

University of Groningen

Cognitive and neural processes of auditory-verbal hallucinations in schizophrenia

Vercammen, Ans

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

2009

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Vercammen, A. (2009). *Cognitive and neural processes of auditory-verbal hallucinations in schizophrenia: evidence from behavioral and neuroimaging experiments*. Groningen: s.n.

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

REFERENCES

Aggernaes, A. (1972). The experienced reality of hallucinations and other psychological phenomena. An empirical analysis. *Acta Psychiatr.Scand.*, 48, 220-238.

Aggleton, J. P. (1992). *The amygdala: Neurobiological aspects of emotion, memory, and mental dysfunction.* (1st ed.) New York: Wiley/Liss.

Aleman, A., Bocker, K. B., Hijman, R., de Haan, E. H., & Kahn, R. S. (2003). Cognitive basis of hallucinations in schizophrenia: role of top-down information processing. *Schizophr.Res.*, 64, 175-185.

Aleman, A., de Haan, E. H., Bocker, K. B., Hijman, R., & Kahn, R. S. (2002). Hallucinations in schizophrenia: imbalance between imagery and perception? *Schizophr.Res.*, 57, 315-316.

Aleman, A., Formisano, E., Koppenhagen, H., Hagoort, P., de Haan, E. H., & Kahn, R. S. (2005). The functional neuroanatomy of metrical stress evaluation of perceived and imagined spoken words. *Cereb.Cortex*, 15, 221-228.

Aleman, A. & Kahn, R. S. (2005). Strange feelings: do amygdala abnormalities dysregulate the emotional brain in schizophrenia? *Prog.Neurobiol.*, 77, 283-298.

Aleman, A. & Laroi, F. (2008). *Hallucinations: The science of idiosyncratic perception.* American Psychological Association.

Aleman, A., Nieuwenstein, M. R., Bocker, K. B., & de Haan, E. H. (2000). Mental imagery and perception in hallucination-prone individuals. *J.Nerv.Ment.Dis.*, 188, 830-836.

Aleman, A., Sommer, I. E., & Kahn, R. S. (2007). Efficacy of slow repetitive transcranial magnetic stimulation in the treatment of resistant auditory hallucinations in schizophrenia: a meta-analysis. *J.Clin.Psychiatry*, 68, 416-421.

Allen, E. A., Pasley, B. N., Duong, T., & Freeman, R. D. (2007). Transcranial magnetic stimulation elicits coupled neural and hemodynamic consequences. *Science*, 317, 1918-1921.

Allen, P., Aleman, A., & McGuire, P. K. (2007). Inner speech models of auditory verbal hallucinations: evidence from behavioural and neuroimaging studies. *Int.Rev.Psychiatry*, 19, 407-415.

Allen, P., Amaro, E., Fu, C. H., Williams, S. C., Brammer, M. J., Johns, L. C. et al. (2007). Neural correlates of the misattribution of speech in schizophrenia. *Br.J.Psychiatry*, 190, 162-169.

Allen, P., Freeman, D., McGuire, P., Garety, P., Kuipers, E., Fowler, D. et al. (2005). The prediction of hallucinatory predisposition in non-clinical individuals: examining the contribution of emotion and reasoning. *Br.J.Clin.Psychol.*, 44, 127-132.

Allen, P., Laroi, F., McGuire, P. K., & Aleman, A. (2008). The hallucinating brain: a review of structural and functional neuroimaging studies of hallucinations. *Neurosci.Biobehav.Rev.*, 32, 175-191.

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders*.

Andoh, J. & Martinot, J. L. (2008). Interhemispheric compensation: a hypothesis of TMS-induced effects on language-related areas. *Eur.Psychiatry*, 23, 281-288.

Andreasen, N. C. & Flaum, M. (1991). Schizophrenia: the characteristic symptoms. *Schizophr.Bull.*, 17, 27-49.

Andreasen, N., Flaum, M. and Arndt, S. (1992). The Comprehensive Assessment of Symptoms and History (CASH). *Archives of General Psychiatry* 49(8), 615-623.

Andreasen, N. C., Nopoulos, P., O'Leary, D. S., Miller, D. D., Wassink, T., & Flaum, M. (1999). Defining the phenotype of schizophrenia: cognitive dysmetria and its neural mechanisms. *Biol.Psychiatry*, 46, 908-920.

Angrilli, A., Spironelli, C., Elbert, T., Crow, T. J., Marano, G., & Stegagno, L. (2009). Schizophrenia as failure of left hemispheric dominance for the phonological component of language. *PLoS.ONE.*, 4, e4507.

Annett, M. (1999). The theory of an agnosic right shift gene in schizophrenia and autism. *Schizophr.Res.*, 39, 177-182.

Asaad, G. & Shapiro, B. (1986). Hallucinations: theoretical and clinical overview. *Am.J.Psychiatry*, 143, 1088-1097.

Ashburner, J. & Friston, K. J. (2000). Voxel-based morphometry--the methods. *Neuroimage*, 11, 805-821.

Barch, D. M., Cohen, J. D., Servan-Schreiber, D., Steingard, S., Cohen, J. D., Steinhauer, S. S. et al. (1996). Semantic priming in schizophrenia: an examination of spreading activation using word pronunciation and multiple SOAs. *J.Abnorm.Psychol.*, 105, 592-601.

Barrett, J., la-Maggiore, V., Chouinard, P. A., & Paus, T. (2004). Mechanisms of action underlying the effect of repetitive transcranial magnetic stimulation on mood: behavioral and brain imaging studies. *Neuropsychopharmacology*, 29, 1172-1189.

Barrett, T. R. & Caylor, M. R. (1998). Verbal hallucinations in normals, V: perceived reality characteristics. *Personality and Individual Differences*, 25, 209-221.

Barta, P. E., Pearlson, G. D., Powers, R. E., Richards, S. S., & Tune, L. E. (1990). Auditory hallucinations and smaller superior temporal gyral volume in schizophrenia. *Am.J.Psychiatry*, 147, 1457-1462.

Behrendt, R. P. (1998). Underconstrained perception: a theoretical approach to the nature and function of verbal hallucinations. *Compr.Psychiatry*, 39, 236-248.

Behrendt, R.P. (2003). Hallucinations: Synchronisation of thalamocortical g oscillations underconstrained by sensory input. *Consciousness and Cognition* 12(3), 413-451.

Belenky, G. L. (1979). Unusual visual experiences reported by subjects in the British Army study of sustained operations, Exercise Early Call. *Military Medicine*, 144, 695-696.

Benjamini, Y. & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society*, 57, 289-300.

Benjamini, Y. & Hochberg, Y. (2000). On the adaptive control of the false discovery rate in multiple testing with independent statistics. *Journal of Educational and Behavioral Statistics*, 25, 60-83.

Bentall, R. P. (1990). The illusion of reality: A review and integration of psychological research on hallucinations. *Psychol.Bull.*, 107, 82-95.

Bentall, R. P. (2003). *Madness explained: Psychosis and human nature*. London: Penguin.

Bentall, R. P., Baker, G. A., & Havers, S. (1991). Reality monitoring and psychotic hallucinations. *Br.J.Clin.Psychol.*, 30 (Pt 3), 213-222.

Bentall, R.P. & Slade, P.D. (1985). Reality testing and auditory hallucinations: a signal detection analysis. *British Journal of Clinical Psychology* 24(3), 159-169

Berrios, G. E. (1990). Musical hallucinations. A historical and clinical study. *Br.J.Psychiatry*, 156, 188-194.

Berrios, G. E. & Brook, P. (1985). Delusions and the psychopathology of the elderly with dementia. *Acta Psychiatr.Scand.*, 72, 296-301.

Bleich-Cohen, M., Hendler, T., Kotler, M., & Strous, R. D. (2009). Reduced language lateralization in first-episode schizophrenia: An fMRI index of functional asymmetry. *Psychiatry Res.*, 171, 82-93.

Bleuler, E. (1911). *Dementia praecox oder die Gruppe der Schizophrenien*. In G.Aschaffenburg (Ed.), *Handbuch Der Psychiatrie* (Leipzig & Vienna.

Bocker, K. B., Hijman, R., Kahn, R. S., & de Haan, E. H. (2000). Perception, mental imagery and reality discrimination in hallucinating and non-hallucinating schizophrenic patients. *Br.J.Clin.Psychol.*, 39 (Pt 4), 397-406.

Borgwardt, S. J., McGuire, P. K., Aston, J., Berger, G., Dazzan, P., Gschwandtner, U. et al. (2007). Structural brain abnormalities in individuals with an at-risk mental state who later develop psychosis. *Br.J.Psychiatry Suppl*, 51, s69-s75.

Borgwardt, S. J., Riecher-Rossler, A., Dazzan, P., Chitnis, X., Aston, J., Drewe, M. et al. (2007). Regional gray matter volume abnormalities in the at risk mental state. *Biol.Psychiatry*, 61, 1148-1156.

Braff, D. L. (1993). Information processing and attention dysfunctions in schizophrenia. *Schizophr.Bull.*, 19, 233-259.

Brasic, J. R. (1998). Hallucinations. *Percept.Mot.Skills*, 86, 851-877.

Brebion, G., Amador, X., David, A., Malaspina, D., Sharif, Z., & Gorman, J. M. (2000). Positive symptomatology and source-monitoring failure in schizophrenia--an analysis of symptom-specific effects. *Psychiatry Res.*, 95, 119-131.

Brett, E. A. & Starker, S. (1977). Auditory imagery and hallucinations. *J.Nerv.Ment.Dis.*, 164, 394-400.

Brown, J. W. (1985). Hallucinations: Imagery and the microstructure of perception. In P.J.Vinken, G. W. Bryun, H. L. Klawans, & J. A. M. Fredericks (Eds.), *Handbook of Clinical Neurology* (pp. 351-372). Amsterdam: Elsevier Science.

Brunelin, J., Poulet, E., Bediou, B., Kallel, L., Dalery, J., D'Amato, T. et al. (2006). Low frequency repetitive transcranial magnetic stimulation improves source monitoring deficit in hallucinating patients with schizophrenia. *Schizophr.Res.*, 81, 41-45.

Bullen, J. G., Hemsley, D. R., & Dixon, N. F. (1987). Inhibition, Unusual Perceptual Experiences and Psychoticism. *Personality and Individual Differences*, 8, 687-691.

Bullmore, E., Horwitz, B., Honey, G., Brammer, M., Williams, S., & Sharma, T. (2000). How good is good enough in path analysis of fMRI data? *Neuroimage*, 11, 289-301.

Butler, R. W., Mueser, K. T., Sprock, J., & Braff, D. L. (1996). Positive symptoms of psychosis in posttraumatic stress disorder. *Biol.Psychiatry*, 39, 839-844.

Carter, D. M., Mackinnon, A., & Copolov, D. L. (1996). Patients' strategies for coping with auditory hallucinations. *J.Nerv.Ment.Dis.*, 184, 159-164.

Catts, S. V., Armstrong, M. S., Norcross, K., & McConaghy, N. (1980). Auditory hallucinations and the Verbal Transformation Effect. *Psychol.Med.*, 10, 139-144.

Chibbaro, G., Daniele, M., Alagona, G., Di, P. C., Cannavo, M., Rapisarda, V. et al. (2005). Repetitive transcranial magnetic stimulation in schizophrenic patients reporting auditory hallucinations. *Neurosci.Lett.*, 383, 54-57.

Comer, N. L., Madow, L., & Dixon, J. J. (1967). Observations of sensory deprivation in a life-threatening situation. *Am.J.Psychiatry*, 124, 164-169.

Copolov, D. L., Seal, M. L., Maruff, P., Ulusoy, R., Wong, M. T., Tochon-Danguy, H. J. et al. (2003). Cortical activation associated with the experience of auditory hallucinations and perception of human speech in schizophrenia: a PET correlation study. *Psychiatry Res.*, 122, 139-152.

Costafreda, S. G., Brebion, G., Allen, P., McGuire, P. K., & Fu, C. H. (2008). Affective modulation of external misattribution bias in source monitoring in schizophrenia. *Psychol.Med.*, 38, 821-824.

Craig, A. D. (2009). Disembodied hallucinatory voices: Comment on Sommer et al., 2008 *Brain* 131, 3169-77. *Brain*.

Crow, T. J. (1998). Schizophrenia as a transcallosal misconnection syndrome. *Schizophr.Res.*, 30, 111-114.

Crow, T. J., Done, D. J., & Sacker, A. (1996). Cerebral lateralization is delayed in children who later develop schizophrenia. *Schizophr.Res.*, 22, 181-185.

Curson, D. A., Patel, M., Liddle, P. F., & Barnes, T. R. (1988). Psychiatric morbidity of a long stay hospital population with chronic schizophrenia and implications for future community care. *BMJ*, 297, 819-822.

d'Alfonso, A. A., Aleman, A., Kessels, R. P., Schouten, E. A., Postma, A., van Der Linden, J. A. et al. (2002). Transcranial magnetic stimulation of left auditory cortex in patients with schizophrenia: effects on hallucinations and neurocognition. *J.Neuropsychiatry Clin.Neurosci.*, 14, 77-79.

Daskalakis, Z. J., Christensen, B. K., Chen, R., Fitzgerald, P. B., Zipursky, R. B., & Kapur, S. (2002). Evidence for impaired cortical inhibition in schizophrenia using transcranial magnetic stimulation. *Arch.Gen.Psychiatry*, 59, 347-354.

David, A., Malmberg, A., Lewis, G., Brandt, L., & Allebeck, P. (1995). Are there neurological and sensory risk factors for schizophrenia? *Schizophr.Res.*, 14, 247-251.

David, A. S. (1999). Auditory hallucinations: phenomenology, neuropsychology and neuroimaging update. *Acta Psychiatr.Scand.Suppl*, 395, 95-104.

David, A. S., Woodruff, P. W., Howard, R., Mellers, J. D., Brammer, M., Bullmore, E. et al. (1996). Auditory hallucinations inhibit exogenous activation of auditory association cortex. *Neuroreport*, 7, 932-936.

DeLisi, L. E., Hoff, A. L., Neale, C., & Kushner, M. (1994). Asymmetries in the superior temporal lobe in male and female first-episode schizophrenic patients: measures of the planum temporale and superior temporal gyrus by MRI. *Schizophr.Res.*, 12, 19-28.

Dhossche, D., Ferdinand, R., van der Ende, J., Hofstra, M. B., & Verhulst, F. (2002). Diagnostic outcome of self-reported hallucinations in a community sample of adolescents. *Psychol.Med.*, 32, 619-627.

Dickerson, F. B. (2000). Cognitive behavioral psychotherapy for schizophrenia: a review of recent empirical studies. *Schizophr.Res.*, 43, 71-90.

Dierks, T., Linden, D. E., Jandl, M., Formisano, E., Goebel, R., Lanfermann, H. et al. (1999). Activation of Heschl's gyrus during auditory hallucinations. *Neuron*, 22, 615-621.

Dolgov, I. & McBeath, M. K. (2005). A signal-detection theory representation of normal and hallucinatory perception. *Behav.Brain Sci.*, 28, 761-762.

Dollfus, S., Larmurier-Montagne, A., Razafimandimby, A., Allio, G., Membrey, J. M., Delcroix, N. et al. (2008). Treatment of auditory hallucinations by combining high-frequency repetitive transcranial magnetic stimulation and functional magnetic resonance imaging. *Schizophr.Res.*, 102, 348-351.

Dosenbach, N. U., Fair, D. A., Miezin, F. M., Cohen, A. L., Wenger, K. K., Dosenbach, R. A. et al. (2007). Distinct brain networks for adaptive and stable task control in humans. *Proc.Natl.Acad.Sci.U.S.A*, 104, 11073-11078.

Escher, S., Romme, M., Buiks, A., Delespaul, P., & van Os, J. (2002). Formation of delusional ideation in adolescents hearing voices: a prospective study. *Am.J.Med.Genet.*, 114, 913-920.

Evans, A. C., Collins, D. L., & Milner, B. (1992). An MRI-based stereotactic atlas from 300 young normal subjects. In Anaheim, California.

Falloon, I. R. & Talbot, R. E. (1981). Persistent auditory hallucinations: coping mechanisms and implications for management. *Psychol.Med.*, 11, 329-339.

Feinberg, I. (1978). Efference copy and corollary discharge: implications for thinking and its disorders. *Schizophr.Bull.*, 4, 636-640.

Fenelon, G., Mahieux, F., Huon, R., & Ziegler, M. (2000). Hallucinations in Parkinson's disease: prevalence, phenomenology and risk factors. *Brain*, 123 (Pt 4), 733-745.

Ffytche, D. H., Howard, R. J., Brammer, M. J., David, A., Woodruff, P., & Williams, S. (1998). The anatomy of conscious vision: An fMRI study of visual hallucinations. *Nature Neuroscience*, 1, 738-742.

Finkel, S. I., Costa, S. E., Cohen, G., Miller, S., & Sartorius, N. (1996). Behavioral and psychological signs and symptoms of dementia: A consensus statement on current knowledge and implications for research and treatment. *International Psychogeriatrics*, 8, 497-500.

Fitzgerald, P. B., Benitez, J., Daskalakis, J. Z., Brown, T. L., Marston, N. A., De Castella, A. et al. (2005). A double-blind sham-controlled trial of repetitive transcranial magnetic stimulation in the treatment of refractory auditory hallucinations. *J.Clin.Psychopharmacol.*, 25, 358-362.

Fitzgerald, P. B., Benitez, J., Daskalakis, J. Z., De Castella, A., & Kulkarni, J. (2006). The treatment of recurring auditory hallucinations in schizophrenia with rTMS. *World J.Biol.Psychiatry*, 7, 119-122.

Fitzgerald, P. B., Benitez, J., Oxley, T., Daskalakis, J. Z., de Castella, A. R., & Kulkarni, J. (2005). A study of the effects of lorazepam and dextromethorphan on the response to cortical 1 Hz repetitive transcranial magnetic stimulation. *Neuroreport*, 16, 1525-1528.

Fitzgerald, P. B., Brown, T. L., Daskalakis, Z. J., & Kulkarni, J. (2002). A transcranial magnetic stimulation study of the effects of olanzapine and risperidone on motor cortical excitability in patients with schizophrenia. *Psychopharmacology (Berl)*, 162, 74-81.

Fitzgerald, P. B., Sritharan, A., Benitez, J., Daskalakis, Z. J., Jackson, G., Kulkarni, J. et al. (2007). A preliminary fMRI study of the effects on cortical activation of the treatment of refractory auditory hallucinations with rTMS. *Psychiatry Res.*, 155, 83-88.

Flaum, M., O'Leary, D. S., Swayze, V. W., Miller, D. D., Arndt, S., & Andreasen, N. C. (1995). Symptom dimensions and brain morphology in schizophrenia and related psychotic disorders. *J.Psychiatr.Res.*, 29, 261-276.

Flaum, M., Swayze, V. W., O'Leary, D. S., Yuh, W. T., Ehrhardt, J. C., Arndt, S. V. et al. (1995). Effects of diagnosis, laterality, and gender on brain morphology in schizophrenia. *Am.J.Psychiatry*, 152, 704-714.

Ford, J. M. & Mathalon, D. H. (2004). Electrophysiological evidence of corollary discharge dysfunction in schizophrenia during talking and thinking. *J.Psychiatr.Res.*, 38, 37-46.

Ford, J. M., Mathalon, D. H., Whitfield, S., Faustman, W. O., & Roth, W. T. (2002). Reduced communication between frontal and temporal lobes during talking in schizophrenia. *Biol.Psychiatry*, 51, 485-492.

Ford, J. M., Roach, B. J., Faustman, W. O., & Mathalon, D. H. (2007). Synch before you speak: auditory hallucinations in schizophrenia. *Am.J.Psychiatry*, 164, 458-466.

Fox, M. D. & Raichle, M. E. (2007). Spontaneous fluctuations in brain activity observed with functional magnetic resonance imaging. *Nat.Rev.Neurosci.*, 8, 700-711.

Fox, P. T. & Lancaster, J. L. (1994). Neuroscience on the net. *Science*, 266, 994-996.

Franca, M., Koch, G., Mochizuki, H., Huang, Y. Z., & Rothwell, J. C. (2006). Effects of theta burst stimulation protocols on phosphene threshold. *Clin.Neurophysiol.*, 117, 1808-1813.

Fransson, P. (2005). Spontaneous low-frequency BOLD signal fluctuations: an fMRI investigation of the resting-state default mode of brain function hypothesis. *Hum.Brain Mapp.*, 26, 15-29.

Freitas, C., Fregni, F., & Pascual-Leone, A. (2009). Meta-analysis of the effects of repetitive transcranial magnetic stimulation (rTMS) on negative and positive symptoms in schizophrenia. *Schizophr.Res.*

Friston, K. J., Frith, C. D., Fletcher, P., Liddle, P. F., & Frackowiak, R. S. (1996). Functional topography: multidimensional scaling and functional connectivity in the brain. *Cereb.Cortex*, 6, 156-164.

Friston, K. J., Frith, C. D., Liddle, P. F., & Frackowiak, R. S. (1993). Functional connectivity: the principal-component analysis of large (PET) data sets. *J.Cereb.Blood Flow Metab*, 13, 5-14.

Frith, C. D. (1987). The positive and negative symptoms of schizophrenia reflect impairments in the perception and initiation of action. *Psychol.Med.*, 17, 631-648.

Frith, C.D. (1992). *The Cognitive Neuropsychology of Schizophrenia*. Lawrence Erlbaum Associates: Hillsdale.

Frith, C. D. & Done, D. J. (1989). Towards a cognitive neuropsychology of schizophrenia. *British Journal of Psychiatry*, 153, 437-443.

Fu, C. H., Vythelingum, G. N., Brammer, M. J., Williams, S. C., Amaro E Jr, Andrew, C. M. et al. (2006). An fMRI study of verbal self-monitoring: neural correlates of auditory verbal feedback. *Cereb.Cortex*, 16, 969-977.

Gallagher, A. G., Dinan, T. G., & Baker, L. J. (1994). The effects of varying auditory input on schizophrenic hallucinations: a replication. *Br.J.Med.Psychol.*, 67 (Pt 1), 67-75.

Garcia-Marti, G., Aguilar, E. J., Lull, J. J., Marti-Bonmati, L., Escarti, M. J., Manjon, J. V. et al. (2008). Schizophrenia with auditory hallucinations: a voxel-based morphometry study. *Prog.Neuropsychopharmacol.Biol.Psychiatry*, 32, 72-80.

Garety, P. A., Fowler, D., & Kuipers, E. (2000). Cognitive-behavioral therapy for medication-resistant symptoms. *Schizophr.Bull.*, 26, 73-86.

Gaser, C., Nenadic, I., Volz, H. P., Buchel, C., & Sauer, H. (2004). Neuroanatomy of "hearing voices": a frontotemporal brain structural abnormality associated with auditory hallucinations in schizophrenia. *Cereb.Cortex*, 14, 91-96.

Gauntlett-Gilbert, J. & Kuipers, E. (2003). Phenomenology of visual hallucinations in psychiatric conditions. *J.Nerv.Ment.Dis.*, 191, 203-205.

Gershon, A. A., Dannon, P. N., & Grunhaus, L. (2003). Transcranial magnetic stimulation in the treatment of depression. *Am.J.Psychiatry*, 160, 835-845.

Giel, R. & Nienhuis, F. J. (1996). SCAN-2.1: Schedules for Clinical Assessment in Neuropsychiatry (in Dutch). Geneva/Groningen, WHO.

Gould, L. N. (1948). Verbal hallucinations and activity of vocal musculature; an electromyographic study. *Am.J.Psychiatry*, 105, 367-372.

Gould, L. N. (1949). Auditory hallucinations and subvocal speech; objective study in a case of schizophrenia. *J.Nerv.Ment.Dis.*, 109, 418-427.

Greicius, M. D., Krasnow, B., Reiss, A. L., & Menon, V. (2003). Functional connectivity in the resting brain: a network analysis of the default mode hypothesis. *Proc.Natl.Acad.Sci.U.S.A*, 100, 253-258.

Grimby, A. (1993). Bereavement among elderly people: grief reactions, post-bereavement hallucinations and quality of life. *Acta Psychiatr.Scand.*, 87, 72-80.

Grossberg, S. (2000). How hallucinations may arise from brain mechanisms of learning, attention, and volition. *J.Int.Neuropsychol.Soc.*, 6, 583-592.

Gusnard, D. A., Akbudak, E., Shulman, G. L., & Raichle, M. E. (2001). Medial prefrontal cortex and self-referential mental activity: relation to a default mode of brain function. *Proc.Natl.Acad.Sci.U.S.A*, 98, 4259-4264.

Gusnard, D. A., Ollinger, J. M., Shulman, G. L., Cloninger, C. R., Price, J. L., Van, E. et al. (2003). Persistence and brain circuitry. *Proc.Natl.Acad.Sci.U.S.A*, 100, 3479-3484.

Gusnard, D. A. & Raichle, M. E. (2001). Searching for a baseline: functional imaging and the resting human brain. *Nat.Rev.Neurosci.*, 2, 685-694.

Haddock, G., Slade, P. D., & Bentall, R. P. (1995). Auditory Hallucinations and the Verbal Transformation Effect - the Role of Suggestions. *Personality and Individual Differences*, 19, 301-306.

Hammersley, P., Dias, A., Todd, G., Bowen-Jones, K., Reilly, B., & Bentall, R. P. (2003). Childhood trauma and hallucinations in bipolar affective disorder: preliminary investigation. *Br.J.Psychiatry*, 182, 543-547.

Hashimoto, R. I., Lee, K., Preus, A., McCarley, R. W., & Wible, C. G. (2009). An fMRI Study of Functional Abnormalities in the Verbal Working Memory System and the Relationship to Clinical Symptoms in Chronic Schizophrenia. *Cereb.Cortex*.

Havermans, R., Honig, A., Vuurman, E. F., Krabbendam, L., Wilmsink, J., Lamers, T. et al. (1999). A controlled study of temporal lobe structure volumes and P300 responses in schizophrenic patients with persistent auditory hallucinations. *Schizophr.Res.*, 38, 151-158.

Heinrichs, R., Zakzanis, K.K. (1998). Neurocognitive deficit in schizophrenia: A quantitative review of the evidence. *Neuropsychology* 12(3), 426-445.

Henderson, M. J. & Mellers, J. D. C. (2000). Psychosis in Parkinson's disease: "Between a rock and a hard place". *International Review of Psychiatry*, 12, 319-334.

Hermans, D. & de Houwer, J. (1994). Affective and subjective familiarity ratings of 740 Dutch words. *Psychologica Belgica* 34, 115-139.

Hoffman, R. E. & Cavus, I. (2002). Slow transcranial magnetic stimulation, long-term depotentiation, and brain hyperexcitability disorders. *Am.J.Psychiatry*, 159, 1093-1102.

Hoffman, R. E., Boutros, N. N., Berman, R. M., Roessler, E., Belger, A., Krystal, J. H. et al. (1999). Transcranial magnetic stimulation of left temporoparietal cortex in three patients reporting hallucinated "voices". *Biol.Psychiatry*, 46, 130-132.

Hoffman, R. E., Boutros, N. N., Hu, S., Berman, R. M., Krystal, J. H., & Charney, D. S. (2000). Transcranial magnetic stimulation and auditory hallucinations in schizophrenia. *Lancet*, 355, 1073-1075.

Hoffman, R. E., Gueorguieva, R., Hawkins, K. A., Varanko, M., Boutros, N. N., Wu, Y. T. et al. (2005). Temporoparietal transcranial magnetic stimulation for auditory hallucinations: safety, efficacy and moderators in a fifty patient sample. *Biol.Psychiatry*, 58, 97-104.

Hoffman, R. E., Hampson, M., Wu, K., Anderson, A. W., Gore, J. C., Buchanan, R. J. et al. (2007). Probing the pathophysiology of auditory/verbal hallucinations by combining functional magnetic resonance imaging and transcranial magnetic stimulation. *Cereb.Cortex*, 17, 2733-2743.

Hoffman, R. E., Hawkins, K. A., Gueorguieva, R., Boutros, N. N., Rachid, F., Carroll, K. et al. (2003). Transcranial magnetic stimulation of left temporoparietal cortex and medication-resistant auditory hallucinations. *Arch.Gen.Psychiatry*, 60, 49-56.

Hoffman, R. E., Rapaport, J., Mazure, C. M., & Quinlan, D. M. (1999). Selective speech perception alterations in schizophrenic patients reporting hallucinated "voices". *Am.J.Psychiatry*, 156, 393-399.

Hoffman, R. E., Woods, S. W., Hawkins, K. A., Pittman, B., Tohen, M., Preda, A. et al. (2007). Extracting spurious messages from noise and risk of schizophrenia-spectrum disorders in a prodromal population. *Br.J.Psychiatry*, 191, 355-356.

Holroyd, S. (1996). Visual hallucinations in a geriatric psychiatry clinic: prevalence and associated diagnoses. *J.Geriatri.Psychiatry Neurol.*, 9, 171-175.

Horacek, J., Brunovsky, M., Novak, T., Skrdlantova, L., Klirova, M., Bubenikova-Valesova, V. et al. (2007). Effect of low-frequency rTMS on electromagnetic tomography (LORETA) and regional brain metabolism (PET) in schizophrenia patients with auditory hallucinations. *Neuropsychobiology*, 55, 132-142.

Hubl, D., Koenig, T., Strik, W., Federspiel, A., Kreis, R., Boesch, C. et al. (2004). Pathways that make voices: white matter changes in auditory hallucinations. *Arch.Gen.Psychiatry*, 61, 658-668.

Hubl, D., Koenig, T., Strik, W., Federspiel, A., Kreis, R., Boesch, C. et al. (2004). Pathways that make voices: white matter changes in auditory hallucinations. *Arch.Gen.Psychiatry*, 61, 658-668.

Hugdahl, K., Loberg, E. M., Specht, K., Steen, V. M., van, W. H., & Jorgensen, H. A. (2007). Auditory hallucinations in schizophrenia: the role of cognitive, brain structural and genetic disturbances in the left temporal lobe. *Front Hum.Neurosci.*, 1, 6.

Hunter, M. D., Smith, J. K., Taylor, N., Woods, W., Spence, S. A., Griffiths, T. D. et al. (2003). Laterality effects in perceived spatial location of hallucination-like voices. *Percept.Mot.Skills*, 97, 246-250.

Ishigaki, T., Tanno, Y. (1999). The signal detection ability of patients with auditory hallucination: Analysis using the continuous performance test. *Psychiatry and Clinical Neurosciences* 53(4), 471-476.

Iyer, M. B., Schleper, N., & Wassermann, E. M. (2003). Priming stimulation enhances the depressant effect of low-frequency repetitive transcranial magnetic stimulation. *J.Neurosci.*, 23, 10867-10872.

Jablensky, A. (1995). Schizophrenia: recent epidemiologic issues. *Epidemiol.Rev.*, 17, 10-20.

Jandl, M., Steyer, J., Weber, M., Linden, D. E., Rothmeier, J., Maurer, K. et al. (2006). Treating auditory hallucinations by transcranial magnetic stimulation: a randomized controlled cross-over trial. *Neuropsychobiology*, 53, 63-69.

Jardri, R., Delevoeye-Turrell, Y., Lucas, B., Pins, D., Bulot, V., Delmaire, C. et al. (2009). Clinical practice of rTMS reveals a functional dissociation between agency and hallucinations in schizophrenia. *Neuropsychologia*, 47, 132-138.

Jardri, R., Pins, D., Bubrovsky, M., Lucas, B., Lethuc, V., Delmaire, C. et al. (2009). Neural functional organization of hallucinations in schizophrenia: Multisensory dissolution of pathological emergence in consciousness. *Conscious.Cogn.*

Jardri, R., Pins, D., Delmaire, C., Goeb, J. L., & Thomas, P. (2007). Activation of bilateral auditory cortex during verbal hallucinations in a child with schizophrenia. *Mol.Psychiatry*, 12, 319.

Jaynes, J. (1979). *The origins of consciousness in the breakdown of the bicameral mind*. Boston: Houghton-Mifflin.

Jenner, J. A. (2002). An integrative treatment for patients with persistent auditory hallucinations. *Psychiatr.Serv.*, 53, 897-898.

Jenner, J. A., Nienhuis, F. J., van de Willige, W. G., & Wiersma, D. (2006). "Hitting" voices of schizophrenia patients may lastingly reduce persistent auditory hallucinations and their burden: 18-month outcome of a randomized controlled trial. *Can.J.Psychiatry*, 51, 169-177.

Jenner, J. A., Nienhuis, F. J., Wiersma, D., & van de, W. G. (2004). Hallucination focused integrative treatment: a randomized controlled trial. *Schizophr.Bull.*, 30, 133-145.

Jenner, J. A. & van de Willige, W. G. (2001). HIT, hallucination focused integrative treatment as early intervention in psychotic adolescents with auditory hallucinations: a pilot study. *Acta Psychiatr.Scand.*, 103, 148-152.

Johns, L. C., Cannon, M., Singleton, N., Murray, R. M., Farrell, M., Brugha, T. et al. (2004). Prevalence and correlates of self-reported psychotic symptoms in the British population. *Br.J.Psychiatry*, 185, 298-305.

Johns L.C., McGuire K. (1999). Verbal self-monitoring and auditory hallucinations in schizophrenia. *The Lancet* 353 (9151), 469-470.

Johns, L. C. & van Os, J. (2001). The continuity of psychotic experiences in the general population. *Clin.Psychol.Rev.*, 21, 1125-1141.

Johnson, M. K., Hashtroudi, S., & Lindsay, D. S. (1993). Source monitoring. *Psychol.Bull.*, 114, 3-28.

Jones, S. R. (2008). Do We Need Multiple Models of Auditory Verbal Hallucinations? Examining the Phenomenological Fit of Cognitive and Neurological Models. *Schizophr.Bull.*

Kaplan, H. & Sadock, B. (1981). *Modern synopsis of comprehensive textbook of psychiatry*. (3rd ed.) Baltimore: Williams & Wilkins.

Kapur, S. (2003). Psychosis as a state of aberrant salience: a framework linking biology, phenomenology, and pharmacology in schizophrenia. *Am.J.Psychiatry*, 160, 13-23.

Kawaguchi, S., Ukai, S., Shinosaki, K., Ishii, R., Yamamoto, M., Ogawa, A. et al. (2005). Information processing flow and neural activations in the dorsolateral

prefrontal cortex in the Stroop task in schizophrenic patients. A spatially filtered MEG analysis with high temporal and spatial resolution. *Neuropsychobiology*, 51, 191-203.

Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophr.Bull.*, 13, 261-276.

Keefe R.S., Arnold, M.C., Bayen, U.J., McEvoy, J.P., Wilson, W.H. (2002). Source monitoring deficits for self-generated stimuli in schizophrenia: multinomial modeling of data from three sources. *Schizophrenia Research* 57 (1), 51-67.

Khedr, E. M., Hamed, E., Said, A., & Basahi, J. (2002). Handedness and language cerebral lateralization. *Eur.J.Appl.Physiol*, 87, 469-473.

Kim, J. W., Choi, E. A., Kim, J. J., Jeong, B. S., Kim, S. E., & Ki, S. W. (2008). The role of amygdala during auditory verbal imagery of derogatory appraisals by others. *Neurosci.Lett.*, 446, 1-6.

Kimura, D. (1961). Cerebral dominance and the perception of verbal stimuli. *Canadian Journal of Psychology*, 15, 166-171.

Knobel, K. A. & Sanchez, T. G. (2009). Selective auditory attention and silence elicit auditory hallucination in a nonclinical sample. *Cogn Neuropsychiatry*, 14, 1-10.

Kolmel, H. W. (1985). Complex visual hallucinations in the hemianopic field. *J.Neurol.Neurosurg.Psychiatry*, 48, 29-38.

Kot, T. & Serper, M. (2002). Increased susceptibility to auditory conditioning in hallucinating schizophrenic subjects: A preliminary investigation. *Journal of Nervous and Mental Disease*, 190, 282-288.

Krabbendam, L., Myin-Germeys, I., de Graaf, R., Vollebergh, W., Nolen, W. A., Iedema, J. et al. (2004). Dimensions of depression, mania and psychosis in the general population. *Psychol.Med.*, 34, 1177-1186.

Krabbendam, L., Myin-Germeys, I., Hanssen, M., de Graaf, R., Vollebergh, W., Bak, M. et al. (2005). Development of depressed mood predicts onset of psychotic disorder in individuals who report hallucinatory experiences. *Br.J.Clin.Psychol.*, 44, 113-125.

Krabbendam, L. & van Os, J. (2005). Affective processes in the onset and persistence of psychosis. *Eur.Arch.Psychiatry Clin.Neurosci.*, 255, 185-189.

Kveraga, K., Ghuman, A. S., & Bar, M. (2007). Top-down predictions in the cognitive brain. *Brain Cogn*, 65, 145-168.

Lacro, J. P., Dunn, L. B., Dolder, C. R., Leckband, S. G., & Jeste, D. V. (2002). Prevalence of and risk factors for medication nonadherence in patients with schizophrenia: a comprehensive review of recent literature. *J.Clin.Psychiatry*, 63, 892-909.

Langdon, R., Jones, S. R., Connaughton, E., & Fernyhough, C. (2008). The phenomenology of inner speech: comparison of schizophrenia patients with auditory verbal hallucinations and healthy controls. *Psychol.Med.*, 1-9.

Langguth, B., Eichhammer, P., Zowe, M., Marienhagen, J., Spiessl, H., & Hajak, G. (2006). Neuronavigated transcranial magnetic stimulation and auditory hallucinations in a schizophrenic patient: monitoring of neurobiological effects. *Schizophr.Res.*, 84, 185-186.

Laroi, F., DeFruyt, van Os, Aleman, A. & Van der Linden, M. (2005). Associations between hallucinations and personality structure in a non-clinical sample: Comparison between young and elderly samples. *Pers. Indiv. Diff.*, 39, 189-200.

Laroi, F., Marczewski, P., & Van der Linden, M. (2004). Further evidence of the multi-dimensionality of hallucinatory predisposition: factor structure of a modified version of the Launay-Slade Hallucinations Scale in a normal sample. *Eur.Psychiatry*, 19, 15-20.

Laroi, F. & Van der Linden, M. (2005a). Metacognitions in proneness towards hallucinations and delusions. *Behav.Res.Ther.*, 43, 1425-1441.

Laroi, F. & Van der Linden, M. (2005b). Nonclinical participants' reports of hallucinatory experiences. *Canadian Journal of Behavioural Science-Revue Canadienne des Sciences du Comportement*, 37, 33-43.

Laroi, F., Van der Linden, M., & Marczewski, P. (2004). The effects of emotional salience, cognitive effort and meta-cognitive beliefs on a reality monitoring task in hallucination-prone subjects. *Br.J.Clin.Psychol.*, 43, 221-233.

Launay, G. & Slade, P. (1981). The Measurement of Hallucinatory Predisposition in Male and Female Prisoners. *Personality and Individual Differences*, 2, 221-234.

Laurens, K. R., Hodgins, S., Maughan, B., Murray, R. M., Rutter, M. L., & Taylor, E. A. (2007). Community screening for psychotic-like experiences and other putative antecedents of schizophrenia in children aged 9-12 years. *Schizophr.Res.*, 90, 130-146.

Lawrie, S. M., Buechel, C., Whalley, H. C., Frith, C. D., Friston, K. J., & Johnstone, E. C. (2002). Reduced frontotemporal functional connectivity in schizophrenia associated with auditory hallucinations. *Biol.Psychiatry*, 51, 1008-1011.

Lee, K., Yoshida, T., Kubicki, M., Bouix, S., Westin, C. F., Kindlmann, G. et al. (2009). Increased diffusivity in superior temporal gyrus in patients with schizophrenia: A Diffusion Tensor Imaging study. *Schizophr.Res.*

Lee, S. H., Kim, W., Chung, Y. C., Jung, K. H., Bahk, W. M., Jun, T. Y. et al. (2005). A double blind study showing that two weeks of daily repetitive TMS over the left or right temporoparietal cortex reduces symptoms in patients with schizophrenia who are having treatment-refractory auditory hallucinations. *Neurosci.Lett.*, 376, 177-181.

Lennox, B. R., Park, S. B., Jones, P. B., & Morris, P. G. (1999). Spatial and temporal mapping of neural activity associated with auditory hallucinations. *Lancet*, 353, 644.

Lepore, F. E. (1990). Spontaneous visual phenomena with visual loss: 104 patients with lesions of retinal and neural afferent pathways. *Neurology*, 40, 444-447.

Levitan, C., Ward, P. B., & Catts, S. V. (1999). Superior temporal gyral volumes and laterality correlates of auditory hallucinations in schizophrenia. *Biol.Psychiatry*, *46*, 955-962.

Li, X., Branch, C. A., Ardekani, B. A., Bertisch, H., Hicks, C., & DeLisi, L. E. (2007). fMRI study of language activation in schizophrenia, schizoaffective disorder and in individuals genetically at high risk. *Schizophr.Res.*, *96*, 14-24.

Liang, M., Zhou, Y., Jiang, T., Liu, Z., Tian, L., Liu, H. et al. (2006). Widespread functional disconnectivity in schizophrenia with resting-state functional magnetic resonance imaging. *Neuroreport*, *17*, 209-213.

Lieberman, J. A., Tollefson, G. D., Charles, C., Zipursky, R., Sharma, T., Kahn, R. S. et al. (2005). Antipsychotic drug effects on brain morphology in first-episode psychosis. *Arch.Gen.Psychiatry*, *62*, 361-370.

Liu, H., Liu, Z., Liang, M., Hao, Y., Tan, L., Kuang, F. et al. (2006). Decreased regional homogeneity in schizophrenia: a resting state functional magnetic resonance imaging study. *Neuroreport*, *17*, 19-22.

Luborzewski, A., Schubert, F., Seifert, F., nker-Hopfe, H., Brakemeier, E. L., Schlattmann, P. et al. (2007). Metabolic alterations in the dorsolateral prefrontal cortex after treatment with high-frequency repetitive transcranial magnetic stimulation in patients with unipolar major depression. *J.Psychiatr.Res.*, *41*, 606-615.

Machii, K., Cohen, D., Ramos-Estebanez, C., & Pascual-Leone, A. (2006). Safety of rTMS to non-motor cortical areas in healthy participants and patients. *Clin.Neurophysiol.*, *117*, 455-471.

Maguire, E. A., Woollett, K., & Spiers, H. J. (2006). London taxi drivers and bus drivers: a structural MRI and neuropsychological analysis. *Hippocampus*, *16*, 1091-1101.

McGee, R., Williams, S., & Poulton, R. (2000). Hallucinations in nonpsychotic children. *J.Am.Acad.Child Adolesc.Psychiatry*, *39*, 12-13.

McGlashan, T.H. & Hoffman, R.E. (2000). Schizophrenia as a disorder of developmentally reduced synaptic connectivity. *Arch. Gen. Psychiatry*, *57*, 637-648.

McGuire, P. K., Shah, G. M., & Murray, R. M. (1993). Increased blood flow in Broca's area during auditory hallucinations in schizophrenia. *Lancet*, *342*, 703-706.

McGuire, P. K., Silbersweig, D. A., & Frith, C. D. (1996). Functional neuroanatomy of verbal self-monitoring. *Brain*, *119* (Pt 3), 907-917.

McGuire, P. K., Silbersweig, D. A., Wright, I., Murray, R. M., Frackowiak, R. S., & Frith, C. D. (1996). The neural correlates of inner speech and auditory verbal imagery in schizophrenia: relationship to auditory verbal hallucinations. *Br.J.Psychiatry*, *169*, 148-159.

McIntosh, A. M., Semple, D., Tasker, K., Harrison, L. K., Owens, D. G., Johnstone, E. C. et al. (2004). Transcranial magnetic stimulation for auditory hallucinations in schizophrenia. *Psychiatry Res.*, *127*, 9-17.

McKay, C. M., Headlam, D. M., & Copolov, D. L. (2000). Central auditory processing in patients with auditory hallucinations. *American Journal of Psychiatry*, 157, 759-766.

McKeith, I. G., Perry, R. H., Fairbairn, A. F., Jabeen, S., & Perry, E. K. (1992). Operational criteria for senile dementia of Lewy body type (SDLT). *Psychol.Med.*, 22, 911-922.

Mechelli, A., Allen, P., Amaro E Jr, Fu, C. H., Williams, S. C., Brammer, M. J. et al. (2007). Misattribution of speech and impaired connectivity in patients with auditory verbal hallucinations. *Hum.Brain Mapp.*, 28, 1213-1222.

Mechelli, A., Friston, K. J., Frackowiak, R. S., & Price, C. J. (2005). Structural covariance in the human cortex. *J.Neurosci.*, 25, 8303-8310.

Mechelli, A., Price, C. J., Friston, K. J., & Ashburner, J. (2005). Voxel-based morphometry of the Human Brain: methods and applications. *Current Medical Imaging Reviews* 1, 105-133.

Meisenzahl, E. M., Koutsouleris, N., Bottlender, R., Scheuerecker, J., Jager, M., Teipel, S. J. et al. (2008). Structural brain alterations at different stages of schizophrenia: A voxel-based morphometric study. *Schizophr.Res.*, 104, 44-60.

Mintz, S. & Alpert, M. (1972). Imagery vividness, reality testing, and schizophrenic hallucinations. *J.Abnorm.Psychol.*, 79, 310-316.

Mitelman, S. A., Buchsbaum, M. S., Brickman, A. M., & Shihabuddin, L. (2005). Cortical intercorrelations of frontal area volumes in schizophrenia. *Neuroimage*, 27, 753-770.

Montagne-Larmurier, A., Etard, O., Razafimandimby, A., Morello, R., & Dollfus, S. (2009). Two-day treatment of auditory hallucinations by high frequency rTMS guided by cerebral imaging: A 6 month follow-up pilot study. *Schizophr.Res.*

Moritz, S. & Laroi, F. (2008). Differences and similarities in the sensory and cognitive signatures of voice-hearing, intrusions and thoughts. *Schizophr.Res.*, 102, 96-107.

Morrison, A. P., Frame, L., & Larkin, W. (2003). Relationships between trauma and psychosis: A review and integration. *British Journal of Clinical Psychology*, 42, 331-353.

Morrison, A. P. & Haddock, G. (1997). Cognitive factors in source monitoring and auditory hallucinations. *Psychol.Med.*, 27, 669-679.

Muenzenmaier, K., Castille, D. M., Shelley, A. M., Jamison, A., Battaglia, J., Opler, L. A. et al. (2005). Comorbid PTSD and schizophrenia. *Psychiatric Annals*, 35, 51-56.

Mueser, K. T. & Butler, R. W. (1987). Auditory hallucinations in combat-related chronic posttraumatic stress disorder. *Am.J.Psychiatry*, 144, 299-302.

Nahas, Z., Lomarev, M., Roberts, D. R., Shastri, A., Lorberbaum, J. P., Teneback, C. et al. (2001). Unilateral left prefrontal transcranial magnetic stimulation (TMS)

produces intensity-dependent bilateral effects as measured by interleaved BOLD fMRI. *Biol.Psychiatry*, 50, 712-720.

Nayani, T. H. & David, A. S. (1996). The auditory hallucination: a phenomenological survey. *Psychol.Med.*, 26, 177-189.

Neckelmann, G., Specht, K., Lund, A., Ersland, L., Smievoll, A. I., Neckelmann, D. et al. (2006). Mr morphometry analysis of grey matter volume reduction in schizophrenia: association with hallucinations. *Int.J.Neurosci.*, 116, 9-23.

Nielsen, F. A. & Hansen, L. K. (2002). Modeling of activation data in the BrainMap database: detection of outliers. *Hum.Brain Mapp.*, 15, 146-156.

Northoff, G. (2007). Psychopathology and pathophysiology of the self in depression - neuropsychiatric hypothesis. *J.Affect.Disord.*, 104, 1-14.

Nyffeler, T., Wurtz, P., Luscher, H. R., Hess, C. W., Senn, W., Pflugshaupt, T. et al. (2006). Repetitive TMS over the human oculomotor cortex: comparison of 1-Hz and theta burst stimulation. *Neurosci.Lett.*, 409, 57-60.

Ohayon, M. M. (2000). Prevalence of hallucinations and their pathological associations in the general population. *Psychiatry Res.*, 97, 153-164.

Ohayon, M. M., Priest, R. G., Caulet, M., & Guilleminault, C. (1996). Hypnagogic and hypnopompic hallucinations: pathological phenomena? *Br.J.Psychiatry*, 169, 459-467.

Olin, R. (1999). Auditory hallucinations and the bicameral mind. *Lancet*, 354, 166.

Onitsuka, T., Shenton, M. E., Salisbury, D. F., Dickey, C. C., Kasai, K., Toner, S. K. et al. (2004). Middle and inferior temporal gyrus gray matter volume abnormalities in chronic schizophrenia: an MRI study. *Am.J.Psychiatry*, 161, 1603-1611.

Palmieri, M. G., Iani, C., Scalise, A., Desiato, M. T., Loberti, M., Telera, S. et al. (1999). The effect of benzodiazepines and flumazenil on motor cortical excitability in the human brain. *Brain Res.*, 815, 192-199.

Pantelis, C. & Barnes, T. R. (1996). Drug strategies and treatment-resistant schizophrenia. *Aust.N.Z.J.Psychiatry*, 30, 20-37.

Pantelis, C., Velakoulis, D., McGorry, P. D., Wood, S. J., Suckling, J., Phillips, L. J. et al. (2003). Neuroanatomical abnormalities before and after onset of psychosis: a cross-sectional and longitudinal MRI comparison. *Lancet*, 361, 281-288.

Pascual-Leone, A., Davey, N., Rothwell, J., Wassermann, E. M., & Puri, B. K. (2002). *Handbook of transcranial magnetic stimulation*. (1 ed.) London (UK): Arnold.

Pasley, B. N., Allen, E. A., & Freeman, R. D. (2009). State-dependent variability of neuronal responses to transcranial magnetic stimulation of the visual cortex. *Neuron*, 62, 291-303.

Paus, T., Jech, R., Thompson, C. J., Comeau, R., Peters, T., & Evans, A. C. (1997). Transcranial magnetic stimulation during positron emission tomography: a new

method for studying connectivity of the human cerebral cortex. *J.Neurosci.*, 17, 3178-3184.

Pierre, J. M. (2009). Letter to the Editor: Naming names: auditory hallucinations, inner speech, and source monitoring. *Psychol.Med.*, 1-3.

Plaze, M., Bartres-Faz, D., Martinot, J. L., Januel, D., Bellivier, F., de, Beaurepaire, R. et al. (2006). Left superior temporal gyrus activation during sentence perception negatively correlates with auditory hallucination severity in schizophrenia patients. *Schizophr.Res.*, 87, 109-115.

Poldrack, R. A., Wagner, A. D., Prull, M. W., Desmond, J. E., Glover, G. H., & Gabrieli, J. D. (1999). Functional specialization for semantic and phonological processing in the left inferior prefrontal cortex. *Neuroimage*, 10, 15-35.

Poulet, E., Brunelin, J., Bediou, B., Bation, R., Forgeard, L., Dalery, J. et al. (2005). Slow transcranial magnetic stimulation can rapidly reduce resistant auditory hallucinations in schizophrenia. *Biol.Psychiatry*, 57, 188-191.

Poulton, R., Caspi, A., Moffitt, T. E., Cannon, M., Murray, R., & Harrington, H. (2000). Children's self-reported psychotic symptoms and adult schizophreniform disorder: a 15-year longitudinal study. *Arch.Gen.Psychiatry*, 57, 1053-1058.

Raichle, M. E. & Gusnard, D. A. (2005). Intrinsic brain activity sets the stage for expression of motivated behavior. *J.Comp Neurol.*, 493, 167-176.

Raichle, M. E., MacLeod, A. M., Snyder, A. Z., Powers, W. J., Gusnard, D. A., & Shulman, G. L. (2001). A default mode of brain function. *Proc.Natl.Acad.Sci.U.S.A*, 98, 676-682.

Rajarethinam, R. P., DeQuardo, J. R., Nalepa, R., & Tandon, R. (2000). Superior temporal gyrus in schizophrenia: a volumetric magnetic resonance imaging study. *Schizophr.Res.*, 41, 303-312.

Rankin, P.M. and O'Carroll, P.J. (1995). Reality discrimination, reality monitoring and disposition towards hallucination. *British Journal of Clinical Psychology* 34(4), 517-528.

Read, J., Agar, K., Argyle, N., & Aderhold, V. (2003). Sexual and physical abuse during childhood and adulthood as predictors of hallucinations, delusions and thought disorder. *Psychol.Psychother.*, 76, 1-22.

Read, J. & Argyle, N. (1999). Hallucinations, delusions, and thought disorder among adult psychiatric inpatients with a history of child abuse. *Psychiatr.Serv.*, 50, 1467-1472.

Read, J. & Hammersley, P. (2005). Child sexual abuse and schizophrenia. *Br.J.Psychiatry*, 186, 76.

Rosa, M. O., Gattaz, W. F., Rosa, M. A., Rumi, D. O., Tavares, H., Myczkowski, M. et al. (2007). Effects of repetitive transcranial magnetic stimulation on auditory hallucinations refractory to clozapine. *J.Clin.Psychiatry*, 68, 1528-1532.

- Rosenthal, R. (1991). Meta-analysis: a review. *Psychosom.Med.*, 53, 247-271.
- Saba, G., Verdon, C. M., Kalalou, K., Rocamora, J. F., Dumortier, G., Benadhira, R. et al. (2006). Transcranial magnetic stimulation in the treatment of schizophrenic symptoms: a double blind sham controlled study. *J.Psychiatr.Res.*, 40, 147-152.
- Sanjuan, J., Lull, J. J., Aguilar, E. J., Marti-Bonmati, L., Moratal, D., Gonzalez, J. C. et al. (2007). Emotional words induce enhanced brain activity in schizophrenic patients with auditory hallucinations. *Psychiatry Res.*, 154, 21-29.
- Sartorius, N., Shapiro, R., & Jablensky, A. (1974). The international pilot study of schizophrenia. *Schizophr.Bull.*, 1, 21-25.
- Schatzberg, A. & Rothschild, A. (1992). Psychotic (delusional) major depression: Should it be included as a distinct syndrome in DSM-IV? *American Journal of Psychiatry*, 149, 733-745.
- Schneider, K. (1959). *Klinische psychopathologie*. New York: Grune & Stratton.
- Schneider, S.J. and Wilson, C.R. (1983). Perceptual discrimination and reaction time in hallucinatory schizophrenics. *Psychiatry Research* 9 (3), 243-253.
- Schonfeldt-Lecuona, C., Gron, G., Walter, H., Buchler, N., Wunderlich, A., Spitzer, M. et al. (2004). Stereotaxic rTMS for the treatment of auditory hallucinations in schizophrenia. *Neuroreport*, 15, 1669-1673.
- Schutter, D. J. & van Honk J. (2006). A standardized motor threshold estimation procedure for transcranial magnetic stimulation research. *J.ECT.*, 22, 176-178.
- Scott, J., Martin, G., Bor, W., Sawyer, M., Clark, J., & McGrath, J. (2009). The prevalence and correlates of hallucinations in Australian adolescents: results from a national survey. *Schizophr.Res.*, 107, 179-185.
- Seal, M.L., Aleman, A. and McGuire, P.K. (2004). Compelling imagery, unanticipated speech and deceptive memory: neurocognitive models of auditory verbal hallucinations in schizophrenia. *Cognitive Neuropsychiatry* 9(1-2), 43-72.
- Seitz, P. F. & Molholm, H. B. (1947). Relation of mental imagery to hallucinations. *Archives of Neurology and Psychiatry*, 57, 469-480.
- Seok, J. H., Park, H. J., Chun, J. W., Lee, S. K., Cho, H. S., Kwon, J. S. et al. (2007). White matter abnormalities associated with auditory hallucinations in schizophrenia: a combined study of voxel-based analyses of diffusion tensor imaging and structural magnetic resonance imaging. *Psychiatry Res.*, 156, 93-104.
- Shapleske, J., Rossell, S. L., Chitnis, X. A., Suckling, J., Simmons, A., Bullmore, E. T. et al. (2002). A computational morphometric MRI study of schizophrenia: effects of hallucinations. *Cereb.Cortex*, 12, 1331-1341.
- Shapleske, J., Rossell, S. L., Simmons, A., David, A. S., & Woodruff, P. W. (2001). Are auditory hallucinations the consequence of abnormal cerebral lateralization? A morphometric MRI study of the sylvian fissure and planum temporale. *Biol.Psychiatry*, 49, 685-693.

Shergill, S. S., Brammer, M. J., Fukuda, R., Bullmore, E., Amaro E Jr, Murray, R. M. et al. (2002). Modulation of activity in temporal cortex during generation of inner speech. *Hum.Brain Mapp.*, *16*, 219-227.

Shergill, S. S., Brammer, M. J., Williams, S. C., Murray, R. M., & McGuire, P. K. (2000). Mapping auditory hallucinations in schizophrenia using functional magnetic resonance imaging. *Arch.Gen.Psychiatry*, *57*, 1033-1038.

Shergill, S. S., Bullmore, E. T., Brammer, M. J., Williams, S. C., Murray, R. M., & McGuire, P. K. (2001). A functional study of auditory verbal imagery. *Psychol.Med.*, *31*, 241-253.

Shergill, S. S., Bullmore, E., Simmons, A., Murray, R., & McGuire, P. (2000). Functional anatomy of auditory verbal imagery in schizophrenic patients with auditory hallucinations. *Am.J.Psychiatry*, *157*, 1691-1693.

Shergill, S. S., Kanaan, R. A., Chitnis, X. A., O'Daly, O., Jones, D. K., Frangou, S. et al. (2007). A diffusion tensor imaging study of fasciculi in schizophrenia. *Am.J.Psychiatry*, *164*, 467-473.

Shergill, S. S., Murray, R. M., & McGuire, P. K. (1998). Auditory hallucinations: a review of psychological treatments. *Schizophr.Res.*, *32*, 137-150.

Shergill, S. S., Tracy, D. K., Seal, M., Rubia, K., & McGuire, P. (2006). Timing of covert articulation: an fMRI study. *Neuropsychologia*, *44*, 2573-2577.

Shin, S. E., Lee, J. S., Kang, M. H., Kim, C. E., Bae, J. N., & Jung, G. (2005). Segmented volumes of cerebrum and cerebellum in first episode schizophrenia with auditory hallucinations. *Psychiatry Res.*, *138*, 33-42.

Shmuel, A. & Leopold, D. A. (2008). Neuronal correlates of spontaneous fluctuations in fMRI signals in monkey visual cortex: Implications for functional connectivity at rest. *Hum.Brain Mapp.*, *29*, 751-761.

Siebner, H. R., Lang, N., Rizzo, V., Nitsche, M. A., Paulus, W., Lemon, R. N. et al. (2004). Preconditioning of low-frequency repetitive transcranial magnetic stimulation with transcranial direct current stimulation: evidence for homeostatic plasticity in the human motor cortex. *J.Neurosci.*, *24*, 3379-3385.

Siegel, R. K. (1984). Hostage hallucinations: Visual imagery induced by isolation and life-threatening stress. *Journal of Nervous and Mental Disease*, *172*, 264-272.

Silbersweig, D. A., Stern, E., Frith, C., Cahill, C., Holmes, A., Grootenck, S. et al. (1995). A functional neuroanatomy of hallucinations in schizophrenia. *Nature*, *378*, 176-179.

Silvanto, J., Muggleton, N. G., Cowey, A., & Walsh, V. (2007). Neural activation state determines behavioral susceptibility to modified theta burst transcranial magnetic stimulation. *Eur.J.Neurosci.*, *26*, 523-528.

Silvanto, J., Muggleton, N., & Walsh, V. (2008). State-dependency in brain stimulation studies of perception and cognition. *Trends Cogn Sci.*, *12*, 447-454.

Slade, P. D. (1976). An investigation of psychological factors involved in the predisposition to auditory hallucinations. *Psychol.Med.*, 6, 123-132.

Slade, P. & Bentall, R. P. (1988). *Sensory deception: A scientific analysis of hallucination*. London: Croon Helm.

Sommer, I. E., Aleman, A., & Kahn, R. S. (2003). Left with the voices or hearing right? Lateralization of auditory verbal hallucinations in schizophrenia. *J.Psychiatry Neurosci.*, 28, 217-218.

Sommer, I. E., Daalman, K., Rietkerk, T., Diederer, K. M., Bakker, S., Wijkstra, J. et al. (2008a). Healthy Individuals With Auditory Verbal Hallucinations; Who Are They? *Psychiatric Assessments of a Selected Sample of 103 Subjects*. *Schizophr.Bull.*

Sommer, I. E., de Weijer, A. D., Daalman, K., Neggers, S. F., Somers, M., Kahn, R. S. et al. (2007). Can fMRI-guidance improve the efficacy of rTMS treatment for auditory verbal hallucinations? *Schizophr.Res.*, 93, 406-408.

Sommer, I. E., Diederer, K. M., Blom, J. D., Willems, A., Kushan, L., Slotema, K. et al. (2008b). Auditory verbal hallucinations predominantly activate the right inferior frontal area. *Brain*, 131, 3169-3177.

Sommer, I., Ramsey, N., Aleman, A., Bouma, A., & Kahn, R. (2001). Handedness, language lateralisation and anatomical asymmetry in schizophrenia: meta-analysis. *Br.J.Psychiatry*, 178, 344-351.

Sommer, I. E., Ramsey, N. F., & Kahn, R. S. (2001). Language lateralization in schizophrenia, an fMRI study. *Schizophr.Res.*, 52, 57-67.

Stahl, S. M. (2001a). Dopamine system stabilizers, aripiprazole, and the next generation of antipsychotics, part 1, "Goldilocks" actions at dopamine receptors. *J.Clin.Psychiatry*, 62, 841-842.

Stahl, S. M. (2001b). Dopamine system stabilizers, aripiprazole, and the next generation of antipsychotics, part 2: illustrating their mechanism of action. *J.Clin.Psychiatry*, 62, 923-924.

Stanislaw, H., Todorov, N. (1999). Calculation of signal detection measures. *Behavior Research Methods, Instruments and Computers* 31(1), 137-149.

Startup, M. (1999). Schizotypy, dissociative experiences and childhood abuse: Relationships among self-report measures. *British Journal of Clinical Psychology*, 38, 344.

Stefan, K., Gentner, R., Zeller, D., Dang, S., & Classen, J. (2008). Theta-burst stimulation: remote physiological and local behavioral after-effects. *Neuroimage*, 40, 265-274.

Stephan, K. E., Baldeweg, T., & Friston, K. J. (2006). Synaptic plasticity and dysconnection in schizophrenia. *Biol.Psychiatry*, 59, 929-939.

Stephan, K. E., Friston, K. J., & Frith, C. D. (2009). Dysconnection in Schizophrenia: From Abnormal Synaptic Plasticity to Failures of Self-monitoring. *Schizophr.Bull.*, *35*, 509-527.

Stephane, M., Barton, S., & Boutros, N. N. (2001). Auditory verbal hallucinations and dysfunction of the neural substrates of speech. *Schizophr.Res.*, *50*, 61-78.

Stephane, M., Hagen, M. C., Lee, J. T., Uecker, J., Pardo, P. J., Kuskowski, M. A. et al. (2006). About the mechanisms of auditory verbal hallucinations: a positron emission tomographic study. *J.Psychiatry Neurosci.*, *31*, 396-405.

Stephane, M., Thuras, P., Nasrallah, H., & Georgopoulos, A. P. (2003). The internal structure of the phenomenology of auditory verbal hallucinations. *Schizophr.Res.*, *61*, 185-193.

Stephens, G. L. & Graham, G. (2004). Reconceiving delusion. *Int.Rev.Psychiatry*, *16*, 236-241.

Stevens, A. A., Donegan, N. H., Anderson, M., Goldman-Rakic, P. S., & Wexler, B. (2000). Verbal processing deficits in schizophrenia. *Journal of Abnormal Psychology*, *109*, 461-471.

Stip, E. (2000). Novel antipsychotics: issues and controversies. Typicality of atypical antipsychotics. *J.Psychiatry Neurosci.*, *25*, 137-153.

Sumich, A., Chitnis, X. A., Fannon, D. G., O'Ceallaigh, S., Doku, V. C., Faldrowicz, A. et al. (2005). Unreality symptoms and volumetric measures of Heschl's gyrus and planum temporal in first-episode psychosis. *Biol.Psychiatry*, *57*, 947-950.

Suzuki, M., Yuasa, S., Minabe, Y., Murata, M., & Kurachi, M. (1993). Left superior temporal blood flow increases in schizophrenic and schizophreniform patients with auditory hallucination: a longitudinal case study using 123I-IMP SPECT. *Eur.Arch.Psychiatry Clin.Neurosci.*, *242*, 257-261.

Tanriverdi, N., Sayilgan, M. A., & Ozcurumez, G. (2001). Musical hallucinations associated with abruptly developed bilateral loss of hearing. *Acta Psychiatr.Scand.*, *103*, 153-155.

Taylor, M. & Abrams, R. (1975). Acute mania: Clinical and genetic study of responders and nonresponders to treatments. *Archives of General Psychiatry*, *32*, 863-865.

Terao, T. (1995). Tricyclic-induced musical hallucinations and states of relative sensory deprivation. *Biol.Psychiatry*, *38*, 192-193.

Terao, T. & Tani, Y. (1998). Carbamazepine treatment in a case of musical hallucinations with temporal lobe abnormalities. *Aust.N.Z.J.Psychiatry*, *32*, 454-456.

Tervaniemi, M. & Hugdahl, K. (2003). Lateralization of auditory cortex functions. *Brain Res.Brain Res.Rev.*, *43*, 231-246.

Thewissen, V., Myin-Germeys, I., Bentall, R., de Graaf, R., Vollebergh, W., & van Os, J. (2009). Hearing impairment in psychosis revisited. *Schizophr.Res.*, *76*, 99-103.

Thiel, A., Schumacher, B., Wienhard, K., Gairing, S., Kracht, L. W., Wagner, R. et al. (2006). Direct demonstration of transcallosal disinhibition in language networks. *J.Cereb.Blood Flow Metab*, 26, 1122-1127.

Thirthalli, J., Bharadwaj, B., Kulkarni, S., Gangadhar, B. N., Kharawala, S., & Andrade, C. (2008). Successful use of maintenance rTMS for 8 months in a patient with antipsychotic-refractory auditory hallucinations. *Schizophr.Res.*, 100, 351-352.

Tien, A. Y. (1991). Distributions of hallucinations in the population. *Soc.Psychiatry Psychiatr.Epidemiol.*, 26, 287-292.

Titone, D., Levy, D. L., & Holzman, P. S. (2000). Contextual insensitivity in schizophrenic language processing: evidence from lexical ambiguity. *J.Abnorm.Psychol.*, 109, 761-767.

Trower, P., Birchwood, M., Meaden, A., Byrne, S., Nelson, A., & Ross, K. (2004). Cognitive therapy for command hallucinations: randomised controlled trial. *Br.J.Psychiatry*, 184, 312-320.

Tzourio-Mazoyer, N., Landeau, B., Papathanassiou, D., Crivello, F., Etard, O., Delcroix, N. et al. (2002). Automated anatomical labeling of activations in SPM using a macroscopic anatomical parcellation of the MNI MRI single-subject brain. *Neuroimage.*, 15, 273-289.

Valero-Cabre, A., Pascual-Leone, A., & Rushmore, R. J. (2008). Cumulative sessions of repetitive transcranial magnetic stimulation (rTMS) build up facilitation to subsequent TMS-mediated behavioural disruptions. *Eur.J.Neurosci.*, 27, 765-774.

Valmaggia, L. R., van der Gaag, M., Tarrier, N., Pijnenborg, M., & Slooff, C. J. (2005). Cognitive-behavioural therapy for refractory psychotic symptoms of schizophrenia resistant to atypical antipsychotic medication. Randomised controlled trial. *Br.J.Psychiatry*, 186, 324-330.

Van de Ven, V., Formisano, E., Roder, C. H., Prvulovic, D., Bittner, R. A., Dietz, M. G. et al. (2005). The spatiotemporal pattern of auditory cortical responses during verbal hallucinations. *Neuroimage.*, 27, 644-655.

Van Lancker, D. (1997). Rags to riches: Our increasing appreciation of cognitive and communicative abilities of the human right hemisphere. *Brain and Language*, 57, 1-11.

Van Lancker, D. & Cummings, J. L. (1999). Expletives: neurolinguistic and neurobehavioral perspectives on swearing. *Brain Res.Brain Res.Rev.*, 31, 83-104.

Van Os, J., Hanssen, M., Bijl, R. V., & Ravelli, A. (2000). Strauss (1969) revisited: a psychosis continuum in the general population? *Schizophr.Res.*, 45, 11-20.

Verdoux, H., van, O. J., Maurice-Tison, S., Gay, B., Salamon, R., & Bourgeois, M. (1998). Is early adulthood a critical developmental stage for psychosis proneness? A survey of delusional ideation in normal subjects. *Schizophr.Res.*, 29, 247-254.

Voets, N. L., Adcock, J. E., Flitney, D. E., Behrens, T. E., Hart, Y., Stacey, R. et al. (2006). Distinct right frontal lobe activation in language processing following left hemisphere injury. *Brain*, 129, 754-766.

Warren, R. M. (1961). Illusory changes of distinct speech upon repetition--the verbal transformation effect. *Br.J.Psychol.*, 52, 249-258.

Waters, F. A., Badcock, J. C., Michie, P. T., & Maybery, M. T. (2006). Auditory hallucinations in schizophrenia: intrusive thoughts and forgotten memories. *Cognit.Neuropsychiatry*, 11, 65-83.

Watkins, J. (1998). *Hearing voices: A common human experience*. Melbourne: Hill of Content.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and Validation of Brief Measures of Positive and Negative Affect - the Panas Scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.

Weiss, E. M., Hofer, A., Golaszewski, S., Siedentopf, C., Felber, S., & Fleischhacker, W. W. (2006). Language lateralization in unmedicated patients during an acute episode of schizophrenia: a functional MRI study. *Psychiatry Res.*, 146, 185-190.

Wible, C. G., Shenton, M. E., Hokama, H., Kikinis, R., Jolesz, F. A., Metcalf, D. et al. (1995). Prefrontal cortex and schizophrenia. A quantitative magnetic resonance imaging study. *Arch.Gen.Psychiatry*, 52, 279-288.

Woodruff, P. W., Wright, I. C., Bullmore, E. T., Brammer, M., Howard, R. J., Williams, S. C. et al. (1997). Auditory hallucinations and the temporal cortical response to speech in schizophrenia: a functional magnetic resonance imaging study. *Am.J.Psychiatry*, 154, 1676-1682.

Wykes, T. (2004). Psychological treatment for voices in psychosis. *Cogn Neuropsychiatry*, 9, 25-41.

Wykes, T., Hayward, P., Thomas, N., Green, N., Surguladze, S., Fannon, D. et al. (2005). What are the effects of group cognitive behaviour therapy for voices? A randomised control trial. *Schizophr.Res.*, 77, 201-210.

Yee, L., Korner, A. J., McSwiggan, S., Meares, R. A., & Stevenson, J. (2005). Persistent hallucinosis in borderline personality disorder. *Comprehensive Psychiatry*, 46, 147-154.

Yoshizumi, T., Murase, S., Honjo, S., Kaneko, H., and Murakami, T. (2004). Hallucinatory experiences in a community sample of Japanese children. *Journal of the American Academy of Child and Adolescent Psychiatry*, 43, 1030-1036.

Zhang, Z. J., Shi, J. B., Yuan, Y. G., Hao, G. F., Yao, Z. J., & Chen, N. (2008). Relationship of auditory verbal hallucinations with cerebral asymmetry in patients with schizophrenia: An event-related fMRI study. *Journal of Psychiatric Research*, 42, 477-486.

Zhou, Y., Liang, M., Tian, L., Wang, K., Hao, Y., Liu, H. et al. (2007). Functional disintegration in paranoid schizophrenia using resting-state fMRI. *Schizophr.Res.*, 97, 194-205.

Zhou, Y., Shu, N., Liu, Y., Song, M., Hao, Y., Liu, H. et al. (2008). Altered resting-state functional connectivity and anatomical connectivity of hippocampus in schizophrenia. *Schizophr.Res.*, 100, 120-132.

Ziemann, U., Steinhoff, B. J., Tergau, F., & Paulus, W. (1998). Transcranial magnetic stimulation: its current role in epilepsy research. *Epilepsy Res.*, 30, 11-30.