengupta, S., Parrilla-Escobar, M. A., Klink, R., Fathalli, F., Ying Kin, N., Stip, E., et al., 2008. Are metabolic indices different between drug-naive first-episode psychosis patients and healthy controls? Schizophr Res. 102(1-3) 329-336.

Smesny, S., Kinder, D., Willhardt, I., Rosburg, T., Lasch, J., Berger, G., et al., 2005. Increased calcium-independent phospholipase a2 activity in first but not in multiepisode chronic schizophrenia. Biol Psychiatry. 57(4) 399-405.

Smesny, S., Klemm, S., Stockebrand, M., Grunwald, S., Gerhard, U.-J., Rosburg, T., et al., 2007. Endophenotype properties of niacin sensitivity as marker of impaired prostaglandin signalling in schizophrenia. Prostaglandins Leukotrienes & Essential Fatty Acids. 77(2) 79-85.

Smith, G. N., Macewan, G. W., Kopala, L. C., Ehmann, T. S., Good, K., Thornton, A. E., et al., 2010. Prenatal tobacco exposure in first-episode psychosis. Schizophr Res. 119(1-3) 271-272..

Smith, G. N., Wong, H., MacEwan, G. W., Kopala, L. C., Ehmann, T. S., Thornton, A. E., et al., 2009. Predictors of starting to smoke cigarettes in patients with first episode psychosis. Schizophr Res. 108(1-3) 258-264.

Strassnig, M., Miewald, J., Keshavan, M., & Ganguli, R., 2007. Weight gain in newly diagnosed first-episode psychosis patients and healthy comparisons: One-year analysis. Schizophr Res. 93(1-3) 90-98.

Uzun, O., Cansever, A., Basoglu, C., & Ozsahin, A., 2003. Smoking and substance abuse in outpatients with schizophrenia: A 2-year follow-up study in turkey. Drug Alcohol Depend. 70(2):187-92.

Wade, D., Harrigan, S., Edwards, J., Burgess, P. M., Whelan, G., & McGorry, P. D., 2005. Patterns and predictors of substance use disorders and daily tobacco use in first-episode psychosis. A N Z J Psychiatry. 39(10) 892-898.

Zabala, A., Eguiluz, J. I., Segarra, R., Enjuto, S., Ezcurra, J., Gonzalez Pinto, A., et al., 2009. Cognitive performance and cigarette smoking in first-episode psychosis. European Arch Psychiatry Clin Neurosci. 259(2) 65-71.

Zammit, S., Allebeck, P., Dalman, C., Lundberg, I., Hemmingsson, T., & Lewis, G., 2003. Investigating the association between cigarette smoking and schizophrenia in a cohort study. Am J Psychiatry. 160(12) 2216-2221.

Zhang, X. Y., Li, C. B., Li, M., Zheng, Y. L., Zhang, C. X., Yan, Q. Z., et al., 2010. Smoking initiation and schizophrenia: A replication study in a chinese han population. Schizophr Res. 119(1-3):110-4.